



April 17, 2001

L-2001-077  
10 CFR 50.4  
10 CFR 50.36

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555

RE: St. Lucie Units 1 and 2  
Docket Nos. 50-335 and 50-389  
Annual Radiological Environmental  
Operating Report for Calendar  
Year 2000

The enclosed report is being submitted pursuant to Technical Specification 6.9.1.8. The *Annual Radiological Environmental Operating Report* provides information summaries and analytical results of the Radiological Environmental Monitoring Program (REMP) for calendar year 2000.

Please contact us should there be any questions regarding this information.

Very truly yours,

Rajiv S. Kundalkar  
Vice President  
St. Lucie Plant

Enclosure

RSK/spt

cc: Regional Administrator, USNRC, Region II,  
Senior Resident Inspector, USNRC, St. Lucie Plant

IE56

**2000**

**ANNUAL**

**RADIOLOGICAL ENVIRONMENTAL  
OPERATING REPORT**

**ST. LUCIE PLANT**

**UNITS 1 & 2**

**LICENSE NOS. DPR-67, NPF-16**

**DOCKET NOS. 50-335, 50-389**

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ST. LUCIE PLANT – UNITS 1 & 2**

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**2000**  
**ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT**  
**ST. LUCIE PLANT – UNITS 1 & 2**

I. INTRODUCTION

This report is submitted pursuant to Specification 6.9.1.8 of St. Lucie Unit 1 and St. Lucie Unit 2 Technical Specifications. The Annual Radiological Environmental Operating Report provides information, summaries and analytical results pertaining to the Radiological Environmental Monitoring Program for the calendar year indicated. This report covers surveillance activities meeting the requirements of Unit 1 and Unit 2 Technical Specifications.

II. RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

A. Purpose

The purpose of the Radiological Environmental Monitoring Program is to provide representative measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of members of the public resulting from station operation. The Radiological Environmental Monitoring Program also supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways.

B. Program Description

The Radiological Environmental Monitoring Program (REMP) for the St. Lucie Plant is conducted pursuant to the St. Lucie Unit 1 and St. Lucie Unit 2 Offsite Dose Calculation Manual (ODCM) Control 3/4.12.1.

1. Sample Locations, Types and Frequencies:

- a. Direct radiation gamma exposure rate is monitored continuously at 27 locations by thermoluminescent dosimeters (TLDs). TLDs are collected and analyzed quarterly.
- b. Airborne radioiodine and particulate samplers are operated continuously at five locations. Samples are collected and analyzed weekly. Analyses include Iodine-131, gross beta, and gamma isotopic measurements.
- c. Surface water samples are collected from two locations. Samples are collected and analyzed weekly and monthly, respectively. Analyses include gamma isotopic and tritium measurements.

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- d. Shoreline sediment samples are collected from two locations coinciding with the locations for surface water samples. Samples are collected and analyzed semi-annually. Sediment samples are analyzed by gamma isotopic measurements.
- e. Fish and invertebrate samples are collected from two locations. Samples are collected and analyzed semi-annually. Fish and invertebrate samples are analyzed by gamma isotopic measurements.
- f. Broad leaf vegetation samples are collected from three locations. Samples are collected and analyzed monthly. Broad leaf vegetation samples are analyzed by gamma isotopic measurements.

Attachment A provides specific information pertaining to sample locations, types and frequencies.

2. Analytical Responsibility:

Radiological environmental monitoring for the St. Lucie Plant is conducted by the State of Florida, Department of Health (DOH) , Bureau of Radiation Control (BRC). Samples are collected and analyzed by DOH personnel.

Samples are analyzed at the DOH BRC Environmental Radiation Control Laboratory in Orlando, Florida.

C. Analytical Results

Table 1, Environmental Radiological Monitoring Program Annual Summary provides a summary for all specified samples collected during the referenced surveillance period. Deviations from the sample schedule, missing data and/or samples not meeting the specified "A PRIORI" LLD, if any, are noted and explained in Tables 1A and 1B, respectively. Analysis data for all specified samples analyzed during the surveillance period are provided in Attachment B.

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D. Land Use Census

A land use census out to a distance of five miles radius from the St. Lucie Plant is conducted annually to determine the location of the nearest milk animal, residence, and garden producing broad leaf vegetation, in each of the 16 meteorological sectors. A summary of the land use census for the surveillance year is provided in Table 2, Land Use Census Summary.

E. Interlaboratory Comparison Program

The Interlaboratory Comparison Program consists of participating in the Department of Energy's EML New York Quality Assessment Program (DOE-QAP). The DOE-QAP consists of two rounds of air filter, water, soil, and vegetation matrices. The samples are analyzed using the methods applicable to the REMP ( gamma spectroscopy, gross beta, and tritium for water ). The results of nuclides associated with the REMP are listed in ATTACHMENT C, RESULTS FROM THE INTERLABORATORY COMPARISON PROGRAM.

Please note that although our laboratory participated in the analysis for alpha in water, the results of this analysis are not used to support St. Lucie's Radiological Environmental Monitoring Program.

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**III. DISCUSSION AND INTERPRETATION OF RESULTS**

**A. Reporting of Results**

The Annual Radiological Environmental Operating Report contains the summaries, interpretations and information required by St. Lucie Plant ODCM. Table 1 provides a summary of the measurements made for the nuclides required by ODCM, Table 4.12-1, for all samples specified by Table 3.12-1. In addition, summaries are provided for other nuclides identified in the specified samples, including those not related to station operation. These include nuclides such as K-40, Th-232, Ra-226, and Be-7 which are common in the Florida environment.

**B. Interpretation of Results**

**1. Direct Radiation:**

The results of direct radiation monitoring are consistent with past measurements for the specified locations.

The exposure rate data shows no indication of any trends attributed to effluents from the plant. The measured exposure rates are consistent with exposure rates that were observed during the pre-operational surveillance program. Direct radiation monitoring results are summarized in Table 1.

**2. Air Particulates/Radioiodine:**

The results for radioactive air particulate and radioiodine monitoring are consistent with past measurements and indicate no trends attributed to plant effluents. All samples for radioiodine yielded no detectable I-131. Gamma isotopic measurements yielded no indication of any nuclides attributed to station operation. The results for air particulate/radioiodine samples are consistent with measurements that were made during the pre-operational surveillance program. Air particulate and radioiodine monitoring results are summarized in Table 1.

**3. Surface Water:**

One of 52 samples collected at the indicator location identified tritium. The reported value is less than 15% of the required LLD listed in ODCM Table 4.12-1. No other nuclides attributed to station operation were detected. Results for surface water samples are summarized in Table 1.

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4. Waterborne Sediment and Food Products:

The results for radioactivity measurements in waterborne sediment, fish and crustacean samples are consistent with past measurements and with measurements made during the pre-operational surveillance program. There were no indications of any nuclides attributed to plant effluents. Results for the waterborne sediment, fish and crustacean samples are summarized in Table 1.

5. Broad Leaf Vegetation

The results of radioactivity measurements in broad leaf vegetation are consistent with past measurements and with measurements made during the pre-operational surveillance program.

Four indicator location samples and three control location samples indicated Cs-137. The highest level is less than 50% of the required LLD listed in ODCM Table 4.12-1. There were no indications of any other nuclides attributed to plant effluents. Results for the broad leaf vegetation samples are summarized in Table 1.

6. Land Use Census

No locations yielding a calculated dose or dose commitment greater than the values currently being calculated were identified by the land use census.

Goats producing milk were identified; the owner is willing to provide samples. The location of these goats has an estimated deposition factor less than that currently used for dose calculations. Milk sampling is being performed.

No locations yielding a calculated dose or dose commitment (via the same exposure pathway) 20% greater than locations currently being sampled in the Radiological Environmental Monitoring Program were identified by the land use census.

7. Interlaboratory Comparison Program

For those nuclides associated with nuclear power plant operation and using analytical methods used in the REMP, all but two results were acceptable. They were both warning-level high. One was a 33% over-response for tritium in water. The other was a 14% over-response for Co-57 on an air filter.

The 'naturally occurring nuclide' results reported are inferred results from gamma spectroscopy. Chemical separation and alpha analysis is the preferred analytical method, but is outside the scope of the routine REMP.



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C. Conclusions

The data obtained through the St. Lucie Plant Radiological Environmental Monitoring Program verifies that the levels of radiation and concentrations of radioactive materials in environmental samples, representing the highest potential exposure pathways to members of the public, are not being increased.

The measurements verify that the dose or dose commitment to members of the public, due to operation of St. Lucie Units 1 and 2 during the surveillance year, are well within "as low as reasonably achievable (ALARA)" criteria established by 10 CFR 50, Appendix I.

