



SEP 23 2005

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United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
Washington, DC 20555

SHEARON HARRIS NUCLEAR POWER PLANT  
DOCKET NO. 50-400/LICENSE NO. NPF-63  
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING AMENDED REPORT

Ladies and Gentlemen:

On April 26, 2005, Carolina Power & Light Company, doing business as Progress Energy Carolinas, Inc. (PEC), submitted the 2004 Annual Radiological Environmental Operating Report for the Harris Nuclear Plant by way of letter HNP-05-044. Subsequent to the submittal, a calculation error was identified which affected the a priori Lower Limit of Detection (LLD) results included within the report. The correction to this error produced LLD results either equal to or more conservative than previously stated. Additionally, a correction to the results reported for the Interlaboratory Comparison Program is being made. Therefore, PEC is submitting the enclosed Annual Radiological Environmental Operating Amended Report for 2004 which replaces the previous submittal in its entirety. Changes are identified by a vertical revision bar in the right margin on each of the affected pages.

If you have questions or need additional information regarding this amended report, please contact me at (919) 362-3137.

Sincerely,

A handwritten signature in black ink, appearing to read 'D. H. Corlett'.

D. H. Corlett  
Supervisor – Licensing/Regulatory Programs  
Harris Nuclear Plant

DHC/mgw

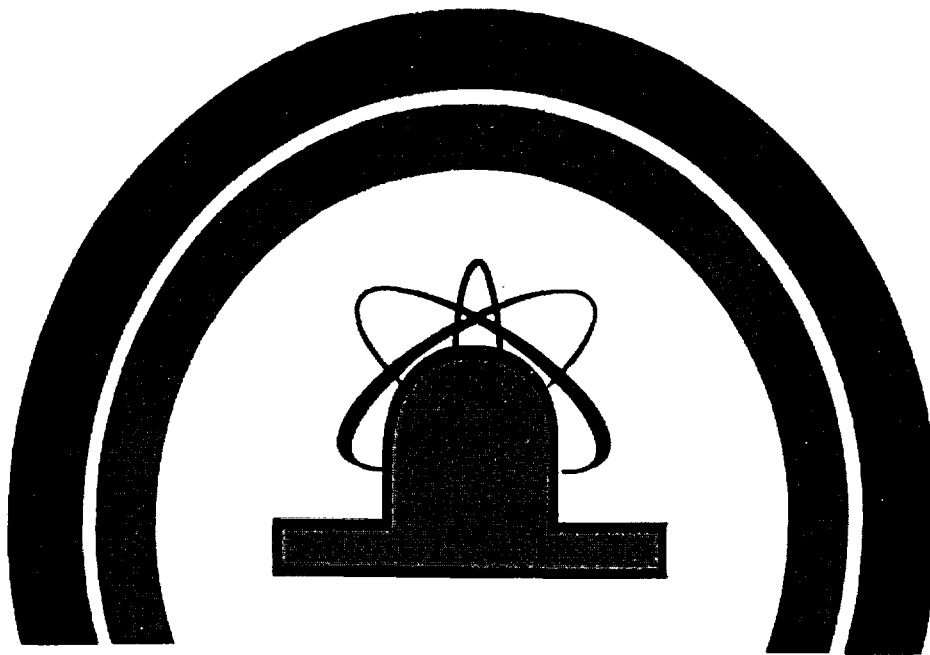
Enclosure

c: Mr. R. A. Musser (NRC Senior Resident Inspector, HNP)  
Mr. C. P. Patel (NRR Project Manager, HNP)  
Dr. W. D. Travers (NRC Regional Administrator, Region II)

Handwritten initials 'JES' in black ink.

Progress Energy Carolinas, Inc.  
Harris Nuclear Plant  
P. O. Box 165  
New Hill, NC 27562

**RADIOLOGICAL  
ENVIRONMENTAL OPERATING  
AMENDED REPORT**



**2004**

**HARRIS NUCLEAR PLANT  
CAROLINA POWER & LIGHT COMPANY  
DOING BUSINESS AS  
PROGRESS ENERGY CAROLINAS, INC.**

**CAROLINA POWER & LIGHT COMPANY  
DOING BUSINESS AS  
PROGRESS ENERGY CAROLINAS, INC.  
NEW HILL, NORTH CAROLINA**

**RADIOLOGICAL ENVIRONMENTAL OPERATING AMENDED REPORT  
FOR THE  
SHEARON HARRIS NUCLEAR POWER PLANT  
JANUARY 1 THROUGH DECEMBER 31, 2004**

# **TABLE OF CONTENTS**

<b>Title</b>	<b>Page</b>
<b>Table of Contents .....</b>	<b>i</b>
<b>List of Figures.....</b>	<b>ii</b>
<b>List of Tables .....</b>	<b>iii</b>
<b>Executive Summary .....</b>	<b>1</b>
<b>Radiological Environmental Monitoring Program.....</b>	<b>3</b>
Purpose and Requirements for the Radiological Monitoring Program.....	3
General Site Description .....	4
Radiological Monitoring Program Quality Assurance.....	5
Radiological Monitoring Program General Description.....	6
Summary of Radiological Monitoring Program .....	13
Interpretations and Conclusions.....	19
Missed Surveillances .....	26
Analytical Procedures .....	29
<b>Land-Use Census.....</b>	<b>34</b>
Purpose of the Land-Use Census .....	34
Methodology .....	34
2004 Land-Use Census Results.....	35

## **LIST OF FIGURES**

<b>Figure</b>		<b>Page</b>
1	Location of Harris Plant	4
2a	Radiological Environmental Sampling Locations (Distant from Plant)	7
2b	Radiological Environmental Sampling Locations (Distant from Plant)	8
3	Radiological Environmental Sampling Locations (Nearest Plant)	9
4	Plot of HNP Air Particulate Gross Beta Activity (Locations 1 and 5)	37
5	Plot of HNP Air Particulate Gross Beta Activity (Locations 2 and 5)	38
6	Plot of HNP Air Particulate Gross Beta Activity (Locations 4 and 5)	39
7	Plot of HNP Air Particulate Gross Beta Activity (Locations 5 and 26)	40
8	Plot of HNP Air Particulate Gross Beta Activity (Locations 5 and 47)	41
9	Plot of HNP Drinking Water Gross Beta Activity (Locations 38 and 40)	42
10	Plot of HNP Surface Water Gross Beta Activity (Locations 26 and 38)	43
11	Plot of HNP Surface Water Tritium Activity (Locations 26, 38, and 40)	44
12	Plot of HNP 2004 TLD Averages for Inner and Outer Ring Locations	45

# **LIST OF TABLES**

<b>Table</b>		<b>Page</b>
1	Media Used to Assess Exposure Pathways to Man	6
2	Radiological Environmental Sampling Locations Legend	10
3	Radiological Environmental Monitoring Sampling Locations	11
4	Radiological Environmental Monitoring Program Data Summary	14
5	Typical Lower Limits of Detection (a priori) Gamma Spectrometry	32
6	Land-Use Census Comparison (2003-2004)	36

# **EXECUTIVE SUMMARY**

The Shearon Harris Nuclear Power Plant (HNP) is operated by Carolina Power & Light Company, doing business as Progress Energy Carolinas, Inc. (PEC) under a license granted by the Nuclear Regulatory Commission. Provisions of the Nuclear Regulatory Commission's Regulatory Guide 4.8, Harris Nuclear Plant Technical Specifications, and the Harris Nuclear Plant Offsite Dose Calculation Manual (ODCM) establish the requirements of the Radiological Environmental Monitoring Program (REMP). This amended report provides the results of the Radiological Environmental Monitoring program from January 1, 2004 through December 31, 2004.

The Radiological Environmental Monitoring program was established in 1982. Radiation and radioactivity in various environmental media have been monitored for more than 20 years, including 5 years prior to commencing operation. Monitoring is also provided for control locations, which would not be impacted by operations of the Harris Nuclear Plant. Using these control locations and data collected prior to operation allows comparison of data collected at locations near the Harris Nuclear Plant which could potentially be impacted by its operations. Radiation levels show no significant change from pre-operational radiation levels.

Monitoring results for environmental media are summarized as follows:

- Air-monitoring results are similar or less than the concentrations of radioactivity from pre-operation monitoring. These observations are also consistent with past operational data.
- Milk and broadleaf vegetation monitoring results are similar to all the past years where no I-131 concentrations were detected. Broadleaf vegetation is in lieu of indicator milk samples, due to no milk-producing animal within five miles of the plant.
- Terrestrial vegetation includes various crops collected during a growing season and results indicate no detectable radioactivity.
- Aquatic organism monitoring includes fish and aquatic vegetation. The fish results indicate no detectable radioactivity; where as, the aquatic vegetation indicates detectable radioactivity in two out of three samples. Refer to the Interpretations and Conclusions section/ Aquatic Vegetation.
- Surface (and drinking) water results indicate no detectable gamma radionuclides including I-131, except for the I-131 noted in Interpretations and Conclusions section/ Drinking and Surface Water, which is performed by an I-131 separation analysis.
- Surface water (non-drinking water) results from Harris Lake show the presence of tritium, which is attributed to plant operation, but is well below the EPA reportable non-drinking water limit (30,000 pCi/Liter) and drinking water limit (20,000 pCi/Liter). Refer to the

**Interpretations and Conclusions section/ Surface Water.**

- **External radiation dose showed no measurable change from pre-operational data.**

**The continued operation of the Shearon Harris Nuclear Power Plant has not contributed measurable radiation or the presence of gamma radioactivity, with the exception of Harris Lake bottom sediment and aquatic vegetation, in the environmental monitoring program. The Harris Lake Surface water samples revealed tritium concentrations that are well within the applicable regulatory limits.**

# **RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM**

## **PURPOSE AND REQUIREMENTS FOR THE RADIOLOGICAL MONITORING PROGRAM**

The operation of a nuclear generating station may increase background radiation by a small fraction. It is important to measure these emissions of radioactivity and radiation to assess their impact on the surrounding populations. The purpose of the radiological monitoring program (surveillances) is to measure accumulation of radioactivity in the environments, to determine whether this radioactivity is the result of operation of the Harris Plant, and to assess the potential dose to the off-site population based on the cumulative measurements of radioactivity of plant origin. Radiological monitoring programs provide an additional verification of the radiological controls of nuclear generating stations.

The radiological monitoring program was established in 1982 and has continued to collect samples and evaluate them for over 20 years.

Requirements are established for the radiological monitoring program with the following:

- Technical Specifications
- Off-Site Dose Calculation Manual (ODCM)
- Various procedures

Additional guidance regarding the radiological monitoring program may be found in the following:

- NRC Regulatory Guide 1.109
- NRC Regulatory Guide 4.13
- NRC Regulatory Guide 4.15

## General Site Description

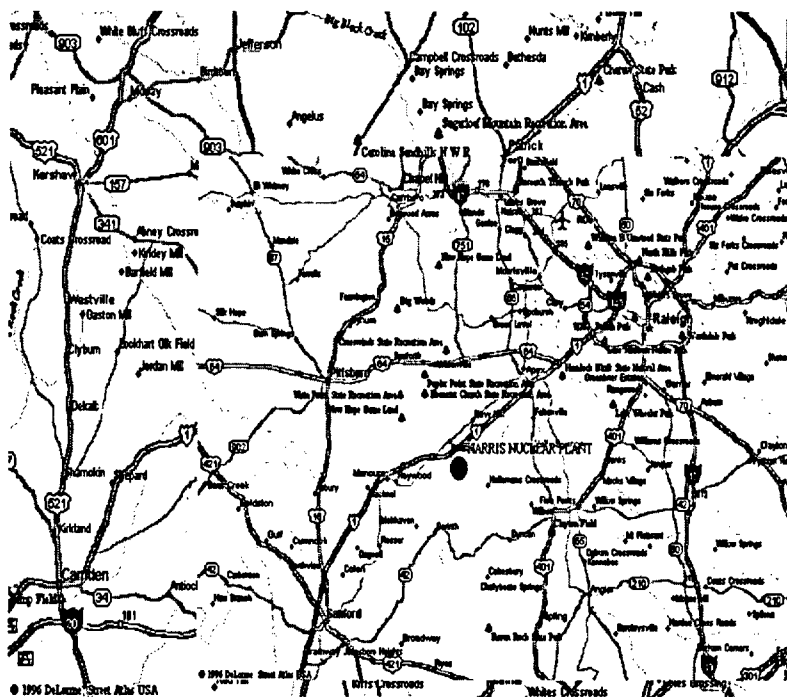
The Harris Nuclear Plant consists of a pressurized water reactor with a net output of approximately 900 MWe (Mega Watts electric). Commercial production was initiated on January 3, 1987. The Harris Nuclear Plant is located in southwest Wake County, North Carolina. The site is along U.S. route 1 approximately sixteen (16) miles southwest of Raleigh, North Carolina and is displayed on the map of central North Carolina (Figure 1). The site is also approximately fifteen (15) miles northeast of Sanford, North Carolina. The nearest community is New Hill, which is north of the site.

Harris Lake is adjacent to the plant itself and is the source of cooling tower makeup water. The lake was impounded in the construction of Harris Plant. The lake is fed by Buckhorn Creek and is approximately 4,000 acres in area. The main dam is approximately 4.7 miles south of the site. The primary discharges to Harris Lake from the plant are surface runoff, cooling tower blow down, and radiological waste process systems.

Fishing, boating, and swimming are popular activities on Harris Lake and other nearby lakes. PEC encourages the recreational use of the lake, Harris Lake County Park, and the adjoining lands through a variety of agreements with state and local government. One of these agreements is the game lands agreement encouraging hunting.

Within a five mile radius most of the land is wooded with only a few residences and limited agricultural activity. There are no non-company industrial structures or residences on the plant site. The chief use of the land is for production of timber and pulp fiber.

Within a ten mile radius the area is considered rural with significant populations in Apex, Holly Springs, and Fuquay-Varina. Currently these communities are experiencing significant growth.



Within a fifty-mile radius, much of the land is used in agricultural production with significant crops including corn, soybeans, and tobacco. Livestock is also an important component with significant production in cattle, hogs, poultry, and dairy products.

Consumption of drinking water, food crops, and fish are sample media that are examples of ingestion pathways for exposure.

## **RADIOLOGICAL MONITORING PROGRAM QUALITY ASSURANCE**

A required component of the REMP is the Quality Assurance Program. The standards for the quality assurance program are established in the NRC Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs." The purpose of the quality assurance program is "(1) to identify deficiencies in the sampling and measurement processes to those responsible for these operations so that corrective action can be taken, and (2) to obtain some measure of confidence in the results of the monitoring programs in order to assure the regulatory agencies and the public that the results are valid." (NRC Regulatory Guide 4.15 B Pg. 4.15-2) This provides the opportunity to implement corrective actions that address possible deficiencies. Examples of the activities of the quality assurance program include:

- regular review of sample collection and records
- regular review of laboratory procedures and methods
- participation in the Analytics, Inc. Environmental Cross-Check Program, which provides an independent assessment of the quality of laboratory results
- the use of known concentrations of radioactivity in test samples by the laboratory to ensure consistent quality results on an ongoing basis

## **RADIOLOGICAL MONITORING PROGRAM GENERAL DESCRIPTION**

Although the contribution to background radiation is small, PEC has established this program to measure the exposure pathways to man. An exposure pathway describes the source of the radiological exposure. The primary forms of radiological emissions from the plant are airborne and liquid discharge. The following pathways are monitored: external dose, ingestion of radioactive materials, and the inhalation of radioactive material. Specific methods and different environmental media are required to assess each pathway. Below in Table 1 is a list of the media used to assess each of these pathways.

**Table 1**  
**Media Used to Assess Exposure Pathways to Man**

<b><u>Pathway of Exposure to Man</u></b>	<b><u>Media Sampled</u></b>
External Dose	Thermoluminescent Dosimetry (TLD) Shoreline Sediment
Ingestion	Aquatic Vegetation Drinking Water Food Crops Fish Ground Water Milk Broadleaf Vegetation (when Milk samples are unavailable) Surface Water
Inhalation	Air Samples (Particulate & Radioiodine)

### **Sampling Locations**

Sampling locations are chosen based upon meteorological factors, preoperational monitoring, and results of the land use surveys. A number of locations are selected as controls. Control stations are selected because they are unaffected by the operation of the plant. Sample locations may be seen in Figures 2a, 2b, and 3. A description of each sample location may be found in Tables 2 and 3.

# Radiological Environmental Sampling Locations

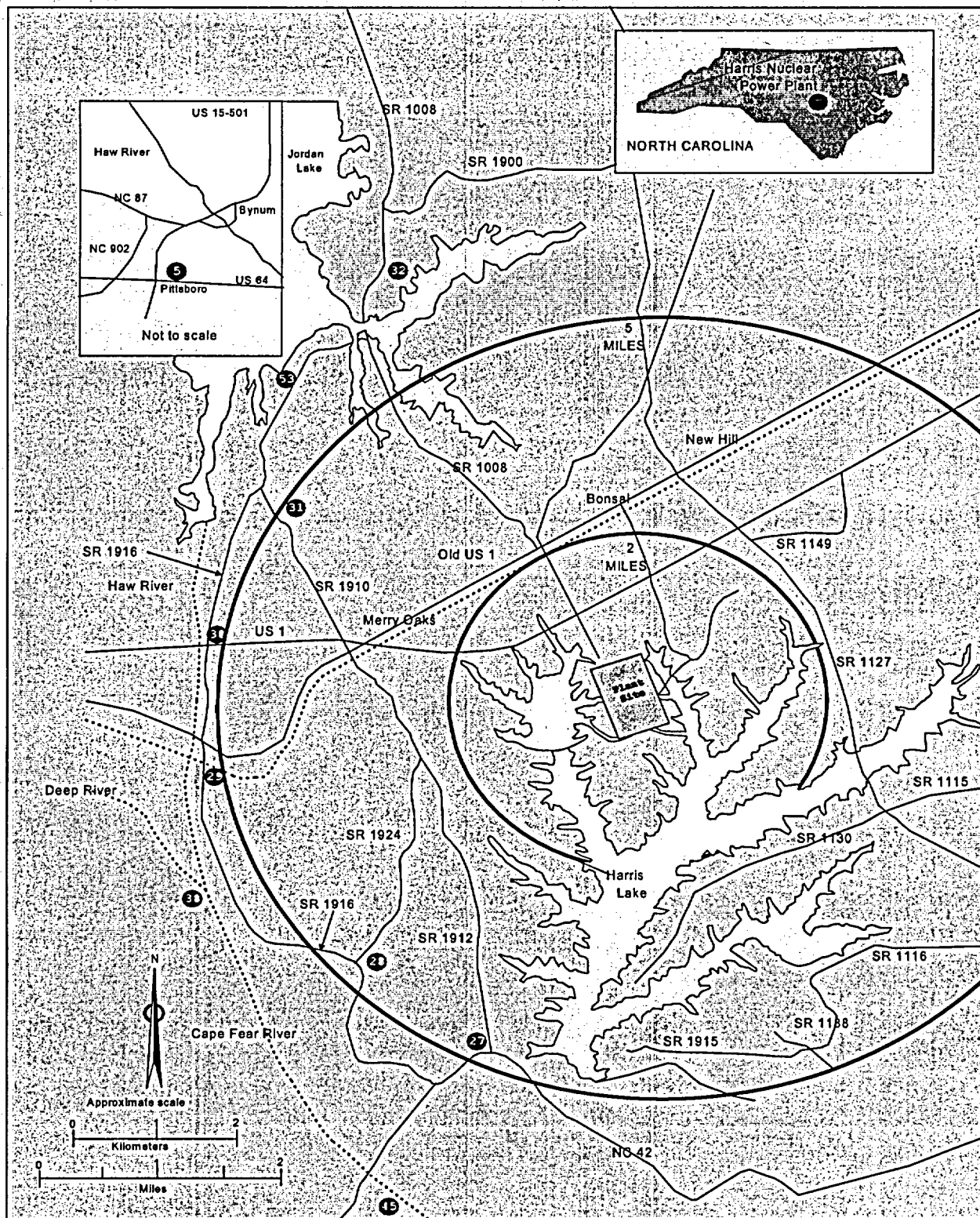


Figure 2a: Radiological Environmental Sampling Locations (Distant from Plant)

# Radiological Environmental Sampling Locations

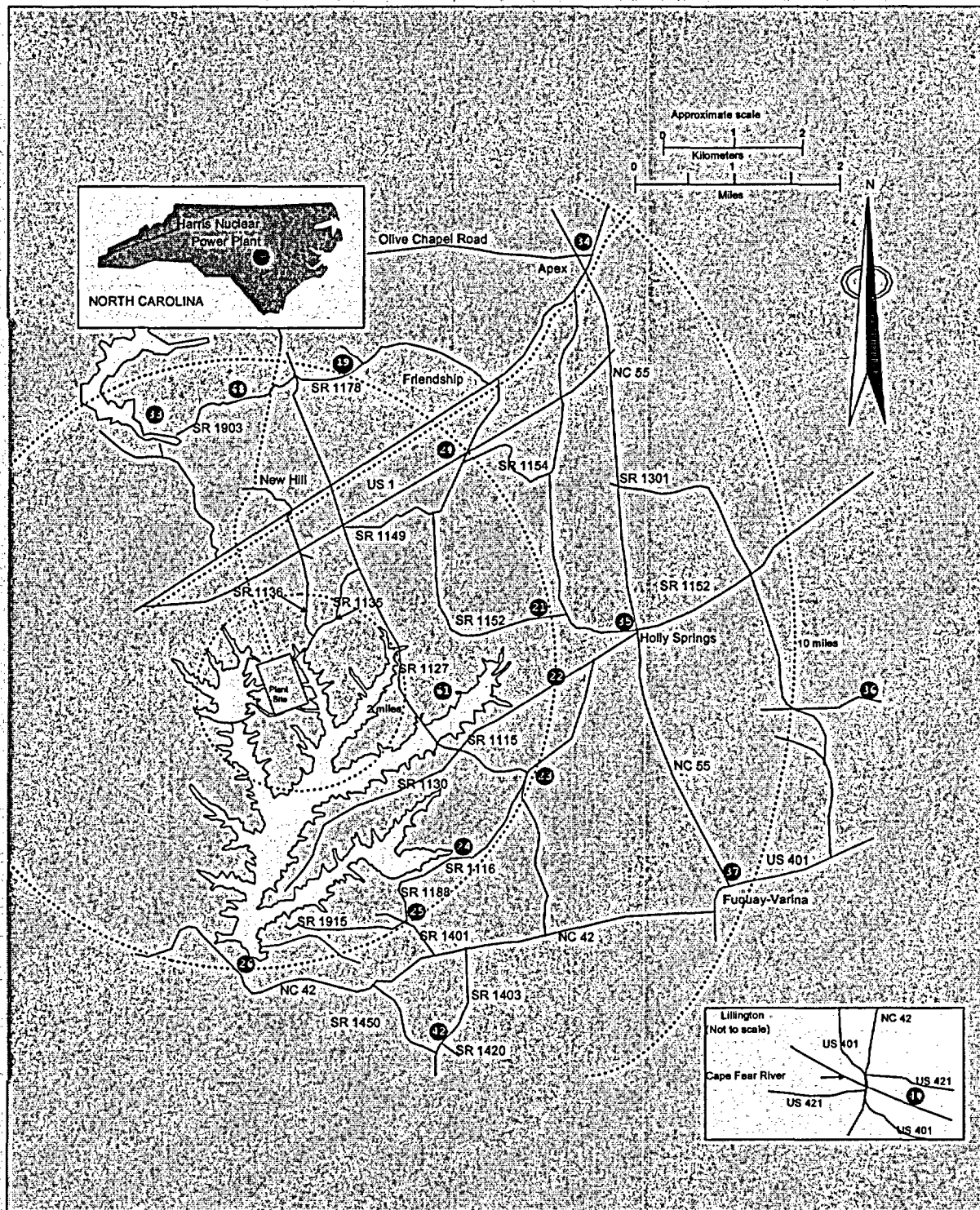


Figure 2b: Radiological Environmental Sampling Locations (Distant from Plant)

# Radiological Environmental Sampling Locations

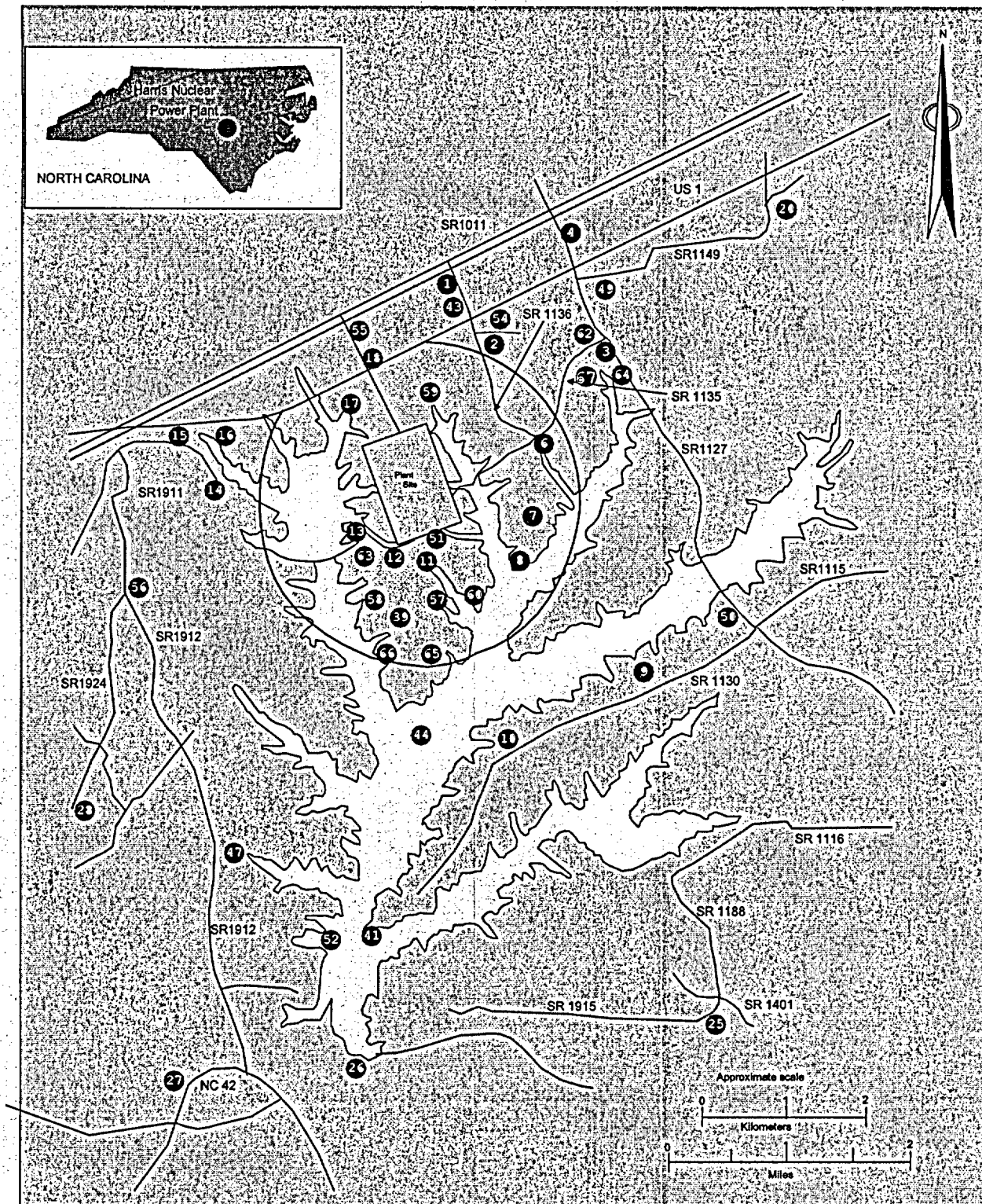


Figure 3: Radiological Environmental Sampling Locations (Nearest Plant)

Table 2

## Radiological Environmental Sampling Locations Legend

STATION NUMBER	SAMPLE TYPE	REFER TO FIGURE	STATION NUMBER	SAMPLE TYPE	REFER TO FIGURE		
1	AP, AC, TL	3	34	TL	2b		
2	AP, AC, TL	3	35	TL	2b		
3	TL	3	36	TL	2b		
4	AP, AC, TL	3	37	TL	2b		
5	AP, AC, MK, FC, TL, BL	2a *	38	SW, DW	2a		
6	TL	3	39	GW	3		
7	TL	3	40	SW, DW	2b *		
8	TL	3	41	SS, AV	3		
9	TL	3	42	MK	2b		
10	TL	3	43	DELETED	3		
11	TL	3	44	FH	3		
12	TL	3	45	FH	2a		
13	TL	3	47	AP, AC	3		
14	TL	3	48	TL	2b		
15	TL	3	49	TL	3		
16	TL	3	50	TL	3		
17	TL	3	51	DW	3		
18	TL	3	52	SD	3		
19	TL	2b	53	TL	2a		
20	TL	2b, 3	54	FC	3		
21	TL	2b	55	FC	3		
22	TL	2b	56	TL	3		
23	TL	2b	57	GW	3		
24	TL	2b	58	GW	3		
25	TL	2b, 3	59	GW	3		
26	AP, AC, AV, SS, SW, TL	2b, 3	60	GW	3		
27	TL	2a, 3	61	AV	2b		
28	TL	2a, 3	62	FC	3		
29	TL	2a	63	TL	3		
30	TL	2a	64	FC	3		
31	TL	2a	65	BL	3		
32	TL	2a	66	BL	3		
33	TL	2b	67	TL	3		
AC	Air Cartridge	DW	Drinking Water	MK	Milk	TL	TLD
AP	Air Particulate	FC	Food Crop	SD	Bottom Sediment		
AV	Aquatic Vegetation	FH	Fish	SS	Shoreline Sediment		
BL	Broad Leaf Veg.	GW	Groundwater	SW	Surface Water		

\* Approximate location

**Table 3**  
**Harris Nuclear Plant**  
**Radiological Environmental Monitoring Sampling Locations**

Sample Type	Location & Description	Frequency	Sample Size	Analysis
Air Cartridge (AC)	1--2.6 miles N 2--1.4 miles NNE 4--3.1 miles NNE 5--13.4 miles WNW--Pittsboro* 26--4.7 miles S 47--3.4 miles SSW	As required by dust loading, but at least once per 7 days	(275 m <sup>3</sup> )	Iodine
Air Particulate (AP)	1--2.6 miles N 2--1.4 miles NNE 4--3.1 miles NNE 5--13.4 miles WNW--Pittsboro* 26--4.7 miles S 47--3.4 miles SSW	As required by dust loading, but at least once per 7 days	(275 m <sup>3</sup> )	Gross Beta (Weekly) Composite Gamma (Quarterly)
Fish (FH)	44--Site varies in Harris Lake 45--Site varies in Cape Fear River above Buckhorn Dam*	Semiannual	1 kg (wet) Free Swimmers & Bottom Feeders	Gamma
Drinking Water (DW)	38--6.2 miles WSW* 40--17.2 miles SSE Lillington 51--Water Treatment Plant (On Site)	2 Week Composite Monthly Composite	8 liters	I-131, Gamma Tritium Gross Beta
Ground Water (GW)	39--0.7 miles SSW 57--0.4 miles SSW 58--0.5 miles WSW 59--0.5 miles NNE 60--0.5 miles ESE	Quarterly	4 liters	Gamma Tritium
Milk (MK)	5--18.2 miles WNW Manco Dairy*	Semimonthly	8 liters	I-131 Gamma
Shoreline Sediment (SS)	26--4.6 miles S 41--3.8 miles S	Semiannual	500 grams	Gamma
Surface Water (SW)	26--4.7 miles S 38--6.2 miles WSW * 40--17.2 miles SSE Lillington	Weekly Monthly Composite	8 liters	I-131, Gamma Tritium Gross Beta
Aquatic Vegetation (AV)	26--4.7 miles S 41--3.8 miles S 61--2.5 miles E	Annually	500 grams	Gamma
Bottom Sediment (SD)	52--3.8 miles S	Semiannual	500 grams	Gamma
Food Crop (FC) or Food Products (FP)	5--18.0 miles NNW--Pittsboro* 54--1.7 miles NNE--Wilkins or Morris 55--2.0 miles NNW--L. L. Goodwin 62--2.3 miles NE -- Lee 64--1.8 miles ENE -- Michael	3 different kinds of broadleaf vegetation monthly during growing season	500 grams	Gamma
Broadleaf Vegetation (BL)	65--1.36 miles S -- Site Boundary 66--1.33 miles SSW -- Site Boundary 5 -- > 12 miles NNW -- Pittsboro*	Monthly	500 grams	Gamma

\* Control Stations

**Table 3 (Continued)**

**Harris Nuclear Plant**

**Radiological Environmental Monitoring Sampling Locations**

<b>Sample Type</b>	<b>Location &amp; Description</b>	<b>Frequency</b>	<b>Sample Size</b>	<b>Analysis</b>
Thermoluminescent Dosimetry (TL or TLD)	1 -- 2.6 miles N 2 -- 1.4 miles NNE 3 -- 1.9 miles ENE 4 -- 3.1 miles NNE 5 -- 13.4 miles WNW--Pittsboro* 6 -- 0.8 mile NE 7 -- 0.7 mile E 8 -- 0.6 mile ESE 9 -- 2.2 miles SE 10 -- 2.2 miles SSE 11 -- 0.6 mile S 12 -- 0.9 mile SSW 13 -- 0.7 mile WSW 14 -- 1.5 miles W 15 -- 2.0 miles W 16 -- 1.9 miles WNW 17 -- 1.5 miles NW 18 -- 1.4 miles NNW 19 -- 5.0 miles NNE 20 -- 4.5 miles NE 21 -- 4.8 miles ENE 22 -- 4.3 miles E 23 -- 4.8 miles ESE 24 -- 4.0 miles SE 25 -- 4.7 miles SSE 26 -- 4.7 miles S 27 -- 4.8 miles SW 28 -- 4.8 miles SSW 29 -- 5.7 miles WSW 30 -- 5.6 miles W 31 -- 4.7 miles WNW 32 -- 6.4 miles NNW 33 -- 4.5 miles NNW 34 -- 8.7 miles NE--Apex 35 -- 6.9 miles E--Holly Springs 36 -- 10.9 miles E 37 -- 9.2 miles ESE--Fuquay-Varina 48 -- 4.5 miles N 49 -- 2.5 miles NNE 50 -- 2.6 miles ESE 53 -- 5.8 miles NW 56 -- 3.0 miles WSW 63 -- 0.6 mile SW 67 -- 1.2 miles ENE	Quarterly	Not Applicable	TLD Reading

\* Control Stations

## SUMMARY OF RADIOLOGICAL MONITORING PROGRAM

This amended report presents the results of the Radiological Environmental Monitoring Program conducted during 2004 for the Shearon Harris Nuclear Power Plant (HNP) and fulfills the reporting requirements of Technical Specifications 6.9.1.3 and ODCM E.3. The program was conducted in accordance with Operational Requirement 3.12.1 in the Off-Site Dose Calculation Manual (ODCM), and applicable procedures.

