VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

May 1, 2006

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555-0001

Serial No. 06-358
SS&L/TJN
Docket Nos. 50-280
50-281
72-2
License Nos. DPR-32
DPR-37
SNM-2501

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY
SURRY POWER STATION UNITS 1 AND 2
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

Surry Units 1 and 2 Technical Specification 6.6.B.2 requires the submittal of an Annual Radiological Environmental Operating Report (AREOR) for Surry Power Station. Surry Independent Spent Fuel Storage Installation (ISFSI) Technical Specification Appendix C.1.3.1 requires that the Surry ISFSI be included in the environmental monitoring for the Surry Power Station. Accordingly, enclosed is the Surry Power Station AREOR for the period of January 1, 2005 through December 31, 2005 which includes environmental monitoring for the Surry ISFSI.

If you have any questions or require additional information, please contact Paul Harris at 757-365-2692.

Very truly yours,

Donald E. Jernigan
Site Vice President
Surry Power Station

Attachment

Commitments made in this letter: None

IE25

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Serial No. 06-358
Docket Nos.: 50-280
50-281
72-2

ATTACHMENT

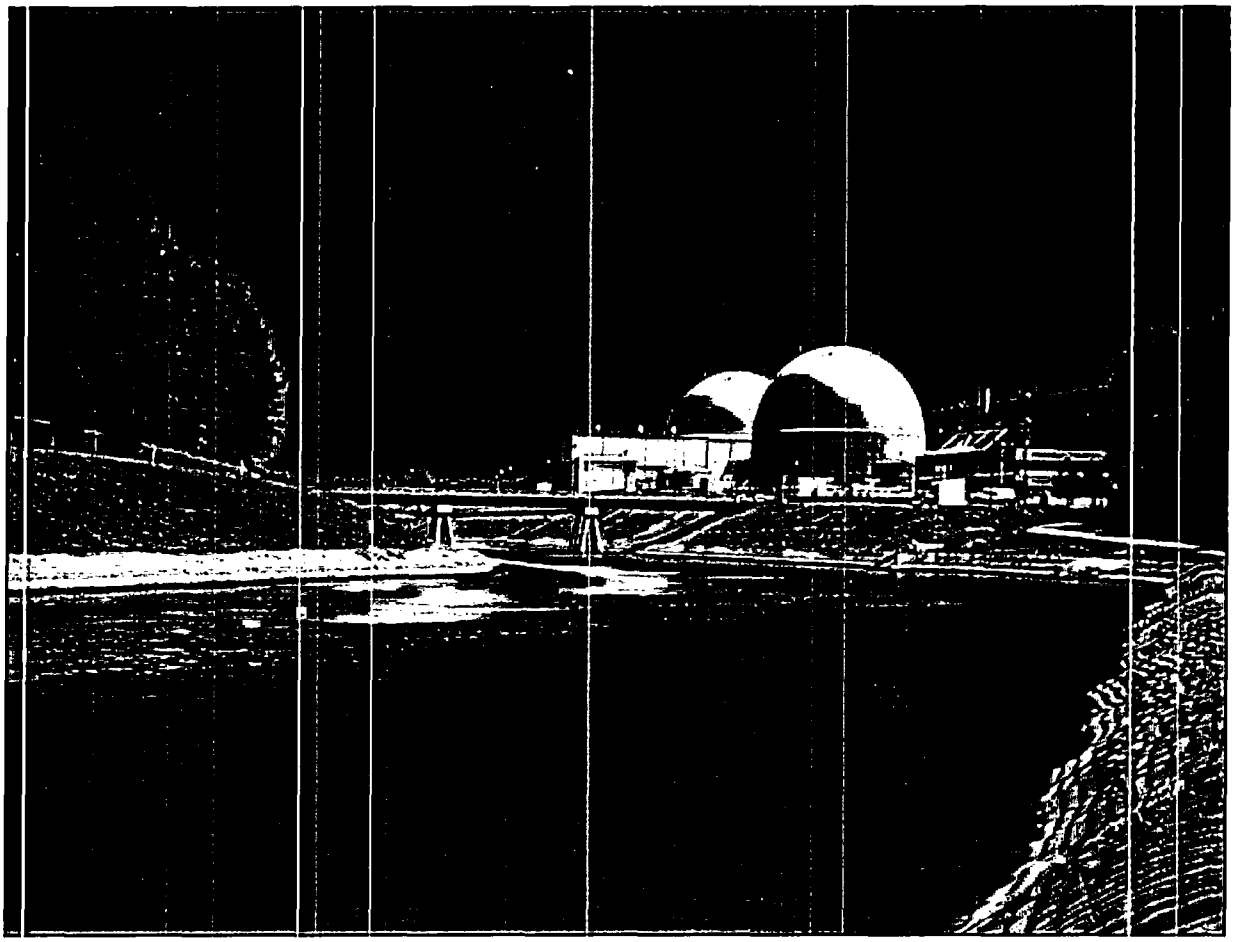
2005 ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT

SURRY POWER STATION UNITS 1 AND 2
LICENSE NOS. DPR-32 AND DPR-37

INDEPENDENT SPENT FUEL STORAGE INSTALLATION
LICENSE NO. SNM-2501

VIRGINIA ELECTRIC AND POWER COMPANY

Surry Power Station



2005 Annual Radiological Environmental Operating Report

Dominion®

Dominion

Surry Power Station

Radiological Environmental Monitoring Program

January 1, 2005 to December 31, 2005

Annual Radiological Environmental Operating Report

Surry Power Station

January 1, 2005 to December 31, 2005

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PREFACE

This report is submitted as required by Technical Specification 6.6.B.2, Annual Radiological Environmental Operating Report, for Surry, Units 1 and 2, Virginia Electric and Power Company Docket Nos. 50-280 and 50-281.

1. EXECUTIVE SUMMARY

This document is a detailed report of the 2005 Surry Power Station Radiological Environmental Monitoring Program (REMP). Radioactivity levels from January 1 through December 31, 2005, in air, water, silt, shoreline sediment, milk, aquatic biota, food products 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 are monitored within a 20-mile radius of the station. Surry 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, are collected from areas that are beyond the measurable influence of Surry 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 Surry 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.

The AREVA NP Environmental Laboratory provides radioanalyses for this program and Global Dosimetry Solutions Incorporated provides thermoluminescent dosimetry (TLD) 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 United States Nuclear Regulatory Commission (USNRC) 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 USNRC 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, aquatic, terrestrial and direct radiation exposure. The airborne exposure pathway includes radioactive airborne iodine and particulates. The 2005 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. Aquatic exposure pathway samples include well and river water, silt and shoreline sediments, crabs, fish, clams and oysters. Naturally occurring potassium-40 was detected at average environmental levels. No man-made radioisotopes were detected in well water. This trend is consistent throughout the operational environmental monitoring program. Silt samples indicated the presence of cesium-137. The cesium-137 activity was present in the control and indicator locations and is attributable to global fallout from past nuclear weapons testing and nuclear accidents such as Chernobyl. Cobalt-60, which has been detected in silt in the past, has not been detected since 2003. Shoreline sediment, which may provide a direct exposure pathway, contained no station related radioisotopes. Naturally occurring potassium-40 and thorium-228 were detected at average environmental levels. The terrestrial exposure pathway includes milk and food products. Iodine-131 was not detected in any 2005 milk samples and has not been detected in milk prior to or since the 1986 Chernobyl accident. Strontium-90 was again detected in milk and this activity is attributable to past atmospheric nuclear weapons testing. No man-made radioisotopes were detected in food product samples. Consistent with historical data, naturally occurring potassium-40 was detected in milk and food products. The direct exposure pathway measures environmental radiation doses by use of thermoluminescent dosimeters (TLDs). TLD results have remained relatively constant over the years.

During 2005, as in previous years, the operation of Surry Power Station has 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 2005 was 0.002 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 controls at Surry Power Station.

2. PROGRAM DESCRIPTION

2.1 Introduction

This report documents the 2005 Surry Power Station operational Radiological Environmental Monitoring Program (REMP). The Dominion Surry Power Station is located on the Gravel Neck peninsula adjacent to the James River, approximately 25 miles upstream of the Chesapeake Bay. 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 is designed with a gross electrical output of 855 megawatts electric (MWe). Unit 1 achieved commercial operation on December 22, 1972, and Unit 2 on May 1, 1973.

The United States Nuclear Regulatory Commission (USNRC) regulations (10CFR50.34a) 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 Surry Power Station includes Technical Specifications that address the release of radioactive effluents. In-plant monitoring is used to ensure that these 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 station environs is also included in Surry Power Station Technical Specifications.

Dominion personnel are responsible for collecting the various indicator and control environmental samples. Global Dosimetry Solutions Incorporated is responsible for processing the TLDs. The AREVA NP Environmental Laboratory 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.

Occasionally, samples of environmental media may show the presence of man-made radioisotopes. 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, "Environmental Technical Specifications for Nuclear Power Plants", (December, 1975) and VPAP-2103S, Offsite Dose Calculation Manual (Surry). 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 REMP for 2005 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 2005 sampling program for Surry Power Station. All samples listed in Table 2-1 are taken at indicator locations except those labeled "control." The Surry Radiological Monitoring Locations maps (Figures 1 – 5) denote sample locations for Surry Power Station. The locations are color coded to designate sample types. Table 2-2 summarizes the analysis program conducted by AREVA NP Environmental Laboratory and Global Dosimetry Solutions for Surry Power Station during the year 2005.

On June 30, 1998, the Commonwealth of Virginia, Department of Health, discontinued its comparative analysis (state split) program with Surry Power Station. Although the routine splitting of samples with the Commonwealth of Virginia has been discontinued, samples will be split at the request of the state. Dominion personnel collect all samples listed in Table 2-1. All samples, with the exception of the TLDs, are shipped to AREVA NP Environmental Laboratory, located in Westborough, MA, for analysis. The TLDs are shipped to Global Dosimetry Solutions, located in Costa Mesa, CA, for processing.

Table 2-1

SURRY - 2005

RADIOLOGICAL SAMPLING STATION

DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
Environmental	Control	(00)	-	-	-	Quarterly	Onsite (Stored in lead container outside protected area)
TLDs	West North West	(02)	0.2 mi	WNW	293°	Quarterly	Site Boundary
	Surry Station Discharge	(03)	0.4 mi	NW	321°	Quarterly	Site Boundary
	North North West	(04)	0.2 mi	NNW	329°	Quarterly	Site Boundary
	North	(05)	0.3 mi	N	4°	Quarterly	Site Boundary
	North North East	(06)	0.3 mi	NNE	28°	Quarterly	Site Boundary
	North East	(07)	0.3 mi	NE	44°	Quarterly	Site Boundary
	East North East	(08)	0.4 mi	ENE	67°	Quarterly	Site Boundary
	East	(09)	0.3 mi	E	89°	Quarterly	Site Boundary/Exclusion
	West	(10)	0.1 mi	W	271°	Quarterly	Site Boundary
	West South West	(11)	0.4 mi	WSW	252°	Quarterly	Site Boundary
	South West	(12)	0.3 mi	SW	228°	Quarterly	Site Boundary
	South South West	(13)	0.3 mi	SSW	201°	Quarterly	Site Boundary
	South	(14)	0.4 mi	S	182°	Quarterly	Site Boundary
	South South East	(15)	0.6 mi	SSE	157°	Quarterly	Site Boundary
	South East	(16)	0.9 mi	SE	135°	Quarterly	Site Boundary
	Station Intake	(18)	1.6 mi	ESE	115°	Quarterly	Site Boundary
	Hog Island Reserve	(19)	2.0 mi	NNE	26°	Quarterly	Near Resident
	Bacon's Castle	(20)	4.5 mi	SSW	202°	Quarterly	Apx. 5 mile
	Route 633	(21)	4.9 mi	SW	227°	Quarterly	Apx. 5 mile
	Alliance	(22)	5.1 mi	WSW	247°	Quarterly	Apx. 5 mile
	Surry	(23)	7.7 mi	WSW	256°	Quarterly	Population Center
	Route 636 and 637	(24)	4.0 mi	W	270°	Quarterly	Apx. 5 mile
	Scotland Wharf	(25)	5.0 mi	WNW	284°	Quarterly	Apx. 5 mile
	Jamestown	(26)	6.3 mi	NW	308°	Quarterly	Apx. 5 mile
	Colonial Parkway	(27)	3.8 mi	NNW	333°	Quarterly	Apx. 5 mile
	Route 617 and 618	(28)	4.9 mi	NNW	340°	Quarterly	Apx. 5 mile
	Kingsmill	(29)	4.6 mi	N	2°	Quarterly	Apx. 5 mile
	Williamsburg	(30)	7.8 mi	N	0°	Quarterly	Population Center
	Kingsmill North	(31)	5.5 mi	NNE	12°	Quarterly	Apx. 5 mile
	Budweiser	(32)	5.8 mi	NNE	27°	Quarterly	Population Center
	Water Plant	(33)	5.0 mi	NE	46°	Quarterly	Apx. 5 mile

Table 2-1

SURRY - 2005
RADIOLOGICAL SAMPLING STATION
DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
	BASF	(34)	5.1 mi	ENE	70°	Quarterly	Apx. 5 mile
	Lee Hall	(35)	7.1 mi	ENE	75°	Quarterly	Population Center
	Goose Island	(36)	5.1 mi	E	90°	Quarterly	Apx. 5 mile
	Fort Eustis	(37)	4.9 mi	ESE	104°	Quarterly	Apx. 5 mile
	Newport News	(38)	19.3 mi	SE	130°	Quarterly	Population Center
	James River Bridge	(39)	17.1 mi	SE	142°	Quarterly	Control Location
	Benn's Church	(40)	17.0 mi	SSE	159°	Quarterly	Control Location
	Smithfield	(41)	13.4 mi	SSE	167°	Quarterly	Control Location
	Rushmere	(42)	5.3 mi	SSE	156°	Quarterly	Apx. 5 mile
	Route 628	(43)	5.1 mi	S	177°	Quarterly	Apx. 5 mile
Air Charcoal	Surry Station	(SS)	0.3 mi	NNE	18°	Weekly	Site Boundary (Highest D/Q)
and Particulate	Hog Island Reserve	(HIR)	2.0 mi	NNE	26°	Weekly	
	Bacon's Castle	(BC)	4.5 mi	SSW	202°	Weekly	
	Alliance	(ALL)	5.1 mi	WSW	247°	Weekly	
	Colonial Parkway	(CP)	3.8 mi	NNW	333°	Weekly	
	BASF	(BASF)	5.1 mi	ENE	70°	Weekly	
	Fort Eustis	(FE)	4.9 mi	ESE	104°	Weekly	
	Newport News	(NN)	19.3 mi	SE	130°	Weekly	Control Location
River Water	Surry Station Discharge	(SD)	0.4 mi	NW	323°	Monthly	
	Scotland Wharf	(SW)	4.9 mi	WNW	284°	Monthly	Control Location
Well Water	Surry Station	(SS)	0.1 mi	SW	227°	Quarterly	Onsite
	Hog Island Reserve	(HIR)	2.0 mi	NNE	28°	Quarterly	
Shoreline	Hog Island Reserve	(HIR)	0.6 mi	N	7°	Semi-Annually	
Sediment	Chickahominy River	(CHIC)	11.2 mi	WNW	301°	Semi-Annually	Control Location
Silt	Chickahominy River	(CHIC)	11.2 mi	WNW	300°	Semi-Annually	Control Location
	Surry Station Discharge	(SD)	1.3 mi	NNW	341°	Semi-Annually	

Table 2-1

SURRY - 2005
RADIOLOGICAL SAMPLING STATION
DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
Milk	Colonial Parkway	(CP)	3.7 mi	NNW	336°	Monthly	
	Williams	(WMS)	27.5 mi	S	175°	Monthly	Control Location
	Epp's	(EPPS)	4.8 mi	SSW	200°	Monthly	
Oysters	Point of Shoals	(POS)	6.4 mi	SSE	157°	Semi-Annually	
	Mulberry Point	(MP)	4.9 mi	ESE	124°	Semi-Annually	
Clams	Chickahominy River	(CHIC)	11.2 mi	WNW	300°	Semi-Annually	Control Location
	Surry Station Discharge	(SD)	1.3 mi	NNW	341°	Semi-Annually	
	Hog Island Point	(HIP)	2.4 mi	NE	52°	Semi-Annually	
	Lawne's Creek	(LC)	2.4 mi	SE	131°	Semi-Annually	
Fish	Surry Station Discharge	(SD)	1.3 mi	NNW	341°	Semi-Annually	
Crabs	Surry Station Discharge	(SD)	1.3 mi	NNW	341°	Annually	
Food Products (Corn, Peanuts, Soybeans)	Brock's Farm	(BROCK)	3.8 mi	S	183°	Annually	
	Slade's Farm	(SLADE)	3.2 mi	S	179°	Annually	

Table 2-2

(Page 1 of 3)
SURRY - 2005
SAMPLE ANALYSIS PROGRAM

SAMPLE MEDIA	FREQUENCY	ANALYSIS	LLD*	REPORT UNITS
Thermoluminescent Dosimetry (TLD)	Quarterly	Gamma Dose	2	mR/Std. Month
Air Iodine	Weekly	I-131	0.07	pCi/m^3
Air Particulate	Weekly	Gross Beta	0.01	pCi/m^3
	Quarterly (a)	Gamma Isotopic		pCi/m^3
		Cs-134	0.05	
		Cs-137	0.06	
River Water	Quarterly Composite of monthly sample	Tritium (H-3)	2000	pCi/L
	Monthly	I-131	10	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	
Well Water	Quarterly	Tritium (H-3)	2000	pCi/L
		I-131	1	
		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	

Footnotes located at end of table.