TABLE 1

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2, Docket No(s). 50-335 & 50-389Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
(County, State)

PATHWAY: DIRECT RADIATION

SAMPLES COLLECTED: TLD

UNITS: micro-R/hr

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	
Exposure Rate, 103 <sup>d</sup>	---	5.0 (99/99) 4.2 - 6.3	NW-10 10 mi., NW	6.2 (4/4) 6.0 - 6.3	5.5 (4/4) 5.3 - 5.9

Number of Non-Routine Reported Measurements = 0

TABLE 1

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2, Docket No(s) 50-335 & 50-389Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
(County, State)

PATHWAY: AIRBORNE

SAMPLES COLLECTED: RADIOIODINE AND PARTICULATES

UNITS: PICO - Ci/M<sup>3</sup>

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup>	Mean (f) <sup>b</sup>	
			Distance & Direction	Range	
<sup>131</sup> I, 259	0.024	<MDA	---	---	<MDA
Gross Beta, 259	0.0025	0.014 (203/207) 0.002 - 0.032	H-34 0.5 mi., N	0.015 (52/52) 0.005 - 0.028	0.015 (52/52) 0.005 - 0.028
Composite Gamma Isotopic, 20					
<sup>7</sup> Be	0.0052	0.1237 (16/16) 0.0648 - 0.1754	H-34 0.5 mi., N	0.1452 (4/4) 0.1237 - 0.1754	0.1326 (4/4) 0.0852 - 0.1688
<sup>134</sup> Cs	0.00069	<MDA	---	---	<MDA
<sup>137</sup> Cs	0.00066	<MDA	---	---	<MDA
<sup>210</sup> Pb	---	0.0204 (16/16) 0.0084 - 0.0390	H-14 1 mi., SE	0.0280 (3/4) 0.0220 - 0.0390	0.0223 (4/4) 0.0139 - 0.0339

Number of Non-Routine Reported Measurements = 0

TABLE 1

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2, Docket No(s). 50-335 & 50-389Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
(County, State)

PATHWAY: WATERBORNE

SAMPLES COLLECTED: SURFACE WATER

UNITS: PICO - Ci/LITER

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	
Tritium, 64	230	331 (1/52)	H-15 <1 mi., ENE/E/ESE	331 (1/52)	<MDA
Gamma Isotopic, 64					
<sup>40</sup> K	60	363 (52/52) 291 - 452	H-15 <1 mi., ENE/E/ESE	363 (52/52) 291 - 452	358 (12/12) 327 - 396
<sup>54</sup> Mn	4	<MDA	---	---	<MDA
<sup>59</sup> Fe	8	<MDA	---	---	<MDA
<sup>58</sup> Co	4	<MDA	---	---	<MDA
<sup>60</sup> Co	4	<MDA	---	---	<MDA
<sup>65</sup> Zn	8	<MDA	---	---	<MDA
<sup>95</sup> Zr-Nb	7	<MDA	---	---	<MDA
<sup>131</sup> I	5	<MDA	---	---	<MDA
<sup>134</sup> Cs	5	<MDA	---	---	<MDA
<sup>137</sup> Cs	5	<MDA	---	---	<MDA
<sup>140</sup> Ba-La	11	<MDA	---	---	<MDA

Number of Non-Routine Reported Measurements = 0

TABLE 1

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2 , Docket No(s) 50-335 & 50-389Location of Facility St. Lucie, Florida , Reporting Period January 1 - December 31, 2000  
(County, State)

PATHWAY: WATERBORNE

SAMPLES COLLECTED: SHORELINE SEDIMENT

UNITS: PICO - Ci/Kg, DRY

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup>	Mean (f) <sup>b</sup>	
			Distance & Direction	Range	
Gamma Isotopic, 4					
<sup>40</sup> K	140	346 (2/2) 238- 453	H-15 <1 mi, ENE/E/ESE	346 (2/2) 238- 453	346 (2/2) 195 - 497
<sup>210</sup> Pb	---	<MDA	---	---	<MDA
<sup>226</sup> Ra	49	252 (2/2) 235 - 269	H-15 <1 mi., ENE/E/ESE	252 (2/2) 235 - 269	309 (2/2) 258 - 360
<sup>232</sup> Th	---	86 (1/2)	H-15 <1 mi., ENE/E/ESE	86 (1/2)	100 (1/2)
<sup>238</sup> U	---	<MDA	---	---	394 (1/2)
<sup>58</sup> Co	9	<MDA	---	---	<MDA
<sup>60</sup> Co	12	<MDA	---	---	<MDA
<sup>134</sup> Cs	14	<MDA	---	---	<MDA
<sup>137</sup> Cs	12	<MDA	---	---	<MDA

Number of Non-Routine Reported Measurements = 0

TABLE 1

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2, Docket No(s). 50-335 & 50-389Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
(County, State)

PATHWAY: INGESTION

SAMPLES COLLECTED: CRUSTACEA

UNITS: PICO - Ci/Kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup>	Mean (f) <sup>b</sup>	
			Distance & Direction	Range	
Gamma Isotopic, 4					
<sup>40</sup> K	130	1456 (2/2) 1327 - 1586	H-15 <1 mi., ENE/E/ESE	1456 (2/2) 1327 - 1586	1856 (2/2) 1670 - 2042
<sup>228</sup> Ra	---	<MDA	---	---	<MDA
<sup>54</sup> Mn	9	<MDA	---	---	<MDA
<sup>59</sup> Fe	16	<MDA	---	---	<MDA
<sup>58</sup> Co	9	<MDA	---	---	<MDA
<sup>60</sup> Co	19	<MDA	---	---	<MDA
<sup>65</sup> Zn	17	<MDA	---	---	<MDA
<sup>134</sup> Cs	9	<MDA	---	---	<MDA
<sup>137</sup> Cs	9	<MDA	---	---	<MDA

Number of Non-Routine Reported Measurements = 0

TABLE 1

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2, Docket No(s) 50-335 & 50-389Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
(County, State)

PATHWAY: INGESTION

SAMPLES COLLECTED: FISH

UNITS: PICO - Ci/Kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup>	Mean (f) <sup>b</sup>	
			Distance & Direction	Range	
Gamma Isotopic, 4					
<sup>40</sup> K	130	2328 (2/2) 2059 - 2598	H-15 <1 mi., ENE/E/ESE	2328 (2/2) 2059 - 2598	2851 (2/2) 2619 - 3083
<sup>54</sup> Mn	9	<MDA	---	---	<MDA
<sup>59</sup> Fe	16	<MDA	---	---	<MDA
<sup>58</sup> Co	9	<MDA	---	---	<MDA
<sup>60</sup> Co	10	<MDA	---	---	<MDA
<sup>65</sup> Zn	17	<MDA	---	---	<MDA
<sup>134</sup> Cs	9	<MDA	---	---	<MDA
<sup>137</sup> Cs	9	<MDA	---	---	<MDA

Number of Non-Routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY  
 Name of Facility St. Lucie Units 1 & 2, Docket No(s). 50-335 & 50-389  
 Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
 (County, State)

PATHWAY: INGESTION

SAMPLES COLLECTED: BROAD LEAF VEGETATION

UNITS: PICO - Ci/Kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean		Control Locations Mean (f) <sup>b</sup> Range
			Name <sup>c</sup>	Mean (f) <sup>b</sup>	
			Distance & Direction	Range	
Gamma Isotopic, 36					
<sup>7</sup> Be	71	896 (24/24) 283 - 2220	H-51 1 mi., N/NNW	910 (12/12) 462 - 2220	730 (12/12) 336 - 1042
<sup>40</sup> K	100	4130 (24/24) 2728 - 5457	H-52 1 mi., S/SSE	4484 (12/12) 2788 - 5457	3408 (12/12) 2020 - 4674
<sup>210</sup> Pb	---	936 (3/24) 407-1253	H-52 1 mi., S/SSE	936 (3/12) 407-1253	1023 1/12)
<sup>212</sup> Pb	---	<MDA	---	---	<MDA
<sup>131</sup> I	9	<MDA	---	---	<MDA
<sup>134</sup> Cs	8	<MDA	---	---	<MDA
<sup>137</sup> Cs	8	20 (4/24) 12 - 34	H-52 1 mi., S/SSE	23 (2/12) 12 - 34	25 (3/12) 14 - 34

Number of Non-Routine Reported Measurements = 0



TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Units 1 & 2, Docket No(s). 50-335 & 50-389

Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2000  
(County, State)

NOTES

- a. The LLD is an "a priori" lower limit of detection which establishes the smallest concentration of radioactive material in a sample that will yield a net count above system background that will be detected with 95% probability with only 5% probability of falsely concluding that a blank observation represents a real signal.

LLDs in this column are at time of measurement. The MDAs reported in Attachment B for the individual samples have been corrected to the time of sample collection.

- b. Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f).

- c. Specific identifying information for each sample location is provided in Attachment A.

- d. Results were based upon the average net response of three elements in a TLD. (Thermoluminescent Dosimeter).

MDA refers to minimum detectable activity.

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TABLE 1A  
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DEVIATIONS / MISSING DATA

- |    |                         |  |
|----|-------------------------|--|
| A) | Pathway:                | Direct Exposure                                  |
|    | Location:               | NW-5, 5 miles Northwest                          |
|    | Dates:                  | First calendar quarter                           |
|    | Deviation:              | Failure to provide continuous monitoring.        |
|    | Description of Problem: | TLD was not found when collection was attempted. |
|    | Corrective Action:      | Deploy new TLD.                                  |
|    |                         |  |
| B) | Pathway:                | Direct Exposure                                  |
|    | Locations:              | SSW-5 , 5 miles South-southwest                  |
|    | Dates:                  | First calendar quarter                           |
|    | Deviation:              | Failure to provide continuous monitoring.        |
|    | Description of Problem: | TLD was not found when collection was attempted. |
|    | Corrective Action:      | Deploy new TLD.                                  |
|    |                         |  |
| C) | Pathway:                | Direct Exposure                                  |
|    | Locations:              | SW-10 , 10 miles Southwest                       |
|    | Dates:                  | Second calendar quarter                          |
|    | Deviation:              | Failure to provide continuous monitoring.        |
|    | Description of Problem: | TLD was not found when collection was attempted. |
|    | Corrective Action:      | Deploy new TLD.                                  |

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TABLE 1A  
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DEVIATIONS / MISSING DATA

D)	Pathway:	Direct Exposure
	Locations:	S-5 , 5 miles South
	Dates:	Second calendar quarter
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	TLD was not found when collection was attempted.
	Corrective Action:	Deploy new TLD.
E)	Pathway:	Airborne, Particulates
	Locations:	H-30, 2 miles West
	Dates:	05/23/00 to 06/01/00
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	Particulate filter missing.
	Corrective Action:	Checked filter holder, replaced filter, verified sampling equipment as operable.
F)	Pathway:	Direct Exposure
	Locations:	SW-10 , 10 miles Southwest
	Dates:	Fourth calendar quarter
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	TLD was not found when collection was attempted.
	Corrective Action:	Deploy new TLD.