Approximately 1125 total samples of 13 different media types from approximately 880 indicator stations were compared to approximately 250 control stations. Control stations are locations that are unaffected by plant operations. In approximately 99 percent of the indicator samples there was no difference from the activities observed in the corresponding control samples.

Radioactivity in environmental samples attributed to plant operations in 2004 for which there is a potential dose pathway to the public is as follows:

Environmental Media	Radionuclide	Location of w/Highest Annual Mean	Activity and Occurrence	Maximum Individual Dose (mrem/yr)
Surface Water	H-3	Harris Lake	4,200 pCi/L (12/12)	No ingestion pathway. No dose calculated.
Fish	H-3	Harris Lake	See above. Assumes H-3 equilibrium between lake water and fish tissue.	0.01 Total Body

The radiological environmental data indicates that HNP operations in 2004 had no significant impact on the environment or public health and safety.

A statistical summary of all the data for 2004 has been compiled and summarized in Table 4.

The plant-derived activity detected within the scope of the Radiological Environmental Monitoring Program can be seen in the Data Summary Table 4 for 2004. No detectable tritium activity was observed at Lillington, N.C., located 17 miles downstream on the Cape Fear River, which is the first public drinking water (ingestion pathway) location below the Harris Lake discharge spillway. No plant-related gamma activity has been detected in fish collected from Harris Lake or in the water samples from Lillington, N.C.

The Harris Lake Bottom Sediment (SD) and the Aquatic Vegetation (AV) pose no radiological dose to the general public via this pathway due to the fact that the SD is not easily accessible and the AV is not an ingestion pathway. These samples are for long-term trends.

**Table 4**  
**Harris Nuclear Plant**  
**Radiological Environmental Monitoring Program Data Summary**

Shearon Harris Nuclear Power Plant  
Wake County, North Carolina

Docket Number: STN 50-400  
Calendar Year: 2004

Medium or Pathway Sampled or Measured (Unit of Measurement)	Type and Total No. of Measurements Performed	Typical Lower Limit of Detection (LLD) <sup>(1)</sup>	All Indicator Locations Mean <sup>(2)</sup> Range	<u>Location w/Highest Annual Mean</u>		Control Locations Mean <sup>(2)</sup> Range
				Name, Distance, and Direction	Mean <sup>(2)</sup> Range	
Air Cartridge (pCi/m <sup>3</sup> )	I-131 312	5.6E-2	All less than LLD	N/A	All less than LLD	All less than LLD
Air Particulate (pCi/m <sup>3</sup> )	Gross Beta 311 <sup>(3)</sup>	5.0E-3	1.99E-2 (259/260) 9.26E-3 – 3.43E-2	New Hill Near 1 <sup>st</sup> Baptist Church 3.1 miles NNE	2.13E-2 (52/52) 1.27E-2 – 3.23E-2	2.00E-2 (52/52) 1.13E-2 - 4.09E-2
	Gamma 24	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
Drinking Water <sup>(4)</sup> (pCi/l)	I-131 52	1.0E+0	All less than LLD	N/A	All less than LLD	All less than LLD
	Gross Beta 24	1.2E+0	4.82E+0 (12/12) 2.77E+0 – 6.62E+0	Lillington Cape Fear River 17.2 miles SSE	4.82E+0 (12/12) 2.77E+0 – 6.62E+0	4.96E+0 (12/12) 2.92E+0 – 7.00E+0
	Gamma 24	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
	Tritium 24	3.25E+2 <sup>(6)</sup>	All less than LLD	N/A	All less than LLD	All less than LLD

**Table 4 (cont.)**  
**Harris Nuclear Plant**  
**Radiological Environmental Monitoring Program Data Summary**

Shearon Harris Nuclear Power Plant  
Wake County, North Carolina

Docket Number: STN 50-400  
Calendar Year: 2004

Medium or Pathway Sampled or Measured (Unit of Measurement)	Type and Total No. of Measurements Performed	Typical Lower Limit of Detection (LLD) <sup>(1)</sup>	All Indicator Locations Mean <sup>(2)</sup> Range	Location w/Highest Annual Mean		Control Locations Mean <sup>(2)</sup> Range
				Name, Distance, and Direction	Mean <sup>(2)</sup> Range	
Fish Bottom-Feeders (pCi/g, wet)	Gamma 4	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
Free-Swimmers (pCi/g, wet)	Gamma 8	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
Food Crop (pCi/g, wet)	Gamma 32 <sup>(3)</sup>	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
Broadleaf Vegetation (pCi/g, wet)	Gamma 45 <sup>(3)</sup>	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
Aquatic Vegetation (pCi/g, wet)	Gamma 3 Co-58	3.2E-2	8.34E-2 (2/3) 4.67E-2 – 1.20E-1	Harris Lake Shoreline Mixing Zone Cooling Tower Blowdown 3.8 miles S	1.20E-1 (1/3) Single Value	No control
	Co-60	1.6E-1	2.64E-2 (2/3) 2.29E-2 – 3.00E-2	Harris Lake Shoreline Mixing Zone Cooling Tower Blowdown 3.8 miles S	3.00E-2 (1/3) Single Value	No control

**Table 4 (cont.)**  
**Harris Nuclear Plant**  
**Radiological Environmental Monitoring Program Data Summary**

Shearon Harris Nuclear Power Plant  
Wake County, North Carolina

Docket Number: STN 50-400  
Calendar Year: 2004

Medium or Pathway Sampled or Measured (Unit of Measurement)	Type and Total No. of Measurements Performed	Typical Lower Limit of Detection (LLD) <sup>(1)</sup>	All Indicator Locations Mean <sup>(2)</sup> Range	Location w/Highest Annual Mean		Control Locations Mean <sup>(2)</sup> Range
				Name, Distance, and Direction	Mean <sup>(2)</sup> Range	
Ground Water (pCi/l)	Gamma 20	Refer to Table 5	All less than LLD	N/A	All less than LLD	No control
	Tritium 20	3.25E+2 (20/20) <sup>(6)</sup>	5.24E+2 (4/20) 3.31E+2 – 6.13E+2	North Bank ESW Intake 0.5 mile WSW	5.24E+2 (4/20) 3.31E+2 – 6.13E+2	No control
Milk (pCi/l)	I-131 24	1.0E+0	N/A	N/A	N/A	All less than LLD
	Gamma 24	Refer to Table 5	N/A	N/A	N/A	All less than LLD
Shoreline Sediments (pCi/g, dry)	Gamma 4	Refer to Table 5	All less than LLD	N/A	All less than LLD	No Control
Bottom Sediment (pCi/g, dry)	Gamma 2	1.9E-1	9.17E-1 (2/2) 6.44E-1 – 1.19E+0	Harris Lake Cooling Tower Mixing Zone 3.8 miles S	9.17E-1 (2/2) 6.44E-1 – 1.19E+0	No Control
	Co-60					
	Cs-137	1.2 E-1	1.52E-1 (2/2) 1.25E-1 – 1.78E-1	Harris Lake Cooling Tower Mixing Zone 3.8 miles S	1.52E-1 (2/2) 1.25E-1 – 1.78E-1	No Control

**Table 4 (cont.)**  
**Harris Nuclear Plant**  
**Radiological Environmental Monitoring Program Data Summary**

Shearon Harris Nuclear Power Plant  
Wake County, North Carolina

Docket Number: STN 50-400  
Calendar Year: 2004

Medium or Pathway Sampled or Measured (Unit of Measurement)	Type and Total No. of Measurements Performed	Typical Lower Limit of Detection (LLD) <sup>(1)</sup>	All Indicator Locations Mean <sup>(2)</sup> Range	<u>Location w/Highest Annual Mean</u>		Control Locations Mean <sup>(2)</sup> Range
				Name, Distance, and Direction	Mean <sup>(2)</sup> Range	
Surface Water <sup>(4)</sup> (pCi/l)	I-131 52	1.0E+0	All less than LLD	N/A	All less than LLD	All less than LLD
	Gross Beta 36	1.2 E+0	4.44E+0 (24/24) 2.24E+0 - 8.50E+0	Lillington Cape Fear River 17.0 miles SSE	4.82E+0 (12/12) 2.77E+0 - 6.62E+0	4.96E+0 (12/12) 2.92E+0 - 7.00E+0
	Gamma 36	Refer to Table 5	All less than LLD	N/A	All less than LLD	All less than LLD
	Tritium 36	3.25E+2 (24/36) <sup>(6)</sup> 1.00E+3 (12/36) <sup>(6)</sup>	All less than LLD 4.20E+3 (12/24) 2.36E+3 - 6.82E+3	N/A Harris Lake Spillway 4.7 miles S	All less than LLD 4.20E+3 (12/12) 2.36E+3 - 6.82E+3	All less than LLD
Direct Radiation (mR/qtr) <sup>(5)</sup>	TLD 174 <sup>(3)</sup>		1.17E+1 (170/172) 9.20E+0 - 1.62E+1	Fuquay Varina at Old CP&L Office 9.2 miles ESE	1.57E+1 (4/4) 1.53E+1 - 1.62E+1	1.52E+1 (4/4) 1.43E+1 - 1.60E+1

#### FOOTNOTES TO TABLE 4

1. The Lower Limit of Detection (LLD) is the smallest concentration of radioactive material in a sample that will yield a net count above system background which will be detected with 95 percent probability and with only 5 percent probability of falsely concluding that a blank observation represents a "real" signal. Due to counting statistics and varying volumes, occasionally lower LLDs are achieved.
2. Mean and range are based on detectable measurements only. The fractions of all samples with detectable activities at specific locations are indicated in parentheses.
3. Missing samples are discussed in Missed Surveillances.
4. Although quarterly composite samples are required, monthly composite samples are used to provide more frequent and sensitive analyses.
5. TLD exposure is reported in milliroentgen (mR) per 90-day period (quarter) beginning in 1995. This is the exposure standard used to compare data to the Nuclear Regulatory Commission (NRC).
6. Tritium Lower Limit of Detection (LLD) was lowered to  $3.25 \text{ E}+2 \text{ pCi/L}$  in June 1996 for samples that typically demonstrate activity less than the LLD. The LLD was lowered at the request of PEC in order to maintain comparable LLD and result values with the NC Division of Radiation Protection (NCDRP) laboratory. Other samples that typically exhibit activity greater than the LLD have a tritium Lower Limit of Detection (LLD) of  $1.0 \text{ E}+3 \text{ pCi/L}$ .

## INTERPRETATIONS AND CONCLUSIONS

### Air Monitoring

All 312 air cartridge (AC) samples from indicator and control stations had I-131 concentrations less than the typical LLD of  $5.6\text{E-}2$  pCi/m<sup>3</sup>, except for AC-26 on 4/26/04 which had a missed surveillance period (NCR # 125362) due to a motor failure, which when the sample was counted, due to the extremely low volume, the I-131 LLD limit was exceeded. I-131 was detected in air samples for a six-week period following the Chernobyl incident in April 1986. With this exception, no I-131 has been detected in air samples collected from 1987 through 2004, which is the entire operating history of the plant.

For the period of January 1, 2004 to December 31, 2004; the gross beta activity was detectable in all airborne particulate (AP) samples, with acceptable runtime, from the five indicator locations. The 259 indicator samples had an average concentration of  $1.99\text{E-}2$  pCi/m<sup>3</sup>, a value similar to or less than preoperational data of  $2.00\text{E-}2$  pCi/m<sup>3</sup>. Similar gross beta activities were observed at the control location in Pittsboro, which had an average concentration of  $2.00\text{E-}2$  pCi/m<sup>3</sup> in 52 control samples. Figures 4 through 8 provide a graphic representation of the gross beta activity at the indicator locations compared to the control location for the year 2004. On 10/04/04, the AP control sample (AP-5) exhibited an elevated gross beta activity, thus a gamma isotopic analysis was done, with the results indicating all natural gamma activity. No gamma activity was observed for any air particulates during 2004. These concentrations are typical of the natural environment and are not attributed to plant operations.

No plant-related gamma activity was detected in quarterly composite filter samples from either the indicator or control locations. Typical LLDs for air particulates are contained in Table 5.

### Drinking Water

The 26 drinking water samples collected at the Lillington Municipal water supply and the 26 control samples collected from the Cape Fear River above the Buckhorn Dam contained less than detectable I-131 activity ( $< 1.0\text{E+}0$  pCi/L) during 2004. Additional sampling was done in

January 2004 for the control location (DW/SW-38 at Cape Fear) due to an anomalous positive result for I-131 during the composite period ending 1/5/04 (NCR # 115169). No detectable I-131 activity was detected in any of the additional drinking/surface water samples or in any of the 2004 composite samples. This has typically been the experience for the preoperational and operational period with the exception of 1986 when the fallout from Chernobyl was detected.

The average annual gross beta concentrations at the indicator and control locations were similar in concentrations of  $4.82\text{E}+0$  pCi/L and  $4.96\text{E}+0$  pCi/L, respectively. The preoperational average was  $4.00\text{E}+0$  pCi/L. These concentrations are attributed to the natural environment and are not attributed to plant operations. Figure 9 provides graphic representation of the gross beta activity during 2004 for Location 40 (Lillington) and Location 38 (control at Cape Fear).

Analyses for gamma-emitting radionuclides indicated all concentrations were less than the lower limit of detection for drinking water. Table 5 contains typical LLD values for gamma-emitting radionuclides in drinking water.

Tritium concentrations in the Lillington Municipal Water Supply samples were less than the lower limit of detection ( $3.25 \text{E}+2$  pCi/L) (see Footnotes to Table 4, Footnote 6).

### **Fish**

Analyses for gamma-emitting radionuclides in two samples of bottom-feeding species (catfish) and in four samples of free-swimming species (sunfish and largemouth bass) from the indicator location, Harris Lake, revealed no detectable activity for 2004, other than naturally occurring nuclides. This is consistent with the data for 1989-2003. During the Chernobyl period, Cs-134, 137 were detected in both control and indicator samples.

Fish are assumed to be in equilibrium with the tritium concentration in the lake. The total body/organ dose to the maximum exposed individual due to tritium was calculated using Regulatory Guide 1.109, Rev.1, October 1977, Equation A-1, to be 0.009 mrem/year.

Equation A-1

$$R_{aipj} = C_{ip} U_{ap} D_{aipj}$$

where as:

- $R_{aipj}$  = total body dose in mrem/yr of H-3  
 $C_{ip}$  = concentration of nuclide (H-3) in pCi/kg = pCi/L  
 $U_{ap}$  = maximum exposed individual's consumption  
(Reg. Guide 1.109 Table E-5)  
 $D_{aipj}$  = ingestion dose factor for total body/organ of  
individual in  $U_{ap}$  in mrem/pCi (Reg. Guide 1.109  
Table E-11, E-12, or E-13)

The Total Body/Organ dose is as follows:

	Child	Teenager	Adult
Consumption of fish kg/yr	6.9	16	21
Dose (Total Body/Organ) mrem/yr	0.006	0.007	0.009

The total body dose and organ dose, due to tritium in the fish, (ingestion dose factor - Reg. Guide 1.109 Table E-11, E-12, and E-13) for the maximum exposed individuals consuming 6.9 kg fish/yr. for a child, 16 kg fish/yr. for a teenager, and 21 kg fish/yr. for an adult are 0.006, 0.007, and 0.009 mrem/year respectively.

**Milk/Broadleaf Vegetation**

During 2004, as in all past years with the exception of the Chernobyl period, no I-131 concentrations were detected in control milk samples. Gamma analyses revealed no detectable radioactivity from plant operations. The only detectable gamma activity consistently identified in each milk sample was potassium-40 (K-40). This is a natural occurring nuclide in any organic material. The K-40 concentrations in the milk control samples range from 1.21E+3 pCi/L – 2.27E+3 pCi/L. Other natural occurring nuclides are identified in some of the milk samples.

In May of 1997, the Maple Knoll Dairy (indicator MK-42 - located in the SSE sector) ceased operations. In lieu of the semimonthly milk samples, per HNP ODCM Table 3.12-1, broadleaf vegetation samples were collected in both the South (S) and SSW sectors.

Broadleaf sampling is conducted since no milk animals are available within a radius of approximately five miles of the plant and is used to simulate dose to an individual via the milk pathway for compliance purposes. Broadleaf vegetation sampling is accomplished by collecting monthly, three different species of samples, when available, at two off site locations (two indicator locations of the highest predicted annual average ground level D/Q) and at the control location (BL-5 in the NNW sector at greater than 12 miles). The highest predicted annual average ground level D/Q (ODCM Table A-1 through A-4) was at the site boundary in both the South sector at 1.36 miles (BL-65) and SSW sector at 1.33 miles (BL-66). The control location (BL-5) was introduced into the environmental sampling program for HNP in January 2004. The gamma analyses on the broadleaf vegetation did not detect any plant-related radioactivity in any of the broadleaf vegetation (Dogwood, Fig Leaf, Maple, and Sweetgum) in 2004.

### **Surface Water**

Surface water samples were collected (weekly) and analyzed (bi-weekly) for I-131. Water samples collected during 2004 contained less than detectable I-131 activity ( $< 1.0\text{E}+0$  pCi/L). Additional sampling was done in January 2004 for the control location (DW/SW-38 at Cape Fear) due to an anomalous positive result for I-131 during the composite period ending 1/5/04 (NCR # 115169). No detectable I-131 activity was detected in any of the additional drinking/surface water samples or in any of the 2004 drinking/surface water composite samples.

Average gross beta concentrations at the indicator and control locations were  $4.44\text{E}+0$  pCi/L and  $4.96\text{E}+0$  pCi/L, respectively, in 2004, indicating no adverse influence from plant operations (See Figure 10).

Surface water samples were analyzed for gamma and tritium radioactivity. All concentrations of man-made gamma-emitters were less than their respective lower limits of detection (see Table 5).

The annual average tritium concentration in Harris Lake was  $4.20\text{E}+3$  pCi/L with minimum and maximum values of  $2.36\text{E}+3$  pCi/L and  $6.82\text{E}+3$  pCi/L, respectively (see Figure 11). The

average Harris Lake tritium concentration showed an increase in tritium compared to the annual average of  $2.67\text{E}+3$  pCi/L in 2003. The tritium liquid release program is optimized by releasing liquid effluents during periods of high rainfall to minimize the impact of the tritium concentration in the lake.

### **Ground Water**

Ground water samples are collected on site at HNP for gamma and tritium analysis. The measured concentrations of the gamma analyses were measured below their required Lower Limits of Detection (LLD) as specified in the Harris Plant ODCM (docket No. STN-50-400) in Table 4.12-1 titled "Detection Capabilities For Environmental Sample Analysis Lower Limit of Detection (LLD)" for the year 2004.

The measured tritium concentrations were below the required HNP ODCM Table 4.12-1 LLD for environmental samples. These limits are 2000 picocuries per Liter (pCi/L) for a drinking water pathway and 3000 pCi/L if no drinking water pathway exists. HNP administratively established a ground water tritium analysis LLD of 325 pCi/L, which is well below the requirements specified in the HNP ODCM.

The ground water tritium analysis, for the year 2004, determined that no detectable tritium concentration was present based on the LLD specified in the HNP ODCM. Trace levels of tritium, below the 2000 pCi/L ODCM LLD, but above the HNP administrative LLD (325 pCi/L) were detected in ground water Location 58 (0.5 mile WSW Sector N Bank ESW Intake). See Table 4 on page 16. The ground water wells, located on site at HNP, are all abandoned wells and are not a water supply for drinking or irrigation; therefore, there is no radiological dose via this pathway.

### **Shoreline Sediment**

Shoreline sediment samples were collected semiannually in 2004 from (1) opposite the discharge structure and (2) near the main dam. Gamma analyses of the shoreline sediments detected all natural activity in the samples collected during 2004. No long-term trends are readily observed in these samples.

### **Bottom Sediment**

The 2004 data shows Cobalt (Co)-60 ( $6.44\text{E-}1 - 1.19\text{E+}0$  pCi/gm dry), and Cesium (Cs)-137 ( $1.25\text{E-}1 - 1.78\text{E-}1$  pCi/gm dry) activity in the indicator sample, which is sampled semiannually.

The bottom sediment sample from Harris Lake poses no radiological dose to the general public via this pathway due to the fact that it is not easily accessible (i.e. bottom sediment is approximately forty to sixty feet under water). These samples are for long-term trends for liquid effluents.

### **Food Crops**

In addition to milk sampling (or broadleaf vegetation sampling), a food product sampling program was maintained. Various crops were collected during the growing season(s), which continued year round. The species selected were primarily broad-leaf vegetables which are most sensitive to direct fallout of airborne radioactive particulates. Crops sampled in 2004 included beets, cabbage, collards, cucumbers, eggplants, lettuce, squash, tomatoes, and turnips and greens.

Gamma analyses of the food crops detected no plant-related activity in 18 samples from indicator locations and 14 samples from control locations collected in 2004.

### **Aquatic Vegetation**

The 2004 data shows that there were three aquatic vegetation indicator samples collected from Harris Lake, which are sampled annually. The aquatic vegetation samples from Harris Lake pose no radiological dose to the general public by the ingestion pathway. Gamma analyses of the aquatic vegetation detected Cobalt (Co)-58 ( $4.67\text{E-}2 - 1.20\text{E-}1$  pCi/gm wet) and Co-60 ( $2.29\text{E-}2 - 3.00\text{E-}2$  pCi/gm wet) in two out of the three indicator samples collected during 2004 (see Table 4). No long-term trends are readily observed in these samples.

### **External Radiation Exposure**

Thermoluminescent dosimeters (TLDs) were used to monitor ambient radiation exposures in the plant environs. The average quarterly exposure at the indicator and control locations was 11.7 mR and 15.2 mR, respectively. The highest indicator location was 9.2 miles ESE of the plant (Fuquay Varina at the old CP&L office) and its average was 15.7 mR/qtr. The differences among

these locations are attributed to variations in soils, local geology, and are not the result of plant operations.

Comparison of the quarterly TLD exposure within approximately 2 miles (inner ring) of the plant with that at approximately 5 miles (outer ring) is presented in Figure 12. This data illustrates that the quarterly inner ring TLD exposures are slightly less than the quarterly outer ring TLD exposures (differences range from 0.32 mR to 0.56 mR).

## **MISSED SURVEILLANCES**

### **Air Cartridge and Air Particulates**

Any REMP weekly air samples (Air Cartridge – AC or Air Particulate – AP) that exceed 30 hours of down time in a surveillance period will be reported as a “missed surveillance”. However, this sample will still be counted and the data reported; whereas a “missed sample” will have no data reported. There were five missed surveillances and one missed AP sample in 2004.

#### **Missed Samples:**

- AP-26, April 26 – Down time of 71 hours (hrs.) due to a motor failure – The sample was counted, but no results were reported due to the activity being less than the MDA (NCR # 125362).

#### **Missed Surveillances:**

- AC/AP-1, 2, 4, 5, 26, and 47; January 26 – Late surveillance period – (NCR # 116704). Environmental air cartridge and airborne particulate samples from the indicator and the control stations were obtained beyond the due date (January 28, 2004) due to the safety hazards of navigating the roads during icy conditions. These samples were taken from equipment that operates continuously and there was no interruption in the continuous sampling equipment. Only the required frequency for changing out samples was late or the sampling period for collection was exceeded (NCR # 116704).
- AC-26, April 26 - Down time of 71 hrs. due to a motor failure – (NCR # 125362).
- AC/AP-2, June 7 – Down time of 14.1 hrs. due to GFCI breaker tripping due to thunderstorm (NCR # 128944).
- AC/AP-5, June 14 – Down time of 5.9 hrs. due to power outages from thunderstorms (NCR # 129655).
- AC/AP-4, September 20 – Down time of 69.3 hrs. due to power outage after a thunderstorm and UPS did not come back on (NCR # 137848).
- AC/AP-47, November 1 – Down time of 76.1 hrs. due to plug not making contact with the receptical (NCR # 142457).

### **Food Crops**

Food crops were not available from any garden location for sampling during April of 2004. During the remainder of the year, January through December, inadequate food crop samples (3 different kinds from each location) were available from each sample location in 2004. The farmers’ and individuals’ gardens at each sample location did not plant or produce three (3) different kinds of food crops in 2004; which was mostly due to seasonal unavailability, deer or other animals, lack of sufficient quantity planted or lack of a variety of crops planted, and

equipment problems. Two sample locations have not been able to supply any food crops in 2004, locations 62 and 64. Based on NCR # 141151, sampling of the gardens listed in the HNP ODCM goes above and beyond regulatory guidance since none of the gardens identified during the annual Land-Use Census, including the gardens identified in the HNP ODCM, are irrigated by water in which liquid plant wastes have been discharged. Therefore, the absence of food crops from these locations does not constitute a failure to monitor a pathway. Nuclear condition reports were written to document food crop unavailability (NCR # 131028, 141151, and 146519).

#### **Milk / Broad Leaf Vegetation**

If milk sampling cannot be performed, then 3 different kinds of broad leaf vegetation nearest each of two different offsite locations of highest predicted annual average ground level D/Q shall be sampled. Broadleaf vegetation samples were not available for sampling due to seasonal unavailability during January, February, March, April, October, November, and December of 2004 (NCR # 128209 and 146520).

#### **Drinking / Surface Water**

- DW/ SW-38 and 40, DW-51, and SW-26 (January 26, 2004) had a late surveillance sampling period (NCR # 116704).

The Drinking / Surface Water environmental samples; for the sampling period of January 26, 2004; were obtained beyond the due date (January 28, 2004) due to the safety hazards of navigating the roads during icy conditions. These samples were taken from equipment that operates continuously (except for DW-51) and there was no interruption in the continuous sampling equipment. Only the required frequency for changing out samples was exceeded or a late surveillance (NCR # 116704).

## **TLDs**

Two TLD samples, out of a possible 176 TLD samples (indicator and control locations), were missing during 2004. TLD # 31 was collected and analyzed (Exposure Rate of 22.7 mR/std. qtr.), but the results were abnormally high (thus an outlier) due to moisture in the TLD phosphors (TLD was soaked with water) (NCR # 153824).

- TLD # 31 Third Quarter 2004 Abnormally high results due to moisture in the TLD phosphors (NCR # 153824).
- TLD # 7 Fourth Quarter 2004 TLD # 7 was missing in the field after the tree it was attached to was cut down (NCR # 148130).

## ANALYTICAL PROCEDURES

### Gross Beta

Gross beta radioactivity measurements are made utilizing a Tennelec Low-Background Alpha/Beta Counting System. The LLD for air particulates is approximately  $5.0 \text{ E-3 pCi/m}^3$  for HNP samples. Air particulate samples are mounted in 2-inch stainless steel planchets and counted directly.

Gross beta activity in drinking and surface waters is determined by evaporating 1 liter of the sample and counting a planchet on a Tennelec Low-Background Alpha/Beta Counting System for 50 minutes. Typical LLD for gross beta is  $1.2 \text{ E+0 pCi/L}$ .

### Tritium

Liquid samples requiring tritium analysis are treated with a small amount of sodium hydroxide, potassium permanganate crystals, and then distilled. Five milliliters of the distillate are mixed with thirteen milliliters of liquid scintillation cocktail and counted in a liquid scintillation counter. Samples that typically exhibit activity are counted for 60 minutes to achieve an approximate LLD of  $1.0 \text{ E+3 pCi/L}$ . Samples, which routinely demonstrate activity less than the lower limit of detection, are counted for 150 minutes with an approximate LLD of  $3.25 \text{ E+2 pCi/L}$ .

### Iodine-131

Iodine-131 airborne concentrations are analyzed by the intrinsic germanium (Ge) spectrometry systems. The cartridges are placed on the detector, and each charcoal cartridge is counted individually with an  $5.6 \text{ LLD E-2 pCi/m}^3$ .

Iodine-131 in milk and drinking water is determined by an instrumental method. Analysis involves passing 4 liters over an anion exchange resin and direct gamma analysis of the resin with an intrinsic Ge detector. The LLD using the Ge detector is approximately  $1.0 \text{ E+0 pCi/L}$  using a 25,000-second count time.

### **Gamma Spectrometry**

Gamma samples are analyzed by the intrinsic germanium detectors with thin aluminum windows housed in steel and lead shields. The analyzer system is the Canberra Nuclear 9900 Gamma Spectroscopy System. Table 5 summarizes LLD values derived from using the instrument with the worst sensitivity, typical sample volumes, typical count times, typical worst background count, and worst case on decay (from collection to counting).

Air particulate filter quarterly composites are placed in a Petri dish and analyzed directly for 7,000 seconds.

Liquid samples, except milk, are boiled down to a small volume, transferred to a Poly Bottle (PB-50 beaker) and analyzed groundwater samples for 7,000 seconds and others for 40,000 seconds. One-liter milk samples are analyzed in a 1-liter Marinelli beaker for 11,000 seconds.

Shoreline and bottom sediments are dried, weighed, and then analyzed in a 1-liter Marinelli beaker for 1,500 seconds.

Food crop, aquatic vegetation, and broadleaf vegetation samples are weighed as sampled and analyzed in a Marinelli beaker for 7,500 seconds.

Fish samples are cleaned, dressed, (raw, edible portions) and placed in a 1-liter Marinelli beaker for gamma analysis using a count time of 1,500 seconds.

### **Thermoluminescent Dosimetry**

Each area monitoring station includes a TLD packet which is a polyethylene bag containing three calcium sulfate phosphors contained in a Panasonic UD-814 badge. The TLD is light tight and the bag is weather-resistant.

Dosimeters are machine annealed before field placement. Following exposure in the field, each dosimeter is read utilizing a Panasonic TLD reader. This instrument integrates the light photons emitted from traps as the dosimeter is heated. Calibration is calculated using dosimeters irradiated to known doses for each set of dosimeters measured. Prior to the measurement of each

dosimeter, the instrument is checked through use of an internal constant light source as a secondary standard.

The exposure reported is corrected for exposure received in transit and during storage through the use of control dosimeters.

### **Interlaboratory Comparison Program**

The Radiochemistry Laboratory at the Harris Energy & Environmental Center in New Hill, North Carolina, provides radioanalytical services for PEC's nuclear plant radiological environmental surveillance programs. In fulfillment of ODCM Operational Requirements, the laboratory is a participant in the Analytics, Inc., Environmental Cross-Check Program and uses its performance in this program as a major determinant of the accuracy and precision of its analytical results.

During 2004, 113 analyses were completed on 18 samples representing seven major environmental media (i.e., water, milk, air filters, air filters composite, soil, air cartridges, and simulated vegetation). Data on the known activities, the uncertainties, and the ratios to the known for the 113 analyses have been received from Analytics, Inc. The results shall be compared to the criteria established in the NRC Inspection Manual (Procedure 84750) for Radioactive Waste Treatment, Effluent, and Environmental monitoring.

All of the 113 analyses were within the acceptance criteria, except for two gross beta results which fell outside the acceptable criteria (NCR # 155953). Any results that lie outside the ratio criteria will have an evaluation performed to identify any recommended remedial actions and to reduce anomalous errors. Complete documentation of any evaluation will be available and provided to the NRC upon request.

### **Lower Limits of Detection**

All samples analyzed met the LLD required by the ODCM, with the exception noted in Interpretations and Conclusions section/ Air Monitoring subsection.

**Table 5**  
**Typical Lower Limits of Detection (A Priori)**  
**Gamma Spectrometry**

<b>Drinking Water/Surface Water Samples</b>	
<b>Isotope</b>	<b>LLD (pCi/L)</b>
Mn-54	2
Co-58	3
Fe-59	4
Co-60	2
Zn-65	4
Zr-Nb-95	3 / 3
I-131	7
Cs-134	2
Cs-137	2
Ba-La-140	16 / 7
*I-131 (Separation Procedure)	*0.66
<b>Air Particulates (Quarterly Composite)</b>	
<b>Isotope</b>	<b>LLD (pCi/m<sup>3</sup>)</b>
Cs-134	0.002
Cs-137	0.002
<b>Milk</b>	
<b>Isotope</b>	<b>LLD (pCi/L)</b>
Cs-134	14
Cs-137	13
Ba-La-140	46 / 13
*I-131 (Separation Procedure)	*0.71
<b>Sediment</b>	
<b>Isotope</b>	<b>LLD (pCi/kg dry)</b>
Cs-134	148
Cs-137	120
<b>Fish</b>	
<b>Isotope</b>	<b>LLD (pCi/kg wet)</b>
Mn-54	97
Co-58	102
Fe-59	238
Co-60	127
Zn-65	251
Cs-134	128
Cs-137	114

\* Instrumental analysis of resin concentrates of samples.