Table 2-2(Cont.)

(Page 2 of 3)
SURRY - 2005
SAMPLE ANALYSIS PROGRAM

SAMPLE MEDIA	FREQUENCY	ANALYSIS	LLD*	REPORT UNITS
Shoreline Sediment	Semi-Annual	Gamma Isotopic		pCi/kg - dry
		Cs-134	150	
		Cs-137	180	
Silt	Semi-Annual	Gamma Isotopic		pCi/kg - dry
		Cs-134	150	
		Cs-137	180	
Milk	Monthly	I-131	1	pCi/L
		Gamma Isotopic		pCi/L
		Cs-134	15	
		Cs-137	18	
		Ba-140	60	
		La-140	15	
Oysters	Semi-Annual	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	
Clams	Semi-Annual	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	
Crabs	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	

Footnotes located at end of table.

Table 2-2 (Cont.)
SURRY - 2005
SAMPLE ANALYSIS PROGRAM

SAMPLE MEDIA	FREQUENCY	ANALYSIS	LLD*	REPORT UNITS
Fish	Semi-Annual	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	Annually	Gamma Isotopic		pCi/kg - wet
		I-131	60	
		Cs-134	60	
		Cs-137	80	

Note: This table is not a complete listing of nuclides that can be detected and reported. Other peaks that are measurable and identifiable, together with the above nuclides, are also identified and reported.

* LLD is the Lower Limit of Detection as defined and required in the USNRC Branch Technical Position on an Acceptable Radiological Environmental Monitoring Program, Revision 1, November 1979. LLDs indicate those concentrations to which environmental samples are required to be analyzed. Actual analysis of samples may be lower than these listed values.

(a) Quarterly composites of each location's weekly air particulate samples are analyzed for gamma emitters.

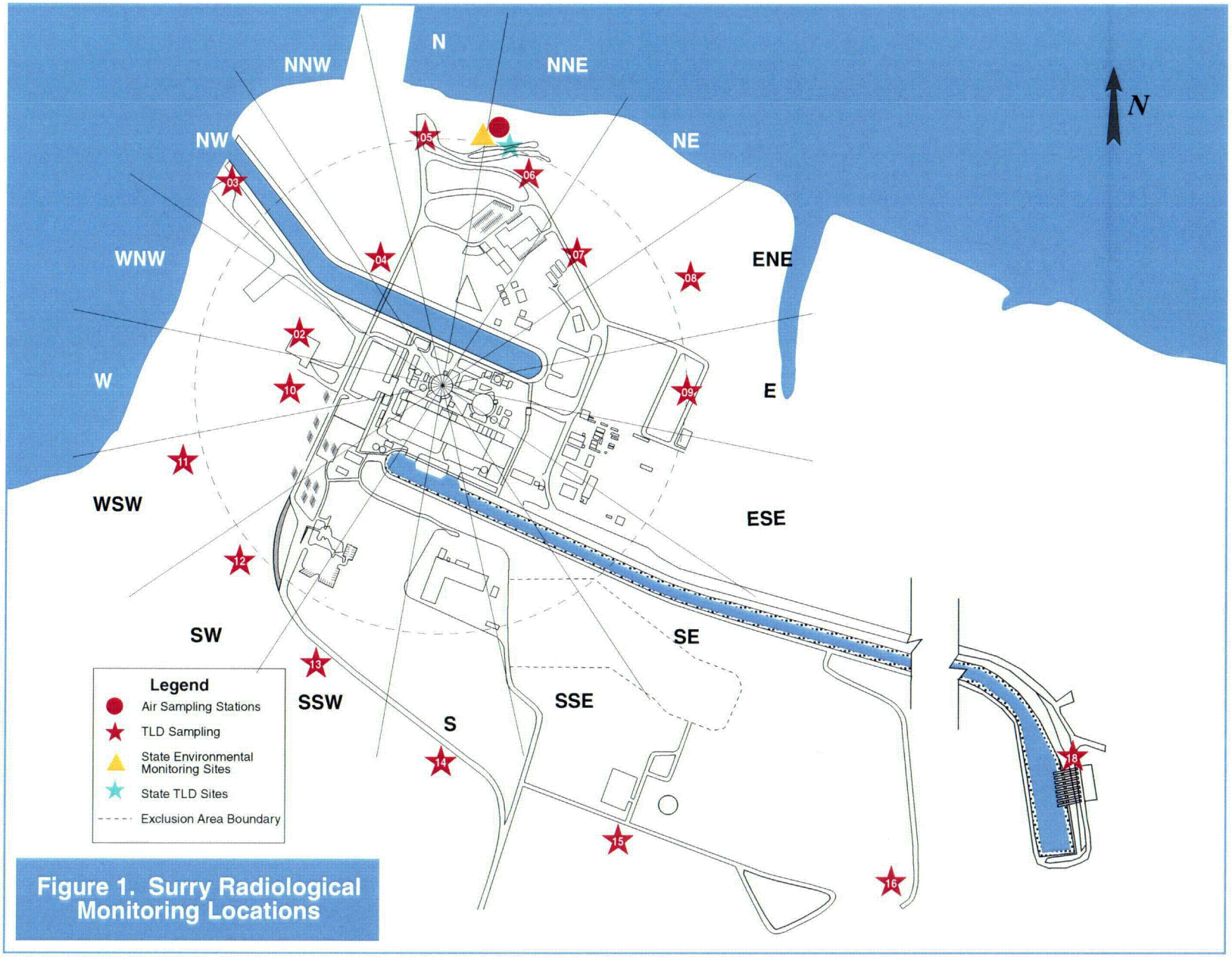

Figure 1. Surry Radiological Monitoring Locations

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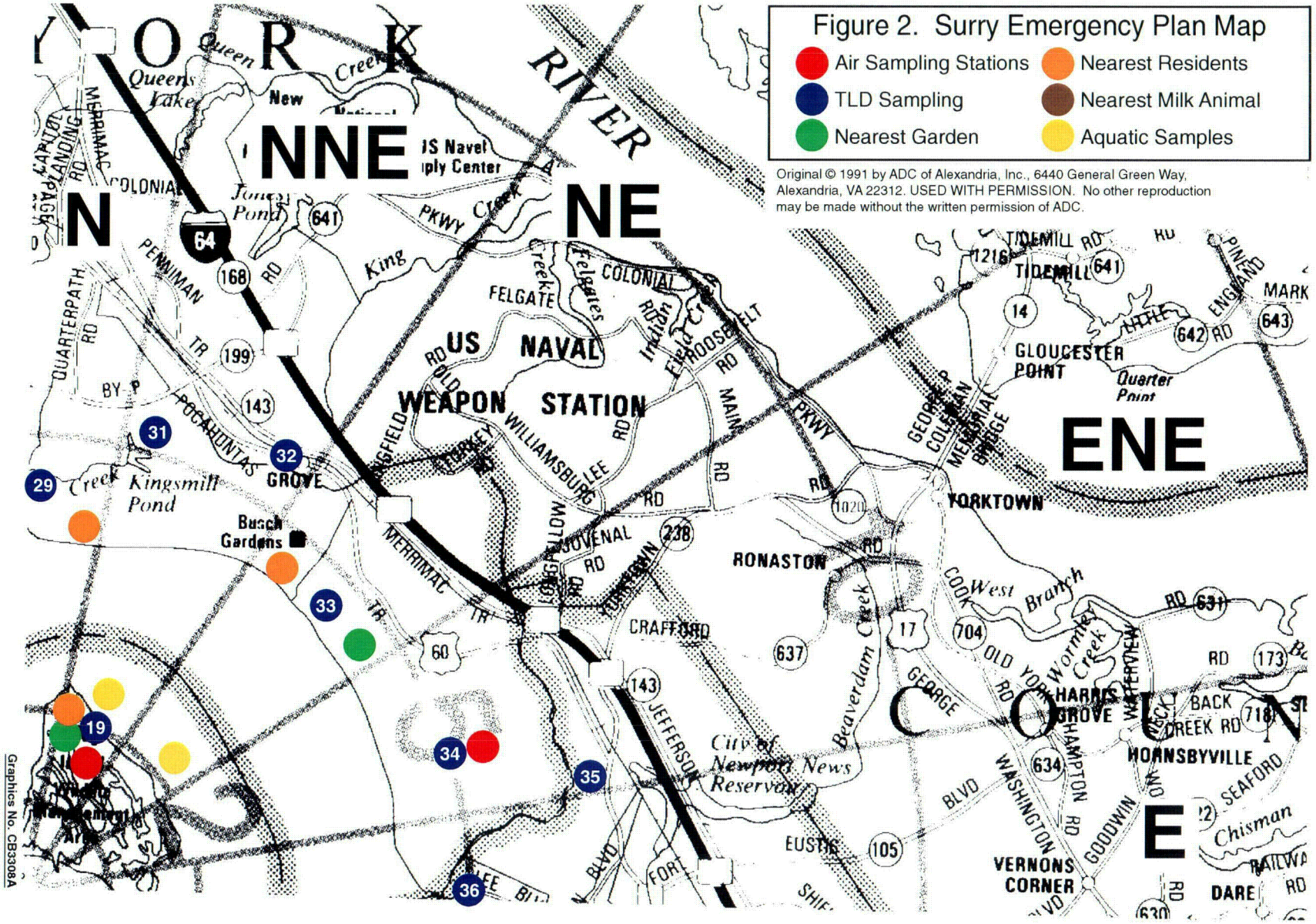
Figure 2. Surry Emergency Plan Map
Air Sampling Stations
Nearest Residents
TLD Sampling
Nearest Milk Animal
Nearest Garden
Aquatic Samples
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NNE
NE
ENE
N
US NAVAL WEAPON STATION
YORKTOWN
GLOUCESTER POINT
RONASTON
CRAFTORD
HORNSBYVILLE
VERNONS CORNER
Queens Lake
Queen Creek
New
Jones Pond
King
Felgates Creek
FELGATE
Indian Field Creek
Kingsmill Pond
Busch Gardens
Beaverdam Creek
City of Newport News Reservoir
West Branch
Wormley Creek
Chisman
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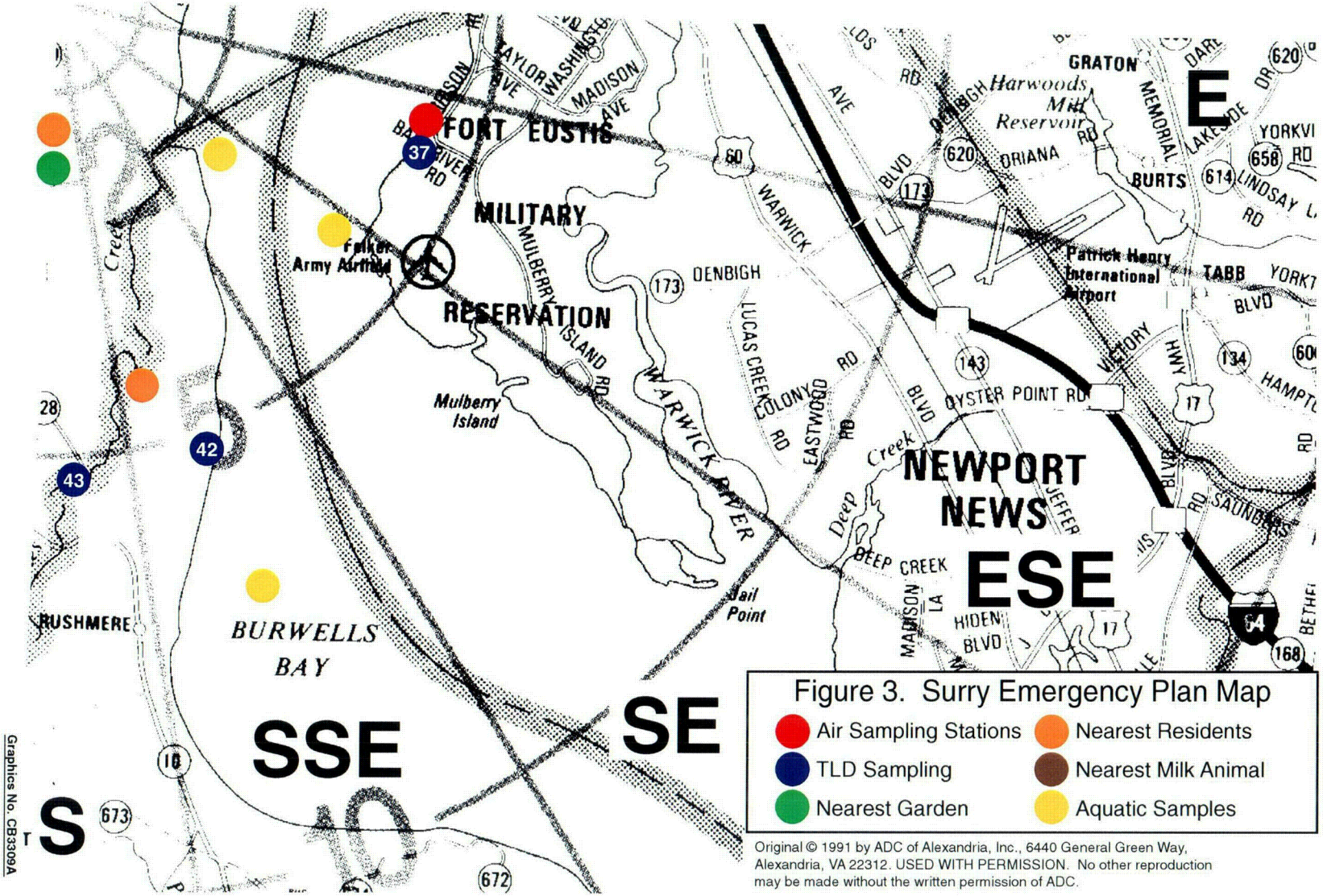

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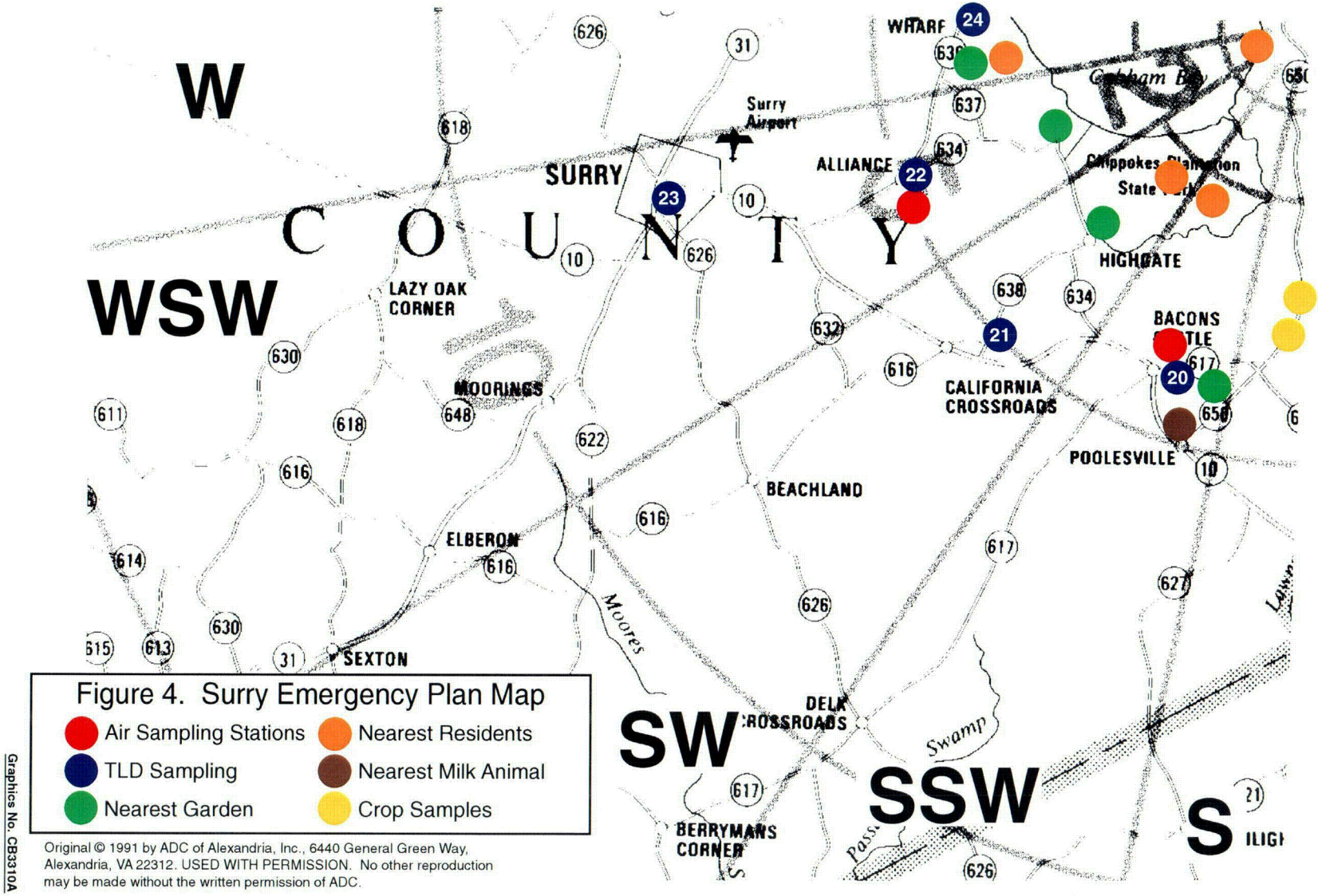