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**TABLE 1B**

ANALYSIS WITH LLDs ABOVE TABLE 4.12-1 DETECTION CAPABILITIES  
1/1/2000 – 12/31/2000

The values specified in ODCM Table 4.12-1, Detection Capabilities,  
were achieved for all samples.

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TABLE 2

LAND USE CENSUS

Distance to Nearest (a, b)

Sector	7/00 Milk (c) Animal	7/00 Residence	7/00 Garden (d)
N	O (e)	O	O
NNE	O	O	O
NE	O	O	O
ENE	O	O	O
E	O	O	O
ESE	O	O	O
SE	O	1.5/141 (g)	O
SSE	L (f)	3.3/153 (g)	L
S	L	3.6/190	L
SSW	L	2.3/214	L
SW	L	1.9/236	L
WSW	3.5/251	1.9/244 (h)	L
W	L	1.9/263	L
WNW	L	2.2/282	L
NW	L	3.1/304	L
NNW	L	3.4/346 (g)	L

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TABLE 2

LAND USE CENSUS

NOTES

- a. All categories surveyed out to five miles radius from the St. Lucie Plant.
- b. The following format is used to denote the location:

distance (miles)/bearing (degrees)

For example, a residence located in the southeast sector at a distance of 1.5 miles bearing 141 degrees is recorded as 1.5/141.

- c. Potential milk animal locations. All locations specified have been verified to be not producing milk for human consumption.
- d. Gardens with an estimated growing area of 500 square feet or more.
- e. O denotes that the sector area is predominantly an ocean area.
- f. L denotes that the sector area is predominantly a land area unoccupied by the category type.
- g. Non-residential occupied buildings in these sectors include the following:

<u>Sector</u>	<u>Distance</u>	<u>Description</u>
SE	1.1/132	Lifeguard station at beach
SSE	1.8/149	Fire Station
NNW	2.8/348	A new community is being developed. At the current time, there are no houses available for occupancy.

- h. Several residences in this sector are located approximately 1.9 miles from the St. Lucie Plant.

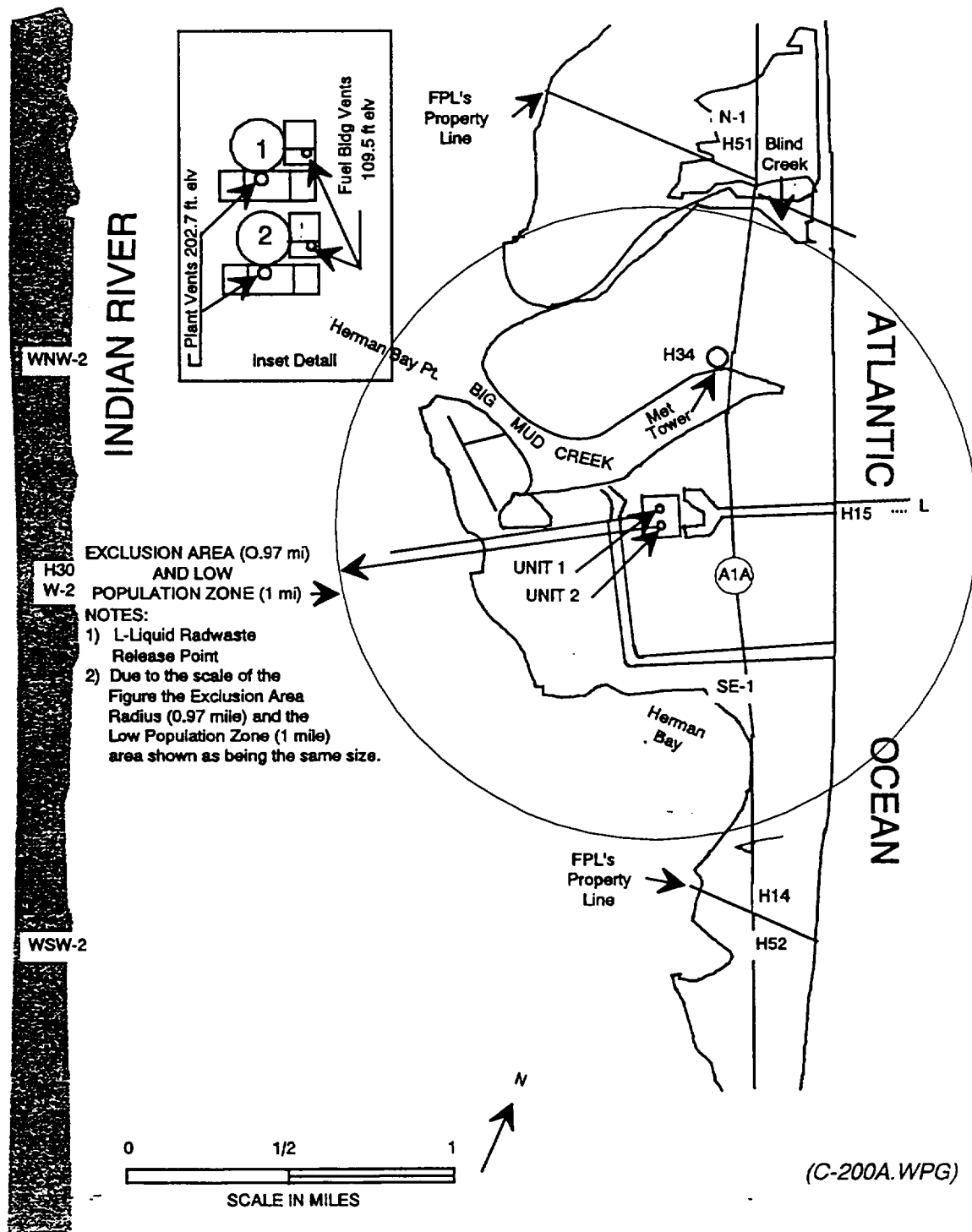
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**ATTACHMENT A**

**KEY TO SAMPLE LOCATIONS**

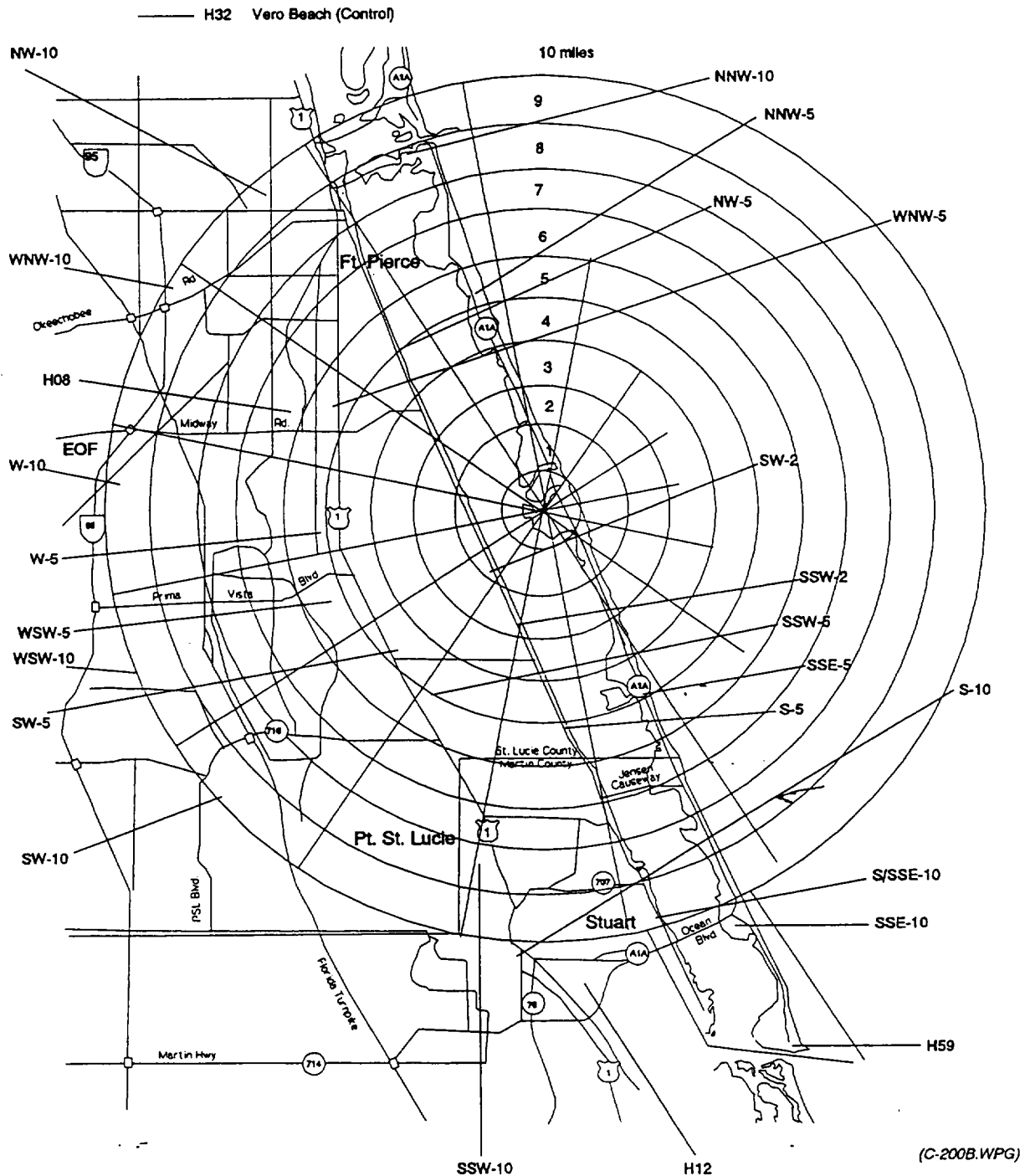
2000  
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT  
ST. LUCIE PLANT - UNITS 1 & 2