**Table 5 (Cont.)**  
**Typical Lower Limits of Detection (A Priori)**  
**Gamma Spectrometry**

<b>Food Products and Vegetation</b>	
<b>Isotope</b>	<b>LLD (pCi/kg wet)</b>
I-131	42
Cs-134	47
Cs-137	54
<b>Aquatic Vegetation</b>	
<b>Isotope</b>	<b>LLD (pCi/kg wet)</b>
I-131	38
Cs-134	27
Cs-137	30
<b>Ground Water</b>	
<b>Isotope</b>	<b>LLD (pCi/L)</b>
Mn-54	6
Co-58	11
Fe-59	17
Co-60	12
Zn-65	18
Zr-Nb-95	13 / 9
I-131	7
Cs-134	9
Cs-137	8
Ba-La-140	32 / 14

# **LAND-USE CENSUS**

## **PURPOSE OF THE LAND-USE CENSUS**

The land-use census identifies the pathways (or routes) that radioactive material may reach the general populations near commercial nuclear generating stations. This is accomplished by completing studies each year that identify how the surrounding lands are used by the population. A comprehensive census of the use of the land within a five-mile distance of the plant is completed during the growing season each year. This information is used for dose assessment and to identify changes to the stations sampled and the type of samples. These results ensure that the Radiological Environmental Monitoring Program (REMP) is based upon current data regarding human activity in the vicinity of the plant. Therefore, the purpose of the land-use census is to ensure the monitoring program is current, as well as provide data for the calculation of estimated radiation exposure.

The pathways evaluated are:

- Ingestion Pathway - Results from eating food crops that may have radioactive materials deposited on them, incorporated radioactive materials from the soil or atmosphere. Another pathway is through drinking milk from local cows or goats if these are present and if not then broadleaf vegetation is collected in lieu of milk. The grass used to feed these animals may have incorporated or had deposited on it radioactive materials that can be transferred to the milk.
- Direct Radiation Exposure Pathway- Results from deposition of radioactive materials on the ground or from passage of these radioactive materials in the air.
- Inhalation Pathway- Results from breathing radioactive materials transported in the air.

## **Methodology**

The following must be identified within the five (5) mile radius of the plant for each of the sixteen meteorological sectors (compass direction the winds may blow, for example NNE [North North East]):

- The nearest resident
- The nearest garden of greater than 500 square feet, producing broadleaf vegetables
- The nearest milk animal

The primary methods are visual inspection from the roadside within the five (5) mile radius and personal contact with the individuals.

## **2004 Land-Use Census Results**

The 2003 and 2004 results of the survey for the nearest resident, garden, milk and meat animals in each sector are compared in Table 6.

The nearest resident in each sector remained the same from 2003 to 2004. No gardens were located within 5 miles of the plant for the NE, E, S, WNW, and NW sectors. All the gardens located in 2004 were the same as 2003, except that the following gardens where the previous year's survey found a garden at 3.0 miles in the W sector versus 3.1 miles in 2004 and the garden found at 2.3 miles in the NE sector last year was not grown in 2004. No meat animals were found in the NE, S, SSW, WNW, and NW sectors in 2004. All meat animals located in 2004 were the same as 2003. The dairy in the SSE sector at 7.0 miles from the plant ceased operation in 1997 and there still remain no milk animals near the plant. Harris Lake County Park was included in the 2004 survey, even though there are not yet permanent residents on site. There are plans in the future for rangers and a campground.

**Table 6**

**Land-Use Census Comparison (2003-2004)  
Nearest Pathway (Miles)**

SECTOR	RESIDENT		GARDEN		MEAT ANIMAL		MILK ANIMAL	
	2004	2003	2004	2003	2004	2003	2004	2003
N	2.2	2.2	2.2	2.2	2.2	2.2	---	---
NNE	1.9	1.9	1.9	1.9	1.9	1.9	---	---
NE	2.3	2.3	---*	2.3	---	---	---	---
ENE	1.6	1.6	1.8	1.8	1.8	1.8	---	---
E	1.7	1.7	---	---	1.7	1.7	---	---
ESE	2.6	2.6	2.6	2.6	4.6	4.6	---	---
SE	2.6	2.6	4.1	4.1	2.6	2.6	---	---
SSE	4.2	4.2	4.2	4.2	4.2	4.2	---	---
S	5.3	5.3	---	---	---	---	---	---
SSW	3.8	3.8	3.8	3.8	---	---	---	---
SW	2.9	2.9	2.9	2.9	2.9	2.9	---	---
WSW	4.5	4.5	4.5	4.5	4.6	4.6	---	---
W	3.0	3.0	3.1*	3.0	3.1	3.1	---	---
WNW	2.3	2.3	---	---	---	---	---	---
NW	2.4	2.4	---	---	---	---	---	---
NNW	1.6	1.6	2.0	2.0	2.0	2.0	---	---

\* Represents a change from the previous year.

Sector and distance determined by Global Positioning System.

Figure 4 HNP From 1/1/2004 To 12/31/2004  
AIR PARTICULATE for GROSS BETA - Activity (pCi/cubic meter)

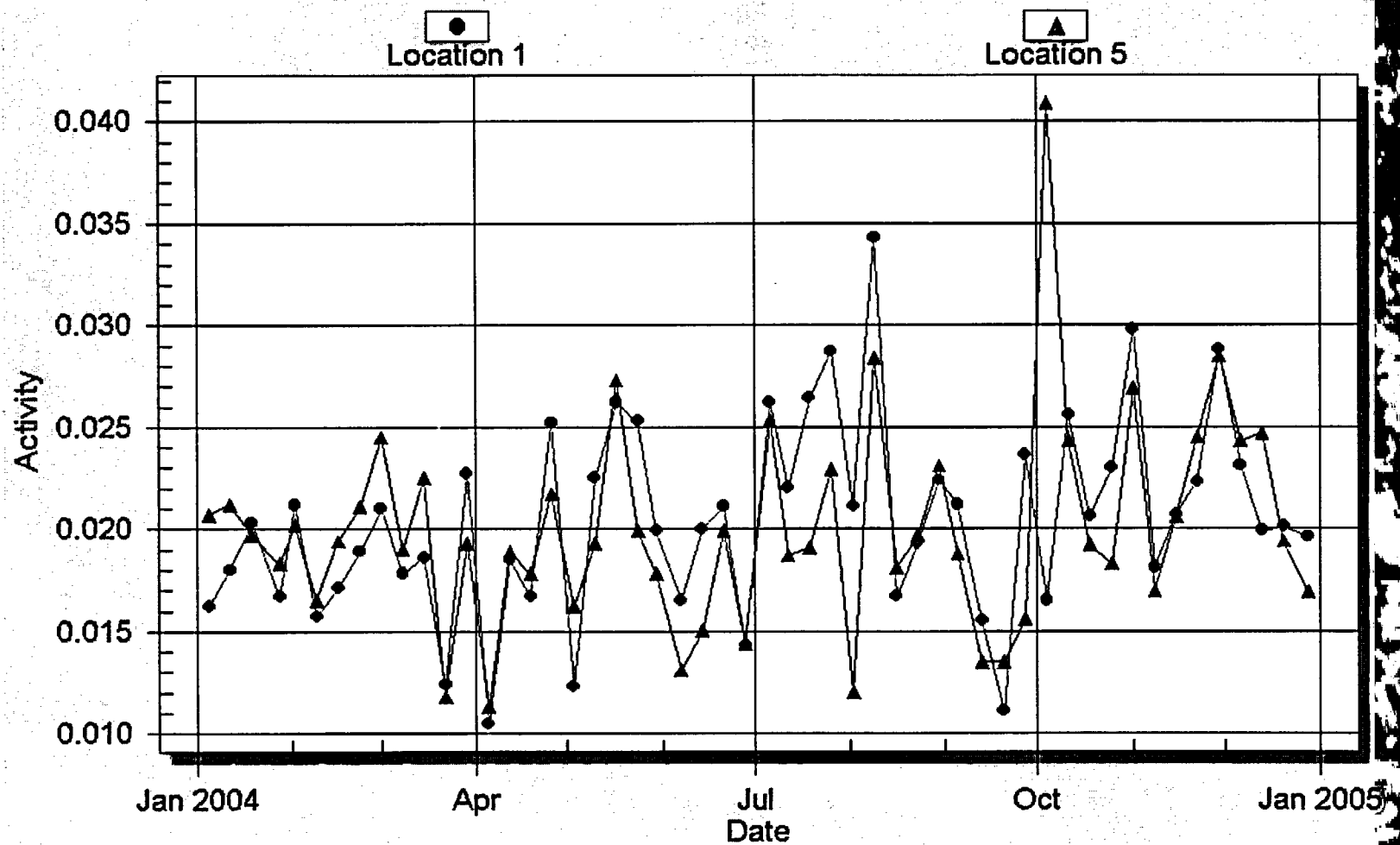


Figure 5 HNP From 1/1/2004 To 12/31/2004  
AIR PARTICULATE for GROSS BETA - Activity (pCi/cubic meter)

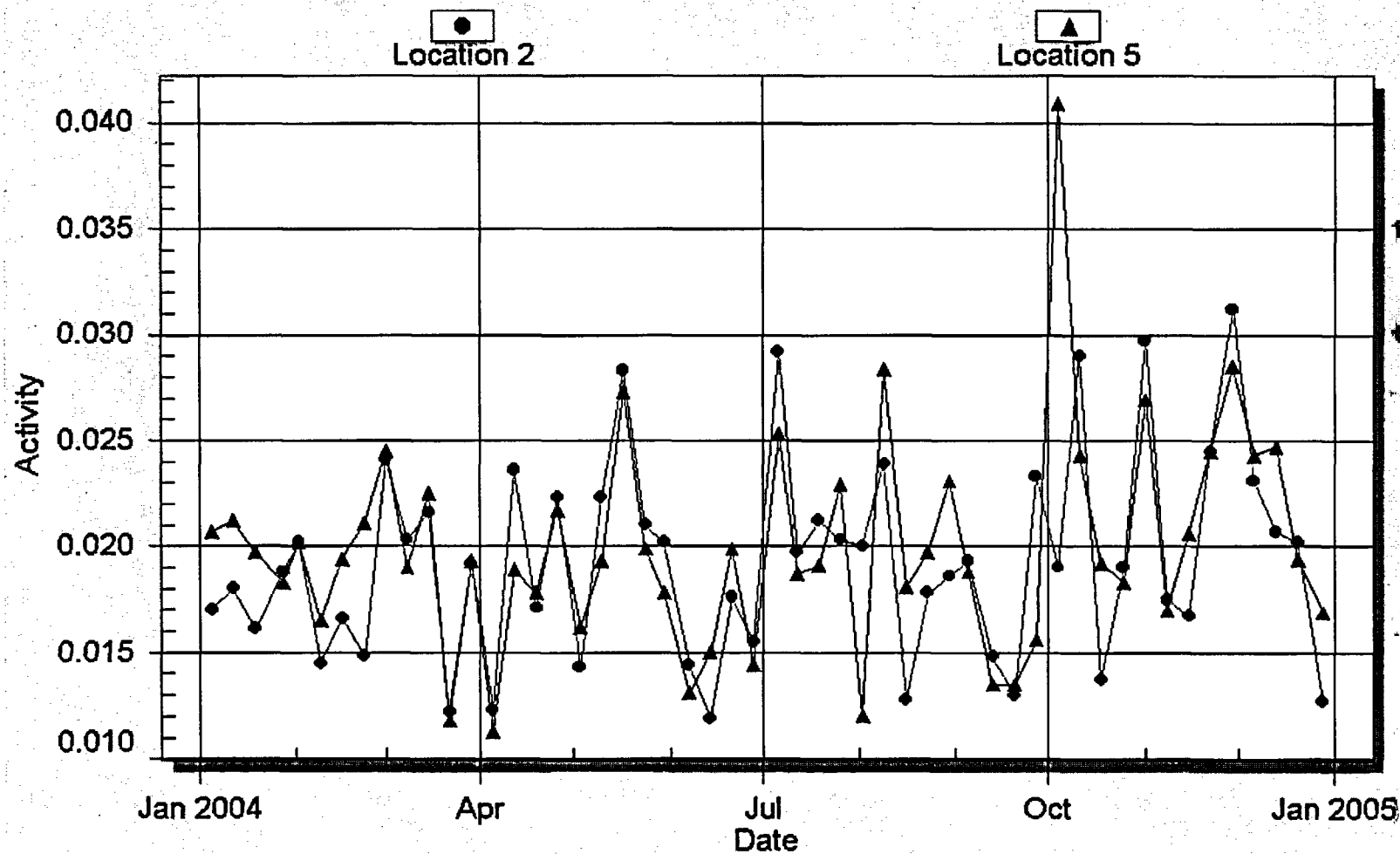


Figure 6 HNP From 1/1/2004 To 12/31/2004  
AIR PARTICULATE for GROSS BETA - Activity (pCi/cubic meter)

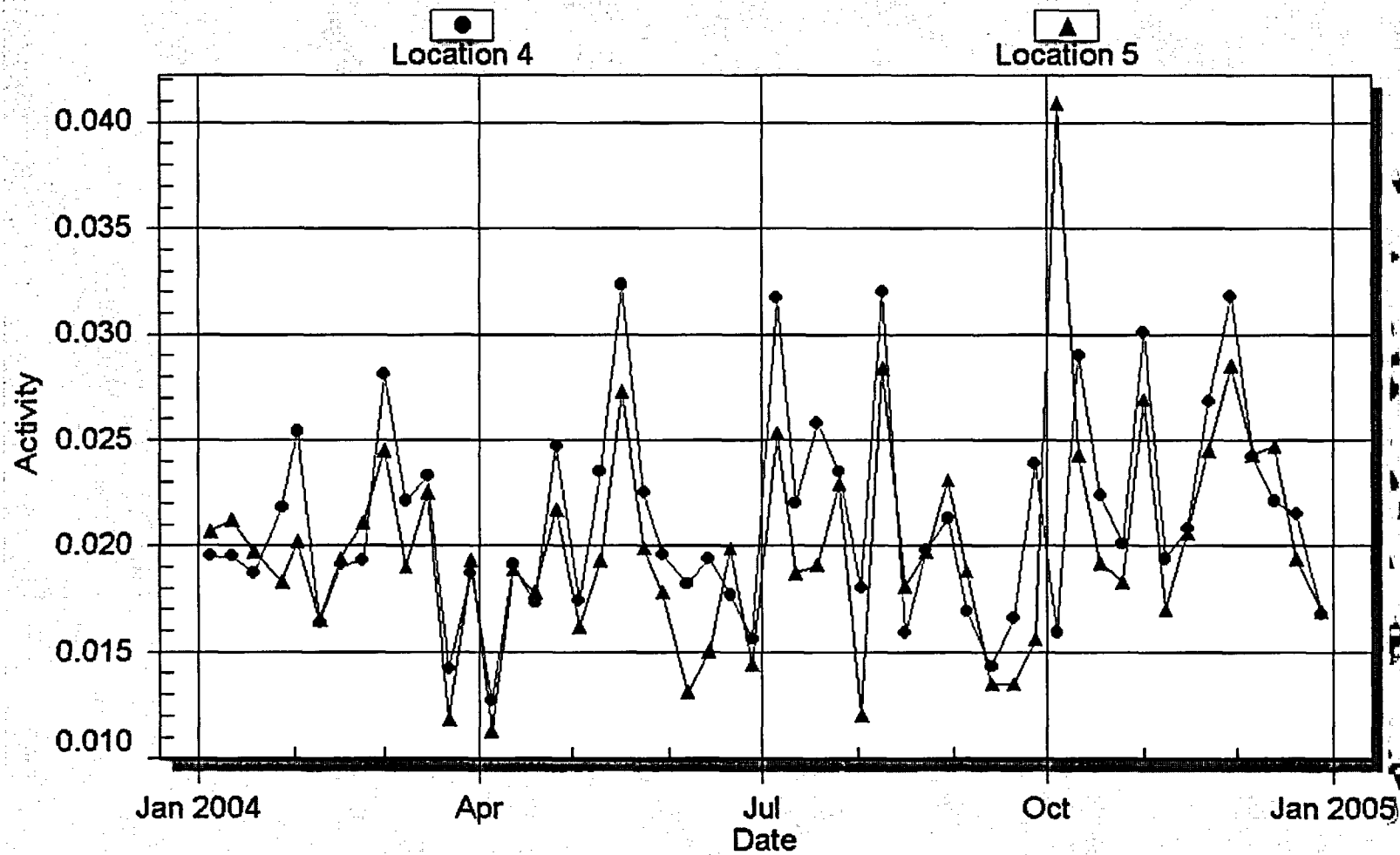


Figure 7 HNP From 1/1/2004 To 12/31/2004  
AIR PARTICULATE for GROSS BETA - Activity (pCi/cubic meter)

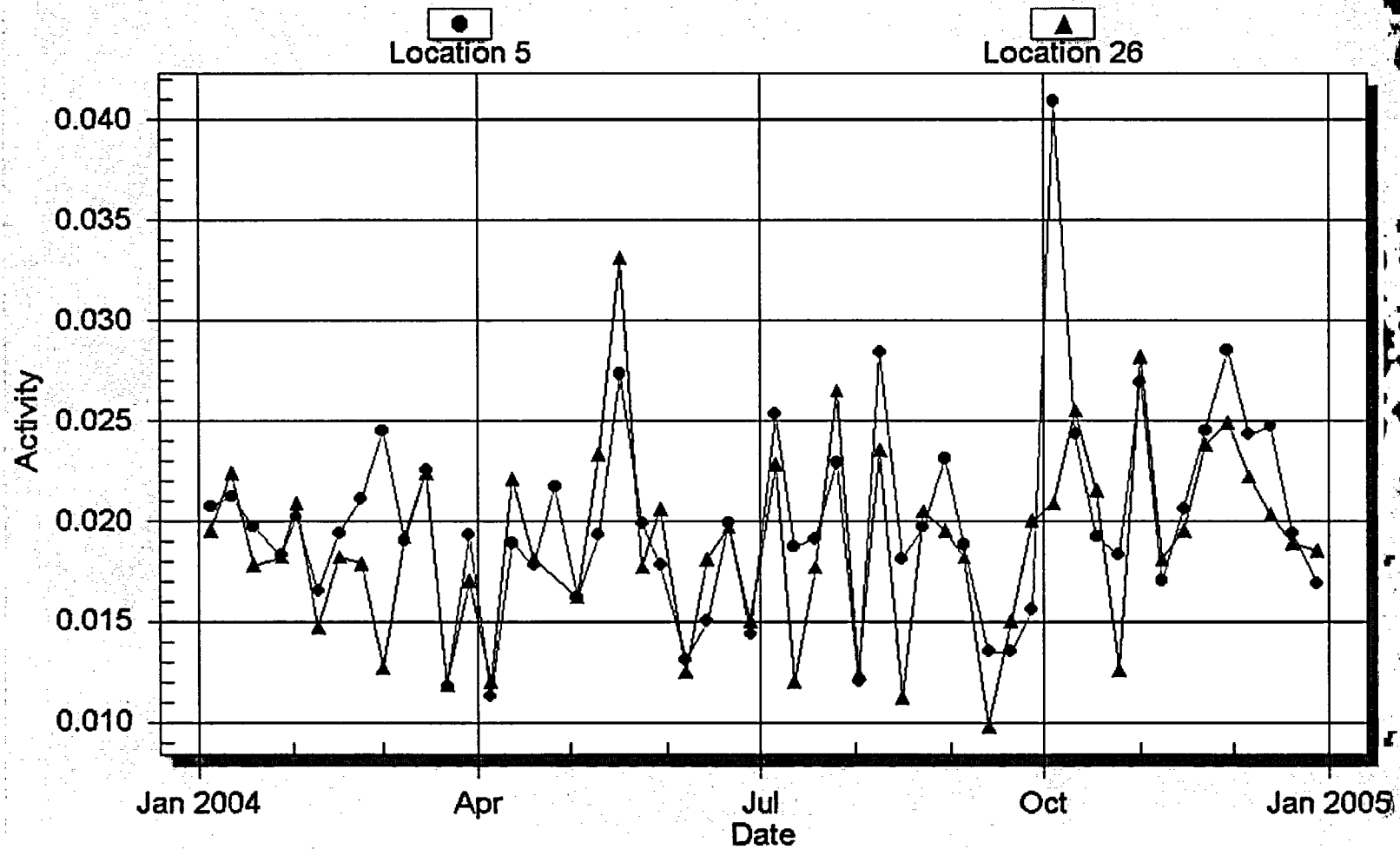


Figure 8 HNP From 1/1/2004 To 12/31/2004  
AIR PARTICULATE for GROSS BETA - Activity (pCi/cubic meter)

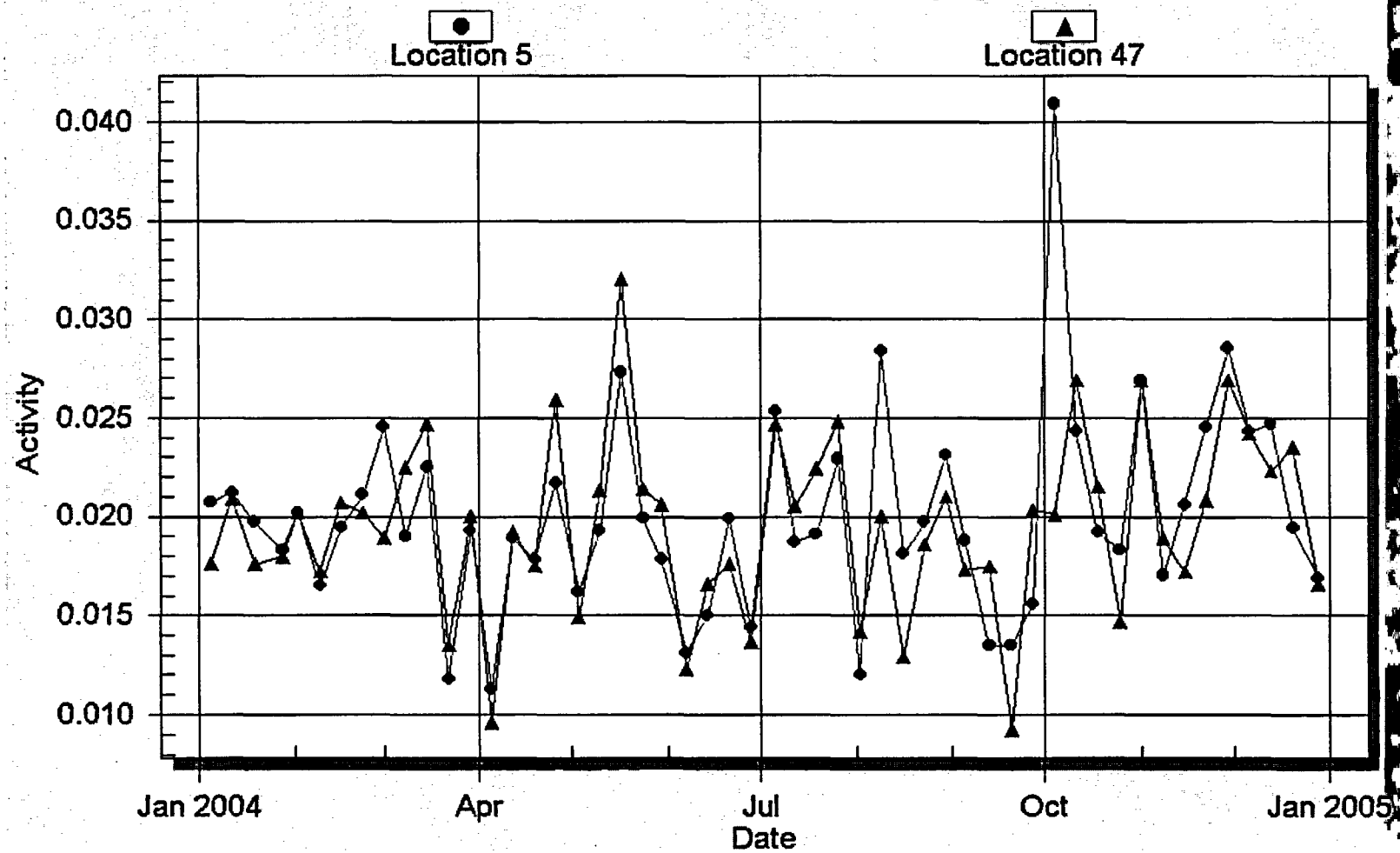


Figure 9 HNP From 1/1/2004 To 12/31/2004  
DRINKING WATER for GROSS BETA - Activity (pCi/cubic meter)

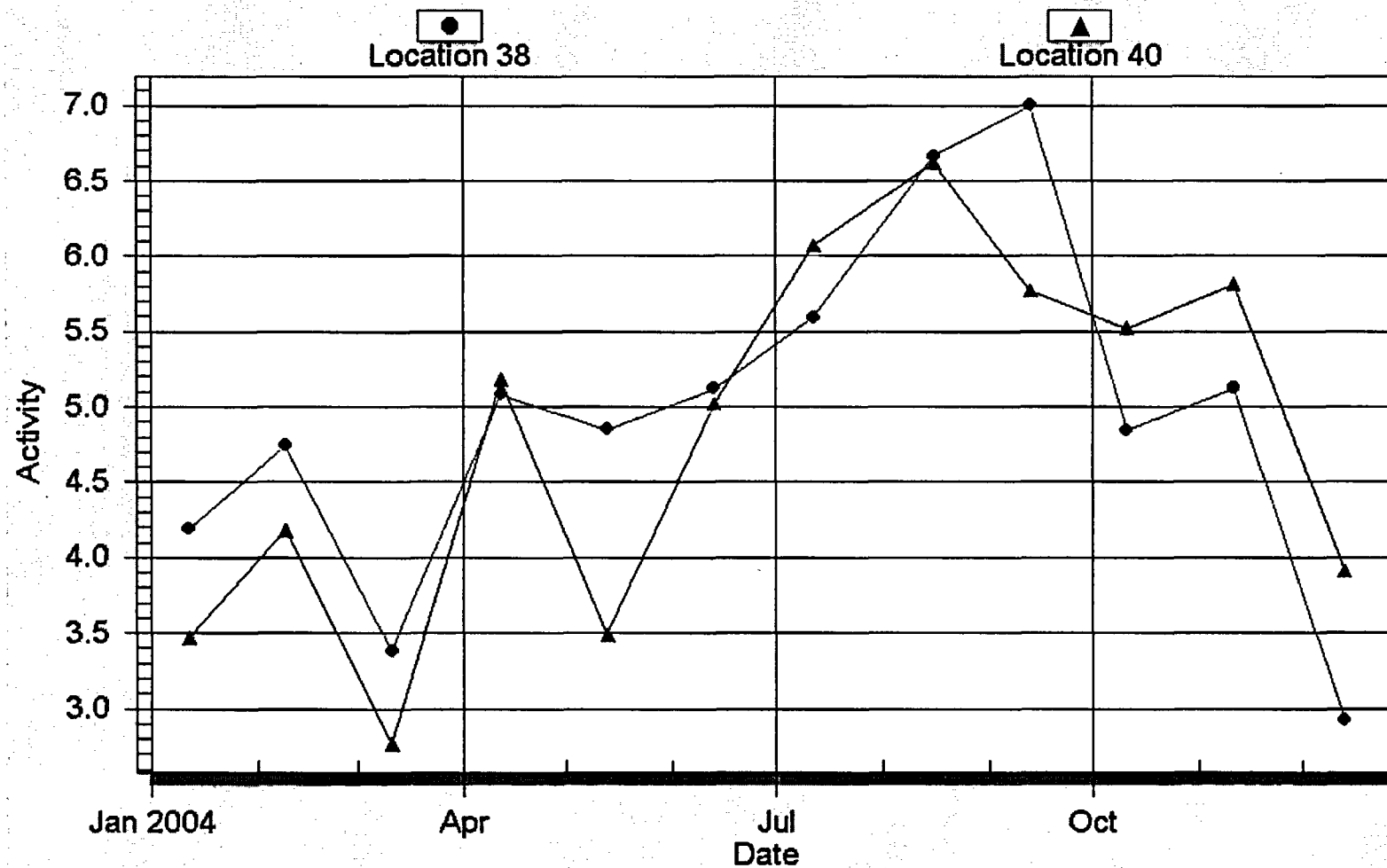


Figure 10 HNP From 1/1/2004 To 12/31/2004  
SURFACE WATER for GROSS BETA - Activity (pCi/cubic meter)