Figure 4. Surry Emergency Plan Map

- Air Sampling Stations
- TLD Sampling
- Nearest Garden
- Nearest Residents
- Nearest Milk Animal
- Crop Samples

C04

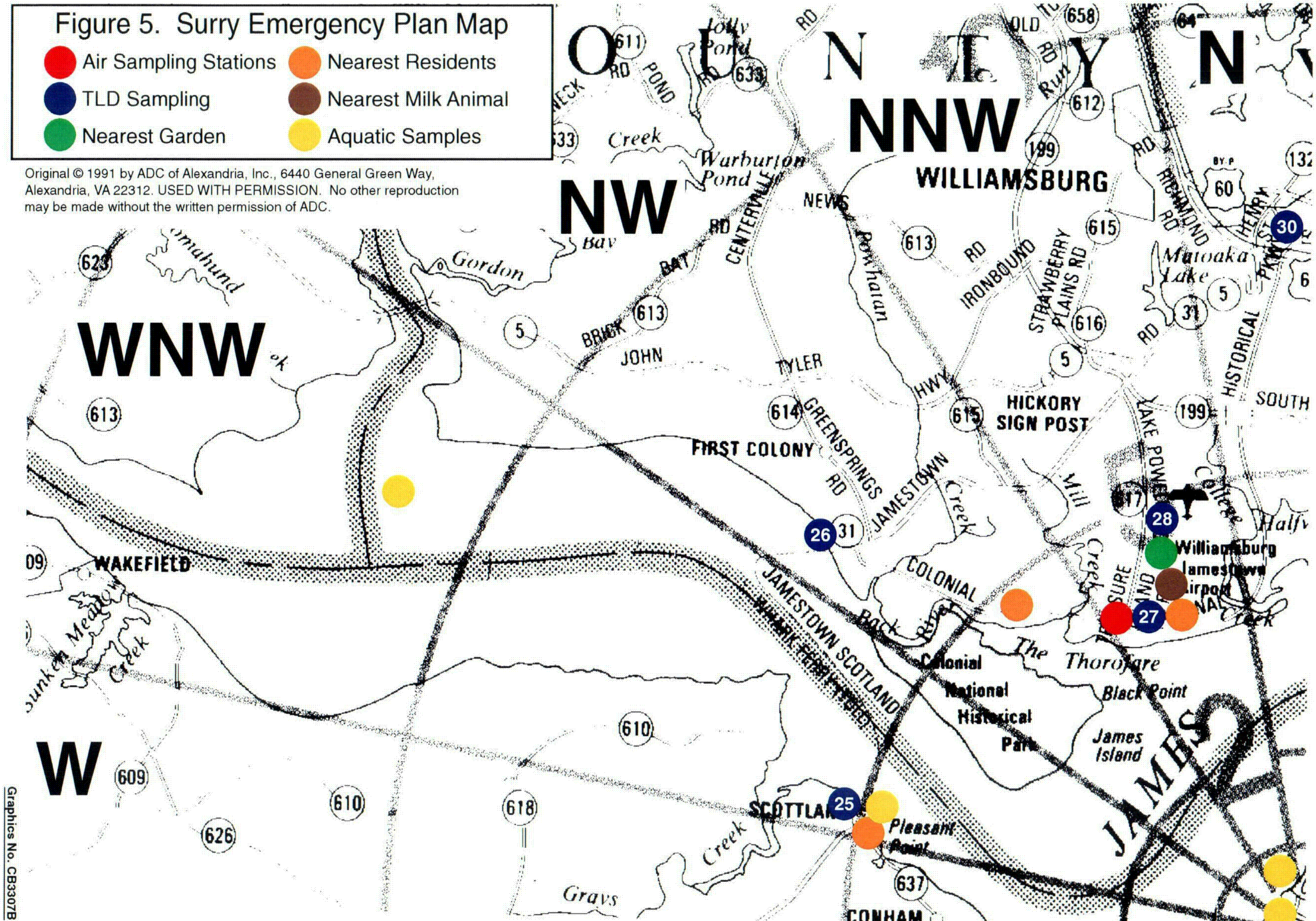

Figure 5. Surry Emergency Plan Map

Graphics No. CB3307B

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3. ANALYTICAL RESULTS

3.1 Summary of Results

In accordance with the Surry 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", Revision 1, November 1979. A more detailed analysis of the data is given in Section 4.

TABLE 3-1: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

Surry Power Station, Surry County, Virginia - 2005
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Medium or Pathway Sampled (Units)	Analysis Type	Analysis Total No.	LLD*	Indicator Locations Mean Range	Location with Highest Mean Name	Location with Highest Mean Distance Direction	Location with Highest Mean Mean Range	Control Locations Mean Range	Non-Routine Reported Measurements
Air Iodine *(1E-3 pCi/m3)*	**I-131**	416	70	< LLD	N/A		< LLD	< LLD	0
Air Particulate *(1E-3 pCi/m3)*	**Gross Beta**	416	10	**19.8 (363/364) (6.9 - 40.9)**	**BASF**	**5.1 mi ENE**	**21.0 (52/52) (8.3 - 39.5)**	**20.8 (51/52) (8.6 - 36.9)**	0
	Gamma	32							
	Be-7	32		**118 (28/28) (87 - 150)**	**FE**	**4.9 mi ESE**	**132 (4/4) (110 - 150)**	**116 (4/4) (107 - 124)**	0
	Cs-134	32	50	< LLD	N/A		< LLD	< LLD	0
	Cs-137	32	60	< LLD	N/A		< LLD	< LLD	0
River Water *(pCi/Liter)*	**H-3**	8	2000	< LLD	N/A		< LLD	< LLD	0
	Gamma	24							
	K-40	24		**99.2 (5/12) (79 - 126)**	**SD**	**0.4 mi NW**	**99.2 (5/12) (79 - 126)**	**86 (1/12) (86 - 86)**	0
	Mn-54	24	15	< LLD	N/A		< LLD	< LLD	0
	Co-58	24	15	< LLD	N/A		< LLD	< LLD	0
	Fe-59	24	30	< LLD	N/A		< LLD	< LLD	0
	Co-60	24	15	< LLD	N/A		< LLD	< LLD	0
	Zn-65	24	30	< LLD	N/A		< LLD	< LLD	0
	Nb-95	24	15	< LLD	N/A		< LLD	< LLD	0
	Zr-95	24	30	< LLD	N/A		< LLD	< LLD	0
	I-131	24	10	< LLD	N/A		< LLD	< LLD	0

* LLD is the Lower Limit of Detection as defined and required in the USNRC Branch Technical Position on an Acceptable Radiological Environmental Monitoring Program, Revision 1, November 1979.

TABLE 3-1: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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Medium or Pathway Sampled (Units)	Analysis Type	Analysis Total No.	LLD*	Indicator Locations Mean Range	Location with Highest Mean Name	Location with Highest Mean Distance Direction	Location with Highest Mean Mean Range	Control Locations Mean Range	Non-Routine Reported Measurements
River Water *(pCi/Liter)*	Cs-134	24	15	< LLD	N/A		< LLD	< LLD	0
	Cs-137	24	18	< LLD	N/A		< LLD	< LLD	0
	Ba-140	24	60	< LLD	N/A		< LLD	< LLD	0
	La-140	24	15	< LLD	N/A		< LLD	< LLD	0
Well Water *(pCi/Liter)*	**H-3**	8	2000	< LLD	N/A		< LLD	N/A	0
	Gamma	8							
	Mn-54	8	15	< LLD	N/A		< LLD	N/A	0
	Co-58	8	15	< LLD	N/A		< LLD	N/A	0
	Fe-59	8	30	< LLD	N/A		< LLD	N/A	0
	Co-60	8	15	< LLD	N/A		< LLD	N/A	0
	Zn-65	8	30	< LLD	N/A		< LLD	N/A	0
	Nb-95	8	15	< LLD	N/A		< LLD	N/A	0
	Zr-95	8	30	< LLD	N/A		< LLD	N/A	0
	I-131	8	1	< LLD	N/A		< LLD	N/A	0
	Cs-134	8	15	< LLD	N/A		< LLD	N/A	0
	Cs-137	8	18	< LLD	N/A		< LLD	N/A	0
	Ba-140	8	60	< LLD	N/A		< LLD	N/A	0

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TABLE 3-1: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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Medium or Pathway Sampled (Units)	Analysis Type	Analysis Total No.	LLD*	Indicator Locations Mean Range	Location with Highest Mean Name	Location with Highest Mean Distance Direction	Location with Highest Mean Mean Range	Control Locations Mean Range	Non-Routine Reported Measurements
Well Water *(pCi/Liter)*	La-140	8	15	< LLD	N/A		< LLD	N/A	0
Silt *(pCi/kg dry)*	**Gamma**	4							
	Be-7	4		**790 (1/2) (790 - 790)**	**SD**	**1.3 mi NNW**	**790 (1/2) (790 - 790)**	**< LLD**	0
	K-40	4		**16850 (2/2) (16800-16900)**	**SD**	**1.3 mi NNW**	**16850 (2/2) (16800-16900)**	**16135 (2/2) (15070-17200)**	0
	Cs-134	4	150	< LLD	N/A		< LLD	< LLD	0
	Cs-137	4	180	**229 (2/2) (223 - 235)**	**SD**	**1.3 mi NNW**	**229 (2/2) (223 - 235)**	**215 (2/2) (179 - 250)**	0
	Th-228	4		**1090 (2/2) (1030 - 1150)**	**CHIC**	**11.2 mi WNW**	**1200 (2/2) (1160 - 1240)**	**1200 (2/2) (1160 - 1240)**	0
Shoreline Sediment *(pCi/kg dry)*	**Gamma**	4							
	K-40	4		**4300 (2/2) (3840 - 4760)**	**HIR**	**0.6 mi N**	**4300 (2/2) (3840 - 4760)**	**1230 (2/2) (610 - 1850)**	0
	Cs-134	4	150	< LLD	N/A		< LLD	< LLD	0
	Cs-137	4	180	< LLD	N/A		< LLD	< LLD	0
	Th-228	4		**511 (1/2) (511 - 511)**	**CHIC**	**11.2 mi WNW**	**904 (1/2) (904 - 904)**	**904 (1/2) (904 - 904)**	0
Milk *(pCi/Liter)*	**Strontium**	4							
	Sr-89	4		< LLD	N/A		< LLD	N/A	0
	Sr-90	4		**1.8 (1/4) (1.8 - 1.8)**	**CP**	**3.7 mi NNW**	**1.8 (1/4) (1.8 - 1.8)**	**N/A**	0
	Gamma	36							
	K-40	36		**1389 (24/24) (1240 - 1560)**	**EPPS**	**4.8 mi SSW**	**1391 (12/12) (1270 - 1560)**	**1341 (12/12) (1170 - 1520)**	0

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TABLE 3-1: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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Medium or Pathway Sampled (Units)	Analysis Type	Analysis Total No.	LLD*	Indicator Locations Mean Range	Location with Highest Mean Name	Location with Highest Mean Distance Direction	Location with Highest Mean Mean Range	Control Locations Mean Range	Non-Routine Reported Measurements
Milk *(pCi/Liter)*	I-131	36	1	< LLD	N/A		< LLD	< LLD	0
	Cs-134	36	15	< LLD	N/A		< LLD	< LLD	0
	Cs-137	36	18	< LLD	N/A		< LLD	< LLD	0
	Ba-140	36	60	< LLD	N/A		< LLD	< LLD	0
	La-140	36	15	< LLD	N/A		< LLD	< LLD	0
Clams *(pCi/kg wet)*	**Gamma**	8							
	K-40	8		**323 (6/6) (229 - 460)**	**LC**	**2.4 mi SE**	**360 (2/2) (340 - 380)**	**208 (2/2) (180 - 236)**	0
	Mn-54	8	130	< LLD	N/A		< LLD	< LLD	0
	Co-58	8	130	< LLD	N/A		< LLD	< LLD	0
	Fe-59	8	260	< LLD	N/A		< LLD	< LLD	0
	Co-60	8	130	< LLD	N/A		< LLD	< LLD	0
	Zn-65	8	260	< LLD	N/A		< LLD	< LLD	0
	Cs-134	8	130	< LLD	N/A		< LLD	< LLD	0
	Cs-137	8	150	< LLD	N/A		< LLD	< LLD	0
Oysters *(pCi/kg wet)*	**Gamma**	4							
	K-40	4		**401 (4/4) (240 - 532)**	**POS**	**6.4 mi SSE**	**436 (2/2) (340 - 532)**	**N/A**	0
	Mn-54	4	130	< LLD	N/A		< LLD	N/A	0

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TABLE 3-1: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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Medium or Pathway Sampled (Units)	Analysis Type	Analysis Total No.	LLD*	Indicator Locations Mean Range	Location with Highest Mean Name	Location with Highest Mean Distance Direction	Location with Highest Mean Mean Range	Control Locations Mean Range	Non-Routine Reported Measurements
Oysters *(pCi/kg wet)*	Fe-59	4	260	< LLD	N/A		< LLD	N/A	0
	Co-58	4	130	< LLD	N/A		< LLD	N/A	0
	Co-60	4	130	< LLD	N/A		< LLD	N/A	0
	Zn-65	4	260	< LLD	N/A		< LLD	N/A	0
	Cs-134	4	130	< LLD	N/A		< LLD	N/A	0
	Cs-137	4	150	< LLD	N/A		< LLD	N/A	0
Crabs *(pCi/kg wet)*	**Gamma**	1							
	K-40	1		**2010 (1/1) (2010 - 2010)**	**SD**	**1.3 mi NNW**	**2010 (1/1) (2010 - 2010)**	**N/A**	0
	Mn-54	1	130	< LLD	N/A		< LLD	N/A	0
	Co-58	1	130	< LLD	N/A		< LLD	N/A	0
	Fe-59	1	260	< LLD	N/A		< LLD	N/A	0
	Co-60	1	130	< LLD	N/A		< LLD	N/A	0
	Zn-65	1	260	< LLD	N/A		< LLD	N/A	0
	Cs-134	1	130	< LLD	N/A		< LLD	N/A	0
	Cs-137	1	150	< LLD	N/A		< LLD	N/A	0

* LLD is the Lower Limit of Detection as defined and required in the USNRC Branch Technical Position on an Acceptable Radiological Environmental Monitoring Program, Revision 1, November 1979.

TABLE 3-1: RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

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Medium or Pathway Sampled (Units)	Analysis Type	Analysis Total No.	LLD*	Indicator Locations Mean Range	Location with Highest Mean Name	Location with Highest Mean Distance Direction	Location with Highest Mean Mean Range	Control Locations Mean Range	Non-Routine Reported Measurements
Fish *(pCi/kg wet)*	**Gamma**	4							
	K-40	4		**1598 (4/4) (1200 - 2310)**	**SD**	**1.3 mi NNW**	**1598 (4/4) (1200 - 2310)**	**N/A**	0
	Mn-54	4	130	< LLD	N/A		< LLD	N/A	0
	Co-58	4	130	< LLD	N/A		< LLD	N/A	0
	Fe-59	4	260	< LLD	N/A		< LLD	N/A	0
	Co-60	4	130	< LLD	N/A		< LLD	N/A	0
	Zn-65	4	260	< LLD	N/A		< LLD	N/A	0
	Cs-134	4	130	< LLD	N/A		< LLD	N/A	0
	Cs-137	4	150	< LLD	N/A		< LLD	N/A	0
Food Products *(pCi/kg wet)*	**Gamma**	3							
	K-40	3		**7633 (3/3) (2090 - 17270)**	**Slade**	**3.2 mi S**	**17270 (1/1) (17270-17270)**	**N/A**	0
	I-131	3	60	< LLD	N/A		< LLD	N/A	0
	Cs-134	3	60	< LLD	N/A		< LLD	N/A	0
	Cs-137	3	80	< LLD	N/A		< LLD	N/A	0
Direct Radiation *TLD (mR/ Std Month)*	**Gamma**	164	2	**3.9 (156/156) (1.6 - 7.6)**	**STA-9**	**0.3 mi E**	**6.7 (4/4) (6.2 - 7.6)**	**4.4 (12/12) (2.0 - 7.0)**	0

* LLD is the Lower Limit of Detection as defined and required in the USNRC Branch Technical Position on an Acceptable Radiological Environmental Monitoring Program, Revision 1, November 1979.