SITE AREA MAP & ENVIRONMENTAL SAMPLE LOCATIONS





### ENVIRONMENTAL SAMPLE LOCATIONS (10 MILES)



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**ATTACHMENT A**

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PATHWAY: DIRECT RADIATION  
SAMPLES COLLECTED: TLD  
SAMPLE COLLECTION FREQUENCY: QUARTERLY

<u>Location Name</u>	<u>Direction Sector</u>	<u>Approximate Distance (miles)</u>	<u>Description</u>
N-1	N	1	A1A, North of Blind Creek
NNW-5	NNW	5	South of Pete Stone Creek
NNW-10	NNW	9	Coast Guard Station
NW-5	NW	6	Indian River Dr., at Rio Vista Dr.
NW-10	NW	10	S.R. 68 at S.R. 607
WNW-2	WNW	3	Cemetery South of 7107 Indian River Dr.
WNW-5	WNW	5	U.S. 1 at S.R. 712
WNW-10	WNW	10	S.R. 70, West of Turnpike
W-2	W	2	7609 Indian River Drive
W-5	W	5	Oleander and Sager Street
W-10	W	9	Interstate 95 at S.R. 709
WSW-2	WSW	2	8503 Indian River Dr.
WSW-5	WSW	5	Prima Vista at Yacht Club
WSW-10	WSW	10	Del Rio at Davis Street
SW-2	SW	2	9207 Indian River Drive
SW-5	SW	5	U.S. 1 at Village Green Dr.
SW-10	SW	10	Port St. Lucie Blvd. at Cairo Rd.
SSW-2	SSW	3	10307 Indian River Drive
SSW-5	SSW	6	U.S. 1 at Port St. Lucie Blvd.
SSW-10	SSW	8	Pine Valley at Westmoreland Rd.
S-5	S	5	13179 Indian River Drive
S-10	S	10	U.S. 1 at S.R. 714
S/SSE-10	SSE	10	Indian River Dr. at Quail Run Lane
SSE-5	SSE	5	Entrance to Nettles Island
SSE-10	SSE	10	Elliot Museum
SE-1	SE	1	South of Cooling Canal
Control:			
H-32	NNW	19	University of Florida IFAS Vero Beach

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PATHWAY: AIRBORNE  
SAMPLES COLLECTED: RADIOIODINE AND PARTICULATES  
SAMPLE COLLECTION FREQUENCY: WEEKLY

<u>Location Name</u>	<u>Direction Sector</u>	<u>Approximate Distance (miles)</u>	<u>Description</u>
H-08	WNW	6	FPL Substation, Weatherby Rd.
H-14	SE	1	On-Site, Near South Property Line
H-30	W	2	Power Line, 7609 Indian River Drive
H-34	N	0.5	On-Site at Meteorology Tower

Control:

H-12	S	12	FPL Substation, SR-76 Stuart
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ATTACHMENT A

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PATHWAY: WATERBORNE

SAMPLES COLLECTED: SURFACE WATER (OCEAN)

SAMPLE COLLECTION FREQUENCY: H-15 WEEKLY, H-59 MONTHLY

<u>Location Name</u>	<u>Direction Sector</u>	<u>Approximate Distance (miles)</u>	<u>Description</u>
H-15	ENE/E/SSE	<1	Atlantic Ocean, Public Beaches East Side A1A

Control:

H-59	S/SSE	10-20	South End, Hutchinson Island
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SAMPLES COLLECTED: SHORELINE SEDIMENT

SAMPLE COLLECTION FREQUENCY: SEMI-ANNUALLY

<u>Location Name</u>	<u>Direction Sector</u>	<u>Approximate Distance (miles)</u>	<u>Description</u>
H-15	ENE/E/ESE	<1	Atlantic Ocean, Public Beaches East Side A1A

Control:

H-59	S/SSE	10-20	South End, Hutchinson Island
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PATHWAY: INGESTION  
SAMPLES COLLECTED: CRUSTACEA AND FISH  
SAMPLE COLLECTION FREQUENCY: SEMI-ANNUALLY

<u>Location Name</u>	<u>Direction Sector</u>	<u>Approximate Distance (miles)</u>	<u>Description</u>
H-15	ENE/E/ESE	<1	Ocean Side, Vicinity of St. Lucie Plant

Control:

H-59	S/SSE	10-20	South End, Hutchinson Island
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SAMPLES COLLECTED: BROAD LEAF VEGETATION  
SAMPLE COLLECTION FREQUENCY: MONTHLY

<u>Location Name</u>	<u>Direction Sector</u>	<u>Approximate Distance (miles)</u>	<u>Description</u>
H-51	N/NNW	1	Off-site Near North Property Line
H-52	S/SSE	1	Off-site Near South Property Line

Control:

H-59	S/SSE	10-20	South End, Hutchinson Island
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**ATTACHMENT B**

**RADIOLOGICAL SURVEILLANCE OF**  
**FLORIDA POWER AND LIGHT COMPANY'S**

**ST. LUCIE SITE**

**2000**

**First Quarter 2000**

**Second Quarter 2000**

**Third Quarter 2000**

**Fourth Quarter 2000**

## ST. LUCIE SITE

## Technical Specifications Sampling

First Quarter 2000

<u>Sample Type</u>	<u>Collection Frequency</u>	<u>Locations Sampled</u>	<u>Number of Samples</u>
1. Direct Radiation	Quarterly	27	25
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Weekly	1	13
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	2	2
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	2
4.a.2. Fish	Semiannually	2	2
4.b. Broadleaf Vegetation	Monthly	3	9
			Total: 186

NOTE: Measurement results having magnitudes that are significantly above the background of the measurement system are reported as net values plus or minus a one-standard-deviation error term. Measurement results that are not significantly above background are reported as less than a Lower Limit of Detection (<LLD), which is an estimated upper limit (with at least 95% confidence) for the true activity in the sample.

1. DIRECT RADIATION - TLDs - ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 14-Dec-99 Collection 15-Mar-00	Sample Site	Deployment 14-Dec-99 Collection 15-Mar-00
N-1	$4.9 \pm 0.2$	SW-2	$4.9 \pm 0.2$
NNW-5	$4.9 \pm 0.2$	SW-5	$5.5 \pm 0.2$
NNW-10	$4.8 \pm 0.2$	SW-10	$4.7 \pm 0.2$
NW-5	*	SSW-2	$4.4 \pm 0.2$
NW-10	$6.3 \pm 0.2$	SSW-5	*
		SSW-10	$5.6 \pm 0.2$
WNW-2	$5.1 \pm 0.2$		
WNW-5	$4.9 \pm 0.2$	S-5	$4.7 \pm 0.2$
WNW-10	$4.9 \pm 0.2$	S-10	$4.8 \pm 0.2$
		S/SSE-10	$4.7 \pm 0.2$
W-2	$4.8 \pm 0.2$		
W-5	$5.1 \pm 0.2$	SSE-5	$4.6 \pm 0.2$
W-10	$5.2 \pm 0.2$	SSE-10	$5.0 \pm 0.2$
WSW-2	$5.1 \pm 0.2$	SE-1	$4.6 \pm 0.2$
WSW-5	$4.8 \pm 0.2$		
WSW-10	$4.4 \pm 0.2$	H-32	$5.5 \pm 0.2$

\*-TLDs from sites NW-5 and SSW-5 were missing when collection was attempted. New TLDs were deployed.