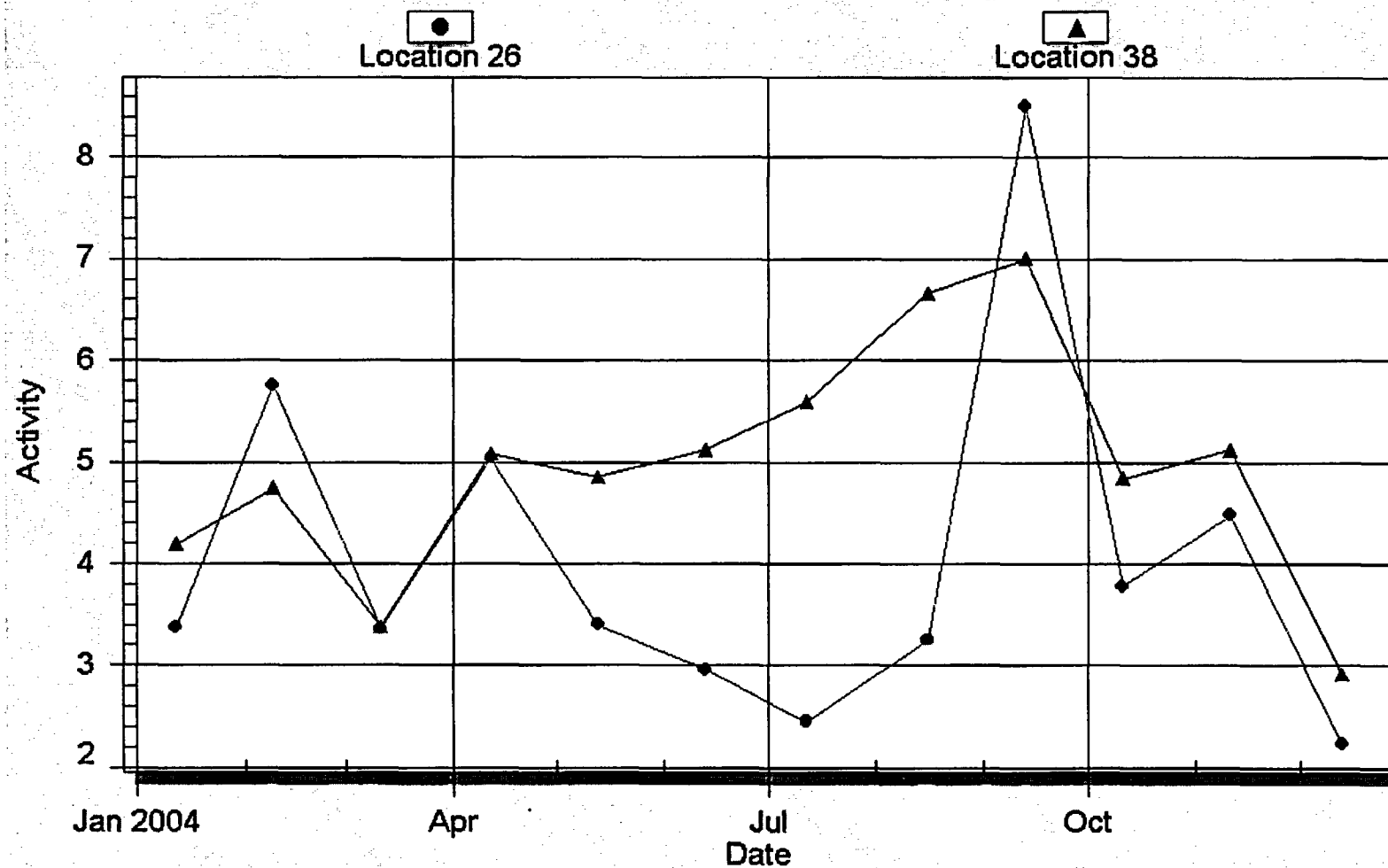
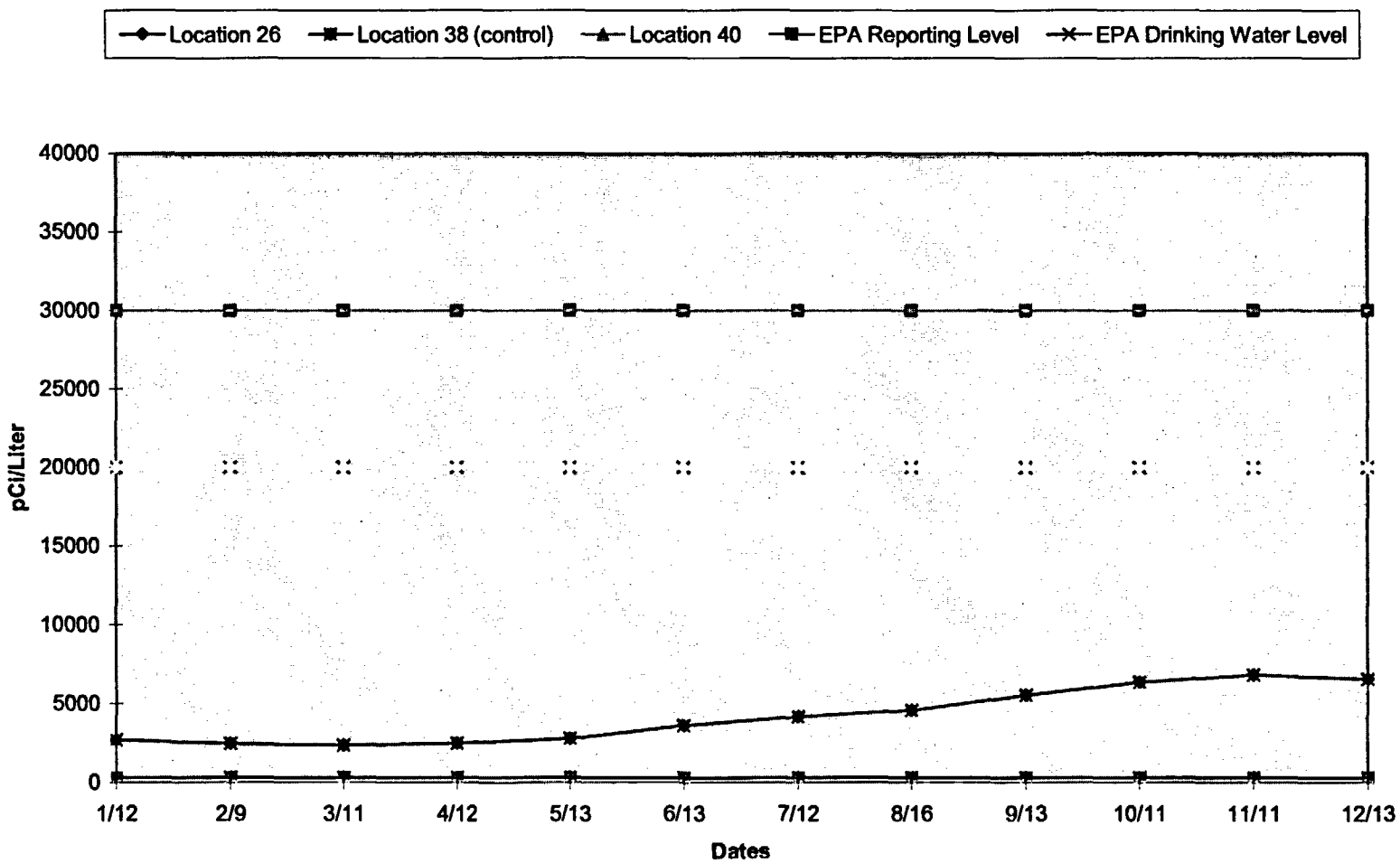
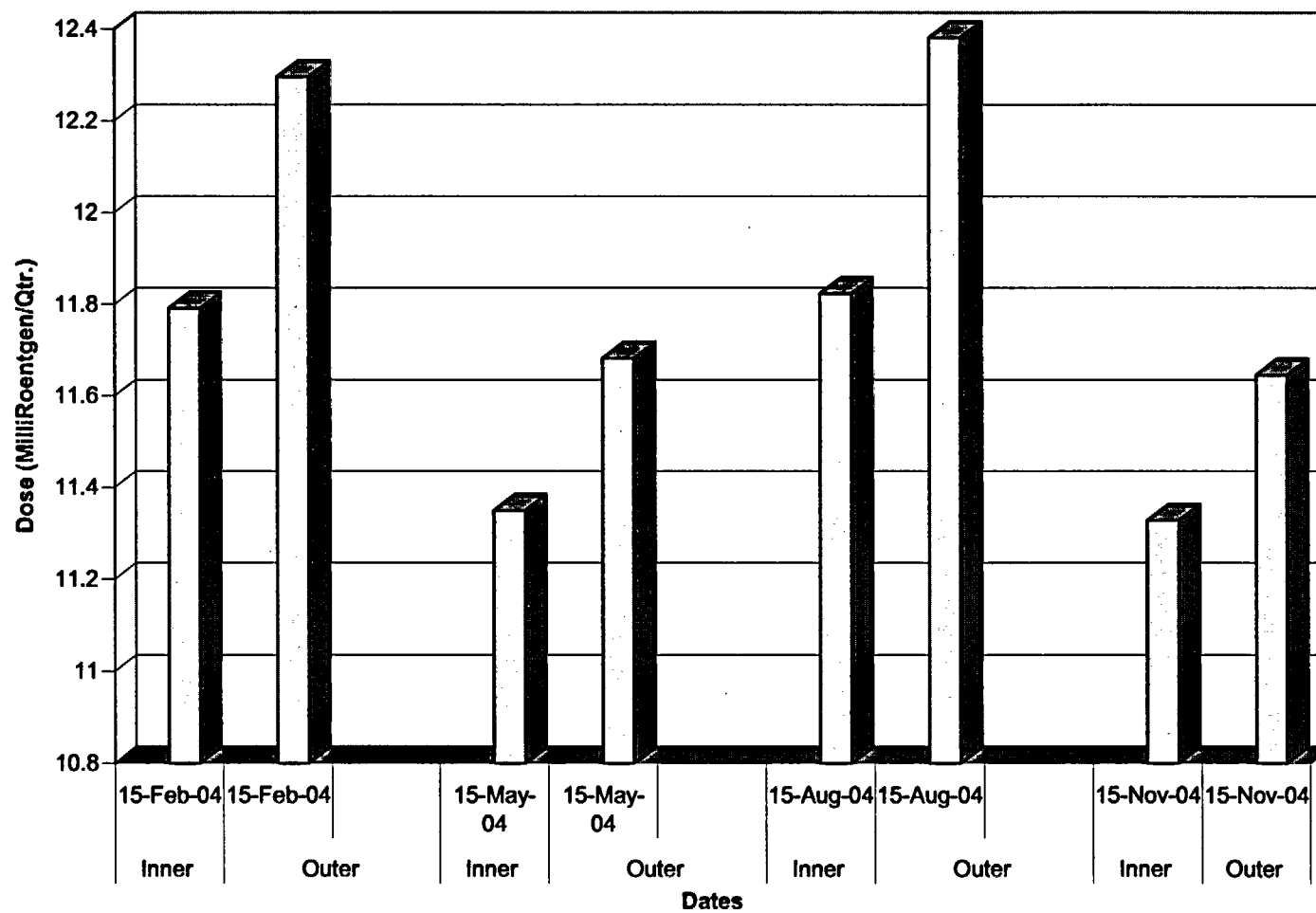


Figure 11 HNP 2004 Surface Water Tritium



**Figure 12 HNP 2004 TLD Averages for Inner and Outer Ring Locations**



# ***HNP Radiological Environmental Monitoring TLD Report***

*Dose: mR/std. qtr.*

<i><b>TLD</b></i>	<i><b>TLD Location Description</b></i>	<i><b>Sample Date</b></i>	<i><b>Dose</b></i>	<i><b>2 Sigma Error</b></i>
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/15/2004	13.4	0.8
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/15/2004	13.2	0.6
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/15/2004	13.5	1.1
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	12.8	1.3
2	SR 1134	2/15/2004	14	1.2
2	SR 1134	5/15/2004	13.3	0.9
2	SR 1134	8/15/2004	14.4	0.6
2	SR 1134	11/15/2004	13.4	0.4
3	HARRIS E&E CENTER - 2.2 MI NE	2/15/2004	12.7	0.8
3	HARRIS E&E CENTER - 2.2 MI NE	5/15/2004	11.3	0.6
3	HARRIS E&E CENTER - 2.2 MI NE	8/15/2004	12.3	1.2
3	HARRIS E&E CENTER - 2.2 MI NE	11/15/2004	11.3	0.8
4	NEW HILL NEAR 1ST BAPTIST CH	2/15/2004	11.9	0.7
4	NEW HILL NEAR 1ST BAPTIST CH	5/15/2004	11.1	1.7
4	NEW HILL NEAR 1ST BAPTIST CH	8/15/2004	12	0.7
4	NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	11.3	1
5	PITTSBORO - CONTROL	2/15/2004	16	0.8
5	PITTSBORO - CONTROL	5/15/2004	14.9	1.1
5	PITTSBORO - CONTROL	8/15/2004	15.4	0.8
5	PITTSBORO - CONTROL	11/15/2004	14.3	0.7
6	INT OF SR 1134 AND 1135	2/15/2004	11.6	1.1

*Dose: mR/std. qtr.*

<i>TLD</i>	<i>TLD Location Description</i>	<i>Sample Date</i>	<i>Dose</i>	<i>2 Sigma Error</i>
6	INT OF SR 1134 AND 1135	5/15/2004	10.7	0.5
6	INT OF SR 1134 AND 1135	8/15/2004	11.4	0.9
6	INT OF SR 1134 AND 1135	11/15/2004	10.4	0.7
7	HOUSE RUINS ON SR 1134	2/15/2004	10.4	1
7	HOUSE RUINS ON SR 1134	5/15/2004	10	0.6
7	HOUSE RUINS ON SR 1134	8/15/2004	10.2	0.6
8	DEAD END OF SR 1134	2/15/2004	14.1	1.2
8	DEAD END OF SR 1134	5/15/2004	11.3	1
8	DEAD END OF SR 1134	8/15/2004	13.5	1
8	DEAD END OF SR 1134	11/15/2004	11.3	0.5
9	1 MI SW OF HOLLEMANS XRDS ON SR 1130	2/15/2004	9.9	0.9
9	1 MI SW OF HOLLEMANS XRDS ON SR 1130	5/15/2004	9.8	0.7
9	1 MI SW OF HOLLEMANS XRDS ON SR 1130	8/15/2004	10.1	1
9	1 MI SW OF HOLLEMANS XRDS ON SR 1130	11/15/2004	9.6	1
10	2.0 MI SW OF HOLLEMANS XRDS ON SR 1130	2/15/2004	11.2	1.3
10	2.0 MI SW OF HOLLEMANS XRDS ON SR 1130	5/15/2004	11.1	1.3
10	2.0 MI SW OF HOLLEMANS XRDS ON SR 1130	8/15/2004	10.9	1.1
10	2.0 MI SW OF HOLLEMANS XRDS ON SR 1130	11/15/2004	10.3	0.7
11	EARTHEN DAM AT HARRIS PLANT	2/15/2004	10.5	0.8
11	EARTHEN DAM AT HARRIS PLANT	5/15/2004	10.5	0.7
11	EARTHEN DAM AT HARRIS PLANT	8/15/2004	10.7	0.8
11	EARTHEN DAM AT HARRIS PLANT	11/15/2004	10.5	0.9
12	1 MI S ON DIRT RD FROM TLD 13	2/15/2004	10	1.7
12	1 MI S ON DIRT RD FROM TLD 13	5/15/2004	10.6	0.7

*Dose: mR/std. qtr.*

<i>TLD</i>	<i>TLD Location Description</i>	<i>Sample Date</i>	<i>Dose</i>	<i>2 Sigma Error</i>
12	1 MI S ON DIRT RD FROM TLD 13	8/15/2004	10.1	0.6
12	1 MI S ON DIRT RD FROM TLD 13	11/15/2004	10.4	0.7
13	DIRT RD INT BETWEEN PLANT AND AUX RES	2/15/2004	11	1.4
13	DIRT RD INT BETWEEN PLANT AND AUX RES	5/15/2004	11.2	0.7
13	DIRT RD INT BETWEEN PLANT AND AUX RES	8/15/2004	11	0.9
13	DIRT RD INT BETWEEN PLANT AND AUX RES	11/15/2004	10.8	1.5
14	DEAD END OF SR 1911	2/15/2004	10.7	0.9
14	DEAD END OF SR 1911	5/15/2004	9.9	0.9
14	DEAD END OF SR 1911	8/15/2004	10.4	1.7
14	DEAD END OF SR 1911	11/15/2004	10	0.5
15	CEMETERY ON SR 1911	2/15/2004	10.4	1.1
15	CEMETERY ON SR 1911	5/15/2004	10.3	0.6
15	CEMETERY ON SR 1911	8/15/2004	10.2	0.6
15	CEMETERY ON SR 1911	11/15/2004	10.5	0.9
16	US 1 AT CHATHAM-WAKE CO LINE	2/15/2004	12.1	1.2
16	US 1 AT CHATHAM-WAKE CO LINE	5/15/2004	12.2	1.1
16	US 1 AT CHATHAM-WAKE CO LINE	8/15/2004	11.9	1
16	US 1 AT CHATHAM-WAKE CO LINE	11/15/2004	12.1	1.6
17	INT OF US 1 AND AUX RES	2/15/2004	11	0.9
17	INT OF US 1 AND AUX RES	5/15/2004	11	0.5
17	INT OF US 1 AND AUX RES	8/15/2004	11.6	1.2
17	INT OF US 1 AND AUX RES	11/15/2004	11.2	0.6
18	0.6 MI N ON US 1 FROM TLD 17	2/15/2004	11.4	1
18	0.6 MI N ON US 1 FROM TLD 17	5/15/2004	12.1	0.6

*Dose: mR/std. qtr.*

<i>TLD</i>	<i>TLD Location Description</i>	<i>Sample Date</i>	<i>Dose</i>	<i>2 Sigma Error</i>
18	0.6 MI N ON US 1 FROM TLD 17	8/15/2004	12	1.4
18	0.6 MI N ON US 1 FROM TLD 17	11/15/2004	11.8	0.6
19	SR 1142 - OLIVES DAIRY	2/15/2004	10.7	0.9
19	SR 1142 - OLIVES DAIRY	5/15/2004	10.8	0.7
19	SR 1142 - OLIVES DAIRY	8/15/2004	10.9	1
19	SR 1142 - OLIVES DAIRY	11/15/2004	10.8	0.8
20	INT OF SR 1149 AND US 1	2/15/2004	14.5	1.9
20	INT OF SR 1149 AND US 1	5/15/2004	14.5	1.2
20	INT OF SR 1149 AND US 1	8/15/2004	14.6	1.1
20	INT OF SR 1149 AND US 1	11/15/2004	14.4	0.6
21	1.3 MI ON SR 1152 FROM INT SR 1153	2/15/2004	12.1	1.4
21	1.3 MI ON SR 1152 FROM INT SR 1153	5/15/2004	9.4	0.9
21	1.3 MI ON SR 1152 FROM INT SR 1153	8/15/2004	12.1	1.3
21	1.3 MI ON SR 1152 FROM INT SR 1153	11/15/2004	9.7	0.8
22	2.0 MI E OF HOLLEMANS XRDS ON SR 1115	2/15/2004	10	1.9
22	2.0 MI E OF HOLLEMANS XRDS ON SR 1115	5/15/2004	10.4	0.6
22	2.0 MI E OF HOLLEMANS XRDS ON SR 1115	8/15/2004	10.6	0.7
22	2.0 MI E OF HOLLEMANS XRDS ON SR 1115	11/15/2004	9.9	1.2
23	INT SR 1116 AND SR 1127	2/15/2004	12.4	0.8
23	INT SR 1116 AND SR 1127	5/15/2004	11.8	0.6
23	INT SR 1116 AND SR 1127	8/15/2004	12	0.7
23	INT SR 1116 AND SR 1127	11/15/2004	11.3	1
24	SWEET SPRINGS CHURCH ON SR 1116	2/15/2004	11.6	0.7
24	SWEET SPRINGS CHURCH ON SR 1116	5/15/2004	11.2	0.6

*Dose: mR/std. qtr.*

<i>TLD</i>	<i>TLD Location Description</i>	<i>Sample Date</i>	<i>Dose</i>	<i>2 Sigma Error</i>
24	SWEET SPRINGS CHURCH ON SR 1116	8/15/2004	12	0.9
24	SWEET SPRINGS CHURCH ON SR 1116	11/15/2004	10.7	0.8
25	0.2 MI W OF INT OF SR 1401 AND SR 1402	2/15/2004	13.2	0.8
25	0.2 MI W OF INT OF SR 1401 AND SR 1402	5/15/2004	11.3	0.8
25	0.2 MI W OF INT OF SR 1401 AND SR 1402	8/15/2004	13.4	0.8
25	0.2 MI W OF INT OF SR 1401 AND SR 1402	11/15/2004	11.4	1.7
26	SPILLWAY ON MAIN RES	2/15/2004	11.2	1
26	SPILLWAY ON MAIN RES	5/15/2004	11	1.1
26	SPILLWAY ON MAIN RES	8/15/2004	10.9	0.7
26	SPILLWAY ON MAIN RES	11/15/2004	11	0.5
27	BUCKHORN UNITED METHODIST CH ON NC 42	2/15/2004	9.2	0.8
27	BUCKHORN UNITED METHODIST CH ON NC 42	5/15/2004	9.3	1
27	BUCKHORN UNITED METHODIST CH ON NC 42	8/15/2004	9.3	1.3
27	BUCKHORN UNITED METHODIST CH ON NC 42	11/15/2004	9.3	0.9
28	0.6 MI FROM INT SR 1916 AND SR 1924	2/15/2004	10.9	1.5
28	0.6 MI FROM INT SR 1916 AND SR 1924	5/15/2004	9.9	1.5
28	0.6 MI FROM INT SR 1916 AND SR 1924	8/15/2004	11	0.6
28	0.6 MI FROM INT SR 1916 AND SR 1924	11/15/2004	10.2	0.8
29	NESTE RESIN CORP ON SR 1916	2/15/2004	13	1.7
29	NESTE RESIN CORP ON SR 1916	5/15/2004	12.8	1.7
29	NESTE RESIN CORP ON SR 1916	8/15/2004	13.6	0.8
29	NESTE RESIN CORP ON SR 1916	11/15/2004	13	1.1
30	INT OF SR 1972 AND US 1	2/15/2004	10.6	0.7
30	INT OF SR 1972 AND US 1	5/15/2004	10.1	0.6

*Dose: mR/std. qtr.*

<i>TLD</i>	<i>TLD Location Description</i>	<i>Sample Date</i>	<i>Dose</i>	<i>2 Sigma Error</i>
30	INT OF SR 1972 AND US 1	8/15/2004	10.3	1
30	INT OF SR 1972 AND US 1	11/15/2004	10.2	1
31	INT OF SR 1910	2/15/2004	12.6	0.9
31	INT OF SR 1910	5/15/2004	9.8	0.5
31	INT OF SR 1910	11/15/2004	9.5	1.1
32	3 MI ON SR 1008 FROM INT SR 1011	2/15/2004	12.6	0.6
32	3 MI ON SR 1008 FROM INT SR 1011	5/15/2004	12.5	0.7
32	3 MI ON SR 1008 FROM INT SR 1011	8/15/2004	12.2	1.2
32	3 MI ON SR 1008 FROM INT SR 1011	11/15/2004	12.3	1.1
33	SR 1142 AT BARRICADE	2/15/2004	10.2	1.4
33	SR 1142 AT BARRICADE	5/15/2004	10.1	0.9
33	SR 1142 AT BARRICADE	8/15/2004	11.1	0.9
33	SR 1142 AT BARRICADE	11/15/2004	10.5	0.5
34	APEX AT JONES PARK	2/15/2004	14.9	1.3
34	APEX AT JONES PARK	5/15/2004	14.1	1
34	APEX AT JONES PARK	8/15/2004	15.2	0.9
34	APEX AT JONES PARK	11/15/2004	14.3	2.1
35	HOLLY SPRINGS ON EARP STREET	2/15/2004	13	1
35	HOLLY SPRINGS ON EARP STREET	5/15/2004	12.7	1.1
35	HOLLY SPRINGS ON EARP STREET	8/15/2004	12.9	1.3
35	HOLLY SPRINGS ON EARP STREET	11/15/2004	12.3	0.6
36	INT OF SR 1393 AND SR 1421	2/15/2004	11.6	2.1
36	INT OF SR 1393 AND SR 1421	5/15/2004	11.3	0.7
36	INT OF SR 1393 AND SR 1421	8/15/2004	12	0.7

*Dose: mR/std. qtr.*

<i>TLD</i>	<i>TLD Location Description</i>	<i>Sample Date</i>	<i>Dose</i>	<i>2 Sigma Error</i>
36	INT OF SR 1393 AND SR 1421	11/15/2004	11.3	1
37	FUQUAY VARINA AT OLD CP&L OFFICE	2/15/2004	15.9	1.4
37	FUQUAY VARINA AT OLD CP&L OFFICE	5/15/2004	15.4	0.7
37	FUQUAY VARINA AT OLD CP&L OFFICE	8/15/2004	16.2	0.8
37	FUQUAY VARINA AT OLD CP&L OFFICE	11/15/2004	15.3	0.9
48	SR 1142 AT UNDERGROUND CABLE SIGN	2/15/2004	13.6	1.1
48	SR 1142 AT UNDERGROUND CABLE SIGN	5/15/2004	13.1	0.7
48	SR 1142 AT UNDERGROUND CABLE SIGN	8/15/2004	13.4	1
48	SR 1142 AT UNDERGROUND CABLE SIGN	11/15/2004	13.4	0.5
49	SR 1127 AT WAKE CO TRASH COLLECTION AREA	2/15/2004	14.5	0.6
49	SR 1127 AT WAKE CO TRASH COLLECTION AREA	5/15/2004	13.8	1.1
49	SR 1127 AT WAKE CO TRASH COLLECTION AREA	8/15/2004	14.5	0.8
49	SR 1127 AT WAKE CO TRASH COLLECTION AREA	11/15/2004	14	0.7
50	HOLLEMANS CROSSROADS	2/15/2004	11.6	1.1
50	HOLLEMANS CROSSROADS	5/15/2004	10.1	0.8
50	HOLLEMANS CROSSROADS	8/15/2004	11.3	0.6
50	HOLLEMANS CROSSROADS	11/15/2004	10.1	0.7
53	INTERSECTION OF SR 1972 AND SR 1907	2/15/2004	10.7	1.6
53	INTERSECTION OF SR 1972 AND SR 1907	5/15/2004	10.6	0.7
53	INTERSECTION OF SR 1972 AND SR 1907	8/15/2004	10.9	0.7
53	INTERSECTION OF SR 1972 AND SR 1907	11/15/2004	11.1	0.9
56	2.8 MI WSW OF THE SITE	2/15/2004	11.8	1.2
56	2.8 MI WSW OF THE SITE	5/15/2004	10.9	1.1
56	2.8 MI WSW OF THE SITE	8/15/2004	12.1	1.2

*Dose: mR/std. qtr.*

<i><b>TLD</b></i>	<i><b>TLD Location Description</b></i>	<i><b>Sample Date</b></i>	<i><b>Dose</b></i>	<i><b>2 Sigma Error</b></i>
56	2.8 MI WSW OF THE SITE	11/15/2004	11.3	0.7
63	0.7 MI SW SECTOR ON (POWER POLE COJ85)	2/15/2004	13.5	1.7
63	0.7 MI SW SECTOR ON (POWER POLE COJ85)	5/15/2004	13.4	1.8
63	0.7 MI SW SECTOR ON (POWER POLE COJ85)	8/15/2004	14	1
63	0.7 MI SW SECTOR ON (POWER POLE COJ85)	11/15/2004	12.9	0.7
67	1.2 MI FROM HNP IN ENE SECTOR	2/15/2004	11.7	1.6
67	1.2 MI FROM HNP IN ENE SECTOR	5/15/2004	11.9	1.3
67	1.2 MI FROM HNP IN ENE SECTOR	8/15/2004	12	1.3
67	1.2 MI FROM HNP IN ENE SECTOR	11/15/2004	11.9	0.5

# **2004 HNP Radiological Environmental Monitoring Analysis Report**

## **Comments**

- The Less than LLD (<LLD) represents that no detectable radioactivity was present, but lists the LLD values.
- There are no 2 sigma error values reported when activity is <LLD.

# ***HNP Radiological Environmental Monitoring Analysis Report***

*Media Type: Air Particulate*

*Analysis: Beta*

*Quantity: cubic meters*

*Concentration (Activity): pCi/cubic meter*

<i>Sample Point</i>		<i>Sample Date</i>	<i>Quantity</i>	<i>Activity</i>	<i>2 Sigma Error</i>	<i>LLD</i>
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/5/2004	290.4	1.62E-02	3.22E-03	3.72E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/12/2004	296	1.80E-02	3.09E-03	3.20E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/19/2004	297.1	2.03E-02	3.37E-03	3.65E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/28/2004	384.1	1.67E-02	2.53E-03	2.48E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/2/2004	214.8	2.12E-02	4.17E-03	4.67E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/9/2004	295.9	1.57E-02	3.08E-03	3.47E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/16/2004	305.1	1.71E-02	3.13E-03	3.48E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/23/2004	305.3	1.89E-02	3.15E-03	3.33E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/1/2004	307.1	2.10E-02	3.14E-03	3.02E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/8/2004	301	1.78E-02	3.07E-03	3.23E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/15/2004	305	1.86E-02	3.08E-03	3.17E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/22/2004	315.6	1.24E-02	2.69E-03	3.10E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/29/2004	319.2	2.27E-02	3.23E-03	3.16E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/5/2004	319.2	1.05E-02	2.48E-03	2.87E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/12/2004	266.4	1.85E-02	3.25E-03	3.31E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/19/2004	286.6	1.67E-02	3.21E-03	3.61E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/26/2004	261.8	2.52E-02	3.80E-03	3.81E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/3/2004	262.2	1.23E-02	3.19E-03	3.94E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/10/2004	263.3	2.25E-02	3.71E-03	3.93E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	260.7	2.62E-02	3.84E-03	3.76E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/24/2004	252	2.53E-02	3.82E-03	3.71E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/30/2004	216.5	1.99E-02	3.96E-03	4.35E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/7/2004	289	1.65E-02	3.15E-03	3.49E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/14/2004	252	2.00E-02	3.72E-03	4.15E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/21/2004	257.2	2.11E-02	3.62E-03	3.81E-03

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/28/2004	247.6	1.43E-02	3.30E-03	3.83E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/6/2004	288.9	2.62E-02	3.52E-03	3.21E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/12/2004	214.5	2.20E-02	4.19E-03	4.62E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/19/2004	248.4	2.64E-02	3.90E-03	3.74E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/26/2004	246.9	2.87E-02	4.05E-03	3.81E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/2/2004	244.8	2.11E-02	3.61E-03	3.66E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/9/2004	242.7	3.43E-02	4.44E-03	4.16E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/16/2004	242	1.67E-02	3.71E-03	4.44E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/23/2004	241.3	1.93E-02	3.72E-03	4.14E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/30/2004	241.3	2.24E-02	3.75E-03	3.79E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/5/2004	211.7	2.12E-02	4.21E-03	4.74E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/13/2004	267.1	1.55E-02	3.31E-03	3.85E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/20/2004	238	1.11E-02	3.23E-03	4.04E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/27/2004	237.2	2.36E-02	3.92E-03	4.02E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/4/2004	241.7	1.65E-02	3.41E-03	3.77E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/11/2004	239.7	2.56E-02	3.94E-03	3.89E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/18/2004	255.3	2.06E-02	3.53E-03	3.65E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/25/2004	257.2	2.30E-02	3.85E-03	4.18E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/1/2004	265.7	2.98E-02	3.88E-03	3.53E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/8/2004	266.3	1.81E-02	3.35E-03	3.64E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	271.1	2.07E-02	3.58E-03	3.92E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/22/2004	266.2	2.23E-02	3.70E-03	3.99E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/29/2004	273.9	2.88E-02	3.77E-03	3.31E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/6/2004	271.1	2.31E-02	3.70E-03	3.85E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/13/2004	271.7	1.99E-02	3.35E-03	3.34E-03

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/20/2004	276.1	2.01E-02	3.35E-03	3.36E-03
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/28/2004	317.3	1.96E-02	3.23E-03	3.49E-03
2	SR 1134	1/5/2004	288.6	1.70E-02	3.28E-03	3.74E-03
2	SR 1134	1/12/2004	289	1.80E-02	3.14E-03	3.28E-03
2	SR 1134	1/19/2004	291.4	1.61E-02	3.22E-03	3.72E-03
2	SR 1134	1/28/2004	374.3	1.88E-02	2.67E-03	2.55E-03
2	SR 1134	2/2/2004	207.3	2.02E-02	4.23E-03	4.84E-03
2	SR 1134	2/9/2004	285.2	1.45E-02	3.10E-03	3.60E-03
2	SR 1134	2/16/2004	291.8	1.66E-02	3.20E-03	3.64E-03
2	SR 1134	2/23/2004	288.4	1.48E-02	3.07E-03	3.52E-03
2	SR 1134	3/1/2004	287.6	2.41E-02	3.43E-03	3.23E-03
2	SR 1134	3/8/2004	282.2	2.03E-02	3.34E-03	3.45E-03
2	SR 1134	3/15/2004	285.3	2.16E-02	3.38E-03	3.39E-03
2	SR 1134	3/22/2004	283.7	1.22E-02	2.91E-03	3.45E-03
2	SR 1134	3/29/2004	283.7	1.92E-02	3.33E-03	3.56E-03
2	SR 1134	4/5/2004	282.6	1.23E-02	2.83E-03	3.24E-03
2	SR 1134	4/12/2004	283.1	2.36E-02	3.39E-03	3.11E-03
2	SR 1134	4/19/2004	284.5	1.71E-02	3.25E-03	3.63E-03
2	SR 1134	4/26/2004	269.7	2.23E-02	3.59E-03	3.70E-03
2	SR 1134	5/3/2004	270.5	1.43E-02	3.22E-03	3.82E-03
2	SR 1134	5/10/2004	270.8	2.23E-02	3.63E-03	3.82E-03
2	SR 1134	5/17/2004	267.5	2.83E-02	3.87E-03	3.66E-03
2	SR 1134	5/24/2004	267.8	2.10E-02	3.45E-03	3.49E-03
2	SR 1134	5/30/2004	229.1	2.02E-02	3.82E-03	4.11E-03
2	SR 1134	6/7/2004	282.7	1.44E-02	3.08E-03	3.57E-03

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
2	SR 1134	6/14/2004	265	1.19E-02	3.16E-03	3.94E-03
2	SR 1134	6/21/2004	268.7	1.76E-02	3.33E-03	3.64E-03
2	SR 1134	6/28/2004	259.5	1.55E-02	3.25E-03	3.65E-03
2	SR 1134	7/6/2004	303.6	2.92E-02	3.54E-03	3.06E-03
2	SR 1134	7/12/2004	225.8	1.97E-02	3.92E-03	4.39E-03
2	SR 1134	7/19/2004	260.8	2.12E-02	3.52E-03	3.56E-03
2	SR 1134	7/26/2004	258	2.03E-02	3.51E-03	3.65E-03
2	SR 1134	8/2/2004	256.8	2.00E-02	3.44E-03	3.49E-03
2	SR 1134	8/9/2004	250.6	2.39E-02	3.87E-03	4.03E-03
2	SR 1134	8/16/2004	246.9	1.28E-02	3.45E-03	4.35E-03
2	SR 1134	8/23/2004	246.1	1.78E-02	3.59E-03	4.05E-03
2	SR 1134	8/30/2004	245.5	1.86E-02	3.50E-03	3.73E-03
2	SR 1134	9/5/2004	215.3	1.93E-02	4.06E-03	4.66E-03
2	SR 1134	9/13/2004	270.8	1.48E-02	3.24E-03	3.80E-03
2	SR 1134	9/20/2004	242.9	1.30E-02	3.29E-03	3.95E-03
2	SR 1134	9/27/2004	239.1	2.33E-02	3.89E-03	3.99E-03
2	SR 1134	10/4/2004	244.6	1.90E-02	3.52E-03	3.73E-03
2	SR 1134	10/11/2004	242.7	2.90E-02	4.08E-03	3.84E-03
2	SR 1134	10/18/2004	259.9	1.37E-02	3.11E-03	3.58E-03
2	SR 1134	10/25/2004	257.6	1.90E-02	3.65E-03	4.17E-03
2	SR 1134	11/1/2004	263.5	2.97E-02	3.90E-03	3.56E-03
2	SR 1134	11/8/2004	262.3	1.75E-02	3.36E-03	3.70E-03
2	SR 1134	11/15/2004	264.7	1.67E-02	3.44E-03	4.02E-03
2	SR 1134	11/22/2004	260.2	2.45E-02	3.87E-03	4.08E-03
2	SR 1134	11/29/2004	268.9	3.12E-02	3.92E-03	3.37E-03