3.2 Analytical Results of 2005 REMP Samples

Radiological analyses of environmental media characteristically approach and frequently fall below the detection limits of state-of-the-art measurement methods. 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).

AREVA NP Environmental Laboratory 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 Surry ODCM.

Data are given according to sample type as indicated below.

1. Gamma Exposure Rate
2. Air Particulates, Weekly Gross Beta Radioactivity
3. Air Particulates, Weekly I-131
4. Air Particulates, Quarterly Gamma Spectroscopy
5. Cow Milk
6. Food Products
7. Well Water
8. River Water
9. Silt
10. Shoreline Sediment
11. Fish
12. Oysters
13. Clams
14. Crabs

TABLE 3-2: GAMMA EXPOSURE RATE

Surry Nuclear Power Station, Surry County, Virginia - 2005

mR/Std Month ± 2 Sigma

STATION NUMBER	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	AVERAGE ± 2 SIGMA
02	6.0 ± 0.2	4.7 ± 0.3	5.0 ± 0.6	5.5 ± 0.6	5.3 ± 0.6
03	5.9 ± 0.3	4.8 ± 1.1	5.3 ± 0.9	5.7 ± 1.1	5.4 ± 0.5
04	5.3 ± 0.5	4.3 ± 0.4	4.5 ± 0.8	4.7 ± 1.2	4.7 ± 0.4
05	5.0 ± 0.2	3.7 ± 0.7	4.2 ± 0.2	4.7 ± 1.2	4.4 ± 0.6
06	5.3 ± 0.4	4.6 ± 0.3	4.5 ± 0.3	4.9 ± 0.8	4.8 ± 0.4
07	4.7 ± 0.6	4.3 ± 0.3	4.6 ± 0.6	4.8 ± 0.7	4.6 ± 0.2
08	4.9 ± 0.7	4.0 ± 0.5	4.6 ± 0.4	4.6 ± 0.7	4.5 ± 0.4
09	7.6 ± 0.5	6.2 ± 1.1	6.4 ± 0.8	6.9 ± 0.5	6.8 ± 0.6
10	5.4 ± 0.3	4.1 ± 0.2	4.7 ± 0.2	4.9 ± 0.9	4.8 ± 0.5
11	4.3 ± 0.3	3.1 ± 0.9	3.8 ± 0.3	3.9 ± 1.3	3.8 ± 0.5
12	4.3 ± 0.5	3.7 ± 0.7	3.7 ± 0.7	4.3 ± 1.2	4.0 ± 0.3
13	5.0 ± 0.5	3.7 ± 0.2	4.6 ± 0.3	5.4 ± 0.9	4.7 ± 0.7
14	4.8 ± 1.4	3.4 ± 0.7	4.2 ± 0.5	4.4 ± 0.7	4.2 ± 0.6
15	5.4 ± 1.0	4.6 ± 0.6	5.0 ± 0.4	5.4 ± 1.3	5.1 ± 0.4
16	4.8 ± 0.4	3.0 ± 0.2	3.8 ± 0.3	4.6 ± 0.9	4.1 ± 0.8
18	2.9 ± 1.0	1.7 ± 0.3	2.6 ± 0.2	3.1 ± 0.8	2.6 ± 0.6
19	2.9 ± 1.1	3.0 ± 0.4	2.8 ± 0.5	3.1 ± 1.2	3.0 ± 0.1
20	3.6 ± 0.5	2.7 ± 1.3	3.0 ± 0.2	3.6 ± 1.9	3.2 ± 0.5
21	3.5 ± 0.6	3.2 ± 0.4	3.1 ± 0.3	3.6 ± 1.2	3.4 ± 0.2
22	2.9 ± 0.3	2.3 ± 0.3	1.6 ± 0.4	2.8 ± 1.4	2.4 ± 0.6
23	5.1 ± 0.8	4.0 ± 0.2	4.0 ± 0.3	4.2 ± 0.8	4.3 ± 0.5
24	3.6 ± 0.3	2.3 ± 0.9	3.1 ± 0.2	3.7 ± 1.5	3.2 ± 0.6
25	3.9 ± 0.7	3.3 ± 0.3	2.8 ± 1.0	4.3 ± 0.3	3.6 ± 0.7
26	3.8 ± 0.2	4.4 ± 0.3	4.1 ± 0.8	4.9 ± 1.0	4.3 ± 0.5
27	3.0 ± 1.2	2.7 ± 0.1	3.0 ± 0.4	3.0 ± 0.9	2.9 ± 0.2
28	3.1 ± 0.4	2.7 ± 0.3	2.1 ± 0.4	3.0 ± 1.0	2.7 ± 0.5
29	2.9 ± 0.3	2.5 ± 0.3	2.7 ± 0.1	2.7 ± 0.7	2.7 ± 0.2
30	2.9 ± 0.5	2.7 ± 0.4	2.8 ± 0.5	3.1 ± 0.2	2.9 ± 0.2
31	2.6 ± 0.6	2.1 ± 0.2	2.4 ± 0.4	2.5 ± 0.6	2.4 ± 0.2
32	3.6 ± 0.3	3.1 ± 0.3	2.7 ± 0.3	3.3 ± 1.7	3.2 ± 0.4
33	3.5 ± 1.0	3.2 ± 0.5	3.1 ± 0.2	3.8 ± 1.7	3.4 ± 0.3
34	3.7 ± 0.3	2.9 ± 0.8	3.1 ± 0.3	3.6 ± 0.5	3.3 ± 0.4
35	5.1 ± 0.4	4.1 ± 0.1	4.2 ± 0.4	4.7 ± 0.9	4.5 ± 0.5
36	5.0 ± 0.1	3.6 ± 1.0	4.0 ± 0.9	4.6 ± 1.2	4.3 ± 0.6
37	3.8 ± 0.5	2.1 ± 0.2	2.7 ± 0.8	3.5 ± 1.0	3.0 ± 0.8
38	6.2 ± 0.9	5.9 ± 0.3	5.9 ± 0.6	6.3 ± 0.9	6.1 ± 0.2
39	3.6 ± 0.2	2.0 ± 0.3	2.5 ± 0.9	3.3 ± 1.0	2.9 ± 0.7
40	4.5 ± 0.3	3.1 ± 1.1	3.6 ± 0.5	4.1 ± 1.3	3.8 ± 0.6
41	7.0 ± 0.4	6.0 ± 0.5	5.9 ± 0.6	6.6 ± 1.1	6.4 ± 0.5
42	3.7 ± 0.7	3.3 ± 0.3	3.3 ± 0.4	3.6 ± 1.2	3.5 ± 0.2
43	3.5 ± 0.5	2.7 ± 0.2	2.9 ± 0.8	3.8 ± 2.2	3.2 ± 0.5

TABLE 3-3: GROSS BETA CONCENTRATION IN FILTERED AIR

Surry Nuclear Power Station, Surry County, Virginia - 2005

1.0E-3 pCi/m3 ± 2 Sigma

COLLECTION DATE	SAMPLING LOCATIONS							
	SS	HIR	BC	ALL	CP	BASF	FE	NN-C
January 04	31.5 ± 5.1	23.9 ± 4.6	29.0 ± 5.0	29.7 ± 5.0	31.9 ± 5.1	31.9 ± 5.1	31.3 ± 5.1	30.4 ± 5.1
January 11	13.6 ± 4.4	9.4 ± 4.1	9.6 ± 4.1	12.3 ± 4.2	14.6 ± 4.4	12.0 ± 4.3	16.4 ± 4.5	10.1 ± 4.2
January 18	24.3 ± 5.2	19.7 ± 4.9	24.3 ± 5.1	25.9 ± 5.2	25.5 ± 5.2	24.5 ± 5.1	21.0 ± 4.9	23.0 ± 5.2
January 25	25.4 ± 5.4	20.9 ± 5.0	27.5 ± 5.3	26.5 ± 5.3	24.8 ± 5.2	24.2 ± 5.2	27.6 ± 5.4	29.1 ± 5.9
February 01	23.5 ± 5.1	20.5 ± 4.9	22.8 ± 5.0	24.3 ± 5.1	20.1 ± 4.9	18.5 ± 4.8	22.4 ± 5.0	18.8 ± 4.9
February 08	21.8 ± 4.7	21.3 ± 4.7	24.3 ± 4.8	22.7 ± 4.7	24.5 ± 4.8	22.3 ± 4.6	19.1 ± 4.5	19.6 ± 4.6
February 15	19.0 ± 4.8	17.5 ± 4.7	21.0 ± 4.8	21.2 ± 4.8	21.3 ± 4.8	17.8 ± 4.7	17.1 ± 4.6	22.1 ± 5.0
February 22	24.2 ± 5.2	20.9 ± 4.9	29.4 ± 5.3	28.3 ± 5.2	27.7 ± 5.2	23.6 ± 5.0	22.7 ± 5.0	27.9 ± 5.7
February 28	16.5 ± 3.5	20.2 ± 3.6	15.2 ± 3.4	16.7 ± 3.4	17.2 ± 3.5	16.8 ± 3.4	14.8 ± 3.4	18.2 ± 3.6
March 07	18.8 ± 4.8	18.2 ± 4.7	16.7 ± 4.7	20.9 ± 4.8	19.4 ± 4.8	18.8 ± 4.7	19.1 ± 4.7	23.2 ± 5.1
March 15	16.5 ± 4.5	16.6 ± 4.4	17.6 ± 4.4	17.9 ± 4.4	18.3 ± 4.4	17.0 ± 4.3	17.0 ± 4.3	20.6 ± 4.7
March 22	26.3 ± 3.0	21.0 ± 2.7	21.2 ± 2.7	24.7 ± 2.8	22.3 ± 2.7	20.5 ± 2.7	22.5 ± 6.0 (a)	21.2 ± 2.9
March 29	10.2 ± 3.9	8.4 ± 3.8	8.5 ± 3.7	10.8 ± 3.9	10.6 ± 3.9	10.4 ± 3.9	11.3 ± 4.0	12.8 ± 4.1
Qtr. Avg. ± 2 s.d.	**20.9 ± 11.6**	**18.3 ± 9.2**	**20.5 ± 13.5**	**21.7 ± 11.7**	**21.4 ± 11.3**	**19.9 ± 11.3**	**20.2 ± 10.6**	**21.3 ± 11.7**
April 05	11.1 ± 3.8	10.1 ± 3.7	9.6 ± 3.6	14.5 ± 3.9	8.1 ± 3.6	13.5 ± 3.9	11.5 ± 3.8	13.6 ± 4.0
April 12	14.5 ± 4.7	13.3 ± 4.6	14.7 ± 4.7	16.5 ± 4.8	16.7 ± 4.8	17.6 ± 4.8	19.6 ± 4.9	14.9 ± 4.8
April 19	19.2 ± 4.4	17.8 ± 4.2	15.8 ± 4.1	20.3 ± 4.4	20.8 ± 4.4	21.3 ± 4.4	18.0 ± 4.3	17.0 ± 4.3
April 26	18.7 ± 4.6	13.1 ± 4.0	15.6 ± 4.2	22.4 ± 4.6	18.8 ± 4.5	16.2 ± 4.3	18.8 ± 4.6	22.2 ± 4.8
May 03	13.5 ± 4.5	14.8 ± 4.5	14.6 ± 4.5	18.5 ± 4.7	15.9 ± 4.6	18.0 ± 4.7	21.1 ± 4.9	19.8 ± 4.8
May 10	12.5 ± 4.7	15.8 ± 4.8	11.3 ± 4.6	14.9 ± 4.7	16.2 ± 4.8	18.6 ± 4.9	15.6 ± 4.8	19.8 ± 5.2
May 17	16.1 ± 4.4	11.1 ± 4.0	16.2 ± 4.3	17.8 ± 4.4	18.5 ± 4.5	15.8 ± 4.3	18.5 ± 4.5	16.3 ± 4.4
May 24	12.7 ± 4.6	10.1 ± 4.4	15.0 ± 4.6	18.2 ± 4.8	17.1 ± 4.7	15.3 ± 4.6	14.9 ± 4.6	13.2 ± 4.7
May 31	10.3 ± 4.0	7.8 ± 2.1	15.1 ± 4.2	12.5 ± 4.1	19.4 ± 4.5	14.5 ± 4.2	14.5 ± 4.2	14.9 ± 4.3
June 07	11.6 ± 3.9	6.9 ± 3.6	12.7 ± 4.0	12.4 ± 3.9	11.8 ± 3.9	11.7 ± 3.9	13.6 ± 4.0	12.7 ± 4.0
June 14	17.0 ± 4.3	9.5 ± 3.8	12.5 ± 4.0	13.2 ± 4.0	15.3 ± 4.2	16.6 ± 4.2	16.7 ± 4.2	15.6 ± 4.2
June 21	10.3 ± 3.8	8.3 ± 3.6	11.0 ± 3.8	10.1 ± 3.7	14.9 ± 4.0	13.7 ± 4.0	14.5 ± 4.0	11.1 ± 3.8
June 28	21.5 ± 4.4	14.4 ± 4.0	16.3 ± 4.1	17.0 ± 4.1	23.3 ± 4.5	21.4 ± 4.4	16.9 ± 4.1	21.9 ± 4.4
Qtr. Avg. ± 2 s.d.	**14.5 ± 7.3**	**11.8 ± 6.7**	**13.9 ± 4.4**	**16.0 ± 7.0**	**16.7 ± 7.7**	**16.5 ± 5.8**	**16.5 ± 5.4**	**16.4 ± 7.1**