2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/ m<sup>3</sup>)

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
04-Jan-00	<0.02	<0.02	<0.02	<0.02	<0.02
10-Jan-00	<0.03	<0.03	<0.03	<0.03	<0.03
18-Jan-00	<0.02	<0.02	<0.02	<0.02	<0.02
24-Jan-00	<0.03	<0.03	<0.03	<0.03	<0.03
31-Jan-00	<0.02	<0.02	<0.02	<0.02	<0.02
10-Feb-00	<0.01	<0.01	<0.01	<0.01	<0.01
17-Feb-00	<0.02	<0.02	<0.02	<0.02	<0.02
22-Feb-00	<0.03	<0.03	<0.03	<0.03	<0.03
29-Feb-00	<0.02	<0.02	<0.02	<0.02	<0.02
07-Mar-00	<0.02	<0.02	<0.02	<0.02	<0.02
14-Mar-00	<0.02	<0.02	<0.02	<0.02	<0.02
21-Mar-00	<0.03	<0.03	<0.03	<0.03	<0.03
28-Mar-00	<0.02	<0.02	<0.02	<0.02	<0.02

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m<sup>3</sup>)

Collection Date	Sample Sites				
	H08	H12	H14	H30	H34
04-Jan-00	0.019 ± 0.002	0.024 ± 0.003	0.021 ± 0.002	0.015 ± 0.002	0.022 ± 0.002
10-Jan-00	0.010 ± 0.002	0.010 ± 0.002	0.010 ± 0.002	0.006 ± 0.002	0.014 ± 0.002
18-Jan-00	0.015 ± 0.002	0.014 ± 0.002	0.019 ± 0.002	0.013 ± 0.002	0.019 ± 0.002
24-Jan-00	0.015 ± 0.002	0.019 ± 0.003	0.018 ± 0.003	0.011 ± 0.002	0.018 ± 0.003
31-Jan-00	0.016 ± 0.002	0.016 ± 0.002	0.017 ± 0.002	0.009 ± 0.002	0.014 ± 0.002
10-Feb-00	0.028 ± 0.002	0.027 ± 0.002	0.025 ± 0.002	0.017 ± 0.002	0.026 ± 0.002
17-Feb-00	0.026 ± 0.003	0.027 ± 0.003	0.028 ± 0.003	0.018 ± 0.002	0.026 ± 0.003
22-Feb-00	0.014 ± 0.003	0.012 ± 0.003	0.015 ± 0.003	0.010 ± 0.003	0.010 ± 0.003
29-Feb-00	0.008 ± 0.002	0.005 ± 0.002	0.004 ± 0.002	<0.005	0.006 ± 0.002
07-Mar-00	0.013 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.021 ± 0.002
14-Mar-00	0.016 ± 0.002	0.016 ± 0.002	0.015 ± 0.002	0.010 ± 0.002	0.017 ± 0.002
21-Mar-00	0.012 ± 0.002	0.011 ± 0.002	0.009 ± 0.002	0.007 ± 0.002	0.013 ± 0.003
28-Mar-00	0.013 ± 0.002	0.016 ± 0.002	0.015 ± 0.002	0.004 ± 0.002	0.013 ± 0.002
Mean:	0.016 ± 0.001	0.016 ± 0.001	0.016 ± 0.001	<0.011	0.017 ± 0.001

2.b.2. AIR PARTICULATES GAMMA ANALYSIS OF QUARTERLY COMPOSITES (pCi/m<sup>3</sup>)

## First Quarter 2000

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.1511 ± 0.0110	<0.0161	<0.0010	<0.0008	0.0188 ± 0.0024
H12	0.1464 ± 0.0108	<0.0206	<0.0008	<0.0009	0.0223 ± 0.0029
H14	0.1515 ± 0.0091	<0.0167	<0.0009	<0.0007	0.0220 ± 0.0024
H30	0.1012 ± 0.0093	<0.0164	<0.0008	<0.0006	0.0154 ± 0.0033
H34	0.1486 ± 0.0102	<0.0165	<0.0009	<0.0008	0.0184 ± 0.0025

## 3.a. SURFACE WATER - (pCi/L)

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	04-Jan-00	<123	341 ± 30	<3	<4	<10	<4	<7	<6	<5	<4	<4	<7
	10-Jan-00	<123	367 ± 37	<4	<3	<8	<4	<9	<5	<5	<4	<4	<7
	18-Jan-00	<123	389 ± 36	<3	<5	<10	<4	<8	<8	<25	<3	<4	<11
	24-Jan-00	<123	350 ± 36	<3	<4	<8	<4	<9	<7	<8	<4	<4	<5
	31-Jan-00	<123	366 ± 33	<3	<4	<7	<5	<8	<7	<6	<4	<4	<6
	10-Feb-00	<119	345 ± 35	<4	<4	<7	<4	<7	<6	<6	<4	<4	<5
	17-Feb-00	<119	387 ± 34	<4	<4	<8	<5	<10	<6	<4	<4	<4	<10
	22-Feb-00	<116	312 ± 31	<4	<4	<7	<4	<9	<7	<6	<4	<4	<4
	29-Feb-00	<116	407 ± 34	<4	<4	<7	<4	<7	<6	<5	<4	<3	<8
	07-Mar-00	<129	364 ± 36	<4	<4	<8	<5	<8	<7	<6	<4	<4	<5
	15-Mar-00	331 ± 26	301 ± 35	<3	<4	<10	<4	<7	<7	<7	<4	<3	<5
	20-Mar-00	<129	390 ± 33	<3	<4	<10	<5	<9	<7	<8	<3	<4	<5
	28-Mar-00	<129	393 ± 32	<3	<4	<6	<5	<8	<7	<4	<4	<4	<7
H59	19-Jan-00	<123	345 ± 36	<5	<3	<7	<5	<8	<6	<5	<4	<5	<8
	01-Feb-00	<119	379 ± 33	<3	<5	<8	<5	<9	<7	<9	<3	<4	<5
	08-Mar-00	<129	362 ± 40	<3	<4	<9	<4	<9	<7	<7	<4	<3	<6

(A) - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLDs.

(B) - These tabulated LLD values are for Ba-140, either based on direct measurement of Ba-140 or based on ingrowth of La-140, whichever method yields the greater sensitivity for a given sample.

3.b. SHORELINE SEDIMENT - (pCi/kg, dry weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-238</u>
H15	01-Feb-00	<69	238 ± 39	<8	<7	<9	<7	<549	269 ± 11	<40	<312
H59	01-Feb-00	<79	195 ± 39	<7	<9	<10	<8	<669	360 ± 11	100 ± 12	394 ± 174

4.a.1. CRUSTACEA - (Blue Crab) - (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	25-Feb-00	1327 ± 184	<24	<20	<40	<24	<46	<23	<22	<436	<105
H59	24-Jan-00	1670 ± 174	<21	<18	<40	<22	<51	<19	<29	<345	<90

4.a.2. FISH - (Mixed Fish) - (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	19-Jan-00	2059 ± 179	<19	<19	<45	<19	<49	<21	<20	<327	<87
H59	19-Jan-00	2619 ± 308	<32	<39	<76	<41	<75	<43	<42	<571	<121

4.b. BROADLEAF VEGETATION - Brazilian Pepper - (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>
H51	19-Jan-00	1300 ± 69	4298 ± 156	<17	<11	12 ± 3	<721	<241
	01-Feb-00	1304 ± 30	3191 ± 55	<8	<4	<4	407 ± 96	<87
	08-Mar-00	1024 ± 77	3081 ± 143	<15	<11	<12	<718	<253
H52	19-Jan-00	771 ± 62	2666 ± 116	<14	<8	12 ± 4	<505	<223
	01-Feb-00	848 ± 55	2896 ± 115	<20	<9	<12	<552	<218
	08-Mar-00	1253 ± 76	3242 ± 136	<14	<10	<12	<721	<234
H59	19-Jan-00	668 ± 56	3006 ± 105	<12	<8	<9	<478	<187
	01-Feb-00	685 ± 48	4114 ± 124	<16	<7	<9	<462	<170
	08-Mar-00	951 ± 61	2636 ± 121	<13	<12	14 ± 4	<599	<217

## ST. LUCIE SITE

## Technical Specifications Sampling

Second Quarter 2000

<u>Sample Type</u>	<u>Collection Frequency</u>	<u>Locations Sampled</u>	<u>Number of Samples</u>
1. Direct Radiation	Quarterly	27	25
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	64
3. Waterborne			
3.a. Surface Water	Weekly	1	13
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	0	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	0	0
4.a.2. Fish	Semiannually	0	0
4.b. Broadleaf Vegetation	Monthly	3	9
			<hr/>
			Total: 179

NOTE: Measurement results having magnitudes that are significantly above the background of the measurement system are reported as net values plus or minus a one-standard-deviation error term. Measurement results that are not significantly above background are reported as less than a Lower Limit of Detection (<LLD), which is an estimated upper limit (with at least 95% confidence) for the true activity in the sample.

1. DIRECT RADIATION - TLDs - ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 15-Mar-00 Collection 14-Jun-00	Sample Site	Deployment 15-Mar-00 Collection 14-Jun-00
N-1	$5.9 \pm 0.5$	SW-2	$4.8 \pm 0.2$
NNW-5	$5.1 \pm 0.2$	SW-5	$6.0 \pm 0.2$
NNW-10	$5.3 \pm 0.2$	SW-10	(B)
NW-5	$5.0 \pm 0.2$	SSW-2	$4.7 \pm 0.2$
NW-10	$6.3 \pm 0.2$	SSW-5	$5.1 \pm 0.2$
WNW-2	$4.9 \pm 0.2$	SSW-10	$5.2 \pm 0.2$
WNW-5	$5.2 \pm 0.2$	S-5	(B)
WNW-10	$5.1 \pm 0.2$	S-10	$5.0 \pm 0.2$
W-2	$5.0 \pm 0.2$	S/SSE-10	$4.8 \pm 0.2$
W-5	$5.4 \pm 0.2$	SSE-5	$4.5 \pm 0.2$
W-10	$5.4 \pm 0.2$ (A)	SSE-10	$5.1 \pm 0.2$
WSW-2	$5.1 \pm 0.2$	SE-1	$4.8 \pm 0.2$
WSW-5	$5.1 \pm 0.2$	H-32	$5.3 \pm 0.2$
WSW-10	$4.5 \pm 0.2$		

(A) The TLD at location W-10 was found on the ground at the time of collection.