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
2 SR 1134	12/6/2004	264.6	2.31E-02	3.76E-03	3.94E-03
2 SR 1134	12/13/2004	266.2	2.07E-02	3.43E-03	3.41E-03
2 SR 1134	12/20/2004	268	2.02E-02	3.42E-03	3.46E-03
2 SR 1134	12/28/2004	307.1	1.27E-02	2.96E-03	3.61E-03
4 NEW HILL NEAR 1ST BAPTIST CH	1/5/2004	268.1	1.95E-02	3.58E-03	4.03E-03
4 NEW HILL NEAR 1ST BAPTIST CH	1/12/2004	272.6	1.95E-02	3.35E-03	3.48E-03
4 NEW HILL NEAR 1ST BAPTIST CH	1/19/2004	274.6	1.87E-02	3.49E-03	3.95E-03
4 NEW HILL NEAR 1ST BAPTIST CH	1/28/2004	356.5	2.18E-02	2.90E-03	2.68E-03
4 NEW HILL NEAR 1ST BAPTIST CH	2/2/2004	198.3	2.54E-02	4.64E-03	5.06E-03
4 NEW HILL NEAR 1ST BAPTIST CH	2/9/2004	274.6	1.64E-02	3.29E-03	3.74E-03
4 NEW HILL NEAR 1ST BAPTIST CH	2/16/2004	287.5	1.91E-02	3.36E-03	3.70E-03
4 NEW HILL NEAR 1ST BAPTIST CH	2/23/2004	287.1	1.93E-02	3.31E-03	3.54E-03
4 NEW HILL NEAR 1ST BAPTIST CH	3/1/2004	287.9	2.81E-02	3.61E-03	3.22E-03
4 NEW HILL NEAR 1ST BAPTIST CH	3/8/2004	281.8	2.21E-02	3.44E-03	3.45E-03
4 NEW HILL NEAR 1ST BAPTIST CH	3/15/2004	288.8	2.33E-02	3.43E-03	3.35E-03
4 NEW HILL NEAR 1ST BAPTIST CH	3/22/2004	291.5	1.42E-02	2.96E-03	3.36E-03
4 NEW HILL NEAR 1ST BAPTIST CH	3/29/2004	286.5	1.87E-02	3.28E-03	3.52E-03
4 NEW HILL NEAR 1ST BAPTIST CH	4/5/2004	287.8	1.27E-02	2.81E-03	3.18E-03
4 NEW HILL NEAR 1ST BAPTIST CH	4/12/2004	288.1	1.91E-02	3.12E-03	3.06E-03
4 NEW HILL NEAR 1ST BAPTIST CH	4/19/2004	278.3	1.73E-02	3.31E-03	3.71E-03
4 NEW HILL NEAR 1ST BAPTIST CH	4/26/2004	277.1	2.47E-02	3.63E-03	3.60E-03
4 NEW HILL NEAR 1ST BAPTIST CH	5/3/2004	278	1.74E-02	3.32E-03	3.72E-03
4 NEW HILL NEAR 1ST BAPTIST CH	5/10/2004	278.5	2.35E-02	3.61E-03	3.71E-03
4 NEW HILL NEAR 1ST BAPTIST CH	5/17/2004	273.5	3.23E-02	3.99E-03	3.58E-03
4 NEW HILL NEAR 1ST BAPTIST CH	5/24/2004	273.5	2.25E-02	3.48E-03	3.42E-03

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD	
4	NEW HILL NEAR 1ST BAPTIST CH	5/30/2004	237	1.96E-02	3.69E-03	3.97E-03
4	NEW HILL NEAR 1ST BAPTIST CH	6/7/2004	315.5	1.82E-02	3.04E-03	3.20E-03
4	NEW HILL NEAR 1ST BAPTIST CH	6/14/2004	276	1.94E-02	3.46E-03	3.79E-03
4	NEW HILL NEAR 1ST BAPTIST CH	6/21/2004	281.8	1.77E-02	3.22E-03	3.48E-03
4	NEW HILL NEAR 1ST BAPTIST CH	6/28/2004	270.2	1.56E-02	3.16E-03	3.51E-03
4	NEW HILL NEAR 1ST BAPTIST CH	7/6/2004	319.2	3.17E-02	3.54E-03	2.91E-03
4	NEW HILL NEAR 1ST BAPTIST CH	7/12/2004	234.2	2.20E-02	3.94E-03	4.23E-03
4	NEW HILL NEAR 1ST BAPTIST CH	7/19/2004	275.4	2.58E-02	3.61E-03	3.37E-03
4	NEW HILL NEAR 1ST BAPTIST CH	7/26/2004	274.5	2.35E-02	3.53E-03	3.43E-03
4	NEW HILL NEAR 1ST BAPTIST CH	8/2/2004	277.1	1.80E-02	3.16E-03	3.23E-03
4	NEW HILL NEAR 1ST BAPTIST CH	8/9/2004	275.7	3.20E-02	3.99E-03	3.66E-03
4	NEW HILL NEAR 1ST BAPTIST CH	8/16/2004	276.6	1.59E-02	3.32E-03	3.88E-03
4	NEW HILL NEAR 1ST BAPTIST CH	8/23/2004	276.3	1.98E-02	3.40E-03	3.61E-03
4	NEW HILL NEAR 1ST BAPTIST CH	8/30/2004	277.1	2.13E-02	3.36E-03	3.30E-03
4	NEW HILL NEAR 1ST BAPTIST CH	9/5/2004	244.5	1.69E-02	3.57E-03	4.11E-03
4	NEW HILL NEAR 1ST BAPTIST CH	9/13/2004	307.8	1.43E-02	2.92E-03	3.34E-03
4	NEW HILL NEAR 1ST BAPTIST CH	9/20/2004	162.3	1.66E-02	4.75E-03	5.92E-03
4	NEW HILL NEAR 1ST BAPTIST CH	9/27/2004	273.5	2.39E-02	3.57E-03	3.49E-03
4	NEW HILL NEAR 1ST BAPTIST CH	10/4/2004	278	1.59E-02	3.05E-03	3.28E-03
4	NEW HILL NEAR 1ST BAPTIST CH	10/11/2004	276.3	2.90E-02	3.74E-03	3.37E-03
4	NEW HILL NEAR 1ST BAPTIST CH	10/18/2004	261.7	2.24E-02	3.56E-03	3.56E-03
4	NEW HILL NEAR 1ST BAPTIST CH	10/25/2004	260.8	2.01E-02	3.67E-03	4.12E-03
4	NEW HILL NEAR 1ST BAPTIST CH	11/1/2004	266.6	3.01E-02	3.89E-03	3.52E-03
4	NEW HILL NEAR 1ST BAPTIST CH	11/8/2004	264.8	1.94E-02	3.44E-03	3.66E-03
4	NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	269	2.08E-02	3.60E-03	3.95E-03

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
4 NEW HILL NEAR 1ST BAPTIST CH	11/22/2004	263.8	2.68E-02	3.94E-03	4.03E-03
4 NEW HILL NEAR 1ST BAPTIST CH	11/29/2004	271.1	3.18E-02	3.93E-03	3.35E-03
4 NEW HILL NEAR 1ST BAPTIST CH	12/6/2004	268.2	2.42E-02	3.78E-03	3.89E-03
4 NEW HILL NEAR 1ST BAPTIST CH	12/13/2004	269.2	2.21E-02	3.48E-03	3.37E-03
4 NEW HILL NEAR 1ST BAPTIST CH	12/20/2004	271.4	2.15E-02	3.46E-03	3.42E-03
4 NEW HILL NEAR 1ST BAPTIST CH	12/28/2004	312.9	1.68E-02	3.13E-03	3.54E-03
5 PITTSBORO - CONTROL	1/5/2004	303.6	2.07E-02	3.33E-03	3.56E-03
5 PITTSBORO - CONTROL	1/12/2004	305.1	2.12E-02	3.18E-03	3.11E-03
5 PITTSBORO - CONTROL	1/19/2004	308.4	1.97E-02	3.26E-03	3.52E-03
5 PITTSBORO - CONTROL	1/28/2004	402.8	1.83E-02	2.52E-03	2.37E-03
5 PITTSBORO - CONTROL	2/2/2004	224.1	2.02E-02	3.99E-03	4.48E-03
5 PITTSBORO - CONTROL	2/9/2004	310.7	1.65E-02	3.01E-03	3.31E-03
5 PITTSBORO - CONTROL	2/16/2004	319.9	1.94E-02	3.13E-03	3.32E-03
5 PITTSBORO - CONTROL	2/23/2004	321.2	2.11E-02	3.15E-03	3.16E-03
5 PITTSBORO - CONTROL	3/1/2004	323.8	2.45E-02	3.19E-03	2.87E-03
5 PITTSBORO - CONTROL	3/8/2004	317.2	1.90E-02	3.02E-03	3.07E-03
5 PITTSBORO - CONTROL	3/15/2004	324.1	2.25E-02	3.14E-03	2.98E-03
5 PITTSBORO - CONTROL	3/22/2004	326.4	1.18E-02	2.60E-03	3.00E-03
5 PITTSBORO - CONTROL	3/29/2004	329.7	1.93E-02	3.00E-03	3.06E-03
5 PITTSBORO - CONTROL	4/5/2004	296.6	1.13E-02	2.67E-03	3.09E-03
5 PITTSBORO - CONTROL	4/12/2004	264.7	1.89E-02	3.29E-03	3.33E-03
5 PITTSBORO - CONTROL	4/19/2004	264.4	1.78E-02	3.46E-03	3.91E-03
5 PITTSBORO - CONTROL	4/26/2004	302.4	2.17E-02	3.28E-03	3.30E-03
5 PITTSBORO - CONTROL	5/3/2004	265.8	1.62E-02	3.37E-03	3.89E-03
5 PITTSBORO - CONTROL	5/10/2004	288.5	1.93E-02	3.33E-03	3.58E-03

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD	
5	PITTSBORO - CONTROL	5/17/2004	314.6	2.73E-02	3.43E-03	3.11E-03
5	PITTSBORO - CONTROL	5/24/2004	338	1.99E-02	2.90E-03	2.77E-03
5	PITTSBORO - CONTROL	5/30/2004	230.6	1.78E-02	3.67E-03	4.08E-03
5	PITTSBORO - CONTROL	6/7/2004	329.4	1.31E-02	2.69E-03	3.07E-03
5	PITTSBORO - CONTROL	6/14/2004	278.6	1.50E-02	3.21E-03	3.75E-03
5	PITTSBORO - CONTROL	6/21/2004	295.3	1.99E-02	3.23E-03	3.32E-03
5	PITTSBORO - CONTROL	6/28/2004	284.8	1.44E-02	2.98E-03	3.33E-03
5	PITTSBORO - CONTROL	7/6/2004	339.7	2.53E-02	3.13E-03	2.73E-03
5	PITTSBORO - CONTROL	7/12/2004	244.5	1.87E-02	3.64E-03	4.06E-03
5	PITTSBORO - CONTROL	7/19/2004	287.8	1.91E-02	3.18E-03	3.23E-03
5	PITTSBORO - CONTROL	7/26/2004	289.1	2.29E-02	3.38E-03	3.26E-03
5	PITTSBORO - CONTROL	8/2/2004	288.2	1.20E-02	2.74E-03	3.11E-03
5	PITTSBORO - CONTROL	8/9/2004	287	2.84E-02	3.73E-03	3.52E-03
5	PITTSBORO - CONTROL	8/16/2004	288	1.81E-02	3.32E-03	3.73E-03
5	PITTSBORO - CONTROL	8/23/2004	283.8	1.97E-02	3.34E-03	3.52E-03
5	PITTSBORO - CONTROL	8/30/2004	286	2.31E-02	3.38E-03	3.20E-03
5	PITTSBORO - CONTROL	9/5/2004	252.1	1.88E-02	3.59E-03	3.98E-03
5	PITTSBORO - CONTROL	9/13/2004	317.4	1.35E-02	2.81E-03	3.24E-03
5	PITTSBORO - CONTROL	9/20/2004	286.3	1.35E-02	2.94E-03	3.36E-03
5	PITTSBORO - CONTROL	9/27/2004	281.9	1.56E-02	3.08E-03	3.39E-03
5	PITTSBORO - CONTROL	10/4/2004	288.7	4.09E-02	4.12E-03	3.16E-03
5	PITTSBORO - CONTROL	10/11/2004	293.6	2.43E-02	3.39E-03	3.17E-03
5	PITTSBORO - CONTROL	10/18/2004	245.7	1.92E-02	3.55E-03	3.79E-03
5	PITTSBORO - CONTROL	10/25/2004	231.8	1.83E-02	3.91E-03	4.63E-03
5	PITTSBORO - CONTROL	11/1/2004	252.2	2.69E-02	3.88E-03	3.72E-03

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
5	PITTSBORO - CONTROL	11/8/2004	251.3	1.70E-02	3.44E-03	3.86E-03
5	PITTSBORO - CONTROL	11/15/2004	271.9	2.06E-02	3.57E-03	3.91E-03
5	PITTSBORO - CONTROL	11/22/2004	275.4	2.45E-02	3.72E-03	3.86E-03
5	PITTSBORO - CONTROL	11/29/2004	289.1	2.85E-02	3.63E-03	3.14E-03
5	PITTSBORO - CONTROL	12/6/2004	286.7	2.43E-02	3.61E-03	3.64E-03
5	PITTSBORO - CONTROL	12/13/2004	288.3	2.47E-02	3.45E-03	3.15E-03
5	PITTSBORO - CONTROL	12/20/2004	294.2	1.94E-02	3.17E-03	3.15E-03
5	PITTSBORO - CONTROL	12/28/2004	337.7	1.69E-02	2.97E-03	3.28E-03
26	SPILLWAY ON MAIN RES	1/5/2004	286.6	1.95E-02	3.41E-03	3.77E-03
26	SPILLWAY ON MAIN RES	1/12/2004	288.2	2.24E-02	3.37E-03	3.29E-03
26	SPILLWAY ON MAIN RES	1/19/2004	295.7	1.78E-02	3.26E-03	3.67E-03
26	SPILLWAY ON MAIN RES	1/28/2004	381.6	1.82E-02	2.61E-03	2.50E-03
26	SPILLWAY ON MAIN RES	2/2/2004	213.1	2.09E-02	4.18E-03	4.71E-03
26	SPILLWAY ON MAIN RES	2/9/2004	290.8	1.47E-02	3.06E-03	3.53E-03
26	SPILLWAY ON MAIN RES	2/16/2004	300.8	1.82E-02	3.21E-03	3.53E-03
26	SPILLWAY ON MAIN RES	2/23/2004	298.1	1.79E-02	3.16E-03	3.41E-03
26	SPILLWAY ON MAIN RES	3/1/2004	298.7	1.27E-02	2.75E-03	3.11E-03
26	SPILLWAY ON MAIN RES	3/8/2004	284.4	1.92E-02	3.27E-03	3.42E-03
26	SPILLWAY ON MAIN RES	3/15/2004	293	2.24E-02	3.35E-03	3.30E-03
26	SPILLWAY ON MAIN RES	3/22/2004	291.3	1.19E-02	2.84E-03	3.36E-03
26	SPILLWAY ON MAIN RES	3/29/2004	292.9	1.70E-02	3.14E-03	3.45E-03
26	SPILLWAY ON MAIN RES	4/5/2004	294.3	1.20E-02	2.72E-03	3.11E-03
26	SPILLWAY ON MAIN RES	4/12/2004	256.4	2.21E-02	3.54E-03	3.44E-03
26	SPILLWAY ON MAIN RES	4/19/2004	273.9	1.81E-02	3.39E-03	3.77E-03
26	SPILLWAY ON MAIN RES	5/3/2004	289.7	1.62E-02	3.16E-03	3.57E-03

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
26 SPILLWAY ON MAIN RES	11/1/2004	269.3	2.82E-02	3.78E-03	3.48E-03
26 SPILLWAY ON MAIN RES	11/8/2004	269.9	1.81E-02	3.32E-03	3.59E-03
26 SPILLWAY ON MAIN RES	11/15/2004	272.3	1.95E-02	3.51E-03	3.90E-03
26 SPILLWAY ON MAIN RES	11/22/2004	268.4	2.38E-02	3.75E-03	3.96E-03
26 SPILLWAY ON MAIN RES	11/29/2004	277.9	2.49E-02	3.55E-03	3.27E-03
26 SPILLWAY ON MAIN RES	12/6/2004	274.1	2.22E-02	3.63E-03	3.81E-03
26 SPILLWAY ON MAIN RES	12/13/2004	272	2.03E-02	3.36E-03	3.34E-03
26 SPILLWAY ON MAIN RES	12/20/2004	279.3	1.89E-02	3.25E-03	3.32E-03
26 SPILLWAY ON MAIN RES	12/28/2004	316.5	1.85E-02	3.19E-03	3.50E-03
47 SSW SECTOR 3.4 MI FROM SITE	1/5/2004	298.8	1.76E-02	3.22E-03	3.61E-03
47 SSW SECTOR 3.4 MI FROM SITE	1/12/2004	312.1	2.09E-02	3.12E-03	3.04E-03
47 SSW SECTOR 3.4 MI FROM SITE	1/19/2004	321.5	1.76E-02	3.06E-03	3.38E-03
47 SSW SECTOR 3.4 MI FROM SITE	1/28/2004	411.3	1.80E-02	2.47E-03	2.32E-03
47 SSW SECTOR 3.4 MI FROM SITE	2/2/2004	226.3	2.02E-02	3.96E-03	4.44E-03
47 SSW SECTOR 3.4 MI FROM SITE	2/9/2004	310.5	1.72E-02	3.05E-03	3.31E-03
47 SSW SECTOR 3.4 MI FROM SITE	2/16/2004	322.2	2.07E-02	3.18E-03	3.30E-03
47 SSW SECTOR 3.4 MI FROM SITE	2/23/2004	315.7	2.02E-02	3.14E-03	3.22E-03
47 SSW SECTOR 3.4 MI FROM SITE	3/1/2004	318.2	1.89E-02	2.96E-03	2.92E-03
47 SSW SECTOR 3.4 MI FROM SITE	3/8/2004	309.6	2.25E-02	3.24E-03	3.14E-03
47 SSW SECTOR 3.4 MI FROM SITE	3/15/2004	315.5	2.47E-02	3.29E-03	3.06E-03
47 SSW SECTOR 3.4 MI FROM SITE	3/22/2004	312.1	1.35E-02	2.78E-03	3.14E-03
47 SSW SECTOR 3.4 MI FROM SITE	3/29/2004	313.3	2.00E-02	3.14E-03	3.22E-03
47 SSW SECTOR 3.4 MI FROM SITE	4/5/2004	312.4	9.61E-03	2.46E-03	2.93E-03
47 SSW SECTOR 3.4 MI FROM SITE	4/12/2004	265.7	1.92E-02	3.30E-03	3.32E-03
47 SSW SECTOR 3.4 MI FROM SITE	4/19/2004	270.3	1.75E-02	3.39E-03	3.82E-03

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Particulate

Analysis: Beta

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
47	SSW SECTOR 3.4 MI FROM SITE	4/26/2004	271.7	2.59E-02	3.74E-03	3.67E-03
47	SSW SECTOR 3.4 MI FROM SITE	5/3/2004	273.5	1.49E-02	3.23E-03	3.78E-03
47	SSW SECTOR 3.4 MI FROM SITE	5/10/2004	272	2.13E-02	3.57E-03	3.80E-03
47	SSW SECTOR 3.4 MI FROM SITE	5/17/2004	269.3	3.20E-02	4.02E-03	3.64E-03
47	SSW SECTOR 3.4 MI FROM SITE	5/24/2004	271.6	2.14E-02	3.44E-03	3.44E-03
47	SSW SECTOR 3.4 MI FROM SITE	5/30/2004	230.7	2.06E-02	3.82E-03	4.08E-03
47	SSW SECTOR 3.4 MI FROM SITE	6/7/2004	310.3	1.23E-02	2.77E-03	3.25E-03
47	SSW SECTOR 3.4 MI FROM SITE	6/14/2004	269.8	1.66E-02	3.37E-03	3.87E-03
47	SSW SECTOR 3.4 MI FROM SITE	6/21/2004	275.1	1.76E-02	3.28E-03	3.56E-03
47	SSW SECTOR 3.4 MI FROM SITE	6/28/2004	265.4	1.37E-02	3.10E-03	3.57E-03
47	SSW SECTOR 3.4 MI FROM SITE	7/6/2004	316.5	2.47E-02	3.25E-03	2.93E-03
47	SSW SECTOR 3.4 MI FROM SITE	7/12/2004	224.5	2.05E-02	3.98E-03	4.42E-03
47	SSW SECTOR 3.4 MI FROM SITE	7/19/2004	267.1	2.24E-02	3.52E-03	3.48E-03
47	SSW SECTOR 3.4 MI FROM SITE	7/26/2004	267.2	2.48E-02	3.65E-03	3.52E-03
47	SSW SECTOR 3.4 MI FROM SITE	8/2/2004	269.7	1.42E-02	3.01E-03	3.32E-03
47	SSW SECTOR 3.4 MI FROM SITE	8/9/2004	270.1	2.00E-02	3.49E-03	3.74E-03
47	SSW SECTOR 3.4 MI FROM SITE	8/16/2004	272.4	1.29E-02	3.20E-03	3.94E-03
47	SSW SECTOR 3.4 MI FROM SITE	8/23/2004	267	1.86E-02	3.43E-03	3.74E-03
47	SSW SECTOR 3.4 MI FROM SITE	8/30/2004	270.1	2.10E-02	3.40E-03	3.39E-03
47	SSW SECTOR 3.4 MI FROM SITE	9/5/2004	237.1	1.73E-02	3.67E-03	4.23E-03
47	SSW SECTOR 3.4 MI FROM SITE	9/13/2004	208.1	1.75E-02	4.12E-03	4.94E-03
47	SSW SECTOR 3.4 MI FROM SITE	9/20/2004	362.7	9.26E-03	2.24E-03	2.65E-03
47	SSW SECTOR 3.4 MI FROM SITE	9/27/2004	264.8	2.03E-02	3.47E-03	3.60E-03
47	SSW SECTOR 3.4 MI FROM SITE	10/4/2004	272.9	2.01E-02	3.32E-03	3.34E-03
47	SSW SECTOR 3.4 MI FROM SITE	10/11/2004	227.9	2.69E-02	4.15E-03	4.09E-03

# ***HNP Radiological Environmental Monitoring Analysis Report***

*Media Type: Air Particulate*

*Analysis: Beta*

*Quantity: cubic meters*

*Concentration (Activity): pCi/cubic meter*

<i><b>Sample Point</b></i>	<i><b>Sample Date</b></i>	<i><b>Quantity</b></i>	<i><b>Activity</b></i>	<i><b>2 Sigma Error</b></i>	<i><b>LLD</b></i>
47 SSW SECTOR 3.4 MI FROM SITE	10/18/2004	260.8	2.15E-02	3.53E-03	3.57E-03
47 SSW SECTOR 3.4 MI FROM SITE	10/25/2004	259.7	1.47E-02	3.40E-03	4.14E-03
47 SSW SECTOR 3.4 MI FROM SITE	11/1/2004	146.9	2.69E-02	5.67E-03	6.39E-03
47 SSW SECTOR 3.4 MI FROM SITE	11/8/2004	270.5	1.89E-02	3.36E-03	3.58E-03
47 SSW SECTOR 3.4 MI FROM SITE	11/15/2004	272.4	1.72E-02	3.39E-03	3.90E-03
47 SSW SECTOR 3.4 MI FROM SITE	11/22/2004	270.2	2.08E-02	3.59E-03	3.93E-03
47 SSW SECTOR 3.4 MI FROM SITE	11/29/2004	278.7	2.69E-02	3.64E-03	3.26E-03
47 SSW SECTOR 3.4 MI FROM SITE	12/6/2004	275.3	2.42E-02	3.71E-03	3.79E-03
47 SSW SECTOR 3.4 MI FROM SITE	12/13/2004	275.8	2.23E-02	3.44E-03	3.29E-03
47 SSW SECTOR 3.4 MI FROM SITE	12/20/2004	280.5	2.35E-02	3.48E-03	3.31E-03
47 SSW SECTOR 3.4 MI FROM SITE	12/28/2004	319.9	1.66E-02	3.07E-03	3.47E-03

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Beta

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
38	CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	1.00	4.19E+00	8.88E-01	9.28E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	1.00	4.74E+00	8.57E-01	8.32E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	3/11/2004	1.00	3.38E+00	8.69E-01	9.89E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	4/12/2004	1.00	5.08E+00	9.37E-01	8.76E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	5/13/2004	1.00	4.85E+00	9.24E-01	8.88E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	6/13/2004	1.00	5.12E+00	9.59E-01	8.92E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	1.00	5.59E+00	1.05E+00	1.04E+00
38	CAPE FEAR PLANT INTAKE - CONTROL	8/16/2004	1.00	6.66E+00	1.10E+00	1.01E+00
38	CAPE FEAR PLANT INTAKE - CONTROL	9/13/2004	1.00	7.00E+00	1.13E+00	1.10E+00
38	CAPE FEAR PLANT INTAKE - CONTROL	10/11/2004	1.00	4.84E+00	9.15E-01	8.90E-01
38	CAPE FEAR PLANT INTAKE - CONTROL	11/11/2004	1.00	5.12E+00	1.06E+00	1.16E+00
38	CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	1.00	2.92E+00	9.09E-01	1.12E+00
40	LILLINGTON - CAPE FEAR RIVER	1/12/2004	1.00	3.47E+00	8.47E-01	9.36E-01
40	LILLINGTON - CAPE FEAR RIVER	2/9/2004	1.00	4.18E+00	8.89E-01	9.31E-01
40	LILLINGTON - CAPE FEAR RIVER	3/11/2004	1.00	2.77E+00	8.07E-01	9.58E-01
40	LILLINGTON - CAPE FEAR RIVER	4/12/2004	1.00	5.18E+00	9.22E-01	8.45E-01
40	LILLINGTON - CAPE FEAR RIVER	5/13/2004	1.00	3.49E+00	8.16E-01	8.60E-01
40	LILLINGTON - CAPE FEAR RIVER	6/13/2004	1.00	5.02E+00	9.30E-01	8.60E-01
40	LILLINGTON - CAPE FEAR RIVER	7/12/2004	1.00	6.07E+00	1.07E+00	1.04E+00
40	LILLINGTON - CAPE FEAR RIVER	8/16/2004	1.00	6.62E+00	1.10E+00	1.01E+00
40	LILLINGTON - CAPE FEAR RIVER	9/13/2004	1.00	5.77E+00	1.07E+00	1.10E+00
40	LILLINGTON - CAPE FEAR RIVER	10/11/2004	1.00	5.52E+00	9.66E-01	9.04E-01
40	LILLINGTON - CAPE FEAR RIVER	11/11/2004	1.00	5.81E+00	1.11E+00	1.17E+00
40	LILLINGTON - CAPE FEAR RIVER	12/13/2004	1.00	3.91E+00	9.97E-01	1.16E+00
51	WATER TREATMENT BLDG AT HARRIS PLANT	1/12/2004	1.00	3.26E+00	7.83E-01	8.60E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	2/9/2004	1.00	2.57E+00	7.37E-01	8.63E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	3/11/2004	1.00	2.34E+00	7.47E-01	9.12E-01

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Beta

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Activity</i>	<i>2 Sigma Error</i>	<i>LLD</i>
51 WATER TREATMENT BLDG AT HARRIS PLANT	4/12/2004	1.00	3.73E+00	7.94E-01	7.95E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	5/13/2004	1.00	2.85E+00	7.45E-01	8.22E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	6/13/2004	1.00	3.23E+00	7.67E-01	7.97E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	7/12/2004	1.00	3.05E+00	8.40E-01	9.77E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	8/16/2004	1.00	4.28E+00	8.59E-01	8.72E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	9/13/2004	1.00	2.99E+00	8.16E-01	9.72E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	10/11/2004	1.00	3.47E+00	7.91E-01	8.37E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	11/11/2004	1.00	2.15E+00	8.13E-01	1.06E+00
51 WATER TREATMENT BLDG AT HARRIS PLANT	12/13/2004	1.00	2.69E+00	8.25E-01	1.01E+00

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Beta

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
26 SPILLWAY ON MAIN RES	1/12/2004	1.00	3.37E+00	7.70E-01	8.29E-01
26 SPILLWAY ON MAIN RES	2/9/2004	1.00	5.75E+00	9.24E-01	8.46E-01
26 SPILLWAY ON MAIN RES	3/11/2004	1.00	3.36E+00	7.78E-01	8.51E-01
26 SPILLWAY ON MAIN RES	4/12/2004	1.00	5.04E+00	8.55E-01	7.64E-01
26 SPILLWAY ON MAIN RES	5/13/2004	1.00	3.40E+00	7.58E-01	7.82E-01
26 SPILLWAY ON MAIN RES	6/13/2004	1.00	2.96E+00	7.03E-01	7.30E-01
26 SPILLWAY ON MAIN RES	7/12/2004	1.00	2.45E+00	7.18E-01	8.50E-01
26 SPILLWAY ON MAIN RES	8/16/2004	1.00	3.25E+00	7.73E-01	8.42E-01
26 SPILLWAY ON MAIN RES	9/13/2004	1.00	8.50E+00	1.09E+00	9.42E-01
26 SPILLWAY ON MAIN RES	10/11/2004	1.00	3.78E+00	7.99E-01	8.18E-01
26 SPILLWAY ON MAIN RES	11/11/2004	1.00	4.48E+00	9.16E-01	9.95E-01
26 SPILLWAY ON MAIN RES	12/13/2004	1.00	2.24E+00	7.99E-01	1.02E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	1.00	4.19E+00	8.88E-01	9.28E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	1.00	4.74E+00	8.57E-01	8.32E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	3/11/2004	1.00	3.38E+00	8.69E-01	9.89E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	4/12/2004	1.00	5.08E+00	9.37E-01	8.76E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/13/2004	1.00	4.85E+00	9.24E-01	8.88E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	6/13/2004	1.00	5.12E+00	9.59E-01	8.92E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	1.00	5.59E+00	1.05E+00	1.04E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	8/16/2004	1.00	6.66E+00	1.10E+00	1.01E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	9/13/2004	1.00	7.00E+00	1.13E+00	1.10E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	10/11/2004	1.00	4.84E+00	9.15E-01	8.90E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	11/11/2004	1.00	5.12E+00	1.06E+00	1.16E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	1.00	2.92E+00	9.09E-01	1.12E+00
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1.00	3.47E+00	8.47E-01	9.36E-01
40 LILLINGTON - CAPE FEAR RIVER	2/9/2004	1.00	4.18E+00	8.89E-01	9.31E-01

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Beta

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
40	LILLINGTON - CAPE FEAR RIVER	3/11/2004	1.00	2.77E+00	8.07E-01	9.58E-01
40	LILLINGTON - CAPE FEAR RIVER	4/12/2004	1.00	5.18E+00	9.22E-01	8.45E-01
40	LILLINGTON - CAPE FEAR RIVER	5/13/2004	1.00	3.49E+00	8.16E-01	8.60E-01
40	LILLINGTON - CAPE FEAR RIVER	6/13/2004	1.00	5.02E+00	9.30E-01	8.60E-01
40	LILLINGTON - CAPE FEAR RIVER	7/12/2004	1.00	6.07E+00	1.07E+00	1.04E+00
40	LILLINGTON - CAPE FEAR RIVER	8/16/2004	1.00	6.62E+00	1.10E+00	1.01E+00
40	LILLINGTON - CAPE FEAR RIVER	9/13/2004	1.00	5.77E+00	1.07E+00	1.10E+00
40	LILLINGTON - CAPE FEAR RIVER	10/11/2004	1.00	5.52E+00	9.66E-01	9.04E-01
40	LILLINGTON - CAPE FEAR RIVER	11/11/2004	1.00	5.81E+00	1.11E+00	1.17E+00
40	LILLINGTON - CAPE FEAR RIVER	12/13/2004	1.00	3.91E+00	9.97E-01	1.16E+00