TABLE 3-3: GROSS BETA CONCENTRATION IN FILTERED AIR

Surry Nuclear Power Station, Surry County, Virginia - 2005

1.0E-3 pCi/m3 ± 2 Sigma

COLLECTION DATE	SAMPLING LOCATIONS SS	HIR	BC	ALL	CP	BASF	FE	NN
July 05	13.0 ± 4.0	7.5 ± 3.7	14.7 ± 4.1	15.9 ± 4.2	16.2 ± 4.2	12.9 ± 4.0	14.9 ± 4.1	13.9 ± 4.1
July 12	20.7 ± 4.6	12.5 ± 4.1	20.3 ± 4.5	20.9 ± 4.5	22.1 ± 4.6	19.6 ± 4.5	25.3 ± 4.8	22.4 ± 4.7
July 19	7.9 ± 3.9	< 5.9	9.1 ± 4.0	10.9 ± 4.1	9.9 ± 4.0	8.3 ± 4.0	10.0 ± 4.1	8.6 ± 4.0
July 26	22.1 ± 4.5	22.2 ± 4.5	20.1 ± 4.4	25.7 ± 4.7	14.5 ± 4.8 (b)	26.0 ± 4.7	26.9 ± 4.7	24.0 ± 4.6
August 02	25.3 ± 3.4	26.5 ± 3.4	25.8 ± 3.4	25.6 ± 3.4	24.4 ± 3.3	28.7 ± 3.5	24.1 ± 3.3	16.9 ± 4.4 (c)
August 09	34.6 ± 5.4	33.1 ± 5.4	33.8 ± 5.4	40.3 ± 5.7	32.4 ± 5.3	39.5 ± 5.7	40.9 ± 5.8	23.4 ± 5.1 (d)
August 16	18.6 ± 4.5	18.1 ± 4.5	18.2 ± 4.5	14.3 ± 4.3	19.2 ± 4.8	20.8 ± 4.6	15.5 ± 4.3	16.3 ± 4.7
August 23	26.7 ± 4.9	21.7 ± 4.6	25.1 ± 4.8	27.4 ± 4.9	21.7 ± 4.6	25.3 ± 4.8	25.3 ± 4.8	22.8 ± 4.7
August 30	16.5 ± 4.2	14.8 ± 4.2	16.0 ± 4.3	14.0 ± 4.2	18.3 ± 4.4	18.4 ± 4.5	18.0 ± 4.4	23.3 ± 4.7
September 06	19.2 ± 4.7	17.2 ± 4.6	20.5 ± 4.7	19.3 ± 4.6	17.0 ± 4.5	20.8 ± 4.7	20.1 ± 4.7	20.3 ± 4.7
September 13	21.6 ± 4.6	24.4 ± 4.8	21.5 ± 4.8	24.6 ± 4.9	22.6 ± 4.8	21.2 ± 4.7	24.6 ± 4.9	24.7 ± 4.9
September 20	21.1 ± 5.2	19.6 ± 5.1	21.1 ± 5.1	23.5 ± 5.2	20.9 ± 5.0	23.7 ± 5.2	23.5 ± 5.1	22.6 ± 5.2
September 28	25.9 ± 5.0	29.6 ± 5.2	29.3 ± 5.3	33.0 ± 5.4	30.0 ± 5.3	35.1 ± 5.6	30.5 ± 5.3	32.2 ± 5.4
Qtr. Avg. ± 2 s.d.	**21.0 ± 13.2**	**20.6 ± 14.5**	**21.2 ± 12.8**	**22.7 ± 16.4**	**20.7 ± 12.1**	**23.1 ± 16.6**	**23.0 ± 15.6**	**20.9 ± 11.7**
October 04	22.5 ± 4.7	20.0 ± 4.6	15.4 ± 4.3	16.1 ± 4.3	16.6 ± 4.3	25.0 ± 4.7	21.9 ± 4.6	19.1 ± 4.4
October 11	8.7 ± 4.5	11.7 ± 4.6	9.7 ± 4.5	10.3 ± 4.7	7.1 ± 4.3	8.8 ± 4.4	7.3 ± 4.3	< 6.7
October 18	15.1 ± 4.2	11.8 ± 4.0	14.8 ± 4.2	18.4 ± 4.4	16.4 ± 4.3	16.3 ± 4.3	14.1 ± 4.1	16.9 ± 4.4
October 25	29.2 ± 5.2	32.3 ± 5.3	32.5 ± 5.4	30.2 ± 5.2	30.6 ± 5.3	29.0 ± 5.2	29.4 ± 5.2	35.6 ± 5.5
November 01	14.9 ± 4.7	12.9 ± 4.6	14.7 ± 4.8	16.0 ± 4.8	14.5 ± 4.8	21.7 ± 5.1	14.9 ± 4.7	16.8 ± 4.9
November 08	31.7 ± 5.1	32.9 ± 5.1	34.7 ± 5.2	32.0 ± 5.0	33.4 ± 5.1	33.9 ± 5.1	33.7 ± 5.1	36.9 ± 5.3
November 15	28.7 ± 5.0	23.2 ± 4.8	22.6 ± 4.7	28.2 ± 5.0	23.6 ± 4.7	31.6 ± 5.2	26.2 ± 4.9	30.6 ± 5.2
November 22	11.8 ± 4.1	10.7 ± 4.2	11.2 ± 4.2	14.4 ± 4.3	12.4 ± 4.2	16.9 ± 4.5	14.7 ± 4.3	13.2 ± 4.3
November 29	14.6 ± 4.5	17.8 ± 4.7	13.7 ± 4.5	18.4 ± 4.7	14.2 ± 4.5	17.2 ± 4.7	19.4 ± 4.7	16.0 ± 4.6
December 05	23.6 ± 5.3	26.2 ± 5.4	25.9 ± 5.4	27.7 ± 5.5	29.4 ± 5.5	32.9 ± 5.7	27.9 ± 5.5	31.1 ± 5.7
December 13	27.4 ± 4.6	27.8 ± 4.6	28.2 ± 4.7	26.1 ± 4.5	27.2 ± 4.6	28.7 ± 4.7	28.5 ± 4.6	30.4 ± 4.8
December 20	20.5 ± 4.8	18.6 ± 4.6	17.7 ± 4.7	22.6 ± 4.8	17.7 ± 4.6	22.1 ± 4.9	22.7 ± 4.9	24.5 ± 5.0
December 27	26.9 ± 5.0	30.9 ± 5.2	28.9 ± 5.1	33.4 ± 5.3	29.1 ± 5.2	32.6 ± 5.3	34.8 ± 5.4	30.0 ± 5.2
Qtr. Avg. ± 2 s.d.	**21.2 ± 15.0**	**21.3 ± 16.4**	**20.8 ± 16.9**	**22.6 ± 15.0**	**20.9 ± 16.7**	**24.4 ± 15.8**	**22.7 ± 16.7**	**25.1 ± 16.7**
Ann. Avg. ± 2 s.d.	**19.4 ± 13.1**	**19.6 ± 14.1**	**19.1 ± 13.8**	**20.8 ± 13.8**	**19.9 ± 12.6**	**21.0 ± 14.1**	**20.6 ± 13.6**	**20.8 ± 13.3**

Table 3-3 Footnotes

(a) Air sampler not operational at sample change out on 3/22/05. Power pole case ground wire was broken. Sample volume based on sampler timer indication of 24.5 hours. Volume was sufficient to meet required LLD.
(b) Air sampler not operational at sample change out on 7/26/05. Sample volume based on elapsed timer indication of 137.6 hours. Volume was sufficient to meet required LLD.
(c) Air sampler had reduced flow rate at sample change out 8/2/05 and flow rate could not be adjusted. As found flow rate was 35.4 liters/minute versus a typical flow rate of 56.6 liters/minute. Sampler was also inoperable for approximately 38 hours based on the sampler timer indication. Suspect power outage due to storms in the area during the sample period. Sample volume was sufficient to meet required LLD.
(d) Air sampler not operational at sample change out on 8/9/05. Sample volume based on sampler timer indication of 49.7 hours. Volume was sufficient to meet required LLD.

TABLE 3-4: IODINE-131 CONCENTRATION IN FILTERED AIR

Surry Nuclear Power Station, Surry County, Virginia - 2005

1.0E-3 pCi/m3 ± 2 Sigma

COLLECTION DATE	SAMPLING LOCATIONS							
	SS	HIR	BC	ALL	CP	BASF	FE	NN-C
January 04	<41	<35	<12	<38	<32	<34	<35	<33
January 11	<22	<28	<25	<22	<24	<23	<27	<27
January 18	<27	<31	<27	<22	<21	<24	<29	<18
January 25	<21	<20	<21	<22	<20	<22	<24	<25
February 01	<27	<33	<28	<28	<30	<33	<30	<26
February 08	<24	<26	<25	<28	<24	<22	<30	<30
February 15	<33	<24	<37	<39	<35	<33	<32	<23
February 22	<28	<28	<29	<29	<30	<27	<25	<32
February 28	<27	<27	<22	<26	<26	<27	<29	<22
March 07	<26	<24	<26	<26	<26	<29	<25	<32
March 15	<21	<19	<25	<17	<23	<19	<21	<26
March 22	<22	<26	<19	<24	<24	<20	<13 (a)	<24
March 29	<26	<23	<25	<21	<30	<25	<23	<22
April 05	<23	<33	<24	<35	<27	<26	<31	<28
April 12	<21	<20	<23	<18	<17	<18	<18	<14
April 19	<36	<30	<30	<45	<33	<33	<38	<36
April 26	<33	<38	<35	<36	<32	<36	<38	<33
May 03	<21	<22	<26	<21	<19	<20	<22	<28
May 10	<20	<24	<19	<24	<24	<28	<23	<24
May 17	<34	<30	<35	<33	<31	<31	<32	<39
May 24	<25	<26	<27	<30	<23	<29	<25	<25
May 31	<28	<26	<28	<33	<26	<29	<29	<32
June 07	<27	<26	<25	<28	<25	<24	<25	<23
June 14	<23	<26	<27	<25	<25	<28	<21	<16
June 21	<40	<34	<27	<31	<37	<32	<36	<29
June 28	<19	<31	<20	<23	<21	<18	<24	<24

TABLE 3-4: IODINE-131 CONCENTRATION IN FILTERED AIR

Surry Nuclear Power Station, Surry County, Virginia - 2005

1.0E-3 pCi/m3 ± 2 Sigma

COLLECTION DATE	SAMPLING LOCATIONS							
	SS	HIR	BC	ALL	CP	BASF	FE	NN
July 05	<23	<29	<28	<30	<23	<29	<29	<29
July 12	<34	<35	<37	<29	<30	<23	<33	<32
July 19	<25	<22	<23	<16	<21	<24	<21	<20
July 26	<17	<19	<23	<24	<28 (b)	<23	<40	<28
August 02	<29	<27	<17	<25	<27	<26	<25	<47 (c)
August 09	<27	<24	<28	<30	<18	<27	<23	<38 (d)
August 16	<30	<22	<26	<25	<24	<21	<22	<29
August 23	<28	<23	<22	<27	<26	<26	<27	<25
August 30	<26	<28	<25	<29	<29	<37	<26	<36
September 06	<28	<26	<26	<25	<27	<25	<22	<24
September 13	<28	<31	<28	<25	<29	<29	<30	<32
September 20	<25	<19	<22	<24	<25	<28	<29	<25
September 28	<27	<29	<30	<30	<32	<33	<27	<38
October 04	<20	<25	<25	<24	<24	<28	<25	<24
October 11	<37	<33	<35	<39	<43	<40	<31	<38
October 18	<31	<31	<32	<24	<24	<24	<28	<30
October 25	<35	<25	<28	<37	<27	<23	<31	<28
November 01	<40	<36	<40	<41	<43	<30	<43	<54
November 08	<28	<27	<29	<26	<13	<23	<27	<26
November 15	<42	<40	<29	<38	<38	<36	<35	<30
November 22	<44	<39	<38	<36	<39	<40	<42	<40
November 29	<29	<35	<29	<35	<28	<21	<24	<20
December 05	<36	<39	<33	<37	<30	<27	<26	<30
December 13	<29	<26	<23	<29	<25	<25	<26	<21
December 20	<27	<29	<31	<25	<31	<26	<30	<23
December 27	<38	<38	<46	<46	<39	<47	<39	<46

Table 3-4 Footnotes

(a) Air sampler not operational at sample change out on 3/22/05. Power pole case ground wire was broken. Sample volume based on sampler timer indication of 24.5 hours. Volume was sufficient to meet required LLD.

(b) Air sampler not operational at sample change out on 7/26/05. Sample volume based on elapsed timer indication of 137.6 hours. Volume was sufficient to meet required LLD.

(c) Air sampler had reduced flow rate at sample change out 8/2/05 and flow rate could not be adjusted. As found flow rate was 35.4 liters/minute versus a typical flow rate of 56.6 liters/minute. Sampler was also inoperable for approximately 38 hours based on the sampler timer indication. Suspect power outage due to storms in the area during the sample period. Sample volume was sufficient to meet required LLD.

(d) Air sampler not operational at sample change out on 8/9/05. Sample volume based on sampler timer indication of 49.7 hours. Volume was sufficient to meet required LLD.

TABLE 3-5: GAMMA EMITTER CONCENTRATION IN FILTERED AIR

Surry Nuclear Power Station, Surry County, Virginia - 2005

1.0E-3 pCi/m3 ± 2 Sigma

SAMPLING LOCATIONS	NUCLIDE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	AVERAGE ± 2 SIGMA
SS	Cs-134	<1.8	<1.4	<1.7	<1.5	
	Cs-137	<0.8	<0.8	<1.6	<1.6	
	Be-7	104 ± 22	87 ± 27	129 ± 29	149 ± 36	117 ± 27
HIR	Cs-134	<1.2	<1.7	<1.0	<1.3	
	Cs-137	<0.6	<1.1	<2.0	<1.9	
	Be-7	107 ± 19	94 ± 26	130 ± 30	112 ± 32	111 ± 15
BC	Cs-134	<1.4	<1.5	<1.4	<1.6	
	Cs-137	<0.9	<1.5	<0.9	<1.1	
	Be-7	113 ± 25	102 ± 27	118 ± 28	133 ± 34	117 ± 13
ALL	Cs-134	<1.0	<1.5	<1.6	<1.6	
	Cs-137	<1.0	<1.2	<1.3	<1.2	
	Be-7	105 ± 22	108 ± 30	99 ± 28	125 ± 34	109 ± 11
CP	Cs-134	<0.8	<1.6	<1.5	<1.2	
	Cs-137	<0.8	<1.6	<1.9	<0.9	
	Be-7	122 ± 24	124 ± 29	112 ± 29	108 ± 26	117 ± 8
BASF	Cs-134	<1.0	<1.4	<1.2	<1.0	
	Cs-137	<0.8	<1.4	<1.6	<1.4	
	Be-7	100 ± 24	106 ± 31	139 ± 29	137 ± 32	121 ± 20
FE	Cs-134	<1.1	<1.0	<1.0	<1.6	
	Cs-137	<1.0	<1.6	<1.4	<1.5	
	Be-7	150 ± 24	135 ± 32	132 ± 28	110 ± 31	132 ± 17
NN-C	Cs-134	<1.0	<1.4	<1.8	<1.5	
	Cs-137	<1.0	<1.0	<1.6	<1.1	
	Be-7	118 ± 26	116 ± 30	107 ± 29	124 ± 30	116 ± 7

TABLE 3-6: GAMMA EMITTER AND STRONTIUM CONCENTRATIONS IN MILK

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/Liter ± 2 Sigma

NUCLIDE	EPPS	COLONIAL PARKWAY	WILLIAMS-C
JANUARY			
Cs-134	<5	<6	<6
Cs-137	<6	<6	<6
Ba-140	<9	<7	<7
La-140	<10	<8	<8
I-131	<1	<1	<1
K-40	1450 ± 120	1380 ± 120	1330 ± 110
FEBRUARY			
Cs-134	<7	<8	<8
Cs-137	<7	<7	<7
Ba-140	<11	<10	<10
La-140	<13	<11	<12
I-131	<1	<1	<1
K-40	1400 ± 140	1500 ± 140	1190 ± 130
MARCH			
Cs-134	<9	<7	<7
Cs-137	<7	<6	<7
Ba-140	<10	<10	<13
La-140	<11	<11	<15
I-131	<1	<1	<1
K-40	1300 ± 130	1260 ± 130	1170 ± 140
Sr-89		<9	
Sr-90		<2	
APRIL			
Cs-134	<9	<10	<9
Cs-137	<8	<8	<8
Ba-140	<12	<11	<13
La-140	<14	<13	<15
I-131	<1	<1	<1
K-40	1560 ± 190	1300 ± 170	1380 ± 160

TABLE 3-6: GAMMA EMITTER AND STRONTIUM CONCENTRATIONS IN MILK

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/Liter ± 2 Sigma

NUCLIDE	EPPS	COLONIAL PARKWAY	WILLIAMS-C
MAY			
Cs-134	<7	<7	<9
Cs-137	<6	<6	<8
Ba-140	<11	<8	<12
La-140	<12	<9	<14
I-131	<1	<1	<1
K-40	1350 ± 130	1380 ± 120	1170 ± 150
JUNE			
Cs-134	<8	<7	<7
Cs-137	<5	<7	<6
Ba-140	<10	<10	<11
La-140	<12	<11	<13
I-131	<1	<1	<1
K-40	1370 ± 130	1430 ± 120	1480 ± 140
Sr-89		<7	
Sr-90		1.76 ± 0.69	
JULY			
Cs-134	<9	<7	<9
Cs-137	<6	<8	<10
Ba-140	<9	<11	<12
La-140	<10	<12	<14
I-131	<1	<1	<1
K-40	1430 ± 150	1540 ± 140	1520 ± 180
AUGUST			
Cs-134	<6	<7	<7
Cs-137	<6	<7	<7
Ba-140	<10	<12	<12
La-140	<11	<14	<14
I-131	<1	<1	<1
K-40	1480 ± 120	1390 ± 150	1310 ± 130

TABLE 3-6: GAMMA EMITTER AND STRONTIUM CONCENTRATIONS IN MILK

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/Liter ± 2 Sigma

NUCLIDE	EPPS	COLONIAL PARKWAY	WILLIAMS-C
SEPTEMBER			
Cs-134	<8	<9	<7
Cs-137	<7	<8	<8
Ba-140	<12	<13	<11
La-140	<14	<14	<13
I-131	<1	<1	<1
K-40	1370 ± 160	1240 ± 160	1340 ± 140
Sr-89		<9	
Sr-90		<2	
OCTOBER			
Cs-134	<8	<6	<6
Cs-137	<6	<8	<6
Ba-140	<11	<10	<10
La-140	<12	<12	<11
I-131	<1	<1	<1
K-40	1390 ± 140	1400 ± 140	1360 ± 120
NOVEMBER			
Cs-134	<8	<7	<8
Cs-137	<8	<7	<6
Ba-140	<10	<11	<12
La-140	<12	<13	<13
I-131	<1	<1	<1
K-40	1320 ± 150	1370 ± 130	1370 ± 130
DECEMBER			
Cs-134	<8	<7	<8
Cs-137	<8	<6	<7
Ba-140	<13	<11	<10
La-140	<14	<12	<10
I-131	<1	<1	<1
K-40	1270 ± 150	1450 ± 130	1470 ± 140
Sr-89		<10	
Sr-90		<2	

TABLE 3-7: GAMMA EMITTER CONCENTRATION IN FOOD PRODUCTS

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (wet) ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	SAMPLE TYPE	Cs-134	Cs-137	I-131	K-40
BROCK FARM	11/02/05	Corn	<12	<13	<30	2090 ± 190
	11/02/05	Peanuts	<24	<22	<37	3540 ± 410
SLADE FARM	11/02/05	Soybeans	<33	<34	<57	17270 ± 980