(B) The TLDs at locations SW-10 and S-5 were missing when collection was attempted. New TLDs were deployed.

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/ m<sup>3</sup>)

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
05-Apr-00	<0.02	<0.02	<0.02	<0.02	<0.02
11-Apr-00	<0.03	<0.03	<0.03	<0.03	<0.03
19-Apr-00	<0.02	<0.02	<0.02	<0.02	<0.02
24-Apr-00	<0.03	<0.03	<0.03	<0.03	<0.03
01-May-00	<0.03	<0.03	<0.03	<0.03	<0.03
11-May-00	<0.01	<0.01	<0.01	<0.01	<0.01
15-May-00	<0.03	<0.03	<0.03	<0.03	<0.03
23-May-00	<0.04	<0.04	<0.04	<0.05	<0.04
01-Jun-00	<0.02	<0.02	<0.02	<0.02	<0.02
06-Jun-00	<0.02	<0.02	<0.02	<0.02	<0.02
14-Jun-00	<0.02	<0.02	<0.03	<0.02	<0.03
19-Jun-00	<0.04	<0.04	<0.04	<0.04	<0.04
26-Jun-00	<0.02	<0.02	<0.02	<0.02	<0.02



2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m<sup>3</sup>)

Collection Date	Sample Site				
	H08	H12	H14	H30	H34
05-Apr-00	0.014 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.008 ± 0.002	0.020 ± 0.002
11-Apr-00	0.017 ± 0.003	0.016 ± 0.003	0.019 ± 0.003	0.009 ± 0.002	0.017 ± 0.003
19-Apr-00	0.006 ± 0.001	0.009 ± 0.002	0.008 ± 0.002	0.006 ± 0.001	0.010 ± 0.002
24-Apr-00	0.012 ± 0.003	0.018 ± 0.003	0.015 ± 0.003	0.008 ± 0.002	0.014 ± 0.003
01-May-00	0.016 ± 0.002	0.016 ± 0.002	0.019 ± 0.002	0.012 ± 0.002	0.018 ± 0.002
11-May-00	0.016 ± 0.002	0.015 ± 0.002	0.013 ± 0.002	0.011 ± 0.002	0.014 ± 0.002
15-May-00	0.009 ± 0.003	0.013 ± 0.003	0.013 ± 0.003	0.005 ± 0.003	0.013 ± 0.003
23-May-00	0.019 ± 0.002	0.016 ± 0.002	0.017 ± 0.002	0.012 ± 0.002	0.023 ± 0.002
01-Jun-00	0.016 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	(A)	0.012 ± 0.002
06-Jun-00	0.006 ± 0.002	0.006 ± 0.003	0.008 ± 0.003	0.005 ± 0.003	0.009 ± 0.003
14-Jun-00	0.005 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.007 ± 0.002	0.015 ± 0.002
19-Jun-00	0.013 ± 0.003	0.009 ± 0.002	0.005 ± 0.002	0.008 ± 0.002	0.011 ± 0.002
26-Jun-00	0.012 ± 0.002	0.007 ± 0.002	0.010 ± 0.002	0.007 ± 0.002	0.009 ± 0.002
Mean:	0.012 ± 0.001	0.013 ± 0.001	0.013 ± 0.001	0.008 ± 0.001	0.014 ± 0.001

(A) The air particulate filter was missing when collection was attempted.

2.b.2. AIR PARTICULATES GAMMA ANALYSIS OF QUARTERLY COMPOSITES (pCi/m<sup>3</sup>)Second Quarter 2000

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H08	0.1249 ± 0.0089	<0.0158	<0.0008	<0.0007	0.0158 ± 0.0021
H12	0.1301 ± 0.0103	<0.0202	<0.0007	<0.0008	0.0191 ± 0.0031
H14	0.1177 ± 0.0101	<0.0152	<0.0008	<0.0009	0.0229 ± 0.0024
H30	0.0848 ± 0.0083	<0.0184	<0.0010	<0.0009	0.0141 ± 0.0023
H34	0.1329 ± 0.0090	<0.0192	<0.0007	<0.0008	0.0161 ± 0.0026

## 3.a. SURFACE WATER - (pCi/L)

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	05-Apr-00	<135	311 ± 30	<4	<4	<8	<3	<8	<6	<6	<4	<4	<6
	11-Apr-00	<134	452 ± 34	<3	<3	<5	<4	<8	<6	<4	<4	<4	<8
	19-Apr-00	<134	385 ± 36	<4	<3	<8	<4	<8	<7	<7	<5	<4	<4
	24-Apr-00	<134	354 ± 16	<1	<2	<3	<2	<3	<2	<2	<2	<2	<3
	01-May-00	<124	354 ± 33	<4	<4	<8	<4	<8	<8	<6	<4	<3	<7
	11-May-00	<123	403 ± 35	<4	<3	<8	<5	<8	<5	<5	<3	<4	<6
	15-May-00	<123	369 ± 37	<3	<4	<8	<4	<8	<6	<5	<4	<4	<4
	23-May-00	<72	416 ± 34	<4	<3	<7	<4	<9	<6	<5	<4	<5	<10
	01-Jun-00	<123	387 ± 38	<4	<4	<6	<4	<8	<6	<7	<4	<4	<5
	06-Jun-00	<123	441 ± 39	<3	<4	<8	<3	<7	<6	<5	<3	<4	<5
	13-Jun-00	<123	360 ± 18	<1	<2	<4	<2	<3	<3	<3	<2	<2	<2
	19-Jun-00	<123	343 ± 36	<4	<3	<7	<5	<7	<8	<5	<5	<4	<6
	26-Jun-00	<122	357 ± 33	<3	<3	<8	<4	<7	<7	<4	<3	<4	<5
H59	05-Apr-00	<135	370 ± 37	<3	<3	<7	<4	<8	<6	<4	<4	<4	<8
	01-May-00	<124	327 ± 32	<4	<4	<8	<5	<8	<6	<7	<3	<4	<6
	06-Jun-00	<123	396 ± 31	<4	<4	<6	<4	<7	<5	<5	<4	<4	<4

(A) - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLDs.

(B) - These tabulated LLD values are for Ba-140, either based on direct measurement of Ba-140 or based on ingrowth of La-140, whichever method yields the greater sensitivity for a given sample.

3.b. SHORELINE SEDIMENT - (pCi/kg. dry weight)

Sample <u>Site</u>	Collection <u>Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-238</u>
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These samples were previously collected.

4.a.1. CRUSTACEA - (pCi/kg. wet weight)

Sample <u>Site</u>	Collection <u>Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
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These samples were previously collected.

4.a.2. FISH - (pCi/kg. wet weight)

Sample <u>Site</u>	Collection <u>Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
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These samples were previously collected.

4.b. BROADLEAF VEGETATION - Brazilian Pepper - (pCi/kg. wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>
H51	05-Apr-00	1472 ± 78	2931 ± 136	<16	<12	<11	1147 ± 274	<239
	01-May-00	1121 ± 75	3649 ± 154	<13	<11	20 ± 7	<686	<233
	06-Jun-00	642 ± 72	4446 ± 172	<18	<15	<15	<937	<262
H52	05-Apr-00	635 ± 60	5785 ± 206	<15	<13	<16	<913	<302
	01-May-00	816 ± 57	4203 ± 169	<14	<12	<14	<668	<242
	06-Jun-00	436 ± 55	4303 ± 159	<17	<12	<12	<760	<259
H59	05-Apr-00	634 ± 73	4424 ± 176	<13	<13	<15	<788	<243
	01-May-00	856 ± 74	4140 ± 156	<15	<12	<14	<672	<235
	06-Jun-00	804 ± 72	3067 ± 136	<18	<12	<12	<873	<283

## ST. LUCIE SITE

## Offsite Dose Calculation Manual Specification Sampling

Third Quarter 2000

<u>Sample Type</u>	<u>Collection Frequency</u>	<u>Locations Sampled</u>	<u>Number of Samples</u>
1. Direct Radiation	Quarterly	27	27
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Weekly	1	13
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	2	2
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	2
4.a.2. Fish	Semiannually	2	2
4.b. Food Products			
Broadleaf Vegetation	Monthly	3	9
			<hr/>
			Total: 188

NOTE: Measurement results having magnitudes that are significantly above the background of the measurement system are reported as net values plus or minus a one-standard-deviation error term. Measurement results that are not significantly above background are reported as less than a Lower Limit of Detection (<LLD), which is an estimated upper limit (with at least 95% confidence) for the true activity in the sample.