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/5/2004	290.40	<LLD	2.12E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/12/2004	296.00	<LLD	2.88E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/19/2004	297.10	<LLD	2.65E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	1/28/2004	384.10	<LLD	2.21E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/2/2004	214.80	<LLD	2.87E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/9/2004	295.90	<LLD	4.03E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/16/2004	305.10	<LLD	2.48E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/23/2004	305.30	<LLD	1.13E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/1/2004	307.10	<LLD	2.06E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/8/2004	301.00	<LLD	1.35E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/15/2004	305.00	<LLD	2.87E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/22/2004	315.60	<LLD	1.72E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	3/29/2004	319.20	<LLD	2.64E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/5/2004	319.20	<LLD	2.25E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/12/2004	266.40	<LLD	3.61E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/19/2004	286.60	<LLD	3.12E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	4/26/2004	261.80	<LLD	3.34E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/3/2004	262.20	<LLD	2.81E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/10/2004	263.30	<LLD	2.50E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	260.70	<LLD	2.87E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/24/2004	252.00	<LLD	2.90E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/30/2004	216.50	<LLD	2.55E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/7/2004	289.00	<LLD	2.14E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/14/2004	252.00	<LLD	2.84E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/21/2004	257.20	<LLD	3.41E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	6/28/2004	247.60	<LLD	3.35E-02
1	SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/6/2004	288.90	<LLD	2.28E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/12/2004	214.50	<LLD		2.74E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/19/2004	248.40	<LLD		3.00E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	7/26/2004	246.90	<LLD		4.13E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/2/2004	244.80	<LLD		2.39E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/9/2004	242.70	<LLD		2.86E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/16/2004	242.00	<LLD		1.98E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/23/2004	241.30	<LLD		2.49E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/30/2004	241.30	<LLD		2.34E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/5/2004	211.70	<LLD		3.35E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/13/2004	267.10	<LLD		3.14E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/20/2004	238.00	<LLD		3.77E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	9/27/2004	237.20	<LLD		2.79E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/4/2004	241.70	<LLD		5.77E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/11/2004	239.70	<LLD		2.09E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/18/2004	255.30	<LLD		3.36E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	10/25/2004	257.20	<LLD		2.60E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/1/2004	265.70	<LLD		2.43E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/8/2004	266.30	<LLD		2.88E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	271.10	<LLD		3.40E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/22/2004	266.20	<LLD		2.13E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/29/2004	273.90	<LLD		2.48E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/6/2004	271.10	<LLD		3.42E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/13/2004	271.70	<LLD		3.66E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/20/2004	276.10	<LLD		2.79E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	12/28/2004	317.30	<LLD		2.57E-02
2 SR 1134	1/5/2004	288.60	<LLD		5.52E-02
2 SR 1134	1/12/2004	289.00	<LLD		3.67E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
2 SR 1134	1/19/2004	291.40	<LLD		2.71E-02
2 SR 1134	1/28/2004	374.30	<LLD		4.53E-02
2 SR 1134	2/2/2004	207.30	<LLD		4.23E-02
2 SR 1134	2/9/2004	285.20	<LLD		3.61E-02
2 SR 1134	2/16/2004	291.80	<LLD		4.03E-02
2 SR 1134	2/23/2004	288.40	<LLD		2.64E-02
2 SR 1134	3/1/2004	287.60	<LLD		2.32E-02
2 SR 1134	3/8/2004	282.20	<LLD		3.04E-02
2 SR 1134	3/15/2004	285.30	<LLD		2.73E-02
2 SR 1134	3/22/2004	283.70	<LLD		2.96E-02
2 SR 1134	3/29/2004	283.70	<LLD		3.32E-02
2 SR 1134	4/5/2004	282.60	<LLD		3.68E-02
2 SR 1134	4/12/2004	283.10	<LLD		3.60E-02
2 SR 1134	4/19/2004	284.50	<LLD		2.71E-02
2 SR 1134	4/26/2004	269.70	<LLD		3.27E-02
2 SR 1134	5/3/2004	270.50	<LLD		3.61E-02
2 SR 1134	5/10/2004	270.80	<LLD		2.32E-02
2 SR 1134	5/17/2004	267.50	<LLD		3.15E-02
2 SR 1134	5/24/2004	267.80	<LLD		3.96E-02
2 SR 1134	5/30/2004	229.10	<LLD		4.10E-02
2 SR 1134	6/7/2004	282.70	<LLD		3.63E-02
2 SR 1134	6/14/2004	265.00	<LLD		3.41E-02
2 SR 1134	6/21/2004	268.70	<LLD		3.65E-02
2 SR 1134	6/28/2004	259.50	<LLD		4.03E-02
2 SR 1134	7/6/2004	303.60	<LLD		3.35E-02
2 SR 1134	7/12/2004	225.80	<LLD		3.08E-02
2 SR 1134	7/19/2004	260.80	<LLD		4.14E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
2 SR 1134	7/26/2004	258.00	<LLD		4.28E-02
2 SR 1134	8/2/2004	256.80	<LLD		3.17E-02
2 SR 1134	8/9/2004	250.60	<LLD		4.43E-02
2 SR 1134	8/16/2004	246.90	<LLD		3.19E-02
2 SR 1134	8/23/2004	246.10	<LLD		3.63E-02
2 SR 1134	8/30/2004	245.50	<LLD		3.40E-02
2 SR 1134	9/5/2004	215.30	<LLD		3.05E-02
2 SR 1134	9/13/2004	270.80	<LLD		2.74E-02
2 SR 1134	9/20/2004	242.90	<LLD		5.16E-02
2 SR 1134	9/27/2004	239.10	<LLD		2.87E-02
2 SR 1134	10/4/2004	244.60	<LLD		4.75E-02
2 SR 1134	10/11/2004	242.70	<LLD		3.85E-02
2 SR 1134	10/18/2004	259.90	<LLD		3.68E-02
2 SR 1134	10/25/2004	257.60	<LLD		3.48E-02
2 SR 1134	11/1/2004	263.50	<LLD		3.16E-02
2 SR 1134	11/8/2004	262.30	<LLD		3.67E-02
2 SR 1134	11/15/2004	264.70	<LLD		2.91E-02
2 SR 1134	11/22/2004	260.20	<LLD		3.30E-02
2 SR 1134	11/29/2004	268.90	<LLD		4.30E-02
2 SR 1134	12/6/2004	264.60	<LLD		2.67E-02
2 SR 1134	12/13/2004	266.20	<LLD		2.74E-02
2 SR 1134	12/20/2004	268.00	<LLD		2.11E-02
2 SR 1134	12/28/2004	307.10	<LLD		1.92E-02
4 NEW HILL NEAR 1ST BAPTIST CH	1/5/2004	268.10	<LLD		3.79E-02
4 NEW HILL NEAR 1ST BAPTIST CH	1/12/2004	272.60	<LLD		4.23E-02
4 NEW HILL NEAR 1ST BAPTIST CH	1/19/2004	274.60	<LLD		4.38E-02
4 NEW HILL NEAR 1ST BAPTIST CH	1/28/2004	356.50	<LLD		3.77E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
4 NEW HILL NEAR 1ST BAPTIST CH	2/2/2004	198.30	<LLD		5.83E-02
4 NEW HILL NEAR 1ST BAPTIST CH	2/9/2004	274.60	<LLD		3.14E-02
4 NEW HILL NEAR 1ST BAPTIST CH	2/16/2004	287.50	<LLD		2.89E-02
4 NEW HILL NEAR 1ST BAPTIST CH	2/23/2004	287.10	<LLD		5.59E-02
4 NEW HILL NEAR 1ST BAPTIST CH	3/1/2004	287.90	<LLD		4.23E-02
4 NEW HILL NEAR 1ST BAPTIST CH	3/8/2004	281.80	<LLD		4.10E-02
4 NEW HILL NEAR 1ST BAPTIST CH	3/15/2004	288.80	<LLD		5.67E-02
4 NEW HILL NEAR 1ST BAPTIST CH	3/22/2004	291.50	<LLD		2.92E-02
4 NEW HILL NEAR 1ST BAPTIST CH	3/29/2004	286.50	<LLD		3.84E-02
4 NEW HILL NEAR 1ST BAPTIST CH	4/5/2004	287.80	<LLD		4.19E-02
4 NEW HILL NEAR 1ST BAPTIST CH	4/12/2004	288.10	<LLD		4.89E-02
4 NEW HILL NEAR 1ST BAPTIST CH	4/19/2004	278.30	<LLD		4.75E-02
4 NEW HILL NEAR 1ST BAPTIST CH	4/26/2004	277.10	<LLD		5.40E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/3/2004	278.00	<LLD		3.85E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/10/2004	278.50	<LLD		4.63E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/17/2004	273.50	<LLD		4.56E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/24/2004	273.50	<LLD		4.89E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/30/2004	237.00	<LLD		5.75E-02
4 NEW HILL NEAR 1ST BAPTIST CH	6/7/2004	315.50	<LLD		4.62E-02
4 NEW HILL NEAR 1ST BAPTIST CH	6/14/2004	276.00	<LLD		4.07E-02
4 NEW HILL NEAR 1ST BAPTIST CH	6/21/2004	281.80	<LLD		4.35E-02
4 NEW HILL NEAR 1ST BAPTIST CH	6/28/2004	270.20	<LLD		5.05E-02
4 NEW HILL NEAR 1ST BAPTIST CH	7/6/2004	319.20	<LLD		4.31E-02
4 NEW HILL NEAR 1ST BAPTIST CH	7/12/2004	234.20	<LLD		4.66E-02
4 NEW HILL NEAR 1ST BAPTIST CH	7/19/2004	275.40	<LLD		4.43E-02
4 NEW HILL NEAR 1ST BAPTIST CH	7/26/2004	274.50	<LLD		3.02E-02
4 NEW HILL NEAR 1ST BAPTIST CH	8/2/2004	277.10	<LLD		3.66E-02

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
4 NEW HILL NEAR 1ST BAPTIST CH	8/9/2004	275.70	<LLD		2.80E-02
4 NEW HILL NEAR 1ST BAPTIST CH	8/16/2004	276.60	<LLD		2.88E-02
4 NEW HILL NEAR 1ST BAPTIST CH	8/23/2004	276.30	<LLD		4.02E-02
4 NEW HILL NEAR 1ST BAPTIST CH	8/30/2004	277.10	<LLD		4.00E-02
4 NEW HILL NEAR 1ST BAPTIST CH	9/5/2004	244.50	<LLD		4.20E-02
4 NEW HILL NEAR 1ST BAPTIST CH	9/13/2004	307.80	<LLD		4.20E-02
4 NEW HILL NEAR 1ST BAPTIST CH	9/20/2004	162.30	<LLD		3.69E-02
4 NEW HILL NEAR 1ST BAPTIST CH	9/27/2004	273.50	<LLD		2.22E-02
4 NEW HILL NEAR 1ST BAPTIST CH	10/4/2004	278.00	<LLD		4.60E-02
4 NEW HILL NEAR 1ST BAPTIST CH	10/11/2004	276.30	<LLD		4.14E-02
4 NEW HILL NEAR 1ST BAPTIST CH	10/18/2004	261.70	<LLD		4.77E-02
4 NEW HILL NEAR 1ST BAPTIST CH	10/25/2004	260.80	<LLD		3.00E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/1/2004	266.60	<LLD		3.76E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/8/2004	264.80	<LLD		2.22E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	269.00	<LLD		3.20E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/22/2004	263.80	<LLD		2.81E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/29/2004	271.10	<LLD		2.50E-02
4 NEW HILL NEAR 1ST BAPTIST CH	12/6/2004	268.20	<LLD		4.50E-02
4 NEW HILL NEAR 1ST BAPTIST CH	12/13/2004	269.20	<LLD		4.08E-02
4 NEW HILL NEAR 1ST BAPTIST CH	12/20/2004	271.40	<LLD		3.86E-02
4 NEW HILL NEAR 1ST BAPTIST CH	12/28/2004	312.90	<LLD		3.40E-02
5 PITTSBORO - CONTROL	1/5/2004	303.60	<LLD		5.24E-02
5 PITTSBORO - CONTROL	1/12/2004	305.10	<LLD		1.82E-02
5 PITTSBORO - CONTROL	1/19/2004	308.40	<LLD		2.16E-02
5 PITTSBORO - CONTROL	1/28/2004	402.80	<LLD		3.96E-02
5 PITTSBORO - CONTROL	2/2/2004	224.10	<LLD		2.62E-02
5 PITTSBORO - CONTROL	2/9/2004	310.70	<LLD		2.90E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
5	PITTSBORO - CONTROL	2/16/2004	318.90	<LLD	3.46E-02
5	PITTSBORO - CONTROL	2/23/2004	321.20	<LLD	1.92E-02
5	PITTSBORO - CONTROL	3/1/2004	323.80	<LLD	2.13E-02
5	PITTSBORO - CONTROL	3/8/2004	317.20	<LLD	1.42E-02
5	PITTSBORO - CONTROL	3/15/2004	324.10	<LLD	2.54E-02
5	PITTSBORO - CONTROL	3/22/2004	326.40	<LLD	1.59E-02
5	PITTSBORO - CONTROL	3/29/2004	329.70	<LLD	1.64E-02
5	PITTSBORO - CONTROL	4/5/2004	296.60	<LLD	2.34E-02
5	PITTSBORO - CONTROL	4/12/2004	264.70	<LLD	2.10E-02
5	PITTSBORO - CONTROL	4/19/2004	264.40	<LLD	2.88E-02
5	PITTSBORO - CONTROL	4/26/2004	302.40	<LLD	1.76E-02
5	PITTSBORO - CONTROL	5/3/2004	265.80	<LLD	3.03E-02
5	PITTSBORO - CONTROL	5/10/2004	288.50	<LLD	1.87E-02
5	PITTSBORO - CONTROL	5/17/2004	314.60	<LLD	2.77E-02
5	PITTSBORO - CONTROL	5/24/2004	338.00	<LLD	1.96E-02
5	PITTSBORO - CONTROL	5/30/2004	230.60	<LLD	3.70E-02
5	PITTSBORO - CONTROL	6/7/2004	329.40	<LLD	2.44E-02
5	PITTSBORO - CONTROL	6/14/2004	278.60	<LLD	1.92E-02
5	PITTSBORO - CONTROL	6/21/2004	295.30	<LLD	2.39E-02
5	PITTSBORO - CONTROL	6/28/2004	284.80	<LLD	2.98E-02
5	PITTSBORO - CONTROL	7/6/2004	339.70	<LLD	1.92E-02
5	PITTSBORO - CONTROL	7/12/2004	244.50	<LLD	2.24E-02
5	PITTSBORO - CONTROL	7/19/2004	287.80	<LLD	3.11E-02
5	PITTSBORO - CONTROL	7/26/2004	289.10	<LLD	4.50E-02
5	PITTSBORO - CONTROL	8/2/2004	288.20	<LLD	2.94E-02
5	PITTSBORO - CONTROL	8/9/2004	287.00	<LLD	4.53E-02
5	PITTSBORO - CONTROL	8/16/2004	288.00	<LLD	2.40E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
5	PITTSBORO - CONTROL	8/23/2004	283.80	<LLD	1.69E-02
5	PITTSBORO - CONTROL	8/30/2004	286.00	<LLD	2.58E-02
5	PITTSBORO - CONTROL	9/5/2004	252.10	<LLD	2.64E-02
5	PITTSBORO - CONTROL	9/13/2004	317.40	<LLD	2.15E-02
5	PITTSBORO - CONTROL	9/20/2004	286.30	<LLD	1.76E-02
5	PITTSBORO - CONTROL	9/27/2004	281.90	<LLD	3.08E-02
5	PITTSBORO - CONTROL	10/4/2004	288.70	<LLD	1.68E-02
5	PITTSBORO - CONTROL	10/11/2004	293.60	<LLD	2.29E-02
5	PITTSBORO - CONTROL	10/18/2004	245.70	<LLD	2.81E-02
5	PITTSBORO - CONTROL	10/25/2004	231.80	<LLD	4.11E-02
5	PITTSBORO - CONTROL	11/1/2004	252.20	<LLD	2.63E-02
5	PITTSBORO - CONTROL	11/8/2004	251.30	<LLD	3.48E-02
5	PITTSBORO - CONTROL	11/15/2004	271.90	<LLD	3.53E-02
5	PITTSBORO - CONTROL	11/22/2004	275.40	<LLD	3.09E-02
5	PITTSBORO - CONTROL	11/29/2004	289.10	<LLD	3.61E-02
5	PITTSBORO - CONTROL	12/6/2004	286.70	<LLD	3.28E-02
5	PITTSBORO - CONTROL	12/13/2004	288.30	<LLD	3.16E-02
5	PITTSBORO - CONTROL	12/20/2004	294.20	<LLD	2.08E-02
5	PITTSBORO - CONTROL	12/28/2004	337.70	<LLD	2.77E-02
26	SPILLWAY ON MAIN RES	1/5/2004	286.60	<LLD	2.69E-02
26	SPILLWAY ON MAIN RES	1/12/2004	288.20	<LLD	2.83E-02
26	SPILLWAY ON MAIN RES	1/19/2004	295.70	<LLD	2.70E-02
26	SPILLWAY ON MAIN RES	1/28/2004	381.60	<LLD	3.44E-02
26	SPILLWAY ON MAIN RES	2/2/2004	213.10	<LLD	3.86E-02
26	SPILLWAY ON MAIN RES	2/9/2004	290.80	<LLD	3.14E-02
26	SPILLWAY ON MAIN RES	2/16/2004	300.80	<LLD	4.03E-02
26	SPILLWAY ON MAIN RES	2/23/2004	298.10	<LLD	2.94E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
26 SPILLWAY ON MAIN RES	3/1/2004	298.70	<LLD		3.04E-02
26 SPILLWAY ON MAIN RES	3/8/2004	284.40	<LLD		2.53E-02
26 SPILLWAY ON MAIN RES	3/15/2004	293.00	<LLD		2.66E-02
26 SPILLWAY ON MAIN RES	3/22/2004	291.30	<LLD		2.90E-02
26 SPILLWAY ON MAIN RES	3/29/2004	292.90	<LLD		2.41E-02
26 SPILLWAY ON MAIN RES	4/5/2004	294.30	<LLD		2.47E-02
26 SPILLWAY ON MAIN RES	4/12/2004	256.40	<LLD		3.24E-02
26 SPILLWAY ON MAIN RES	4/19/2004	273.90	<LLD		3.14E-02
26 SPILLWAY ON MAIN RES	4/26/2004	47.70	<LLD		2.39E-01
26 SPILLWAY ON MAIN RES	5/3/2004	289.70	<LLD		3.27E-02
26 SPILLWAY ON MAIN RES	5/10/2004	259.50	<LLD		3.96E-02
26 SPILLWAY ON MAIN RES	5/17/2004	256.60	<LLD		4.35E-02
26 SPILLWAY ON MAIN RES	5/24/2004	258.00	<LLD		3.53E-02
26 SPILLWAY ON MAIN RES	5/30/2004	217.10	<LLD		3.62E-02
26 SPILLWAY ON MAIN RES	6/7/2004	291.90	<LLD		2.86E-02
26 SPILLWAY ON MAIN RES	6/14/2004	253.20	<LLD		3.21E-02
26 SPILLWAY ON MAIN RES	6/21/2004	257.90	<LLD		4.44E-02
26 SPILLWAY ON MAIN RES	6/28/2004	248.10	<LLD		4.52E-02
26 SPILLWAY ON MAIN RES	7/6/2004	294.50	<LLD		3.56E-02
26 SPILLWAY ON MAIN RES	7/12/2004	208.80	<LLD		3.34E-02
26 SPILLWAY ON MAIN RES	7/19/2004	247.50	<LLD		4.74E-02
26 SPILLWAY ON MAIN RES	7/26/2004	247.80	<LLD		3.25E-02
26 SPILLWAY ON MAIN RES	8/2/2004	249.30	<LLD		2.48E-02
26 SPILLWAY ON MAIN RES	8/9/2004	247.80	<LLD		3.48E-02
26 SPILLWAY ON MAIN RES	8/16/2004	248.10	<LLD		3.41E-02
26 SPILLWAY ON MAIN RES	8/23/2004	242.30	<LLD		4.15E-02
26 SPILLWAY ON MAIN RES	8/30/2004	245.10	<LLD		3.07E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
26 SPILLWAY ON MAIN RES	9/5/2004	213.10	<LLD		3.81E-02
26 SPILLWAY ON MAIN RES	9/13/2004	269.80	<LLD		2.73E-02
26 SPILLWAY ON MAIN RES	9/20/2004	241.10	<LLD		3.39E-02
26 SPILLWAY ON MAIN RES	9/27/2004	236.50	<LLD		3.44E-02
26 SPILLWAY ON MAIN RES	10/4/2004	243.00	<LLD		3.99E-02
26 SPILLWAY ON MAIN RES	10/11/2004	242.00	<LLD		4.49E-02
26 SPILLWAY ON MAIN RES	10/18/2004	262.10	<LLD		2.99E-02
26 SPILLWAY ON MAIN RES	10/25/2004	262.90	<LLD		3.13E-02
26 SPILLWAY ON MAIN RES	11/1/2004	269.30	<LLD		2.94E-02
26 SPILLWAY ON MAIN RES	11/8/2004	269.90	<LLD		3.38E-02
26 SPILLWAY ON MAIN RES	11/15/2004	272.30	<LLD		2.67E-02
26 SPILLWAY ON MAIN RES	11/22/2004	268.40	<LLD		1.99E-02
26 SPILLWAY ON MAIN RES	11/29/2004	277.90	<LLD		2.28E-02
26 SPILLWAY ON MAIN RES	12/6/2004	274.10	<LLD		2.07E-02
26 SPILLWAY ON MAIN RES	12/13/2004	272.00	<LLD		2.45E-02
26 SPILLWAY ON MAIN RES	12/20/2004	279.30	<LLD		2.28E-02
26 SPILLWAY ON MAIN RES	12/28/2004	316.50	<LLD		1.97E-02
47 SSW SECTOR 3.4 MI FROM SITE	1/5/2004	298.80	<LLD		5.53E-02
47 SSW SECTOR 3.4 MI FROM SITE	1/12/2004	312.10	<LLD		3.40E-02
47 SSW SECTOR 3.4 MI FROM SITE	1/19/2004	321.50	<LLD		2.99E-02
47 SSW SECTOR 3.4 MI FROM SITE	1/28/2004	411.30	<LLD		3.02E-02
47 SSW SECTOR 3.4 MI FROM SITE	2/2/2004	226.30	<LLD		5.71E-02
47 SSW SECTOR 3.4 MI FROM SITE	2/9/2004	310.50	<LLD		4.76E-02
47 SSW SECTOR 3.4 MI FROM SITE	2/16/2004	322.20	<LLD		3.15E-02
47 SSW SECTOR 3.4 MI FROM SITE	2/23/2004	315.70	<LLD		2.80E-02
47 SSW SECTOR 3.4 MI FROM SITE	3/1/2004	318.20	<LLD		3.95E-02
47 SSW SECTOR 3.4 MI FROM SITE	3/8/2004	309.60	<LLD		4.09E-02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
47 SSW SECTOR 3.4 MI FROM SITE	3/15/2004	315.50	<LLD		3.66E-02
47 SSW SECTOR 3.4 MI FROM SITE	3/22/2004	312.10	<LLD		5.10E-02
47 SSW SECTOR 3.4 MI FROM SITE	3/29/2004	313.30	<LLD		2.94E-02
47 SSW SECTOR 3.4 MI FROM SITE	4/5/2004	312.40	<LLD		4.26E-02
47 SSW SECTOR 3.4 MI FROM SITE	4/12/2004	265.70	<LLD		4.42E-02
47 SSW SECTOR 3.4 MI FROM SITE	4/19/2004	270.30	<LLD		5.05E-02
47 SSW SECTOR 3.4 MI FROM SITE	4/26/2004	271.70	<LLD		6.09E-02
47 SSW SECTOR 3.4 MI FROM SITE	5/3/2004	273.50	<LLD		2.49E-02
47 SSW SECTOR 3.4 MI FROM SITE	5/10/2004	272.00	<LLD		4.66E-02
47 SSW SECTOR 3.4 MI FROM SITE	5/17/2004	269.30	<LLD		1.89E-02
47 SSW SECTOR 3.4 MI FROM SITE	5/24/2004	271.60	<LLD		6.38E-02
47 SSW SECTOR 3.4 MI FROM SITE	5/30/2004	230.70	<LLD		5.59E-02
47 SSW SECTOR 3.4 MI FROM SITE	6/7/2004	310.30	<LLD		4.54E-02
47 SSW SECTOR 3.4 MI FROM SITE	6/14/2004	269.80	<LLD		4.28E-02
47 SSW SECTOR 3.4 MI FROM SITE	6/21/2004	275.10	<LLD		4.89E-02
47 SSW SECTOR 3.4 MI FROM SITE	6/28/2004	265.40	<LLD		5.00E-02
47 SSW SECTOR 3.4 MI FROM SITE	7/6/2004	316.50	<LLD		4.73E-02
47 SSW SECTOR 3.4 MI FROM SITE	7/12/2004	224.50	<LLD		5.62E-02
47 SSW SECTOR 3.4 MI FROM SITE	7/19/2004	267.10	<LLD		5.17E-02
47 SSW SECTOR 3.4 MI FROM SITE	7/26/2004	267.20	<LLD		4.71E-02
47 SSW SECTOR 3.4 MI FROM SITE	8/2/2004	269.70	<LLD		4.77E-02
47 SSW SECTOR 3.4 MI FROM SITE	8/9/2004	270.10	<LLD		3.88E-02
47 SSW SECTOR 3.4 MI FROM SITE	8/16/2004	272.40	<LLD		3.39E-02
47 SSW SECTOR 3.4 MI FROM SITE	8/23/2004	267.00	<LLD		3.76E-02
47 SSW SECTOR 3.4 MI FROM SITE	8/30/2004	270.10	<LLD		3.54E-02
47 SSW SECTOR 3.4 MI FROM SITE	9/5/2004	237.10	<LLD		4.83E-02
47 SSW SECTOR 3.4 MI FROM SITE	9/13/2004	208.10	<LLD		6.12E-02

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Air Cartridge

Quantity: cubic meters

Concentration (Activity): pCi/cubic meter

Analysis: Iodine

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Activity</i>	<i>2 Sigma Error</i>	<i>LLD</i>
47 SSW SECTOR 3.4 MI FROM SITE	9/20/2004	362.70	<LLD		2.99E-02
47 SSW SECTOR 3.4 MI FROM SITE	9/27/2004	264.80	<LLD		2.77E-02
47 SSW SECTOR 3.4 MI FROM SITE	10/4/2004	272.90	<LLD		5.74E-02
47 SSW SECTOR 3.4 MI FROM SITE	10/11/2004	227.90	<LLD		6.44E-02
47 SSW SECTOR 3.4 MI FROM SITE	10/18/2004	260.80	<LLD		4.30E-02
47 SSW SECTOR 3.4 MI FROM SITE	10/25/2004	259.70	<LLD		4.04E-02
47 SSW SECTOR 3.4 MI FROM SITE	11/1/2004	146.90	<LLD		3.97E-02
47 SSW SECTOR 3.4 MI FROM SITE	11/8/2004	270.50	<LLD		3.55E-02
47 SSW SECTOR 3.4 MI FROM SITE	11/15/2004	272.40	<LLD		5.49E-02
47 SSW SECTOR 3.4 MI FROM SITE	11/22/2004	270.20	<LLD		4.46E-02
47 SSW SECTOR 3.4 MI FROM SITE	11/29/2004	278.70	<LLD		5.11E-02
47 SSW SECTOR 3.4 MI FROM SITE	12/6/2004	275.30	<LLD		4.15E-02
47 SSW SECTOR 3.4 MI FROM SITE	12/13/2004	275.80	<LLD		3.75E-02
47 SSW SECTOR 3.4 MI FROM SITE	12/20/2004	280.50	<LLD		4.00E-02
47 SSW SECTOR 3.4 MI FROM SITE	12/28/2004	319.90	<LLD		4.33E-02

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Activity</i>	<i>2 Sigma Error</i>	<i>LLD</i>
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	4.00			9.60E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	1/26/2004	4.00			6.70E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	4.00			4.95E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	2/23/2004	4.00			5.16E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	3/8/2004	4.00			5.05E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	3/22/2004	4.00			5.28E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	4/5/2004	4.00			5.46E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	4/19/2004	4.00			7.83E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/3/2004	4.00			7.18E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/17/2004	4.00			4.91E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/30/2004	4.00			7.62E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	6/14/2004	4.00			5.01E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	6/28/2004	4.00			5.95E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	4.00			7.33E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	7/26/2004	4.00			5.35E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	8/9/2004	4.00			5.34E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	8/23/2004	4.00			4.68E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	9/6/2004	4.00			6.09E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	9/20/2004	4.00			6.00E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Drinking Water

Quantity: Liters

Analysis: Iodine

• Concentration (Activity): pCi/Liter

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
38 CAPE FEAR PLANT INTAKE - CONTROL	10/4/2004	4.00			4.83E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	10/18/2004	4.00			5.49E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	11/1/2004	4.00			5.17E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	11/15/2004	4.00			8.14E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	11/29/2004	4.00			6.33E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	4.00			7.06E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	12/28/2004	4.00			6.52E-01
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	4.00			6.72E-01
40 LILLINGTON - CAPE FEAR RIVER	1/26/2004	4.00			9.84E-01
40 LILLINGTON - CAPE FEAR RIVER	2/9/2004	4.00			6.67E-01
40 LILLINGTON - CAPE FEAR RIVER	2/23/2004	4.00			6.35E-01
40 LILLINGTON - CAPE FEAR RIVER	3/8/2004	4.00			6.62E-01
40 LILLINGTON - CAPE FEAR RIVER	3/22/2004	4.00			6.48E-01
40 LILLINGTON - CAPE FEAR RIVER	4/5/2004	4.00			6.63E-01
40 LILLINGTON - CAPE FEAR RIVER	4/19/2004	4.00			6.35E-01
40 LILLINGTON - CAPE FEAR RIVER	5/3/2004	4.00			8.83E-01
40 LILLINGTON - CAPE FEAR RIVER	5/17/2004	4.00			6.69E-01
40 LILLINGTON - CAPE FEAR RIVER	5/30/2004	4.00			7.21E-01
40 LILLINGTON - CAPE FEAR RIVER	6/14/2004	4.00			6.92E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
40 LILLINGTON - CAPE FEAR RIVER	6/28/2004	4.00			7.50E-01
40 LILLINGTON - CAPE FEAR RIVER	7/12/2004	4.00			6.88E-01
40 LILLINGTON - CAPE FEAR RIVER	7/26/2004	4.00			6.78E-01
40 LILLINGTON - CAPE FEAR RIVER	8/9/2004	4.00			6.91E-01
40 LILLINGTON - CAPE FEAR RIVER	8/23/2004	4.00			5.99E-01
40 LILLINGTON - CAPE FEAR RIVER	9/6/2004	4.00			7.60E-01
40 LILLINGTON - CAPE FEAR RIVER	9/20/2004	4.00			7.35E-01
40 LILLINGTON - CAPE FEAR RIVER	10/4/2004	4.00			6.17E-01
40 LILLINGTON - CAPE FEAR RIVER	10/18/2004	4.00			6.86E-01
40 LILLINGTON - CAPE FEAR RIVER	11/1/2004	4.00			4.81E-01
40 LILLINGTON - CAPE FEAR RIVER	11/15/2004	4.00			4.56E-01
40 LILLINGTON - CAPE FEAR RIVER	11/29/2004	4.00			4.80E-01
40 LILLINGTON - CAPE FEAR RIVER	12/13/2004	4.00			8.04E-01
40 LILLINGTON - CAPE FEAR RIVER	12/28/2004	4.00			4.95E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	1/12/2004	4.00			4.88E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	1/26/2004	4.00			7.33E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	2/9/2004	4.00			9.48E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	2/23/2004	4.00			9.47E-01
51 WATER TREATMENT BLDG AT HARRIS PLANT	3/8/2004	4.00			9.57E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
51	WATER TREATMENT BLDG AT HARRIS PLANT	3/22/2004	4.00		9.46E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	4/5/2004	4.00		8.50E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	4/19/2004	4.00		8.48E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	5/3/2004	4.00		4.95E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	5/17/2004	4.00		5.16E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	5/30/2004	4.00		9.07E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	6/14/2004	4.00		9.69E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	6/28/2004	4.00		7.02E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	7/12/2004	4.00		7.44E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	7/26/2004	4.00		6.43E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	8/9/2004	4.00		6.89E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	8/23/2004	4.00		6.82E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	9/6/2004	4.00		8.23E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	9/20/2004	4.00		5.74E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	10/4/2004	4.00		7.18E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	10/18/2004	4.00		5.72E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	11/1/2004	4.00		5.90E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	11/15/2004	4.00		7.38E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	11/29/2004	4.00		7.85E-01

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

<i>Sample Point</i>		<i>Sample Date</i>	<i>Quantity</i>	<i>Activity</i>	<i>2 Sigma Error</i>	<i>LLD</i>
51	WATER TREATMENT BLDG AT HARRIS PLANT	12/13/2004	4.00			4.25E-01
51	WATER TREATMENT BLDG AT HARRIS PLANT	12/28/2004	4.00			7.83E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Milk