TABLE 3-8: GAMMA EMITTER AND TRITIUM CONCENTRATIONS IN WELL WATER

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/Liter ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	ISOTOPE				
		Ba-140	**Co-58**	**Co-60**	**Cs-134**	**Cs-137**
SS	03/15/05	<8	<6	<5	<6	<6
	06/14/05	<11	<9	<9	<8	<8
	09/20/05	<8	<3	<3	<3	<3
	12/13/05	<10	<5	<6	<6	<6
		Fe-59	**I-131**	**La-140**	**Mn-54**	**Nb-95**
	03/15/05	<16	<1	<9	<5	<6
	06/14/05	<19	<1	<13	<7	<11
	09/20/05	<6	<1	<9	<3	<4
	12/13/05	<12	<1	<11	<5	<6
		Zn-65	**Zr-95**	**H-3**		
	03/15/05	<14	<10	<1000		
	06/14/05	<17	<13	<560		
	09/20/05	<6	<5	<1400		
	12/13/05	<10	<8	<1500		
		Ba-140	**Co-58**	**Co-60**	**Cs-134**	**Cs-137**
HIR	03/15/05	<8	<5	<5	<5	<5
	06/14/05	<12	<9	<7	<9	<8
	09/20/05	<10	<4	<4	<4	<4
	12/13/05	<11	<8	<8	<7	<6
		Fe-59	**I-131**	**La-140**	**Mn-54**	**Nb-95**
	03/15/05	<10	<1	<9	<5	<5
	06/14/05	<21	<1	<14	<7	<8
	09/20/05	<10	<1	<11	<4	<5
	12/13/05	<10	<1	<12	<6	<8
		Zn-65	**Zr-95**	**H-3**		
	03/15/05	<11	<7	<1000		
	06/14/05	<19	<14	<560		
	09/20/05	<9	<9	<1400		
	12/13/05	<12	<11	<1500		

TABLE 3-9: GAMMA EMITTER AND TRITIUM CONCENTRATIONS IN RIVER WATER

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/Liter ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	ISOTOPE				
		Ba-140	**Co-58**	**Co-60**	**Cs-134**	**Cs-137**
SD	01/11/05	<7	<4	<4	<4	<3
	02/15/05	<9	<3	<4	<4	<4
	03/29/05	<10	<5	<6	<5	<6
	04/19/05	<12	<6	<6	<6	<6
	05/24/05	<5	<3	<3	<4	<3
	06/14/05	<9	<6	<6	<6	<6
	07/26/05	<7	<4	<4	<4	<4
	08/16/05	<8	<4	<5	<5	<4
	09/20/05	<9	<5	<5	<5	<6
	10/25/05	<10	<6	<6	<6	<6
	11/22/05	<9	<6	<5	<5	<5
	12/13/05	<10	<6	<6	<6	<6
		Fe-59	**I-131**	**La-140**	**Mn-54**	**Nb-95**
	01/11/05	<10	<8	<8	<4	<4
	02/15/05	<10	<9	<10	<4	<4
	03/29/05	<15	<10	<11	<5	<6
	04/19/05	<16	<10	<14	<6	<7
	05/24/05	<9	<6	<6	<3	<3
	06/14/05	<12	<10	<10	<5	<6
	07/26/05	<10	<6	<9	<4	<5
	08/16/05	<13	<8	<9	<4	<5
	09/20/05	<13	<10	<10	<5	<6
	10/25/05	<10	<10	<12	<6	<7
	11/22/05	<11	<10	<10	<5	<6
	12/13/05	<10	<10	<11	<5	<7
		Zn-65	**Zr-95**	**H-3**	**K-40**	
	01/11/05	<9	<7		<50	
	02/15/05	<11	<7		<55	
	03/29/05	<7	<8	<950	<63	
	04/19/05	<14	<12		<71	
	05/24/05	<6	<5		<47	
	06/14/05	<13	<9	<1200	<74	
	07/26/05	<8	<6		92 ± 42	
	08/16/05	<9	<8		126 ± 44	
	09/20/05	<18	<8	<1200	99 ± 48	
	10/25/05	<13	<9		79 ± 50	
	11/22/05	<14	<8		100 ± 48	
	12/13/05	<18	<10	<1400	<77	

TABLE 3-9: GAMMA EMITTER AND TRITIUM CONCENTRATIONS IN RIVER WATER

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/Liter ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	ISOTOPES				
		Ba-140	**Co-58**	**Co-60**	**Cs-134**	**Cs-137**
SW-C	01/11/05	<7	<4	<4	<4	<4
	02/15/05	<6	<4	<4	<4	<3
	03/29/05	<7	<4	<4	<5	<4
	04/19/05	<12	<5	<7	<6	<5
	05/24/05	<9	<4	<5	<5	<5
	06/14/05	<9	<5	<6	<6	<5
	07/26/05	<7	<4	<4	<5	<5
	08/16/05	<8	<5	<5	<4	<4
	09/20/05	<9	<5	<5	<5	<5
	10/25/05	<10	<6	<6	<7	<6
	11/22/05	<8	<5	<5	<5	<5
	12/13/05	<8	<6	<5	<6	<5
		Fe-59	**I-131**	**La-140**	**Mn-54**	**Nb-95**
	01/11/05	<11	<6	<8	<4	<5
	02/15/05	<9	<10	<7	<4	<5
	03/29/05	<9	<8	<8	<4	<5
	04/19/05	<15	<9	<14	<6	<5
	05/24/05	<12	<10	<10	<5	<5
	06/14/05	<12	<10	<10	<5	<6
	07/26/05	<12	<9	<7	<4	<5
	08/16/05	<13	<7	<9	<4	<5
	09/20/05	<12	<8	<10	<5	<5
	10/25/05	<10	<10	<11	<6	<6
	11/22/05	<11	<10	<9	<5	<8
	12/13/05	<10	<10	<9	<5	<6
		Zn-65	**Zr-95**	**H-3**	**K-40**	
	01/11/05	<15	<7		<52	
	02/15/05	<9	<7		<49	
	03/29/05	<7	<6	<950	<51	
	04/19/05	<11	<9		<66	
	05/24/05	<10	<7		<75	
	06/14/05	<11	<9	<1200	<68	
	07/26/05	<10	<7		<21	
	08/16/05	<10	<7		<63	
	09/20/05	<11	<9	<1200	86 ± 57	
	10/25/05	<15	<11		<80	
	11/22/05	<19	<8		<64	
	12/13/05	<14	<10	<1400	<80	

TABLE 3-10: GAMMA EMITTER CONCENTRATIONS IN SILT

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (dry) ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	Be-7	K-40	Th-228	Cs-134	Cs-137
SD	03/17/05	<820	16900 ± 1800	1150 ± 230	<84	235 ± 77
	09/27/05	790 ± 400	16800 ± 1200	1030 ± 120	<47	223 ± 49
CHIC-C	03/16/05	<1200	17200 ± 2500	1160 ± 320	<140	250 ± 100
	09/27/05	<520	15070 ± 910	1240 ± 100	<34	179 ± 41

TABLE 3-11: GAMMA EMITTER CONCENTRATIONS IN SHORELINE SEDIMENT

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (dry) ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	Be-7	K-40	Th-228	Cs-134	Cs-137
HIR	02/08/05	<200	4760 ± 520	<110	<36	<26
	08/16/05	<240	3840 ± 480	511 ± 60	<110	<26
CHIC-C	02/08/05	<240	610 ± 220	904 ± 69	<29	<29
	08/16/05	<280	1850 ± 420	<120	<130	<31

TABLE 3-12: GAMMA EMITTER CONCENTRATION IN FISH

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (wet) ± 2 Sigma

SAMPLING LOCATION	COLLECTION DATE	SAMPLE TYPE	ISOTOPE			
			K-40	**Co-58**	**Co-60**	**Cs-134**
SD	04/26/05	Catfish	1400 ± 590	<64	<48	<52
	04/26/05	White Perch	1200 ± 620	<71	<60	<63
	11/01/05	Catfish	1480 ± 440	<39	<35	<34
	11/01/05	White Perch	2310 ± 540	<36	<41	<40
			Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	04/26/05	Catfish	<56	<130	<70	<130
	04/26/05	White Perch	<67	<160	<50	<130
	11/01/05	Catfish	<34	<74	<34	<120
	11/01/05	White Perch	<28	<66	<38	<83

TABLE 3-13: GAMMA EMITTER CONCENTRATIONS IN OYSTERS

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (wet) ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	ISOTOPE			
		K-40	**Co-58**	**Co-60**	**Cs-134**
POS	03/16/05	340 ± 110	<11	<10	<9
	09/27/05	532 ± 77	<8	<7	<7
		Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	03/16/05	<10	<41	<10	<22
	09/27/05	<9	<17	<7	<15
		K-40	**Co-58**	**Co-60**	**Cs-134**
MP	03/16/05	240 ± 100	<11	<11	<10
	09/27/05	490 ± 100	<11	<9	<15
		Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	03/16/05	<9	<41	<9	<38
	09/27/05	<11	<23	<10	<22

TABLE 3-14: GAMMA EMITTER CONCENTRATIONS IN CLAMS

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (wet) ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	ISOTOPE			
		K-40	**Co-58**	**Co-60**	**Cs-134**
HIP	03/16/05	230 ± 100	<12	<11	<10
	09/27/05	297 ± 95	<10	<9	<9
		Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	03/16/05	<10	<37	<10	<21
	09/27/05	<8	<20	<9	<20
		K-40	**Co-58**	**Co-60**	**Cs-134**
SD	03/16/05	229 ± 59	<7	<5	<6
	09/27/05	460 ± 110	<10	<11	<9
		Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	03/16/05	<6	<20	<6	<17
	09/27/05	<10	<20	<9	<22
		K-40	**Co-58**	**Co-60**	**Cs-134**
CHIC-C	03/16/05	180 ± 110	<13	<11	<12
	09/27/05	236 ± 95	<9	<9	<10
		Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	03/16/05	<11	<40	<10	<25
	09/27/05	<9	<21	<9	<19
		K-40	**Co-58**	**Co-60**	**Cs-134**
LC	03/16/05	340 ± 110	<12	<12	<10
	09/27/05	380 ± 79	<8	<8	<8
		Cs-137	**Fe-59**	**Mn-54**	**Zn-65**
	03/16/05	<12	<41	<10	<23
	09/27/05	<7	<18	<7	<17

TABLE 3-15: GAMMA EMITTER CONCENTRATIONS IN CRABS

Surry Nuclear Power Station, Surry County, Virginia - 2005

pCi/kg (wet) ± 2 Sigma

SAMPLING LOCATIONS	COLLECTION DATE	ISOTOPE			
		K-40	Co-58	Co-60	Cs-134
SD	06/16/05	2010 ± 380	<30	<28	<28
		Cs-137	Fe-59	Mn-54	Zn-65
		<25	<97	<26	<50

4. DISCUSSION OF RESULTS

Data from the radiological analyses of environmental media collected during 2005 and tabulated in Section 3, are discussed below. The procedures and specifications followed in the laboratory for these analyses are as required in the AREVA NP Environmental Laboratory quality assurance manual and laboratory procedures. In addition to internal quality control measures performed by the laboratory, it also participates 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 Program are provided in Appendix B.

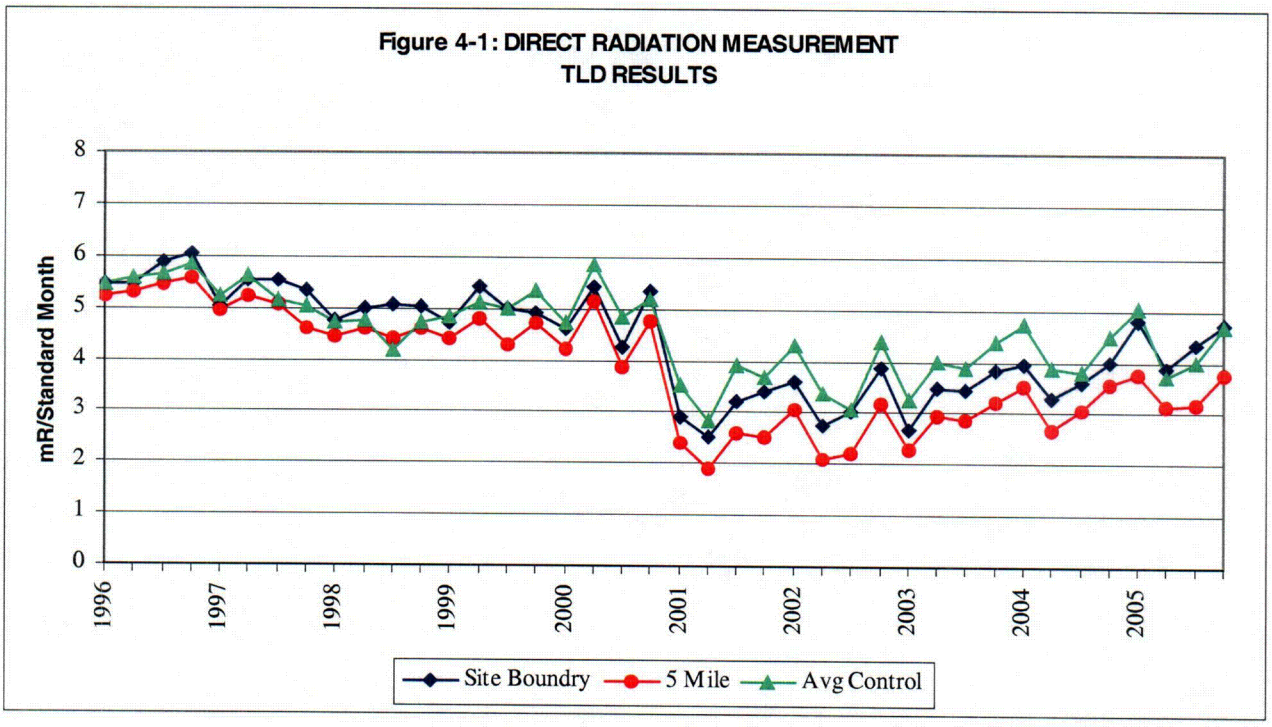
The predominant radioactivity detected throughout 2005 was from external sources, such as fallout from nuclear weapons tests (cesium-137) and naturally occurring radionuclides. Naturally occurring nuclides such as beryllium-7, potassium-40, and thorium-228 were detected in numerous samples.

The following is a discussion and summary of the results of the environmental measurements taken during the 2005 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 in the vicinity of 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 centers 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 TLD analyses are presented in Table 3-2. Figure 4-1 shows a historical trend of TLD exposure rate measurements, comparing the average of indicator TLDs located near the site boundary and at 5 miles to the average of all control TLD locations. Control and indicator averages indicate a steady relationship. Two dosimeters made of CaF and LiF sensitive elements, and specifically designed for environmental monitoring, are deployed at each sampling location. In 2001, these TLDs replaced the previously used CaSO4:Dy in Teflon TLDs. The dose with the replacement TLDs is lower than that of the previously used TLDs. This is due to the increased sensitivity of the replacement TLD that provides a greater response to ambient radiation and improved statistical analysis.



The five-year trend since TLD type replacement indicates a gradual and across the board increase in ambient exposure. However, the trend of the control and indicator locations continue to show the same historical relationship. This indicates that the increasing trend is not related to the operation of Surry Power Station. Global Dosimetry Solutions was contacted to comment on this trend. Although Global acknowledged the trend, Global's assessment is that the increase is very slight per period and well below the overall measurement uncertainty for the entire TLD processing system (errors associated TLD badge fade, instrument calibrations, background changes, etc.) This trend was also evident with the TLD exposures at North Anna Power Station, Dominion's other Virginia nuclear power station. This trend will continue to be monitored.