1. DIRECT RADIATION - TLDs - ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 14-Jun-00 Collection 11-Sep-00	Sample Site	Deployment 14-Jun-00 Collection 11-Sep-00
N-1	$4.7 \pm 0.2$	SW-2	$4.4 \pm 0.2$
		SW-5	$5.5 \pm 0.2$
NNW-5	$4.6 \pm 0.2$	SW-10	$4.8 \pm 0.2$
NNW-10	$4.9 \pm 0.2$		
		SSW-2	$4.5 \pm 0.2$
NW-5	$4.8 \pm 0.2$	SSW-5	$4.6 \pm 0.2$
NW-10	$6.0 \pm 0.2$	SSW-10	$5.0 \pm 0.2$
WNW-2	$4.5 \pm 0.2$	S-5	$4.6 \pm 0.2$
WNW-5	$4.6 \pm 0.2$	S-10	$4.7 \pm 0.2$
WNW-10	$4.5 \pm 0.2$		
		S/SSE-10	$4.6 \pm 0.2$
W-2	$4.4 \pm 0.2$		
W-5	$4.8 \pm 0.2$	SSE-5	$4.4 \pm 0.2$
W-10	$4.8 \pm 0.2$	SSE-10	$4.9 \pm 0.2$
WSW-2	$4.5 \pm 0.2$	SE-1	$4.3 \pm 0.2$
WSW-5	$4.6 \pm 0.2$		
WSW-10	$4.2 \pm 0.3$	H-32	$5.4 \pm 0.2$

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/ m<sup>3</sup>)

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
05-Jul-00	<0.01	<0.01	<0.01	<0.01	<0.03
10-Jul-00	<0.03	<0.07	<0.03	<0.03	<0.03
18-Jul-00	<0.02	<0.02	<0.02	<0.02	<0.02
28-Jul-00	<0.01	<0.01	<0.01	<0.01	<0.03
01-Aug-00	<0.02	<0.03	<0.03	<0.02	<0.04
07-Aug-00	<0.02	<0.02	<0.02	<0.02	<0.02
15-Aug-00	<0.01	<0.01	<0.01	<0.01	<0.01
23-Aug-00	<0.01	<0.01	<0.01	<0.01	<0.01
28-Aug-00	<0.02	<0.02	<0.03	<0.02	<0.03
06-Sep-00	<0.02	<0.02	<0.02	<0.02	<0.02
11-Sep-00	<0.03	<0.02	<0.03	<0.03	<0.02
19-Sep-00	<0.02	<0.02	<0.02	<0.02	<0.03
25-Sep-00	<0.03	<0.03	<0.04	<0.04	<0.03

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m<sup>3</sup>)

Collection Date	Sample Site				
	H08	H12	H14	H30	H34
05-Jul-00	0.011 ± 0.002	0.010 ± 0.002	0.014 ± 0.002	0.004 ± 0.001	0.013 ± 0.004
10-Jul-00	0.015 ± 0.003	0.012 ± 0.005	0.009 ± 0.003	0.007 ± 0.003	0.014 ± 0.003
18-Jul-00	0.020 ± 0.002	0.016 ± 0.002	0.011 ± 0.002	0.010 ± 0.002	0.017 ± 0.002
28-Jul-00	0.012 ± 0.002	0.013 ± 0.002	0.013 ± 0.002	0.008 ± 0.002	0.028 ± 0.005
01-Aug-00	0.009 ± 0.003	0.011 ± 0.003	0.006 ± 0.003	<0.007	0.008 ± 0.003
07-Aug-00	0.013 ± 0.002	0.010 ± 0.002	0.008 ± 0.002	0.010 ± 0.002	0.010 ± 0.002
15-Aug-00	0.015 ± 0.002	0.009 ± 0.002	0.011 ± 0.002	0.013 ± 0.002	0.014 ± 0.002
23-Aug-00	0.012 ± 0.002	0.015 ± 0.002	0.007 ± 0.002	0.011 ± 0.002	0.015 ± 0.002
28-Aug-00	0.010 ± 0.003	0.009 ± 0.003	0.011 ± 0.003	<0.007	0.008 ± 0.003
06-Sep-00	0.006 ± 0.001	0.010 ± 0.002	0.005 ± 0.001	0.009 ± 0.002	0.009 ± 0.002
11-Sep-00	0.005 ± 0.002	0.008 ± 0.002	0.006 ± 0.002	0.005 ± 0.002	0.007 ± 0.002
19-Sep-00	0.009 ± 0.002	0.008 ± 0.002	0.004 ± 0.002	0.007 ± 0.002	0.008 ± 0.002
25-Sep-00	0.016 ± 0.002	0.016 ± 0.003	0.017 ± 0.003	0.012 ± 0.002	0.018 ± 0.003
Mean:	0.012 ± 0.001	0.011 ± 0.001	0.009 ± 0.001	<0.008	0.013 ± 0.001

2.b.2. AIR PARTICULATES GAMMA ANALYSIS OF QUARTERLY COMPOSITES (pCi/m<sup>3</sup>)Third Quarter 2000

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.0857 ± 0.0069	<0.0200	<0.0009	<0.0005	0.0119 ± 0.0026
H12	0.0852 ± 0.0089	<0.0165	<0.0009	<0.0008	0.0139 ± 0.0027
H14	0.0742 ± 0.0092	<0.0150	<0.0007	<0.0009	<0.0084
H30	0.0648 ± 0.0102	<0.0202	<0.0007	<0.0010	0.0084 ± 0.0025
H34	0.1237 ± 0.0094	<0.0228	<0.0011	<0.0011	0.0179 ± 0.0037



## 3.a. SURFACE WATER - (pCi/L)

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	05-Jul-00	<<121	337 ± 15	<2	<2	<3	<2	<3	<3	<3	<2	<2	<2
	10-Jul-00	<122	309 ± 31	<3	<5	<6	<4	<8	<7	<5	<5	<4	<6
	18-Jul-00	<120	367 ± 32	<4	<3	<8	<4	<9	<6	<5	<4	<4	<6
	28-Jul-00	<120	318 ± 30	<3	<4	<9	<4	<10	<8	<9	<4	<4	<6
	01-Aug-00	<120	354 ± 34	<3	<4	<9	<3	<9	<6	<8	<4	<4	<6
	07-Aug-00	<120	382 ± 32	<4	<4	<9	<3	<9	<7	<8	<4	<3	<6
	15-Aug-00	<125	371 ± 31	<4	<3	<4	<5	<9	<6	<4	<4	<4	<5
	24-Aug-00	<124	386 ± 34	<4	<3	<5	<4	<8	<6	<4	<4	<4	<9
	28-Aug-00	<124	389 ± 34	<4	<3	<8	<5	<8	<7	<5	<4	<5	<6
	06-Sep-00	<121	389 ± 33	<4	<4	<7	<5	<9	<8	<7	<5	<4	<4
	12-Sep-00	<121	397 ± 36	<4	<4	<8	<4	<7	<6	<5	<4	<4	<7
	19-Sep-00	<121	344 ± 31	<3	<3	<8	<4	<7	<7	<5	<4	<4	<5
	25-Sep-00	<121	352 ± 33	<4	<4	<6	<4	<7	<7	<7	<4	<4	<6
H59	06-Jul-00	<122	359 ± 31	<4	<4	<7	<4	<9	<7	<6	<4	<4	<4
	01-Aug-00	<120	331 ± 35	<4	<4	<6	<4	<8	<6	<10	<4	<4	<6
	07-Sep-00	<121	362 ± 33	<4	<4	<7	<5	<8	<7	<6	<3	<4	<5

(A) - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLDs.

(B) - These tabulated LLD values are for Ba-140, either based on direct measurement of Ba-140 or based on ingrowth of La-140, whichever method yields the greater sensitivity for a given sample.

3.b. SHORELINE SEDIMENT - (pCi/kg, dry weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-238</u>
H15	08-Aug-00	<67	453 ± 45	<6	<6	<8	<8	<581	235 ± 99	86 ± 10	<441
H59	08-Aug-00	<69	497 ± 51	<6	<9	<9	<8	<569	258 ± 93	<43	<454

4.a.1. CRUSTACEA - (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	22-Aug-00	1586 ± 172	<22	<20	<44	<26	<37	<25	<21	<406	<132
H59	28-Jul-00	2042 ± 210	<19	<15	<48	<27	<52	<23	<23	<443	<114

4.a.2. FISH - (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	19-Jul-00	2598 ± 96	<8	<8	<17	<10	<18	<9	<8	<150	<32
H59	19-Jul-00	3083 ± 234	<24	<23	<52	<21	<48	<21	<26	<395	<100

## 4.b. BROADLEAF VEGETATION - Brazilian Pepper - (pCi/kg. wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Pb-210	Pb-212	Ra-226
H51	06-Jul-00	816 ± 76	3905 ± 151	<23	<11	<12	<764	<20	<245
	01-Aug-00	799 ± 75	3362 ± 143	<18	<11	<14	<866	<18	<250
	07-Sep-00	779 ± 65	3349 ± 147	<19	<13	<14	1253 ± 305	<20	<284
H52	06-Jul-00	890 ± 82	4416 ± 153	<28	<11	<11	<716	<18	<244
	01-Aug-00	1095 ± 70	6068 ± 204	<24	<13	<13	<961	<23	<271
	07-Sep-00	685 ± 29	3901 ± 72	<9	<5	<6	<353	<9	<115
H59	06-Jul-00	1042 ± 66	3976 ± 151	<25	<10	14 ± 4	<810	<21	<244
	01-Aug-00	772 ± 68	4674 ± 179	<20	<15	<13	<820	<21	<300
	07-Sep-00	713 ± 82	3351 ± 151	<18	<12	<15	<811	<18	<244

## ST. LUCIE SITE

## Technical Specifications Sampling

Fourth Quarter 2000

<u>Sample Type</u>	<u>Collection Frequency</u>	<u>Locations Sampled</u>	<u>Number of Samples</u>
1. Direct Radiation	Quarterly	27	26
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Weekly	1	13
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	0	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	0	0
4.a.2. Fish	Semiannually	0	0
4.b. Food Products			
Broadleaf Vegetation	Monthly	3	9
			<hr/>
			Total: 181

NOTE: Measurement results having magnitudes that are significantly above the background of the measurement system are reported as net values plus or minus a one-standard-deviation error term. Measurement results that are not significantly above background are reported as less than a Lower Limit of Detection (<LLD), which is an estimated upper limit (with at least 95% confidence) for the true activity in the sample.