Quantity: Liters

Concentration (Activity): pCi/Lite

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
5 PITTSBORO - CONTROL	1/5/2004	4.00	<LLD		6.65E-01
5 PITTSBORO - CONTROL	1/19/2004	4.00	<LLD		3.65E-01
5 PITTSBORO - CONTROL	2/2/2004	4.00	<LLD		5.85E-01
5 PITTSBORO - CONTROL	2/16/2004	4.00	<LLD		4.53E-01
5 PITTSBORO - CONTROL	3/1/2004	4.00	<LLD		6.72E-01
5 PITTSBORO - CONTROL	3/15/2004	4.00	<LLD		4.92E-01
5 PITTSBORO - CONTROL	4/12/2004	4.00	<LLD		3.50E-01
5 PITTSBORO - CONTROL	4/26/2004	4.00	<LLD		3.60E-01
5 PITTSBORO - CONTROL	5/10/2004	4.00	<LLD		5.57E-01
5 PITTSBORO - CONTROL	5/24/2004	4.00	<LLD		4.78E-01
5 PITTSBORO - CONTROL	6/7/2004	4.00	<LLD		5.55E-01
5 PITTSBORO - CONTROL	6/21/2004	4.00	<LLD		7.47E-01
5 PITTSBORO - CONTROL	7/6/2004	4.00	<LLD		8.08E-01
5 PITTSBORO - CONTROL	7/19/2004	4.00	<LLD		5.68E-01
5 PITTSBORO - CONTROL	8/2/2004	4.00	<LLD		5.96E-01
5 PITTSBORO - CONTROL	8/16/2004	4.00	<LLD		4.76E-01
5 PITTSBORO - CONTROL	9/13/2004	4.00	<LLD		3.47E-01
5 PITTSBORO - CONTROL	9/27/2004	4.00	<LLD		4.35E-01
5 PITTSBORO - CONTROL	10/11/2004	4.00	<LLD		3.45E-01
5 PITTSBORO - CONTROL	10/25/2004	4.00	<LLD		4.15E-01
5 PITTSBORO - CONTROL	11/8/2004	4.00	<LLD		3.57E-01
5 PITTSBORO - CONTROL	11/22/2004	4.00	<LLD		2.51E-01
5 PITTSBORO - CONTROL	12/6/2004	4.00	<LLD		3.56E-01
5 PITTSBORO - CONTROL	12/20/2004	4.00	<LLD		3.36E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	4.00			9.60E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	1/26/2004	4.00			6.70E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	4.00			4.95E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	2/23/2004	4.00			5.16E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	3/8/2004	4.00			5.05E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	3/22/2004	4.00			5.28E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	4/5/2004	4.00			5.46E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	4/19/2004	4.00			7.83E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/3/2004	4.00			7.18E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/17/2004	4.00			4.91E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	5/30/2004	4.00			7.62E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	6/14/2004	4.00			5.01E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	6/28/2004	4.00			5.95E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	4.00			7.33E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	7/26/2004	4.00			5.35E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	8/9/2004	4.00			5.34E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	8/23/2004	4.00			4.68E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	9/6/2004	4.00			6.09E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	9/20/2004	4.00			6.00E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	10/4/2004	4.00			4.83E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	10/18/2004	4.00			5.49E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	11/1/2004	4.00			5.17E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
38 CAPE FEAR PLANT INTAKE - CONTROL	11/15/2004	4.00			8.14E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	11/29/2004	4.00			6.33E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	4.00			7.06E-01
38 CAPE FEAR PLANT INTAKE - CONTROL	12/28/2004	4.00			6.52E-01
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	4.00			6.72E-01
40 LILLINGTON - CAPE FEAR RIVER	1/26/2004	4.00			9.84E-01
40 LILLINGTON - CAPE FEAR RIVER	2/9/2004	4.00			6.67E-01
40 LILLINGTON - CAPE FEAR RIVER	2/23/2004	4.00			6.35E-01
40 LILLINGTON - CAPE FEAR RIVER	3/8/2004	4.00			6.62E-01
40 LILLINGTON - CAPE FEAR RIVER	3/22/2004	4.00			6.48E-01
40 LILLINGTON - CAPE FEAR RIVER	4/5/2004	4.00			6.63E-01
40 LILLINGTON - CAPE FEAR RIVER	4/19/2004	4.00			6.35E-01
40 LILLINGTON - CAPE FEAR RIVER	5/3/2004	4.00			8.83E-01
40 LILLINGTON - CAPE FEAR RIVER	5/17/2004	4.00			6.69E-01
40 LILLINGTON - CAPE FEAR RIVER	5/30/2004	4.00			7.21E-01
40 LILLINGTON - CAPE FEAR RIVER	6/14/2004	4.00			6.92E-01
40 LILLINGTON - CAPE FEAR RIVER	6/28/2004	4.00			7.50E-01
40 LILLINGTON - CAPE FEAR RIVER	7/12/2004	4.00			6.88E-01
40 LILLINGTON - CAPE FEAR RIVER	7/26/2004	4.00			6.78E-01
40 LILLINGTON - CAPE FEAR RIVER	8/9/2004	4.00			6.91E-01
40 LILLINGTON - CAPE FEAR RIVER	8/23/2004	4.00			5.99E-01
40 LILLINGTON - CAPE FEAR RIVER	9/6/2004	4.00			7.60E-01

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Iodine

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
40	LILLINGTON - CAPE FEAR RIVER	9/20/2004	4.00			7.35E-01
40	LILLINGTON - CAPE FEAR RIVER	10/4/2004	4.00			6.17E-01
40	LILLINGTON - CAPE FEAR RIVER	10/18/2004	4.00			6.86E-01
40	LILLINGTON - CAPE FEAR RIVER	11/1/2004	4.00			4.81E-01
40	LILLINGTON - CAPE FEAR RIVER	11/15/2004	4.00			4.56E-01
40	LILLINGTON - CAPE FEAR RIVER	11/29/2004	4.00			4.80E-01
40	LILLINGTON - CAPE FEAR RIVER	12/13/2004	4.00			8.04E-01
40	LILLINGTON - CAPE FEAR RIVER	12/28/2004	4.00			4.95E-01

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Tritium

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	0.005	<LLD		3.05E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	0.005	<LLD		3.22E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	3/11/2004	0.005	<LLD		3.24E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	4/12/2004	0.005	<LLD		3.15E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	5/13/2004	0.005	<LLD		3.18E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	6/13/2004	0.005	<LLD		3.08E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	0.005	<LLD		3.10E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	8/16/2004	0.005	<LLD		3.20E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	9/13/2004	0.005	<LLD		3.15E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	10/11/2004	0.005	<LLD		3.14E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	11/11/2004	0.005	<LLD		3.11E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	0.005	<LLD		3.14E+02
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	0.005	<LLD		3.04E+02
40 LILLINGTON - CAPE FEAR RIVER	2/9/2004	0.005	<LLD		3.22E+02
40 LILLINGTON - CAPE FEAR RIVER	3/11/2004	0.005	<LLD		3.23E+02
40 LILLINGTON - CAPE FEAR RIVER	4/12/2004	0.005	<LLD		3.16E+02
40 LILLINGTON - CAPE FEAR RIVER	5/13/2004	0.005	<LLD		3.20E+02
40 LILLINGTON - CAPE FEAR RIVER	6/13/2004	0.005	<LLD		3.08E+02
40 LILLINGTON - CAPE FEAR RIVER	7/12/2004	0.005	<LLD		3.09E+02
40 LILLINGTON - CAPE FEAR RIVER	8/16/2004	0.005	<LLD		3.22E+02
40 LILLINGTON - CAPE FEAR RIVER	9/13/2004	0.005	<LLD		3.15E+02
40 LILLINGTON - CAPE FEAR RIVER	10/11/2004	0.005	<LLD		3.13E+02
40 LILLINGTON - CAPE FEAR RIVER	11/11/2004	0.005	<LLD		3.13E+02
40 LILLINGTON - CAPE FEAR RIVER	12/13/2004	0.005	<LLD		3.14E+02
51 WATER TREATMENT BLDG AT HARRIS PLANT	1/12/2004	0.005	2.20E+03	2.15E+02	3.04E+02
51 WATER TREATMENT BLDG AT HARRIS PLANT	2/9/2004	0.005	2.25E+03	2.26E+02	3.22E+02

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Tritium

<i>Sample Point</i>		<i>Sample Date</i>	<i>Quantity</i>	<i>Activity</i>	<i>2 Sigma Error</i>	<i>LLD</i>
51	WATER TREATMENT BLDG AT HARRIS PLANT	3/11/2004	0.005	1.85E+03	2.21E+02	3.23E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	4/12/2004	0.005	1.89E+03	2.17E+02	3.15E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	5/13/2004	0.005	2.16E+03	2.23E+02	3.19E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	6/13/2004	0.005	3.58E+03	2.35E+02	3.08E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	7/12/2004	0.005	5.15E+03	2.54E+02	3.10E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	8/16/2004	0.005	4.61E+03	2.53E+02	3.20E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	9/13/2004	0.005	4.52E+03	2.51E+02	3.18E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	10/11/2004	0.005	5.40E+03	2.58E+02	3.12E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	11/11/2004	0.005	5.12E+03	2.55E+02	3.12E+02
51	WATER TREATMENT BLDG AT HARRIS PLANT	12/13/2004	0.005	5.24E+03	2.60E+02	3.18E+02

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Groundwater

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Tritium

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
39 DEEP WELL NEAR DIABASE DIKES	2/19/2004	0.005	<LLD		3.24E+02
39 DEEP WELL NEAR DIABASE DIKES	5/20/2004	0.005	<LLD		3.10E+02
39 DEEP WELL NEAR DIABASE DIKES	8/12/2004	0.005	<LLD		3.13E+02
39 DEEP WELL NEAR DIABASE DIKES	11/10/2004	0.005	<LLD		3.09E+02
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	2/19/2004	0.005	<LLD		3.23E+02
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	5/20/2004	0.005	<LLD		3.10E+02
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	8/12/2004	0.005	<LLD		3.15E+02
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	11/10/2004	0.005	<LLD		3.10E+02
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	2/19/2004	0.005	3.31E+02	2.01E+02	3.24E+02
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	5/20/2004	0.005	6.13E+02	1.98E+02	3.11E+02
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	8/12/2004	0.005	5.40E+02	1.99E+02	3.15E+02
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	11/10/2004	0.005	6.12E+02	1.97E+02	3.10E+02
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	2/19/2004	0.005	<LLD		3.22E+02
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	5/20/2004	0.005	<LLD		3.12E+02
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	8/12/2004	0.005	<LLD		3.16E+02
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	11/10/2004	0.005	<LLD		3.10E+02
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	2/19/2004	0.005	<LLD		3.23E+02
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	5/20/2004	0.005	<LLD		3.12E+02
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	8/12/2004	0.005	<LLD		3.15E+02
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	11/10/2004	0.005	<LLD		3.11E+02

# HNP Radiological Environmental Monitoring Analysis Report

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Tritium

Sample Point	Sample Date	Quantity	Activity	2 Sigma Error	LLD
26 SPILLWAY ON MAIN RES	1/12/2004	0.005	2.68E+03	2.22E+02	3.07E+02
26 SPILLWAY ON MAIN RES	2/9/2004	0.005	2.47E+03	2.28E+02	3.21E+02
26 SPILLWAY ON MAIN RES	3/11/2004	0.005	2.36E+03	2.29E+02	3.24E+02
26 SPILLWAY ON MAIN RES	4/12/2004	0.005	2.49E+03	2.24E+02	3.13E+02
26 SPILLWAY ON MAIN RES	5/13/2004	0.005	2.79E+03	2.32E+02	3.20E+02
26 SPILLWAY ON MAIN RES	6/13/2004	0.005	3.62E+03	2.35E+02	3.08E+02
26 SPILLWAY ON MAIN RES	7/12/2004	0.005	4.16E+03	2.42E+02	3.09E+02
26 SPILLWAY ON MAIN RES	8/16/2004	0.005	4.57E+03	2.53E+02	3.21E+02
26 SPILLWAY ON MAIN RES	9/13/2004	0.005	5.53E+03	2.61E+02	3.15E+02
26 SPILLWAY ON MAIN RES	10/11/2004	0.005	6.37E+03	2.69E+02	3.12E+02
26 SPILLWAY ON MAIN RES	11/11/2004	0.005	6.82E+03	2.73E+02	3.12E+02
26 SPILLWAY ON MAIN RES	12/13/2004	0.005	6.55E+03	2.71E+02	3.12E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	0.005	<LLD		3.05E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	0.005	<LLD		3.22E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	3/11/2004	0.005	<LLD		3.24E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	4/12/2004	0.005	<LLD		3.15E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	5/13/2004	0.005	<LLD		3.18E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	6/13/2004	0.005	<LLD		3.08E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	0.005	<LLD		3.10E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	8/16/2004	0.005	<LLD		3.20E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	9/13/2004	0.005	<LLD		3.15E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	10/11/2004	0.005	<LLD		3.14E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	11/11/2004	0.005	<LLD		3.11E+02
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	0.005	<LLD		3.14E+02

# *HNP Radiological Environmental Monitoring Analysis Report*

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/Liter

Analysis: Tritium

Sample Point		Sample Date	Quantity	Activity	2 Sigma Error	LLD
40	LILLINGTON - CAPE FEAR RIVER	1/12/2004	0.005	<LLD		3.04E+02
40	LILLINGTON - CAPE FEAR RIVER	2/9/2004	0.005	<LLD		3.22E+02
40	LILLINGTON - CAPE FEAR RIVER	3/11/2004	0.005	<LLD		3.23E+02
40	LILLINGTON - CAPE FEAR RIVER	4/12/2004	0.005	<LLD		3.16E+02
40	LILLINGTON - CAPE FEAR RIVER	5/13/2004	0.005	<LLD		3.20E+02
40	LILLINGTON - CAPE FEAR RIVER	6/13/2004	0.005	<LLD		3.08E+02
40	LILLINGTON - CAPE FEAR RIVER	7/12/2004	0.005	<LLD		3.09E+02
40	LILLINGTON - CAPE FEAR RIVER	8/16/2004	0.005	<LLD		3.22E+02
40	LILLINGTON - CAPE FEAR RIVER	9/13/2004	0.005	<LLD		3.15E+02
40	LILLINGTON - CAPE FEAR RIVER	10/11/2004	0.005	<LLD		3.13E+02
40	LILLINGTON - CAPE FEAR RIVER	11/11/2004	0.005	<LLD		3.13E+02
40	LILLINGTON - CAPE FEAR RIVER	12/13/2004	0.005	<LLD		3.14E+02

# **2004 HNP**

## **Radiological Environmental Monitoring Gamma Isotopic Report**

### **Comments**

- NO-ACT refers to no detectable gamma activity being present in the samples. Refer to Table 5 for typical gamma Lower Limits of Detection for specific nuclides.

# *HNP Radiological Environmental Monitoring Gamma Isotopic Report*

Media Type: Air Particulate

Quantity: CUBIC METERS

Concentration (Activity): pCi/cubic meter

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Isotope</i>	<i>Activity</i>	<i>2 Sigma Error</i>
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	2/12/2004	3898.2	BE-7	1.16E-01	1.42E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	3434.5	BE-7	1.27E-01	1.55E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	3434.5	PB-212	1.43E-03	8.61E-04
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	3434.5	BI-214	3.70E-03	1.56E-03
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	3434.5	PB-214	6.06E-03	1.75E-03
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	5/17/2004	3434.5	RA-226	2.62E-02	1.37E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/12/2004	3164.8	BE-7	1.07E-01	1.86E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	8/12/2004	3164.8	RA-226	1.21E-02	1.15E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	3473.3	BE-7	9.64E-02	1.68E-02
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	3473.3	K-40	1.51E-02	9.90E-03
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	3473.3	TL-208	7.46E-04	4.04E-04
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	3473.3	BI-214	4.03E-03	1.63E-03
1 SR 1134 AT INT SR 1011 - DIXIE PIPELINE	11/15/2004	3473.3	PB-214	4.25E-03	1.49E-03
2 SR 1134	2/12/2004	3701.1	BE-7	1.09E-01	2.04E-02
2 SR 1134	5/17/2004	3501.5	BI-214	4.01E-03	1.89E-03
2 SR 1134	5/17/2004	3501.5	PB-214	2.04E-03	1.60E-03
2 SR 1134	5/17/2004	3501.5	BE-7	1.29E-01	2.03E-02
2 SR 1134	8/12/2004	3262.2	BE-7	8.28E-02	2.31E-02
2 SR 1134	8/12/2004	3262.2	PB-214	1.97E-03	1.43E-03
2 SR 1134	11/15/2004	3430.3	BE-7	7.74E-02	2.24E-02
4 NEW HILL NEAR 1ST BAPTIST CH	2/12/2004	3620.2	K-40	2.10E-02	1.32E-02
4 NEW HILL NEAR 1ST BAPTIST CH	2/12/2004	3620.2	BE-7	1.04E-01	1.57E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/17/2004	3615.3	BE-7	1.33E-01	2.32E-02
4 NEW HILL NEAR 1ST BAPTIST CH	5/17/2004	3615.3	PB-214	2.22E-03	1.73E-03

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Air Particulate

Quantity: CUBIC METERS

Concentration (Activity): pCi/cubic meter

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
4 NEW HILL NEAR 1ST BAPTIST CH	8/12/2004	3474.2	K-40	8.72E-02	1.64E-02
4 NEW HILL NEAR 1ST BAPTIST CH	8/12/2004	3474.2	BE-7	1.06E-01	2.36E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	3533.8	TL-208	9.88E-04	6.14E-04
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	3533.8	PB-214	1.26E-03	1.01E-03
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	3533.8	PB-212	1.43E-03	9.52E-04
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	3533.8	K-40	1.74E-02	8.51E-03
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	3533.8	BE-7	1.00E-01	1.37E-02
4 NEW HILL NEAR 1ST BAPTIST CH	11/15/2004	3533.8	BI-214	1.87E-03	1.20E-03
5 PITTSBORO - CONTROL	2/12/2004	4076.7	BE-7	1.09E-01	1.51E-02
5 PITTSBORO - CONTROL	5/17/2004	3753.7	K-40	1.84E-02	1.01E-02
5 PITTSBORO - CONTROL	5/17/2004	3753.7	BE-7	1.23E-01	1.46E-02
5 PITTSBORO - CONTROL	8/12/2004	3731.8	BE-7	8.99E-02	1.64E-02
5 PITTSBORO - CONTROL	8/12/2004	3731.8	K-40	1.56E-02	9.62E-03
5 PITTSBORO - CONTROL	11/15/2004	3606.6	BE-7	1.08E-01	2.09E-02
26 SPILLWAY ON MAIN RES	2/12/2004	3777	BE-7	1.06E-01	2.68E-02
26 SPILLWAY ON MAIN RES	5/17/2004	3204.3	BE-7	1.26E-01	1.88E-02
26 SPILLWAY ON MAIN RES	8/12/2004	3191.7	BE-7	9.57E-02	2.42E-02
26 SPILLWAY ON MAIN RES	11/15/2004	3509.7	K-40	1.72E-02	1.04E-02
26 SPILLWAY ON MAIN RES	11/15/2004	3509.7	PB-212	1.03E-03	6.20E-04
26 SPILLWAY ON MAIN RES	11/15/2004	3509.7	BI-214	3.84E-03	1.38E-03
26 SPILLWAY ON MAIN RES	11/15/2004	3509.7	PB-214	1.86E-03	1.34E-03
26 SPILLWAY ON MAIN RES	11/15/2004	3509.7	BE-7	9.30E-02	1.47E-02
47 SSW SECTOR 3.4 MI FROM SITE	2/12/2004	4045.9	BE-7	1.39E-01	2.22E-02
47 SSW SECTOR 3.4 MI FROM SITE	5/17/2004	3557.8	BE-7	1.25E-01	2.38E-02

# *HNP Radiological Environmental Monitoring Gamma Isotopic Report*

Media Type: Air Particulate

Quantity: CUBIC METERS

Concentration (Activity): pCi/cubic meter

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Isotope</i>	<i>Activity</i>	<i>2 Sigma Error</i>
47 SSW SECTOR 3.4 MI FROM SITE	8/12/2004	3497.3	BE-7	1.19E-01	2.48E-02
47 SSW SECTOR 3.4 MI FROM SITE	8/12/2004	3497.3	K-40	7.74E-02	1.54E-02
47 SSW SECTOR 3.4 MI FROM SITE	11/15/2004	3411.5	PB-214	2.16E-03	1.57E-03
47 SSW SECTOR 3.4 MI FROM SITE	11/15/2004	3411.5	BE-7	7.59E-02	2.16E-02

# *HNP Radiological Environmental Monitoring Gamma Isotopic Report*

*Media Type: Aquatic Vegetation*

*Quantity: Grams (wet)*

*Concentration (Activity): pCi/gm wet*

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Isotope</i>	<i>Activity</i>	<i>2 Sigma Error</i>
26 SPILLWAY ON MAIN RES	11/30/2004	642.1	CO-60	2.29E-02	1.32E-02
26 SPILLWAY ON MAIN RES	11/30/2004	642.1	CO-58	4.67E-02	2.62E-02
26 SPILLWAY ON MAIN RES	11/30/2004	642.1	BI-214	6.44E-02	3.37E-02
26 SPILLWAY ON MAIN RES	11/30/2004	642.1	K-40	3.11E+00	4.05E-01
41 SHORELINE OF COOLING TOWER MIXING ZONE	11/30/2004	738.8	CO-60	3.00E-02	1.18E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	11/30/2004	738.8	CO-58	1.20E-01	1.74E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	11/30/2004	738.8	TL-208	1.65E-02	1.62E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	11/30/2004	738.8	K-40	2.77E+00	3.46E-01
41 SHORELINE OF COOLING TOWER MIXING ZONE	11/30/2004	738.8	BE-7	1.94E-01	7.66E-02
61 2.5 MI E SECTOR HOLLEMANS XRD BR	11/30/2004	645.7	K-40	3.20E+00	4.15E-01
61 2.5 MI E SECTOR HOLLEMANS XRD BR	11/30/2004	645.7	BE-7	3.08E-01	1.51E-01

# ***HNP Radiological Environmental Monitoring Gamma Isotopic Report***

*Media Type: Bottom Feeder*

*Quantity: GRAMS (wet)*

*Concentration (Activity): pCi/gm wet*

*Media: Catfish*

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Isotope</i>	<i>Activity</i>	<i>2 Sigma Error</i>
44 SITE VARIES WITHIN HARRIS LAKE	6/2/2004	504.4	K-40	4.23E+00	7.57E-01
44 SITE VARIES WITHIN HARRIS LAKE	11/22/2004	535.1	K-40	2.54E+00	6.30E-01
45 SITE VARIES ABOVE BUCKHORN DAM - CONTROL	5/28/2004	572.4	K-40	2.94E+00	7.57E-01
45 SITE VARIES ABOVE BUCKHORN DAM - CONTROL	11/22/2004	456.2	K-40	3.35E+00	8.76E-01

# ***HNP Radiological Environmental Monitoring Gamma Isotopic Report***

*Media Type: Bottom Sediment*

*Quantity: GRAMS (dry)*

*Concentration (Activity): pCi/gm dry*

<i><b>Sample Point</b></i>	<i><b>Sample Date</b></i>	<i><b>Quantity</b></i>	<i><b>Isotope</b></i>	<i><b>Activity</b></i>	<i><b>2 Sigma Error</b></i>
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	CS-137	1.78E-01	7.36E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	TL-208	1.56E-01	6.07E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	PB-212	4.48E-01	8.53E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	BI-214	3.35E-01	1.22E-01
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	PB-214	3.68E-01	1.13E-01
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	RA-226	1.02E+00	6.59E-01
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	AC-228	6.52E-01	2.37E-01
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	K-40	8.47E+00	1.04E+00
52 HARRIS LAKE COOLING TOWER MIXING ZONE	1/29/2004	1063.6	CO-60	6.44E-01	9.13E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	CS-137	1.25E-01	3.62E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	TL-208	9.17E-02	2.85E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	PB-212	2.26E-01	3.36E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	BI-214	2.11E-01	5.93E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	PB-214	1.79E-01	4.32E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	AC-228	3.21E-01	1.42E-01
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	CO-60	1.19E+00	9.80E-02
52 HARRIS LAKE COOLING TOWER MIXING ZONE	7/20/2004	551.4	K-40	2.71E+00	5.54E-01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point		Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
5	PITTSBORO - CONTROL	5/26/2004	FIG LEAF	406.8	K-40	3.73E+00	4.85E-01
5	PITTSBORO - CONTROL	5/26/2004	FIG LEAF	406.8	TL-208	6.00E-02	2.19E-02
5	PITTSBORO - CONTROL	5/26/2004	FIG LEAF	406.8	PB-212	1.05E-01	3.84E-02
5	PITTSBORO - CONTROL	5/26/2004	FIG LEAF	406.8	BE-7	2.94E-01	2.25E-01
5	PITTSBORO - CONTROL	5/26/2004	MAPLE	389.9	BE-7	3.72E-01	2.35E-01
5	PITTSBORO - CONTROL	5/26/2004	MAPLE	389.9	K-40	3.15E+00	5.77E-01
5	PITTSBORO - CONTROL	5/26/2004	SWEETGUM	507.8	K-40	2.34E+00	4.55E-01
5	PITTSBORO - CONTROL	5/26/2004	SWEETGUM	507.8	TL-208	2.96E-02	2.05E-02
5	PITTSBORO - CONTROL	5/26/2004	SWEETGUM	507.8	PB-212	5.65E-02	3.38E-02
5	PITTSBORO - CONTROL	6/29/2004	FIG LEAF	306.3	TL-208	3.69E-02	2.57E-02
5	PITTSBORO - CONTROL	6/29/2004	FIG LEAF	306.3	K-40	3.38E+00	6.08E-01
5	PITTSBORO - CONTROL	6/29/2004	FIG LEAF	306.3	BE-7	5.75E-01	2.12E-01
5	PITTSBORO - CONTROL	6/29/2004	MAPLE	325.1	BE-7	4.94E-01	2.28E-01
5	PITTSBORO - CONTROL	6/29/2004	MAPLE	325.1	K-40	2.50E+00	6.33E-01
5	PITTSBORO - CONTROL	6/29/2004	SWEETGUM	414.4	K-40	1.65E+00	4.90E-01
5	PITTSBORO - CONTROL	6/29/2004	SWEETGUM	414.4	BE-7	4.24E-01	3.04E-01
5	PITTSBORO - CONTROL	7/22/2004	FIG LEAF	413.4	K-40	4.87E+00	6.44E-01
5	PITTSBORO - CONTROL	7/22/2004	FIG LEAF	413.4	BE-7	5.94E-01	2.19E-01
5	PITTSBORO - CONTROL	7/22/2004	FIG LEAF	413.4	TL-208	1.38E-01	3.84E-02
5	PITTSBORO - CONTROL	7/22/2004	FIG LEAF	413.4	BI-212	4.17E-01	2.58E-01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point		Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
5	PITTSBORO - CONTROL	7/22/2004	FIG LEAF	413.4	PB-212	3.43E-01	5.34E-02
5	PITTSBORO - CONTROL	7/22/2004	FIG LEAF	413.4	AC-228	2.60E-01	1.66E-01
5	PITTSBORO - CONTROL	7/22/2004	MAPLE	306.5	K-40	6.01E+00	7.61E-01
5	PITTSBORO - CONTROL	7/22/2004	MAPLE	306.5	BE-7	6.93E-01	2.96E-01
5	PITTSBORO - CONTROL	7/22/2004	SWEETGUM	495.1	TL-208	6.40E-02	3.43E-02
5	PITTSBORO - CONTROL	7/22/2004	SWEETGUM	495.1	BI-214	8.57E-02	5.00E-02
5	PITTSBORO - CONTROL	7/22/2004	SWEETGUM	495.1	BE-7	3.82E-01	1.80E-01
5	PITTSBORO - CONTROL	7/22/2004	SWEETGUM	495.1	AC-228	1.03E-01	8.16E-02
5	PITTSBORO - CONTROL	7/22/2004	SWEETGUM	495.1	K-40	2.53E+00	4.78E-01
5	PITTSBORO - CONTROL	7/22/2004	SWEETGUM	495.1	PB-212	2.44E-01	3.91E-02
5	PITTSBORO - CONTROL	8/25/2004	FIG LEAF	361.6	BE-7	1.05E+00	3.35E-01
5	PITTSBORO - CONTROL	8/25/2004	FIG LEAF	361.6	K-40	4.86E+00	6.40E-01
5	PITTSBORO - CONTROL	8/25/2004	FIG LEAF	361.6	TL-208	7.40E-02	3.07E-02
5	PITTSBORO - CONTROL	8/25/2004	FIG LEAF	361.6	PB-212	1.00E-01	5.70E-02
5	PITTSBORO - CONTROL	8/25/2004	FIG LEAF	361.6	BI-214	1.35E-01	6.18E-01
5	PITTSBORO - CONTROL	8/25/2004	FIG LEAF	361.6	AC-228	3.14E-01	9.47E-02
5	PITTSBORO - CONTROL	8/25/2004	MAPLE	334.7	PB-212	1.68E-01	6.66E-02
5	PITTSBORO - CONTROL	8/25/2004	MAPLE	334.7	BE-7	7.75E-01	3.20E-01
5	PITTSBORO - CONTROL	8/25/2004	MAPLE	334.7	K-40	3.82E+00	6.07E-01
5	PITTSBORO - CONTROL	8/25/2004	MAPLE	334.7	TL-208	8.69E-02	2.93E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point		Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
5	PITTSBORO - CONTROL	8/25/2004	SWEETGUM	408.4	AC-228	1.12E-01	9.08E-02
5	PITTSBORO - CONTROL	8/25/2004	SWEETGUM	408.4	PB-212	1.40E-01	3.41E-01
5	PITTSBORO - CONTROL	8/25/2004	SWEETGUM	408.4	TL-208	4.35E-02	2.87E-02
5	PITTSBORO - CONTROL	8/25/2004	SWEETGUM	408.4	K-40	2.57E+00	4.36E-01
5	PITTSBORO - CONTROL	8/25/2004	SWEETGUM	408.4	BE-7	3.87E-01	1.67E-01
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	PB-214	9.93E-02	7.28E-02
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	BE-7	2.15E+00	4.21E-01
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	K-40	5.52E+00	8.54E-01
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	TL-208	5.70E-02	3.94E-02
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	BI-214	8.69E-02	7.36E-02
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	PB-212	1.02E-01	5.70E-02
5	PITTSBORO - CONTROL	9/23/2004	FIG LEAF	300.1	AC-228	1.84E-01	1.56E-01
5	PITTSBORO - CONTROL	9/23/2004	MAPLE	321	K-40	2.26E+00	5.32E-01
5	PITTSBORO - CONTROL	9/23/2004	MAPLE	321	BE-7	1.15E+00	2.61E-01
5	PITTSBORO - CONTROL	9/23/2004	SWEETGUM	365.6	BE-7	1.13E+00	2.92E-01
5	PITTSBORO - CONTROL	9/23/2004	SWEETGUM	365.6	K-40	1.96E+00	5.48E-01
5	PITTSBORO - CONTROL	9/23/2004	SWEETGUM	365.6	PB-212	7.28E-02	4.26E-02
5	PITTSBORO - CONTROL	9/23/2004	SWEETGUM	365.6	AC-228	1.84E-01	9.98E-02
65	1.36 MI S SECTOR	5/26/2004	DOGWOOD	361.5	K-40	3.06E+00	6.08E-01
65	1.36 MI S SECTOR	5/26/2004	DOGWOOD	361.5	TL-208	2.56E-02	2.31E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point		Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
65	1.36 MI S SECTOR	5/26/2004	DOGWOOD	361.5	BE-7	4.74E-01	2.27E-01
65	1.36 MI S SECTOR	5/26/2004	MAPLE	431	BI-214	4.75E-02	4.17E-02
65	1.36 MI S SECTOR	5/26/2004	MAPLE	431	K-40	2.63E+00	5.64E-01
65	1.36 MI S SECTOR	5/26/2004	MAPLE	431	PB-212	4.95E-02	2.85E-02
65	1.36 MI S SECTOR	5/26/2004	SWEETGUM	422.2	K-40	2.60E+00	5.24E-01
65	1.36 MI S SECTOR	5/26/2004	SWEETGUM	422.2	BE-7	4.03E-01	1.96E-01
65	1.36 MI S SECTOR	5/26/2004	SWEETGUM	422.2	PB-214	7.26E-02	6.11E-02
65	1.36 MI S SECTOR	6/29/2004	DOGWOOD	362.2	BE-7	9.17E-01	2.24E-01
65	1.36 MI S SECTOR	6/29/2004	DOGWOOD	362.2	K-40	3.38E+00	5.03E-01
65	1.36 MI S SECTOR	6/29/2004	DOGWOOD	362.2	PB-212	4.27E-02	3.51E-02
65	1.36 MI S SECTOR	6/29/2004	MAPLE	321.3	BI-214	9.29E-02	8.07E-02
65	1.36 MI S SECTOR	6/29/2004	MAPLE	321.3	BE-7	7.33E-01	3.89E-01
65	1.36 MI S SECTOR	6/29/2004	MAPLE	321.3	K-40	2.60E+00	6.44E-01
65	1.36 MI S SECTOR	6/29/2004	SWEETGUM	396.7	K-40	2.16E+00	5.21E-01
65	1.36 MI S SECTOR	6/29/2004	SWEETGUM	396.7	BE-7	7.29E-01	2.95E-01
65	1.36 MI S SECTOR	7/22/2004	DOGWOOD	352.2	BI-214	7.30E-02	6.61E-02
65	1.36 MI S SECTOR	7/22/2004	DOGWOOD	352.2	PB-212	9.23E-02	5.23E-02
65	1.36 MI S SECTOR	7/22/2004	DOGWOOD	352.2	K-40	4.72E+00	6.16E-01
65	1.36 MI S SECTOR	7/22/2004	DOGWOOD	352.2	BE-7	1.18E+00	3.05E-01
65	1.36 MI S SECTOR	7/22/2004	MAPLE	407.1	BI-214	2.06E-01	6.01E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point	Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
65 1.36 MI S SECTOR	7/22/2004	MAPLE	407.1	K-40	2.84E+00	6.08E-01
65 1.36 MI S SECTOR	7/22/2004	MAPLE	407.1	BE-7	1.18E+00	2.96E-01
65 1.36 MI S SECTOR	7/22/2004	MAPLE	407.1	PB-214	1.11E-01	6.07E-02
65 1.36 MI S SECTOR	7/22/2004	SWEETGUM	373.7	BE-7	1.52E+00	3.27E-01
65 1.36 MI S SECTOR	7/22/2004	SWEETGUM	373.7	BI-214	1.09E-01	7.23E-02
65 1.36 MI S SECTOR	7/22/2004	SWEETGUM	373.7	K-40	3.22E+00	5.26E-01
65 1.36 MI S SECTOR	8/25/2004	DOGWOOD	379.4	BI-214	1.79E-01	8.34E-02
65 1.36 MI S SECTOR	8/25/2004	DOGWOOD	379.4	PB-214	8.99E-02	5.58E-02
65 1.36 MI S SECTOR	8/25/2004	DOGWOOD	379.4	PB-212	4.63E-02	3.72E-02
65 1.36 MI S SECTOR	8/25/2004	DOGWOOD	379.4	K-40	1.99E+00	5.44E-01
65 1.36 MI S SECTOR	8/25/2004	DOGWOOD	379.4	BE-7	1.16E+00	3.04E-01
65 1.36 MI S SECTOR	8/25/2004	MAPLE	359	PB-212	7.78E-02	6.19E-02
65 1.36 MI S SECTOR	8/25/2004	MAPLE	359	BE-7	2.45E+00	3.45E-01
65 1.36 MI S SECTOR	8/25/2004	MAPLE	359	K-40	3.79E+00	5.18E-01
65 1.36 MI S SECTOR	8/25/2004	SWEETGUM	432.5	BE-7	2.30E+00	2.43E-01
65 1.36 MI S SECTOR	8/25/2004	SWEETGUM	432.5	PB-212	4.31E-02	2.86E-02
65 1.36 MI S SECTOR	8/25/2004	SWEETGUM	432.5	K-40	1.80E+00	3.78E-01
65 1.36 MI S SECTOR	9/23/2004	DOGWOOD	303.8	BE-7	1.04E+00	2.66E-01
65 1.36 MI S SECTOR	9/23/2004	DOGWOOD	303.8	K-40	2.12E+00	5.12E-01
65 1.36 MI S SECTOR	9/23/2004	DOGWOOD	303.8	PB-212	5.94E-02	4.22E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point	Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
65 1.36 MI S SECTOR	9/23/2004	MAPLE	353.6	K-40	2.17E+00	5.74E-01
65 1.36 MI S SECTOR	9/23/2004	MAPLE	353.6	BE-7	2.24E+00	3.54E-01
65 1.36 MI S SECTOR	9/23/2004	SWEETGUM	362.5	K-40	2.54E+00	4.74E-01
65 1.36 MI S SECTOR	9/23/2004	SWEETGUM	362.5	BE-7	1.86E+00	2.94E-01
66 1.33 MI SSW SECTOR	5/26/2004	DOGWOOD	417.3	PB-214	3.84E-02	3.28E-02
66 1.33 MI SSW SECTOR	5/26/2004	DOGWOOD	417.3	PB-212	4.19E-02	3.38E-02
66 1.33 MI SSW SECTOR	5/26/2004	DOGWOOD	417.3	K-40	3.13E+00	4.94E-01
66 1.33 MI SSW SECTOR	5/26/2004	DOGWOOD	417.3	BE-7	8.09E-01	1.81E-01
66 1.33 MI SSW SECTOR	5/26/2004	MAPLE	428.2	K-40	2.36E+00	5.47E-01
66 1.33 MI SSW SECTOR	5/26/2004	MAPLE	428.2	BE-7	4.76E-01	2.34E-01
66 1.33 MI SSW SECTOR	5/26/2004	SWEETGUM	488.4	PB-212	5.26E-02	3.83E-02
66 1.33 MI SSW SECTOR	5/26/2004	SWEETGUM	488.4	K-40	2.50E+00	4.90E-01
66 1.33 MI SSW SECTOR	5/26/2004	SWEETGUM	488.4	BE-7	3.37E-01	2.26E-01
66 1.33 MI SSW SECTOR	6/29/2004	DOGWOOD	307.9	BE-7	1.19E+00	3.06E-01
66 1.33 MI SSW SECTOR	6/29/2004	DOGWOOD	307.9	K-40	2.85E+00	5.40E-01
66 1.33 MI SSW SECTOR	6/29/2004	DOGWOOD	307.9	BI-214	1.37E-01	5.46E-02
66 1.33 MI SSW SECTOR	6/29/2004	MAPLE	363.7	K-40	2.20E+00	5.94E-01
66 1.33 MI SSW SECTOR	6/29/2004	MAPLE	363.7	BE-7	1.54E+00	3.27E-01
66 1.33 MI SSW SECTOR	6/29/2004	SWEETGUM	302.6	BE-7	4.98E-01	2.65E-01
66 1.33 MI SSW SECTOR	6/29/2004	SWEETGUM	302.6	K-40	2.20E+00	6.95E-01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Broadleaf Vegetation