An evaluation of the control locations ambient exposures determined that control TLD location #41 might be introducing a high bias to the average control exposure. The high bias from TLD #41 was not apparent prior to 2001 when the CaSO4:Dy TLDs were in use. TLD #41 is located 13.4 miles from Surry Power Station in a gravel commuter parking lot. A survey of the parking lot determined that the ambient exposure rate was twice the exposure rate at TLD #20, which is located in a grassy area approximately 5 miles from the power station. The survey data directly corresponds with the TLD exposure data for TLDs #41 and #20. The most probable cause for the higher ambient exposure at this control TLD location is the natural product content in the granite rock base of the parking lot. The

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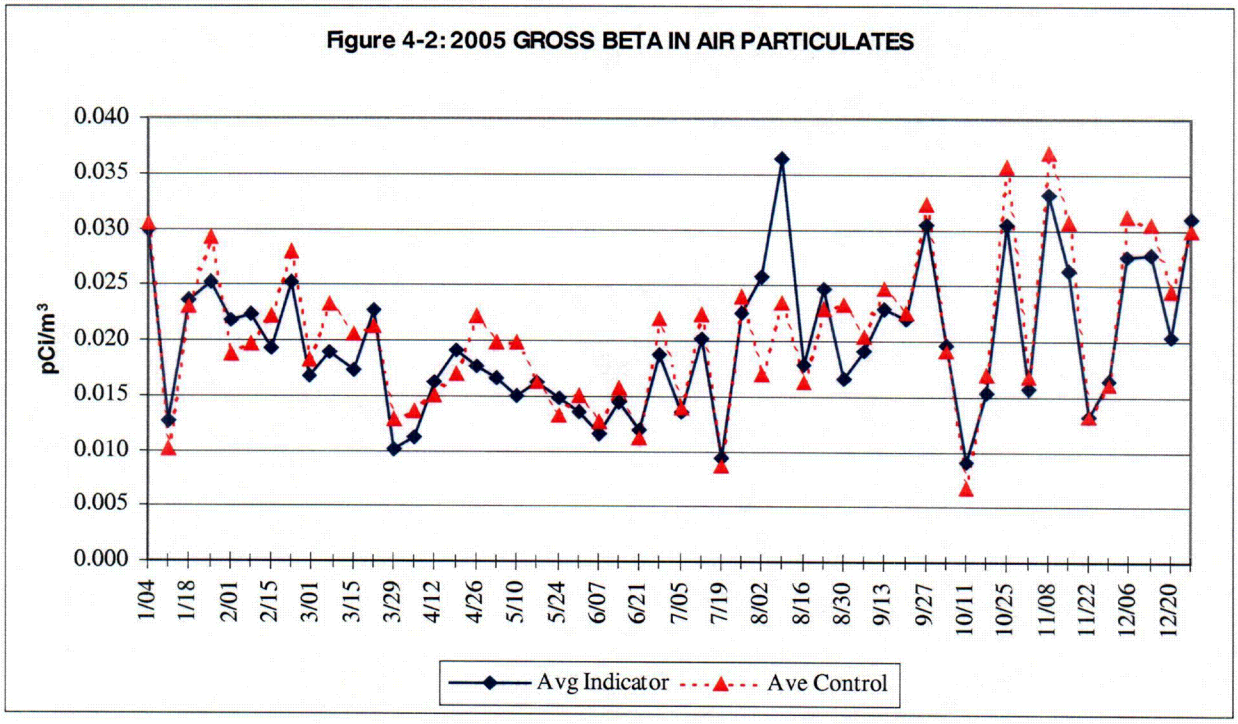
same phenomenon was also noticed in TLD exposure data for TLDs #9 and #38. These TLDs are also located in areas with a gravel base. A new location for TLD #41 is under evaluation with test TLDs and relocation should occur in 2006.

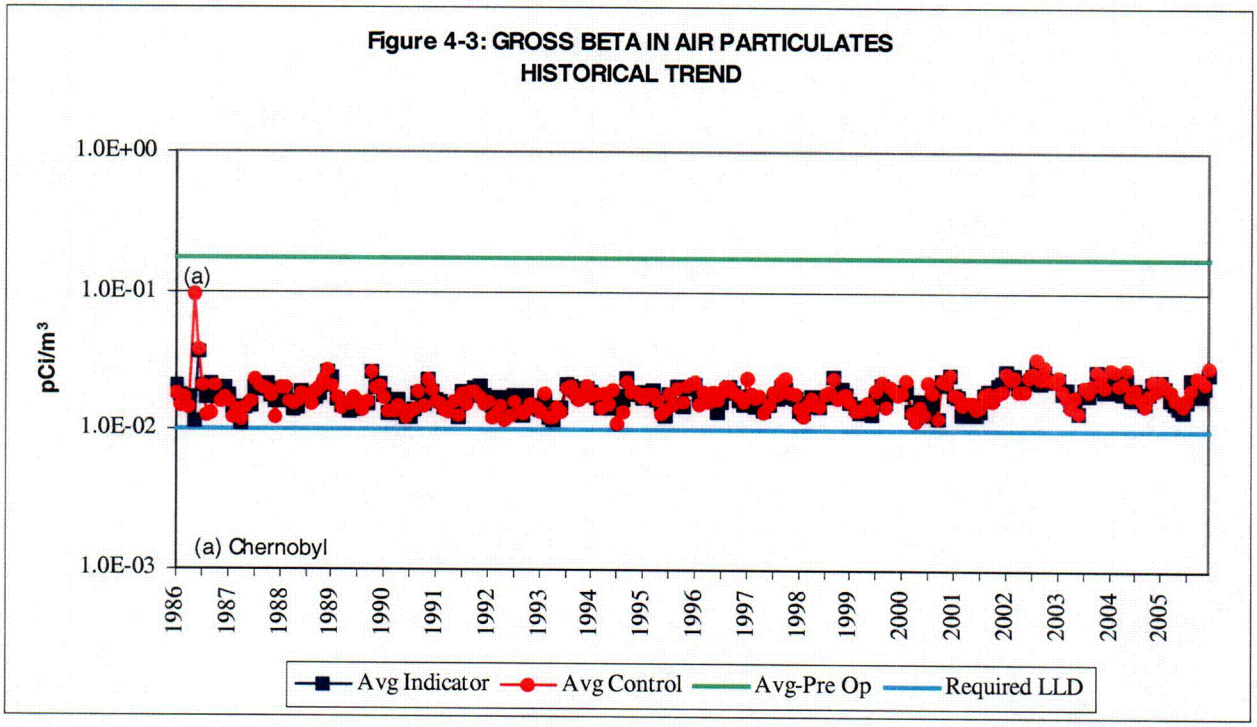
4.2 Airborne Gross Beta

Air is continuously sampled by passing it through glass fiber particulate filters. The filters collect airborne particulate radionuclides. Once a week the samples are collected and analyzed for gross beta activity. Results of the weekly gross beta analyses are presented in Table 3-3. A review of the results from control and indicator locations continues to show no significant variation in measured activities (see Figure 4-2 and 4-3). This indicates that any station contribution is not measurable.

Surry Power Station changed analytical laboratories for REMP sample analysis in 2002. For the period 1994 to 2001, the average indicator and control concentrations were 0.0173 and 0.0177 pCi/m^3, respectively. For the period 2002 to present, the average indicator and control concentrations were 0.0213 and 0.0219 pCi/m^3, respectively. Indicator and control data continue the historical trend of statistically comparable concentrations and radioactive gaseous effluents released from Surry Power Station continue to decline. The slight increase in average concentrations appears to be attributable to the laboratory change in 2002. A review of the 2002 - 2005 gross beta in particulate filter matrix data from the Interlaboratory Comparison Program determined an average laboratory bias of only 3.7%. Therefore, the laboratory analytic performance is acceptable.

Gross beta activity found during the pre-operational and early operating period of Surry 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, except as noted above.





4.3 Airborne Radioiodine

Air is also continuously sampled for radioiodines by passing it through charcoal

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cartridges. Once a week the charcoal cartridge samples are collected and analyzed. The results of the analyses are presented in Table 3-4. All results are below the lower limit of detection. No positive iodine-131 was detected. 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 from the weekly gross beta analyses are composited by location and analyzed quarterly by gamma spectroscopy. The results are listed in Table 3-5. The results indicate the presence of naturally occurring beryllium-7, which is produced by cosmic processes. Examination of pre-operational data indicates comparable measurements of Be-7, as would be expected. No man-made radionuclides were identified. These analyses confirm the lack of station effects.

4.5 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 the most critical 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 station effect.

Analysis results for cow milk are contained in Table 3-6. All results show a lack of detectable iodine-131 above the LLD of 1 pCi/L. Results of gamma spectroscopy indicate no other detectable station related radioactivity in the milk samples. In years past, cesium-137 has been detected sporadically. The occurrences were attributed to residual global fallout from past atmospheric weapons testing. Cs-137 was not detected at a level above the LLD in 2005.

At the request of the Commonwealth of Virginia, a quarterly composite sample is prepared from the monthly milk samples from the Colonial Parkway collection station. The composite samples are analyzed for strontium-89 and strontium-90. Sr-90 was detected in one of the four composites analyzed, at a concentration of 1.76 pCi/L. The average Sr-90 concentration for the ten year period of 1996 to 2005 is 1.90 pCi/L. The Sr-90 detected is not a part of station effluents but, rather, a product of nuclear weapons testing fallout. This conclusion can be made based upon: the lack of any positive indications of Sr-90 in effluents to account for such measurements, the lack of any positive indications of Sr-89 which is chemically similar and generally released in comparable quantities from the

station, and the trend of consistent declining levels since the pre-operational period.

4.6 Food Products

Three samples were collected and analyzed by gamma spectroscopy. The results of the analyses are presented in Table 3-7. As expected, naturally occurring potassium-40 was detected in all samples. The average concentration is consistent with that observed in previous years. No station related radioactivity was detected.

4.7 Well Water

Well water is not considered to be affected by station operations because there are no discharges made to this pathway. However, Surry Power Station monitors well water quarterly at two indicator locations and analyzes for gamma radiation and for tritium. The results of these analyses are presented in Table 3-8. Consistent with past monitoring, no station related radioactivity was detected. No gamma emitting isotopes were detected during the pre-operational period.

4.8 River Water

Samples of the James River water are collected monthly and the results are presented in Table 3-9. All samples are analyzed by gamma spectroscopy. The monthly samples are also composited and analyzed for tritium on a quarterly basis. With the exception of naturally occurring potassium-40 observed in some samples analyzed, no other gamma emitters were detected.

4.9 Silt

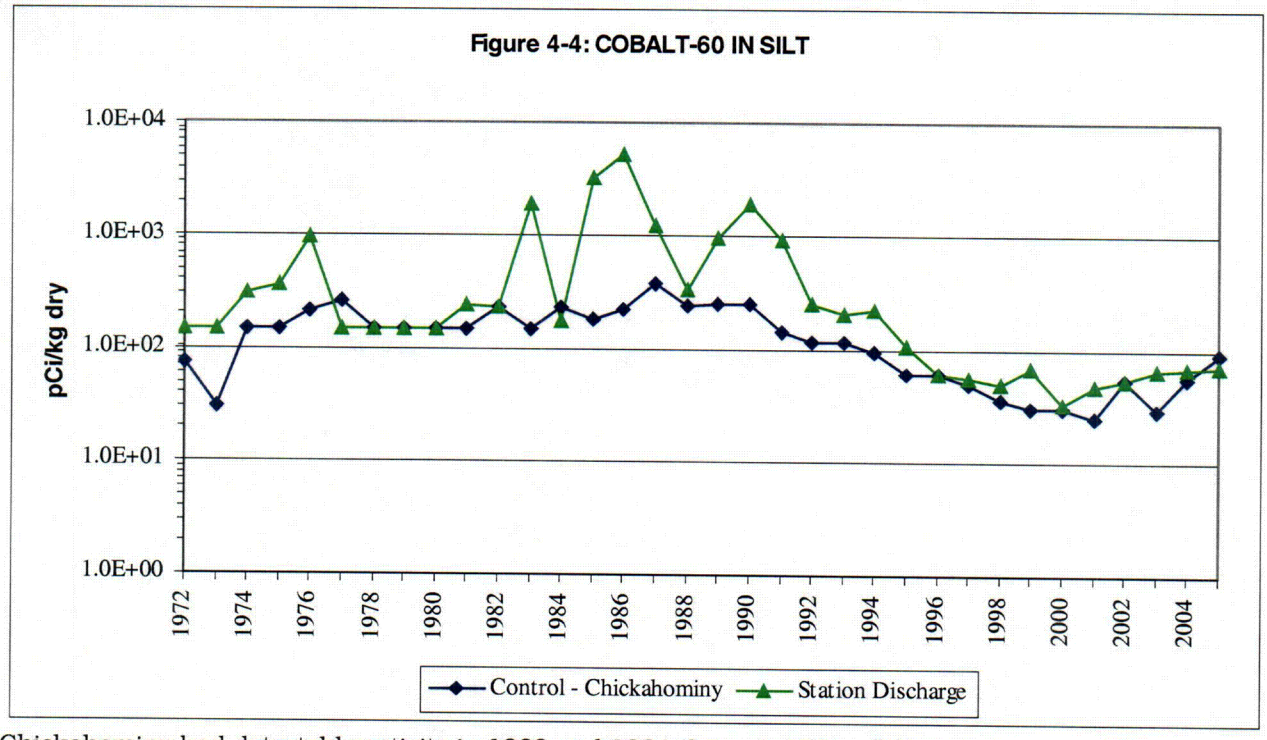
Silt is sampled to evaluate any buildup of radionuclides in the environment due to the operation of the station. Sampling of this pathway provides a good indication of the dispersion effects of effluents to the river. Buildup of radionuclides in silt could indirectly lead to increasing radioactivity levels in clams, oysters, crabs and fish.

Samples of silt are collected from two locations, one upstream and one downstream of the station. The results of the gamma spectroscopy analyses are presented in Table 3-10 and trending graphs of cobalt-60 and cesium-137 in silt appear in Figures 4-4 and 4-5.

Historically, cobalt-60 has been detected in samples obtained from the indicator location (SD). However, no cobalt-60 was detected in 2004 and 2005.

Cesium-137 was detected, as expected, in both the control and indicator samples. The levels detected indicate a continual decreasing trend seen for over a decade. The detection of Cs-137 in both the control and indicator samples and decreasing levels indicate that the presence of Cs-137 is the result of accumulation and runoff into the river of residual weapons testing fallout. Its global presence has been well documented. During the pre-operational period, Cs-137 was detected in most silt samples with an average concentration as indicated in Figure 4-5. In 2005, cesium-137 was detected with an average indicator location concentration of 229 pCi/kg and an average control location concentration of 215 pCi/kg. These activities continue to represent fallout from nuclear weapons testing. Both indicator and control cesium-137 activities trend closely as shown in Figure 4-5.

Figure 4-4: COBALT-60 IN SILT



Chickahominy had detectable activity in 1982 and 1984 through 1994. Other years were <MDL. Station Discharge was <MDL activity 1996 through 1998, 2004 and 2005.

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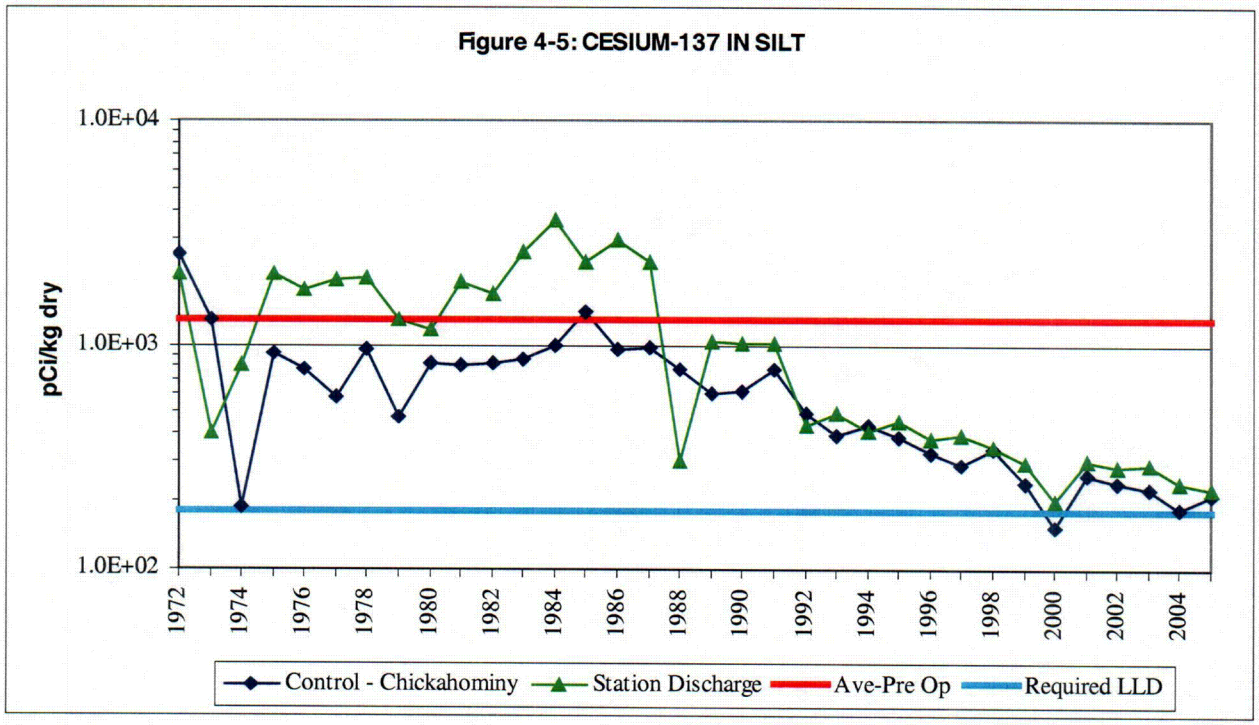

4.10 Shoreline Sediment

Shoreline sediment, unlike river silt, 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. The results are presented in Table 3-11.

The naturally occurring radioisotopes potassium-40 and thorium-228 were detected at concentrations equivalent to normal background activities. The activities of these radioisotopes indicate a steady trend. There were no radioisotopes attributable to the operation of the station found in any shoreline sediment samples.

4.11 Fish

The radioactivity measured in fish sampled from the station discharge canal and analyzed by gamma spectroscopy is presented in Table 3-12. These results are the same as those seen over the last decade. No activity was observed in this media except for naturally occurring potassium-40.

4.12 Oysters

Oysters are collected from two different locations. The results of the oyster

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analyses are presented in Table 3-13.

There were no gamma emitting radioisotopes detected in oysters sampled except for naturally occurring potassium-40. No station related radioactivity has been detected in this media since 1991. The absence of station related radionuclides is attributable to the replacement of steam generators in 1982 and past improvements made to liquid effluent treatment systems.

4.13 Clams

Clams are analyzed from four different locations. The results of the gamma spectroscopy analyses are presented in Table 3-14. Like oysters, no station related radioactivity was detected. Naturally occurring potassium-40 was detected.

4.14 Crabs

A crab sample was collected in June from the station discharge canal and analyzed by gamma spectroscopy. The results of the analysis are presented in Table 3-15. Other than naturally occurring potassium-40, no other gamma emitting radioisotopes were detected in the sample. This is consistent with pre-operational data and data collected over the past decade.

5. PROGRAM EXCEPTIONS

There were no REMP exceptions for scheduled sampling and analysis during 2005.

6. CONCLUSIONS

The results of the 2005 Radiological Environmental Monitoring Program for Surry Power Station have been presented in previous sections. This section presents conclusions for each pathway.

- **Direct Radiation Exposure Pathway** - Control and indicator location averages continue to indicate a steady relationship. An evaluation of selected TLD locations is underway and location changes may occur in 2006.

- **Airborne Exposure Pathway** - Analysis of charcoal cartridge samples for radioiodines indicated no positive activity was detected. Quarterly gamma isotopic analyses of the composite particulate samples identified only naturally occurring beryllium-7. Air particulate gross beta concentrations at all of the indicator locations for 2005 trend well with the control location. The 2002 – 2005 average concentration trend is 23% higher than the average concentration trend from 1994 through 2001. The contract laboratory Interlaboratory Comparison Program data for particulate filter gross beta analyses was closely reviewed and no issues were identified. For the 2002 – 2005 period, the average vendor gross beta analysis was within 3.7% of the spike sample activity. Gaseous effluent release data was also reviewed and determined not to be a factor as the long term trend of activity released continues to decline. Due to satisfactory vendor performance, good effluent management practices and because the gross beta activity in the control and indicator locations show no significant variation, the increased gross beta trend seen in 2002 - 2005 is not attributable to the operation of Surry Power Station and may be more related to the change in analytical laboratories beginning in 2002.

- **Milk** - Milk samples are an important indicator measuring the effect of radioactive iodine and radioisotopes in airborne releases. Cesium-137 and iodine-131 were not detected in any of the thirty-six samples. Naturally occurring potassium-40 was detected at a similar level when compared to the average of the previous year.

  Strontium-90 was detected in one of four samples this year at a concentration of 1.76 pCi/L. Strontium-90 is not a part of station effluents, but rather, a product of nuclear weapons testing fallout.

- **Food Products** - As expected, naturally occurring potassium-40 was detected in all three samples. In the past, cesium-137 has occasionally been detected in these samples and is attributable to global fallout from past nuclear weapons testing. Cesium-137 was not detected in any of the three samples collected in 2005.

- **Well Water** - Well water samples were analyzed and the analyses indicated

that there were no man-made radioisotopes present. This trend is consistent throughout the monitoring period. No radioactivity attributable to the operation of the station was identified.

- **River Water** - All river water samples were analyzed for gamma emitting radioisotopes. Naturally occurring potassium-40 was detected in six samples. Tritium was not detected at levels exceeding the lower limit of detection for any samples in 2005.

- **Silt** - Cesium-137 was detected in both the control and indicator samples. The presence of Cs-137 is attributable to residual weapons testing fallout; its presence has been well documented. Cobalt-60 has not been detected since 2003.

- **Shoreline Sediment** - Naturally occurring radioisotopes were detected at concentrations equivalent to normal background activities. There were no radioisotopes attributable to the operation of Surry Power Station found in any sample.

Aquatic Biota

- **Fish** - As expected, naturally occurring potassium-40 was detected in all four samples There were no other gamma emitting radioisotopes detected in any of the fish samples.

- **Oysters and Clams** – Other than naturally occurring potassium-40, there were no other gamma emitting radioisotopes detected in any of the oyster or clam samples.

- **Crabs** – Naturally occurring potassium-40 was detected. No other gamma emitting radioisotopes were detected.

REFERENCES

References

1. NUREG-0472, "Radiological Effluent Technical Specifications for PWRs", Draft Rev. 3, March 1982.

2. 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.

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

4. United States Nuclear Regulatory Commission Branch Technical Position, "Acceptable Radiological Environmental Monitoring Program", Rev. 1, November 1979.

5. Dominion, Station Administrative Procedure, VPAP-2103S, "Offsite Dose Calculation Manual (Surry)".

6. Virginia Electric and Power Company, Surry Power Station Technical Specifications, Units 1 and 2.

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

8. 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 2005

*LAND USE CENSUS**

Surry Power Station, Surry County, Virginia

January 1 to December 31, 2005 Page 1 of 1

Sector	Direction	Nearest Resident	Nearest Garden**	Nearest Cow	Nearest Goat
A	N	4.1 @ 10°	(a)	(a)	(a)
B	NNE	1.9 @ 32°	1.9 @ 32°	(a)	(a)
C	NE	4.7 @ 35°	4.9 @ 56°	(a)	(a)
D	ENE	(a)	(a)	(a)	(a)
E	E	(a)	(a)	(a)	(a)
F	ESE	(a)	(a)	(a)	(a)
G	SE	(a)	(a)	(a)	(a)
H	SSE	4.4 @ 163°	(a)	(a)	(a)
J	S	1.7 @ 181°	1.8 @ 183°	(a)	(a)
K	SSW	2.3 @ 212°	4.3 @ 193°	4.8 @ 200°	(a)
L	SW	2.3 @ 221°	3.6 @ 223°	(a)	(a)
M	WSW	0.4 @ 244°	3.6 @ 245°	(a)	(a)
N	W	3.1 @ 260°	3.4 @ 260°	(a)	(a)
P	WNW	4.9 @ 283°	(a)	(a)	(a)
Q	NW	4.6 @ 321°	(a)	(a)	(a)
R	NNW	3.8 @ 338°	4.4 @ 334°	3.7 @ 336°	(a)

* *Locations are listed by miles and degrees heading relative to true north from center of Unit #1 Containment.*

** *Area greater than 50 m^2 and contains broadleaf vegetation.*

(a) None

APPENDIX B: SUMMARY OF INTERLABORATORY COMPARISONS

YEAR 2005

INTRODUCTION

This appendix covers the Intercomparison Program of the AREVA NP Inc. Environmental Laboratory. AREVA NP uses QA/QC samples provided by Analytics, Inc. to monitor the quality of analytical processing associated with the Radiological Environmental Monitoring Program (REMP). The suite of Analytics QA/QC samples is designed to be comparable with the pre-1996 US EPA Interlaboratory Cross-Check Program in terms of sample number, matrices, and nuclides. It was modified to more closely match the media mix presently being processed by AREVA NP and 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), low-level (LL) iodine-131, and gross beta analyses during the 1st and 3rd quarters,
- water for Sr-89 and Sr-90 analyses during the 1st and 4th quarters,
- water tritium analysis during the 2nd and 4th quarters,
- air filter for gamma (9 nuclides) analyses during the 2nd and 4th quarters,
- air filter for gross beta analysis during each quarter,
- filter for Sr-90 analysis during the 2nd and 4th quarters.

In addition to the Analytics Intercomparison Program, AREVA NP also participates in other intercomparison programs. These programs are the National Institute of Standards and Technology (NIST) Measurement Assurance Program (MAP), the Environmental Resource Associates (ERA) Proficiency Test (PT) Program, the Department of Energy (DOE) Quality Assessment Program (QAP), and the Mixed Analyte Performance Evaluation Program (MAPEP).

RESULTS

Intercomparison program results are evaluated using AREVA NP's internal bias acceptance criteria as defined below:

- within 25% of the known for gross beta in water,
- within 25% of the known for samples containing both Sr-89 and Sr-90,
- within 15% of the known value for other radionuclides, or
- within two sigma of the known value.

AREVA NP investigates any sample analysis result that does not pass these criteria.

Analytics Intercomparison Program results are included on the pages that follow for the first quarter through the fourth quarter of 2005. A total of 104 analysis results were obtained with 104 passing acceptance criteria, a 100% success rate.

ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
AREVA NP ENVIRONMENTAL LABORATORY QA PROGRAM
AREVA NP Inc. ENVIRONMENTAL LABORATORY

1st Quarter 2005	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c)	Evaluation (d)
	E4463-162	Milk	I-131LL	pCi/L	91.2	92.3	0.99	A
			I-131	pCi/L	95.9	92.3	1.04	A
			Ce-141	pCi/L	229	229	1.00	A
			Cr-51	pCi/L	334	334	1.00	A
			Cs-134	pCi/L	137	139	0.99	A
			Cs-137	pCi/L	133	130	1.03	A
			Co-58	pCi/L	118	115	1.02	A
			Mn-54	pCi/L	166	160	1.04	A
			Fe-59	pCi/L	117	111	1.05	A
			Zn-65	pCi/L	203	198	1.03	A
			Co-60	pCi/L	145	144	1.01	A
	E4464-162	Milk	Sr-89	pCi/L	93.8	1.07	0.88	A
			Sr-90	pCi/L	16.1	17.9	0.90	A
	E4459-162	Water	Gr-Beta	pCi/L	279	292	0.96	A
	E4460-162	Water	I-131	pCi/L	69.3	65.9	1.05	A
			I-131LL	pCi/L	66.2	65.9	1.00	A
			Ce-141	pCi/L	219	221	0.99	A
			Cr-51	pCi/L	346	322	1.07	A
			Cs-134	pCi/L	130	134	0.97	A
			Cs-137	pCi/L	127	125	1.01	A
			Co-58	pCi/L	108	111	0.97	A
			Mn-54	pCi/L	160	154	1.04	A
			Fe-59	pCi/L	114	107	1.07	A
			Zn-65	pCi/L	192	191	1.01	A
			Co-60	pCi/L	138	139	1.00	A
	E4461-162	Water	Sr-89	pCi/L	94.6	103	0.92	A
			Sr-90	pCi/L	15.6	17.2	0.90	A
	E4462-162	Filter	Gr-Beta	pCi	162	157	1.04	A

Footnotes are on page 4 of 4.

ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
AREVA NP ENVIRONMENTAL LABORATORY QA PROGRAM
AREVA NP Inc. ENVIRONMENTAL LABORATORY

2nd Quarter 2005	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c)	Evaluation (d)
	E4603-162	Milk	I-131	pCi/L	86.8	86.9	1.00	A
			I-131LL	pCi/L	85.7	86.9	0.99	A
			Ce-141	pCi/L	96.3	92.4	1.04	A
			Cr-51	pCi/L	295	303	0.98	A
			Cs-134	pCi/L	87.7	95	0.92	A
			Cs-137	pCi/L	186	189	0.98	A
			Co-58	pCi/L	5.83	5.30	1.10	A
			Mn-54	pCi/L	124	125	0.99	A
			Fe-59	pCi/L	67	63.9	1.05	A
			Zn-65	pCi/L	149	155	0.96	A
			Co-60	pCi/L	138	145	0.96	A
	E4599-162	Water	H-3	pCi/L	9060	9100	1.00	A
	E4600-162	Filter	Gr-Beta	pCi	125	127	0.99	A
	E4601-162	Filter	Ce-141	pCi	59.3	58.9	1.01	A
			Cr-51	pCi	207	193	1.07	A
			Cs-134	pCi	59.1	60.6	0.98	A
			Cs-137	pCi	131	120	1.09	A
			Co-58	pCi	3.55	3.4	1.04	A
			Mn-54	pCi	88.6	79.7	1.11	A
			Fe-59	pCi	40.1	40.7	0.99	A
			Zn-65	pCi	112	98.8	1.13	A
			Co-60	pCi	89.4	92.3	0.97	A
	E4602-162	Filter	Sr-89	pCi	90.5	97.5	0.93	A
			Sr-90	pCi	13.0	12.6	1.03	A

Footnotes are on page 4 of 4.

ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
AREVA NP ENVIRONMENTAL LABORATORY QA PROGRAM
AREVA NP Inc. ENVIRONMENTAL LABORATORY

3rd Quarter 2005	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c)	Evaluation (d)
	E4690-162	Milk	I-131LL	pCi/L	99.0	94.3	1.05	A
			I-131	pCi/L	90.0	94.3	0.95	A
			Ce-141	pCi/L	228.5	233	0.98	A
			Cr-51	pCi/L	306.3	338	0.91	A
			Cs-134	pCi/L	118.3	122	0.97	A
			Cs-137	pCi/L	196.5	195	1.01	A
			Co-58	pCi/L	64.0	63.4	1.01	A
			Mn-54	pCi/L	94.7	92.0	1.03	A
			Fe-59	pCi/L	63.3	61.0	1.04	A
			Zn-65	pCi/L	121.7	123	0.99	A
			Co-60	pCi/L	165.2	167	0.99	A
	E4691-162	Milk	Sr-89	pCi/L	139.6	146	0.96	A
			Sr-90	pCi/L	10.8	11.5	0.94	A
	E4686-162	Water	Gr-Beta	pCi/L	128.5	123	1.05	A
	E4687-162	Water	I-131	pCi/L	77.2	78.2	0.99	A
			I-131LL	pCi/L	78.3	78.2	1.00	A
			Ce-141	pCi/L	276.4	282	0.98	A
			Cr-51	pCi/L	353.7	408	0.87	A
			Cs-134	pCi/L	137.3	148	0.93	A
			Cs-137	pCi/L	231.1	235	0.98	A
			Co-58	pCi/L	72.5	77	0.94	A
			Mn-54	pCi/L	113.2	111	1.02	A
			Fe-59	pCi/L	74.7	74	1.01	A
			Zn-65	pCi/L	152.3	149	1.02	A
			Co-60	pCi/L	192.1	202	0.95	A
	E4689-162	Filter	Gr-Beta	pCi	120.8	112	1.08	A

Footnotes are on page 4 of 4.

ANALYTICS ENVIRONMENTAL RADIOACTIVITY CROSS CHECK PROGRAM
AREVA NP ENVIRONMENTAL LABORATORY QA PROGRAM
AREVA NP Inc. ENVIRONMENTAL LABORATORY

4th Quarter 2005	Identification Number	Matrix	Nuclide	Units	Reported Value (a)	Known Value (b)	Ratio (c)	Evaluation (d)
	E4841-162	Milk	I-131	pCi/L	74.1	74.6	0.99	A
			I-131LL	pCi/L	72.4	74.6	0.97	A
			Ce-141	pCi/L	217	224	0.97	A
			Cr-51	pCi/L	190	193	0.99	A
			Cs-134	pCi/L	86.4	87.3	0.99	A
			Cs-137	pCi/L	187	189	0.99	A
			Co-58	pCi/L	78.7	77.5	1.02	A
			Mn-54	pCi/L	153	152	1.01	A
			Fe-59	pCi/L	87.8	82.4	1.07	A
			Zn-65	pCi/L	148	154	0.96	A
			Co-60	pCi/L	106	111	0.95	A
	E4836-162	Water	H-3	pCi/L	13700	13200	1.04	A
	E4837-162	Water	Sr-89	pCi/L	80.3	91.4	0.88	A
			Sr-90	pCi/L	7.18	7.4	0.97	A
	E4838-162	Filter	Gr-Beta	pCi	146	136	1.08	A
	E4839-162	Filter	Ce-141	pCi	122	131	0.93	A
			Cr-51	pCi	113	113	1.00	A
			Cs-134	pCi	48	51	0.94	A
			Cs-137	pCi	111	111	1.01	A
			Co-58	pCi	44.2	45.2	0.98	A
			Mn-54	pCi	93.5	88.9	1.05	A
			Fe-59	pCi	44.6	48.1	0.93	A
			Zn-65	pCi	95.8	89.9	1.07	A
			Co-60	pCi	59.1	64.6	0.91	A
	E4840-162	Filter	Sr-89	pCi	103	121	0.86	A
			Sr-90	pCi	9.05	9.7	0.93	A

(a) AREVA reported result.
(b) The Analytics standard.
(c) Ratio of AREVA to Analytics results.
(d) Analytics evaluation: A= Acceptable. W= Acceptable with warning. U= Unacceptable.