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point	Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
66 1.33 MI SSW SECTOR	7/22/2004	DOGWOOD	355.4	BE-7	2.09E+00	3.56E-01
66 1.33 MI SSW SECTOR	7/22/2004	DOGWOOD	355.4	K-40	3.25E+00	6.03E-01
66 1.33 MI SSW SECTOR	7/22/2004	DOGWOOD	355.4	BI-214	1.22E-01	8.60E-02
66 1.33 MI SSW SECTOR	7/22/2004	DOGWOOD	355.4	PB-214	8.15E-02	7.02E-02
66 1.33 MI SSW SECTOR	7/22/2004	MAPLE	309.5	K-40	4.73E+00	6.70E-01
66 1.33 MI SSW SECTOR	7/22/2004	MAPLE	309.5	BE-7	2.53E+00	3.76E-01
66 1.33 MI SSW SECTOR	7/22/2004	SWEETGUM	343.2	K-40	2.35E+00	5.83E-01
66 1.33 MI SSW SECTOR	7/22/2004	SWEETGUM	343.2	PB-212	4.74E-02	4.04E-02
66 1.33 MI SSW SECTOR	7/22/2004	SWEETGUM	343.2	BE-7	1.06E+00	2.57E-01
66 1.33 MI SSW SECTOR	8/25/2004	DOGWOOD	309.3	BI-214	9.53E-02	8.87E-02
66 1.33 MI SSW SECTOR	8/25/2004	DOGWOOD	309.3	BE-7	2.68E+00	3.75E-01
66 1.33 MI SSW SECTOR	8/25/2004	DOGWOOD	309.3	K-40	2.78E+00	6.85E-01
66 1.33 MI SSW SECTOR	8/25/2004	MAPLE	444.6	K-40	1.89E+00	4.24E-01
66 1.33 MI SSW SECTOR	8/25/2004	MAPLE	444.6	BE-7	4.61E+00	3.39E-01
66 1.33 MI SSW SECTOR	8/25/2004	SWEETGUM	395.3	K-40	2.28E+00	4.50E-01
66 1.33 MI SSW SECTOR	8/25/2004	SWEETGUM	395.3	BE-7	1.79E+00	2.88E-01
66 1.33 MI SSW SECTOR	9/23/2004	DOGWOOD	340.2	BE-7	2.51E+00	3.88E-01
66 1.33 MI SSW SECTOR	9/23/2004	DOGWOOD	340.2	K-40	2.62E+00	6.15E-01
66 1.33 MI SSW SECTOR	9/23/2004	MAPLE	425	BE-7	1.75E+00	2.76E-01
66 1.33 MI SSW SECTOR	9/23/2004	MAPLE	425	K-40	1.22E+00	4.50E-01

# ***HNP Radiological Environmental Monitoring Gamma Isotopic Report***

*Media Type: Broadleaf Vegetation*

*Quantity: GRAMS (wet)*

*Concentration (Activity): pCi/gm wet*

*All Media*

<i>Sample Point</i>		<i>Sample Date</i>	<i>Media</i>	<i>Quantity</i>	<i>Isotope</i>	<i>Activity</i>	<i>2 Sigma Error</i>
66	1.33 MI SSW SECTOR	9/23/2004	MAPLE	425	BI-214	7.02E-02	4.78E-02
66	1.33 MI SSW SECTOR	9/23/2004	SWEETGUM	406.6	K-40	3.69E+00	5.23E-01
66	1.33 MI SSW SECTOR	9/23/2004	SWEETGUM	406.6	BE-7	1.97E+00	3.18E-01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/L

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	3/11/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	4/12/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	5/13/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	6/13/2004	1.0	PB-212	4.55E+00	3.42E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	1.0	K-40	3.38E+02	4.33E+01
38 CAPE FEAR PLANT INTAKE - CONTROL	8/16/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	9/13/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	10/11/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	11/11/2004	1.0	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	1.0	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1.0	PB-212	7.21E+00	4.20E+00
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1.0	TL-208	4.70E+00	2.22E+00
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1.0	K-40	9.38E+01	4.77E+01
40 LILLINGTON - CAPE FEAR RIVER	2/9/2004	1.0	K-40	5.86E+01	4.38E+01
40 LILLINGTON - CAPE FEAR RIVER	3/11/2004	1.0	TL-208	4.64E+00	2.33E+00
40 LILLINGTON - CAPE FEAR RIVER	3/11/2004	1.0	PB-214	4.93E+00	3.39E+00
40 LILLINGTON - CAPE FEAR RIVER	4/12/2004	1.0	TL-208	4.34E+00	2.21E+00
40 LILLINGTON - CAPE FEAR RIVER	4/12/2004	1.0	K-40	3.58E+02	3.75E+01
40 LILLINGTON - CAPE FEAR RIVER	5/13/2004	1.0	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	6/13/2004	1.0	K-40	6.09E+01	4.99E+01
40 LILLINGTON - CAPE FEAR RIVER	7/12/2004	1.0	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	8/16/2004	1.0	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	9/13/2004	1.0	BI-214	9.09E+00	4.16E+00
40 LILLINGTON - CAPE FEAR RIVER	9/13/2004	1.0	K-40	3.73E+02	4.18E+01

# *HNP Radiological Environmental Monitoring Gamma Isotopic Report*

Media Type: Drinking Water

Quantity: Liters

Concentration (Activity): pCi/L

Sample Point		Sample Date	Quantity	Isotope	Activity	2 Sigma Error
40	LILLINGTON - CAPE FEAR RIVER	9/13/2004	1.0	TL-208	5.11E+00	3.70E+00
40	LILLINGTON - CAPE FEAR RIVER	10/11/2004	1.0	RA-226	4.19E+01	2.44E+01
40	LILLINGTON - CAPE FEAR RIVER	10/11/2004	1.0	PB-212	4.82E+00	2.06E+00
40	LILLINGTON - CAPE FEAR RIVER	11/11/2004	1.0	NO-ACT		
40	LILLINGTON - CAPE FEAR RIVER	12/13/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	1/12/2004	1.0	K-40	1.06E+02	4.50E+01
51	WATER TREATMENT BLDG AT HARRIS PLANT	2/9/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	3/11/2004	1.0	BI-214	7.43E+00	6.75E+00
51	WATER TREATMENT BLDG AT HARRIS PLANT	4/12/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	5/13/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	6/13/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	7/12/2004	1.0	PB-212	7.84E+00	4.82E+00
51	WATER TREATMENT BLDG AT HARRIS PLANT	7/12/2004	1.0	K-40	3.76E+02	4.39E+01
51	WATER TREATMENT BLDG AT HARRIS PLANT	8/16/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	9/13/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	10/11/2004	1.0	TL-208	3.27E+00	3.15E+00
51	WATER TREATMENT BLDG AT HARRIS PLANT	11/11/2004	1.0	NO-ACT		
51	WATER TREATMENT BLDG AT HARRIS PLANT	12/13/2004	1.0	RA-226	2.92E+01	2.39E+01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Food Crop

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point		Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
5	PITTSBORO - CONTROL	1/30/2004	COLLARDS	505.6	TL-208	7.22E-02	3.91E-02
5	PITTSBORO - CONTROL	1/30/2004	COLLARDS	505.6	PB-212	1.57E-01	6.07E-02
5	PITTSBORO - CONTROL	1/30/2004	COLLARDS	505.6	AC-228	2.88E-01	1.12E-01
5	PITTSBORO - CONTROL	1/30/2004	TURNIPS AND GREENS	472.7	BE-7	4.23E-01	2.58E-01
5	PITTSBORO - CONTROL	1/30/2004	TURNIPS AND GREENS	472.7	K-40	3.21E+00	4.97E-01
5	PITTSBORO - CONTROL	1/30/2004	TURNIPS AND GREENS	472.7	TL-208	2.89E-02	2.60E-02
5	PITTSBORO - CONTROL	1/30/2004	TURNIPS AND GREENS	472.7	PB-212	7.00E-02	3.75E-02
5	PITTSBORO - CONTROL	1/30/2004	COLLARDS	505.6	K-40	1.05E+01	8.50E-01
5	PITTSBORO - CONTROL	2/26/2004	COLLARDS	511.9	PB-212	1.14E-01	3.46E-02
5	PITTSBORO - CONTROL	2/26/2004	COLLARDS	511.9	RA-226	5.23E-01	4.20E-01
5	PITTSBORO - CONTROL	2/26/2004	COLLARDS	511.9	TL-208	3.92E-02	2.19E-02
5	PITTSBORO - CONTROL	2/26/2004	COLLARDS	511.9	K-40	2.96E+00	5.27E-01
5	PITTSBORO - CONTROL	2/26/2004	COLLARDS	511.9	BE-7	3.13E-01	1.81E-01
5	PITTSBORO - CONTROL	3/31/2004	COLLARDS	473.4	PB-212	3.18E-02	2.58E-02
5	PITTSBORO - CONTROL	3/31/2004	COLLARDS	473.4	BI-214	5.89E-02	3.70E-02
5	PITTSBORO - CONTROL	3/31/2004	COLLARDS	473.4	K-40	4.06E+00	4.68E-01
5	PITTSBORO - CONTROL	5/26/2004	LETTUCE	203.4	K-40	3.16E+00	6.31E-01
5	PITTSBORO - CONTROL	5/26/2004	LETTUCE	203.4	TL-208	9.74E-02	4.17E-02
5	PITTSBORO - CONTROL	5/26/2004	LETTUCE	203.4	BI-212	3.81E-01	3.48E-01
5	PITTSBORO - CONTROL	5/26/2004	LETTUCE	203.4	PB-212	3.17E-01	6.03E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Food Crop

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point		Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
5	PITTSBORO - CONTROL	5/26/2004	LETTUCE	203.4	BI-214	7.09E-02	6.41E-02
5	PITTSBORO - CONTROL	6/29/2004	LETTUCE	531.4	BE-7	5.32E-01	1.88E-01
5	PITTSBORO - CONTROL	6/29/2004	LETTUCE	531.4	K-40	5.77E+00	6.13E-01
5	PITTSBORO - CONTROL	6/29/2004	BEETS	570.4	BE-7	1.60E-01	1.01E-01
5	PITTSBORO - CONTROL	6/29/2004	EGGPLANT	595.1	K-40	1.94E+00	3.72E-01
5	PITTSBORO - CONTROL	6/29/2004	BEETS	570.4	K-40	3.97E+00	4.15E-01
5	PITTSBORO - CONTROL	7/27/2004	TOMATOES	831.3	K-40	1.62E+00	2.89E-01
5	PITTSBORO - CONTROL	7/27/2004	SQUASH	809.6	PB-212	3.15E-02	2.13E-02
5	PITTSBORO - CONTROL	7/27/2004	SQUASH	809.6	K-40	2.45E+00	3.22E-01
5	PITTSBORO - CONTROL	7/27/2004	CUCUMBERS	750.2	K-40	1.70E+00	3.17E-01
5	PITTSBORO - CONTROL	8/25/2004	CUCUMBERS	820.8	K-40	1.50E+00	2.33E-01
5	PITTSBORO - CONTROL	8/25/2004	CUCUMBERS	820.8	PB-212	2.45E-02	1.40E-02
5	PITTSBORO - CONTROL	8/25/2004	TOMATOES	1008.1	K-40	1.74E+00	2.56E-01
5	PITTSBORO - CONTROL	12/15/2004	COLLARDS	629.8	K-40	2.94E+00	3.51E-01
5	PITTSBORO - CONTROL	12/15/2004	COLLARDS	629.8	TL-208	1.44E-02	1.38E-02
5	PITTSBORO - CONTROL	12/15/2004	COLLARDS	629.8	PB-212	2.95E-02	2.43E-02
55	RD 1167 1.7 MI NNW (GOODWIN)	1/30/2004	TURNIPS AND GREENS	510.7	K-40	3.24E+00	5.25E-01
55	RD 1167 1.7 MI NNW (GOODWIN)	1/30/2004	COLLARDS	505.5	K-40	3.78E+00	5.03E-01
55	RD 1167 1.7 MI NNW (GOODWIN)	1/30/2004	TURNIPS AND GREENS	510.7	BE-7	2.78E-01	1.67E-01
55	RD 1167 1.7 MI NNW (GOODWIN)	2/26/2004	COLLARDS	509	K-40	2.88E+00	5.22E-01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Food Crop

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point	Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
55 RD 1167 1.7 MI NNW (GOODWIN)	5/26/2004	TURNIPS AND GREENS	652.5	PB-212	8.75E-02	2.58E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	5/26/2004	TURNIPS AND GREENS	652.5	TL-208	3.74E-02	1.91E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	5/26/2004	TURNIPS AND GREENS	652.5	K-40	3.94E+00	4.62E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	5/26/2004	TURNIPS AND GREENS	652.5	BE-7	1.22E-01	1.14E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	5/26/2004	CABBAGE	504.7	PB-212	1.55E-01	4.63E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	5/26/2004	CABBAGE	504.7	K-40	3.14E+00	4.72E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	6/29/2004	CABBAGE	514.1	K-40	2.15E+00	4.35E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	7/27/2004	TOMATOES	1038.7	K-40	2.86E+00	2.76E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	7/27/2004	TOMATOES	1038.7	BI-214	2.98E-02	2.05E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	9/23/2004	COLLARDS	463.5	BE-7	2.10E-01	1.93E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	9/23/2004	COLLARDS	463.5	K-40	3.23E+00	5.69E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	9/23/2004	COLLARDS	463.5	PB-212	3.83E-02	2.96E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	10/28/2004	COLLARDS	518.4	K-40	1.79E+00	4.34E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	10/28/2004	TURNIPS AND GREENS	625.6	K-40	4.20E+00	4.90E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	10/28/2004	TURNIPS AND GREENS	625.6	PB-212	4.05E-02	2.92E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	10/28/2004	COLLARDS	518.4	BI-214	5.12E-02	4.07E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	11/10/2004	COLLARDS	442.9	K-40	2.75E+00	5.06E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	11/10/2004	TURNIPS AND GREENS	617.6	K-40	3.19E+00	4.47E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	11/10/2004	TURNIPS AND GREENS	617.6	TL-208	3.96E-02	1.76E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	11/10/2004	TURNIPS AND GREENS	617.6	PB-212	1.16E-01	2.51E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Food Crop

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

All Media

Sample Point	Sample Date	Media	Quantity	Isotope	Activity	2 Sigma Error
55 RD 1167 1.7 MI NNW (GOODWIN)	11/10/2004	COLLARDS	442.9	PB-212	8.52E-02	3.08E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	11/10/2004	COLLARDS	442.9	BI-214	6.61E-02	5.97E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	12/15/2004	COLLARDS	546.3	TL-208	3.36E-02	2.17E-02
55 RD 1167 1.7 MI NNW (GOODWIN)	12/15/2004	COLLARDS	546.3	K-40	2.79E+00	4.65E-01
55 RD 1167 1.7 MI NNW (GOODWIN)	12/15/2004	COLLARDS	546.3	BE-7	3.47E-01	1.46E-01
64 1.8 MI ENE SECTOR (MICHAEL)	5/26/2004	CABBAGE	561.6	PB-212	2.07E-01	4.03E-02
64 1.8 MI ENE SECTOR (MICHAEL)	5/26/2004	CABBAGE	561.6	TL-208	5.66E-02	2.17E-02
64 1.8 MI ENE SECTOR (MICHAEL)	5/26/2004	CABBAGE	561.6	K-40	3.54E+00	4.80E-01
64 1.8 MI ENE SECTOR (MICHAEL)	6/29/2004	CABBAGE	506.5	K-40	3.59E+00	5.28E-01
64 1.8 MI ENE SECTOR (MICHAEL)	10/28/2004	COLLARDS	619.8	K-40	2.81E+00	4.08E-01
64 1.8 MI ENE SECTOR (MICHAEL)	11/10/2004	COLLARDS	433.6	K-40	5.40E+00	5.51E-01
64 1.8 MI ENE SECTOR (MICHAEL)	11/10/2004	COLLARDS	433.6	PB-212	1.23E-01	3.45E-02
64 1.8 MI ENE SECTOR (MICHAEL)	12/15/2004	COLLARDS	555.5	RA-226	3.68E-01	3.48E-01
64 1.8 MI ENE SECTOR (MICHAEL)	12/15/2004	COLLARDS	555.5	K-40	4.26E+00	4.43E-01

# *HNP Radiological Environmental Monitoring Gamma Isotopic Report*

Media Type: Free Swimmer

Quantity: GRAMS (wet)

Concentration (Activity): pCi/gm wet

Media: Largemouth Bass

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
44 SITE VARIES WITHIN HARRIS LAKE	6/2/2004	504.1	PB-214	4.31E-02	3.98E-02
44 SITE VARIES WITHIN HARRIS LAKE	6/2/2004	504.1	K-40	3.76E+00	7.14E-01
44 SITE VARIES WITHIN HARRIS LAKE	11/23/2004	473.5	K-40	2.87E+00	8.06E-01
45 SITE VARIES ABOVE BUCKHORN DAM - CONTROL	5/28/2004	533.3	K-40	3.27E+00	6.47E-01
45 SITE VARIES ABOVE BUCKHORN DAM - CONTROL	11/23/2004	516.1	K-40	3.20E+00	7.56E-01

# *HNP Radiological Environmental Monitoring Gamma Isotopic Report*

*Media Type: Free Swimmer*

*Quantity: GRAMS (wet)*

*Concentration (Activity): pCi/gm wet*

*Media: Sunfish*

<i>Sample Point</i>	<i>Sample Date</i>	<i>Quantity</i>	<i>Isotope</i>	<i>Activity</i>	<i>2 Sigma Error</i>
44 SITE VARIES WITHIN HARRIS LAKE	6/2/2004	516.2	PB-214	5.80E-02	4.28E-02
44 SITE VARIES WITHIN HARRIS LAKE	6/2/2004	516.2	K-40	2.17E+00	7.89E-01
44 SITE VARIES WITHIN HARRIS LAKE	11/23/2004	534.9	PB-212	2.89E-02	2.76E-02
44 SITE VARIES WITHIN HARRIS LAKE	11/23/2004	534.9	K-40	2.40E+00	6.15E-01
45 SITE VARIES ABOVE BUCKHORN DAM - CONTROL	5/28/2004	558.8	K-40	3.12E+00	6.17E-01
45 SITE VARIES ABOVE BUCKHORN DAM - CONTROL	11/22/2004	501.8	K-40	2.54E+00	8.04E-01

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Groundwater

Quantity: Liters

Concentration (Activity): pCi/L

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
39 DEEP WELL NEAR DIABASE DIKES	2/19/2004	1	NO-ACT		
39 DEEP WELL NEAR DIABASE DIKES	5/20/2004	1	NO-ACT		
39 DEEP WELL NEAR DIABASE DIKES	8/12/2004	1	NO-ACT		
39 DEEP WELL NEAR DIABASE DIKES	11/10/2004	1	NO-ACT		
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	2/19/2004	1	NO-ACT		
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	5/20/2004	1	BI-214	1.87E+01	9.60E+00
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	5/20/2004	1	PB-214	1.02E+01	8.77E+00
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	8/12/2004	1	NO-ACT		
57 0.4 MI SSW SECTOR N BANK ESW INTAKE	11/10/2004	1	NO-ACT		
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	2/19/2004	1	NO-ACT		
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	5/20/2004	1	NO-ACT		
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	8/12/2004	1	RA-226	1.26E+02	9.00E+01
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	8/12/2004	1	K-40	1.14E+02	9.63E+01
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	8/12/2004	1	TL-208	5.61E+00	3.44E+00
58 0.5 MI WSW SECTOR N BANK ESW INTAKE	11/10/2004	1	RA-226	6.53E+01	4.30E+01
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	2/19/2004	1	NO-ACT		
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	5/20/2004	1	NO-ACT		
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	8/12/2004	1	NO-ACT		
59 0.5 MI NNE SECTOR (NEAR CONSTRUCTION RD)	11/10/2004	1	PB-212	6.11E+00	3.51E+00
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	2/19/2004	1	NO-ACT		
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	5/20/2004	1	NO-ACT		
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	8/12/2004	1	NO-ACT		
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	11/10/2004	1	RA-226	5.71E+01	5.00E+01
60 0.5 MI ESE SECTOR W BANK OF THOMAS CREEK	11/10/2004	1	PB-212	6.74E+00	4.37E+00

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Milk

Quantity: Liters

Concentration (Activity): pCi/L

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
5 PITTSBORO - CONTROL	1/5/2004	1	K-40	1.34E+03	2.01E+02
5 PITTSBORO - CONTROL	1/19/2004	1	K-40	1.87E+03	1.66E+02
5 PITTSBORO - CONTROL	2/2/2004	1	K-40	1.79E+03	1.89E+02
5 PITTSBORO - CONTROL	2/16/2004	1	K-40	1.35E+03	2.02E+02
5 PITTSBORO - CONTROL	3/1/2004	1	K-40	1.21E+03	1.97E+02
5 PITTSBORO - CONTROL	3/15/2004	1	K-40	1.29E+03	1.64E+02
5 PITTSBORO - CONTROL	4/12/2004	1	K-40	1.32E+03	1.74E+02
5 PITTSBORO - CONTROL	4/26/2004	1	K-40	1.40E+03	1.76E+02
5 PITTSBORO - CONTROL	5/10/2004	1	K-40	1.38E+03	1.65E+02
5 PITTSBORO - CONTROL	5/10/2004	1	PB-212	1.53E+01	1.33E+01
5 PITTSBORO - CONTROL	5/24/2004	1	K-40	1.50E+03	1.64E+02
5 PITTSBORO - CONTROL	6/7/2004	1	K-40	1.36E+03	1.98E+02
5 PITTSBORO - CONTROL	6/7/2004	1	PB-212	1.53E+01	1.12E+01
5 PITTSBORO - CONTROL	6/21/2004	1	K-40	1.35E+03	1.87E+02
5 PITTSBORO - CONTROL	7/6/2004	1	K-40	1.34E+03	2.17E+02
5 PITTSBORO - CONTROL	7/19/2004	1	K-40	1.89E+03	2.04E+02
5 PITTSBORO - CONTROL	8/2/2004	1	K-40	2.27E+03	1.98E+02
5 PITTSBORO - CONTROL	8/16/2004	1	K-40	1.44E+03	2.20E+02
5 PITTSBORO - CONTROL	9/13/2004	1	K-40	1.45E+03	1.99E+02
5 PITTSBORO - CONTROL	9/27/2004	1	K-40	1.54E+03	2.12E+02
5 PITTSBORO - CONTROL	10/11/2004	1	K-40	2.11E+03	2.14E+02
5 PITTSBORO - CONTROL	10/25/2004	1	K-40	1.34E+03	1.66E+02
5 PITTSBORO - CONTROL	11/8/2004	1	K-40	1.35E+03	1.75E+02
5 PITTSBORO - CONTROL	11/8/2004	1	PB-212	1.11E+01	7.04E+00
5 PITTSBORO - CONTROL	11/8/2004	1	RA-226	2.64E+02	1.44E+02
5 PITTSBORO - CONTROL	11/22/2004	1	K-40	1.49E+03	2.09E+02

# ***HNP Radiological Environmental Monitoring Gamma Isotopic Report***

*Media Type: Milk*

*Quantity: Liters*

*Concentration (Activity): pCi/L*

<i><b>Sample Point</b></i>		<i><b>Sample Date</b></i>	<i><b>Quantity</b></i>	<i><b>Isotope</b></i>	<i><b>Activity</b></i>	<i><b>2 Sigma Error</b></i>
5	PITTSBORO - CONTROL	12/6/2004	1	K-40	1.28E+03	1.65E+02
5	PITTSBORO - CONTROL	12/6/2004	1	RA-226	1.46E+02	1.32E+02
5	PITTSBORO - CONTROL	12/20/2004	1	K-40	1.30E+03	1.96E+02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Shoreline Sediment

Quantity: GRAMS (dry)

Concentration (Activity): pCi/gm dry

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
26 SPILLWAY ON MAIN RES	1/29/2004	1221.5	TL-208	1.81E-01	4.12E-02
26 SPILLWAY ON MAIN RES	1/29/2004	1221.5	PB-212	4.37E-01	7.59E-02
26 SPILLWAY ON MAIN RES	1/29/2004	1221.5	BI-214	3.25E-01	1.05E-01
26 SPILLWAY ON MAIN RES	1/29/2004	1221.5	PB-214	3.83E-01	9.51E-02
26 SPILLWAY ON MAIN RES	1/29/2004	1221.5	AC-228	4.24E-01	1.63E-01
26 SPILLWAY ON MAIN RES	1/29/2004	1221.5	K-40	1.18E+01	1.19E+00
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	TL-208	9.56E-02	3.38E-02
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	K-40	1.07E+01	1.04E+00
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	BI-212	2.88E-01	1.88E-01
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	PB-212	2.94E-01	4.91E-02
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	PB-214	1.62E-01	6.59E-02
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	RA-226	1.35E+00	6.77E-01
26 SPILLWAY ON MAIN RES	7/20/2004	1360.4	BI-214	2.13E-01	5.74E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	1/29/2004	1713.2	PB-212	2.52E-01	3.71E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	1/29/2004	1713.2	AC-228	3.62E-01	1.11E-01
41 SHORELINE OF COOLING TOWER MIXING ZONE	1/29/2004	1713.2	TL-208	8.44E-02	2.69E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	1/29/2004	1713.2	BI-214	1.73E-01	5.46E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	1/29/2004	1713.2	PB-214	1.74E-01	4.96E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	1/29/2004	1713.2	K-40	1.16E+01	8.40E-01
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	BE-7	3.98E-01	2.85E-01
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	AC-228	2.80E-01	9.21E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	K-40	1.26E+01	1.05E+00
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	TL-208	5.75E-02	3.24E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	PB-212	2.23E-01	6.28E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	BI-214	1.88E-01	6.32E-02
41 SHORELINE OF COOLING TOWER MIXING ZONE	7/20/2004	1527.6	PB-214	1.74E-01	7.70E-02

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/L

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
26 SPILLWAY ON MAIN RES	1/12/2004	1	K-40	1.83E+02	2.08E+01
26 SPILLWAY ON MAIN RES	2/9/2004	1	PB-212	3.24E+00	1.38E+00
26 SPILLWAY ON MAIN RES	2/9/2004	1	RA-226	4.97E+01	2.31E+01
26 SPILLWAY ON MAIN RES	3/11/2004	1	NO-ACT		
26 SPILLWAY ON MAIN RES	4/12/2004	1	K-40	3.76E+02	3.78E+01
26 SPILLWAY ON MAIN RES	5/13/2004	1	NO-ACT		
26 SPILLWAY ON MAIN RES	6/13/2004	1	NO-ACT		
26 SPILLWAY ON MAIN RES	7/12/2004	1	NO-ACT		
26 SPILLWAY ON MAIN RES	8/16/2004	1	NO-ACT		
26 SPILLWAY ON MAIN RES	9/13/2004	1	K-40	5.45E+01	5.11E+01
26 SPILLWAY ON MAIN RES	9/13/2004	1	TL-208	4.36E+00	2.55E+00
26 SPILLWAY ON MAIN RES	10/11/2004	1	BI-214	6.73E+00	2.63E+00
26 SPILLWAY ON MAIN RES	10/11/2004	1	RA-226	4.15E+01	2.01E+01
26 SPILLWAY ON MAIN RES	10/11/2004	1	PB-212	2.80E+00	1.41E+00
26 SPILLWAY ON MAIN RES	11/11/2004	1	NO-ACT		
26 SPILLWAY ON MAIN RES	12/13/2004	1	TL-208	1.96E+00	1.70E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	1/12/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	2/9/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	3/11/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	4/12/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	5/13/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	6/13/2004	1	PB-212	4.55E+00	3.42E+00
38 CAPE FEAR PLANT INTAKE - CONTROL	7/12/2004	1	K-40	3.38E+02	4.33E+01
38 CAPE FEAR PLANT INTAKE - CONTROL	8/16/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	9/13/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	10/11/2004	1	NO-ACT		

# HNP Radiological Environmental Monitoring Gamma Isotopic Report

Media Type: Surface Water

Quantity: Liters

Concentration (Activity): pCi/L

Sample Point	Sample Date	Quantity	Isotope	Activity	2 Sigma Error
38 CAPE FEAR PLANT INTAKE - CONTROL	11/11/2004	1	NO-ACT		
38 CAPE FEAR PLANT INTAKE - CONTROL	12/13/2004	1	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1	K-40	9.38E+01	4.77E+01
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1	TL-208	4.70E+00	2.22E+00
40 LILLINGTON - CAPE FEAR RIVER	1/12/2004	1	PB-212	7.21E+00	4.20E+00
40 LILLINGTON - CAPE FEAR RIVER	2/9/2004	1	K-40	5.86E+01	4.38E+01
40 LILLINGTON - CAPE FEAR RIVER	3/11/2004	1	PB-214	4.93E+00	3.39E+00
40 LILLINGTON - CAPE FEAR RIVER	3/11/2004	1	TL-208	4.64E+00	2.33E+00
40 LILLINGTON - CAPE FEAR RIVER	4/12/2004	1	K-40	3.58E+02	3.75E+01
40 LILLINGTON - CAPE FEAR RIVER	4/12/2004	1	TL-208	4.34E+00	2.21E+00
40 LILLINGTON - CAPE FEAR RIVER	5/13/2004	1	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	6/13/2004	1	K-40	6.10E+01	4.99E+01
40 LILLINGTON - CAPE FEAR RIVER	7/12/2004	1	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	8/16/2004	1	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	9/13/2004	1	Bi-214	9.09E+00	4.16E+00
40 LILLINGTON - CAPE FEAR RIVER	9/13/2004	1	TL-208	5.11E+00	3.70E+00
40 LILLINGTON - CAPE FEAR RIVER	9/13/2004	1	K-40	3.73E+02	4.18E+01
40 LILLINGTON - CAPE FEAR RIVER	10/11/2004	1	PB-212	4.82E+00	2.06E+00
40 LILLINGTON - CAPE FEAR RIVER	10/11/2004	1	RA-226	4.19E+01	2.44E+01
40 LILLINGTON - CAPE FEAR RIVER	11/11/2004	1	NO-ACT		
40 LILLINGTON - CAPE FEAR RIVER	12/13/2004	1	NO-ACT		