1. DIRECT RADIATION - TLDs - ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 11-Sep-00 Collection 19-Dec-00	Sample Site	Deployment 11-Sep-00 Collection 19-Dec-00
N-1	$5.0 \pm 0.2$	SW-2	$4.9 \pm 0.2$
		SW-5	$6.3 \pm 0.2$
NNW-5	$5.1 \pm 0.2$	SW-10	(A)
NNW-10	$5.1 \pm 0.2$		
		SSW-2	$5.1 \pm 0.2$
NW-5	$5.3 \pm 0.2$	SSW-5	$5.4 \pm 0.2$
NW-10	$6.3 \pm 0.2$	SSW-10	$5.5 \pm 0.2$
WNW-2	$5.1 \pm 0.2$	S-5	$5.1 \pm 0.2$
WNW-5	$5.2 \pm 0.2$	S-10	$5.3 \pm 0.2$
WNW-10	$5.3 \pm 0.2$		
		S/SSE-10	$4.6 \pm 0.2$
W-2	$4.9 \pm 0.2$		
W-5	$5.4 \pm 0.2$	SSE-5	$4.8 \pm 0.2$
W-10	$5.4 \pm 0.2$	SSE-10	$5.0 \pm 0.2$
WSW-2	$4.9 \pm 0.2$	SE-1	$4.8 \pm 0.2$
WSW-5	$5.1 \pm 0.2$		
WSW-10	$4.4 \pm 0.2$	H-32	$5.9 \pm 0.2$

(A) – Site SW-10 TLD was missing upon collection attempt. A new TLD was deployed.

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/ m<sup>3</sup>)

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
05-Oct-00	<0.01	<0.01	<0.01	<0.01	<0.01
10-Oct-00	<0.02	<0.02	<0.02	<0.03	<0.02
16-Oct-00	<0.02	<0.02	<0.02	<0.02	<0.02
24-Oct-00	<0.01	<0.01	<0.01	<0.01	<0.01
02-Nov-00	<0.02	<0.02	<0.02	<0.02	<0.02
07-Nov-00	<0.03	<0.02	<0.03	<0.02	<0.02
13-Nov-00	<0.03	<0.03	<0.03	<0.03	<0.03
21-Nov-00	<0.02	<0.01	<0.01	<0.01	<0.01
27-Nov-00	<0.03	<0.02	<0.02	<0.03	<0.02
04-Dec-00	<0.02	<0.02	<0.02	<0.02	<0.02
12-Dec-00	<0.02	<0.02	<0.02	<0.02	<0.02
18-Dec-00	<0.02	<0.02	<0.02	<0.02	<0.02
27-Dec-00	<0.02	<0.01	<0.01	<0.01	<0.01

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m<sup>3</sup>)

Collection Date	Sample Site				
	H08	H12	H14	H30	H34
05-Oct-00	0.002 ± 0.001	0.005 ± 0.001	0.004 ± 0.001	0.002 ± 0.001	0.005 ± 0.001
10-Oct-00	0.012 ± 0.002	0.015 ± 0.002	0.007 ± 0.002	<0.008	0.010 ± 0.002
16-Oct-00	0.021 ± 0.003	0.028 ± 0.003	0.022 ± 0.003	0.016 ± 0.002	0.024 ± 0.003
24-Oct-00	0.032 ± 0.003	0.027 ± 0.002	0.029 ± 0.002	0.019 ± 0.002	0.027 ± 0.002
02-Nov-00	0.020 ± 0.002	0.017 ± 0.002	0.023 ± 0.002	0.010 ± 0.002	0.016 ± 0.002
07-Nov-00	0.031 ± 0.004	0.023 ± 0.003	0.029 ± 0.003	0.022 ± 0.003	0.023 ± 0.003
13-Nov-00	0.017 ± 0.002	0.017 ± 0.002	0.019 ± 0.003	0.014 ± 0.002	0.020 ± 0.003
21-Nov-00	0.018 ± 0.002	0.021 ± 0.002	0.019 ± 0.002	0.010 ± 0.002	0.015 ± 0.002
27-Nov-00	0.017 ± 0.002	0.018 ± 0.002	0.014 ± 0.002	0.010 ± 0.002	0.019 ± 0.003
04-Dec-00	0.024 ± 0.003	0.017 ± 0.002	0.023 ± 0.002	0.018 ± 0.002	0.025 ± 0.003
12-Dec-00	0.016 ± 0.002	0.014 ± 0.002	0.011 ± 0.002	0.011 ± 0.002	0.016 ± 0.002
18-Dec-00	0.010 ± 0.002	0.006 ± 0.002	0.010 ± 0.002	0.007 ± 0.002	0.005 ± 0.002
27-Dec-00	0.021 ± 0.002	0.023 ± 0.002	0.019 ± 0.002	0.015 ± 0.002	0.023 ± 0.002
Mean:	0.019 ± 0.001	0.018 ± 0.001	0.018 ± 0.001	<0.012	0.018 ± 0.001

2.b.2. AIR PARTICULATES GAMMA ANALYSIS OF QUARTERLY COMPOSITES (pCi/m<sup>3</sup>)Fourth Quarter 2000

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H08	0.1518 ± 0.0102	<0.0147	<0.0007	<0.0008	0.0361 ± 0.0038
H12	0.1688 ± 0.0134	<0.0130	<0.0006	<0.0007	0.0339 ± 0.0042
H14	0.1636 ± 0.0147	<0.0195	<0.0011	<0.0012	0.0390 ± 0.0072
H30	0.1279 ± 0.0126	<0.0132	<0.0009	<0.0008	0.0186 ± 0.0039
H34	0.1754 ± 0.0128	<0.0150	<0.0006	<0.0007	0.0301 ± 0.0039

## 3.a. SURFACE WATER - (pCi/L)

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	05-Oct-00	<120	331 ± 30	<4	<4	<8	<4	<7	<6	<6	<4	<4	<6
	11-Oct-00	<120	291 ± 31	<4	<4	<7	<4	<6	<5	<4	<4	<4	<11
	16-Oct-00	<120	326 ± 31	<4	<3	<9	<4	<8	<7	<9	<4	<4	<5
	24-Oct-00	<120	376 ± 33	<3	<3	<8	<5	<9	<7	<7	<4	<4	<6
	02-Nov-00	<119	330 ± 31	<4	<4	<8	<4	<8	<7	<6	<3	<4	<5
	07-Nov-00	<119	375 ± 31	<4	<3	<6	<4	<8	<7	<7	<4	<4	<5
	13-Nov-00	<116	409 ± 33	<3	<4	<7	<4	<8	<5	<4	<3	<4	<6
	21-Nov-00	<116	348 ± 33	<4	<4	<8	<3	<8	<7	<6	<4	<4	<6
	27-Nov-00	<116	324 ± 32	<4	<4	<7	<4	<9	<7	<5	<6	<4	<5
	05-Dec-00	<116	376 ± 32	<3	<4	<7	<5	<7	<6	<4	<4	<3	<5
	12-Dec-00	<113	343 ± 33	<4	<4	<7	<4	<8	<7	<4	<4	<4	<5
	18-Dec-00	<132	384 ± 23	<2	<2	<4	<2	<4	<3	<4	<2	<2	<2
	27-Dec-00	<124	346 ± 34	<2	<3	<6	<2	<5	<4	<4	<3	<3	<4
H59	05-Oct-00	<120	357 ± 35	<4	<4	<7	<4	<8	<7	<7	<4	<4	<5
	07-Nov-00	<116	338 ± 33	<3	<3	<7	<4	<7	<6	<8	<3	<4	<5
	05-Dec-00	<116	371 ± 31	<4	<4	<9	<5	<10	<7	<7	<4	<3	<6

(A) - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLDs.

(B) - These tabulated LLD values are for Ba-140, either based on direct measurement of Ba-140 or based on ingrowth of La-140, whichever method yields the greater sensitivity for a given sample



3.b. SHORELINE SEDIMENT - (pCi/kg, dry weight)

Sample	Collection										
<u>Site</u>	<u>Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-238</u>

These samples were previously collected.

4.a.1. CRUSTACEA - (pCi/kg, wet weight)

Sample	Collection										
<u>Site</u>	<u>Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>

These samples were previously collected.

4.a.2. FISH - (pCi/kg, wet weight)

Sample	Collection										
<u>Site</u>	<u>Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>

These samples were previously collected.

## 4.b. BROADLEAF VEGETATION - Brazilian Pepper - (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Pb-212</u>	<u>Ra-226</u>
H51	05-Oct-00	782 ± 61	3711 ± 150	<14	<11	<13	<799	<19	<241
	07-Nov-00	1119 ± 62	3326 ± 137	<12	<11	<11	<838	<22	<233
	05-Dec-00	995 ± 68	5587 ± 173	<22	<11	<11	<848	<20	<241
H52	05-Oct-00	977 ± 77	5471 ± 179	<16	<14	<10	<880	<21	<282
	07-Nov-00	767 ± 59	4047 ± 155	<11	<10	<11	<910	<21	<246
	05-Dec-00	993 ± 73	3465 ± 153	<24	<13	34 ± 6	<982	<20	<275
H59	05-Oct-00	336 ± 24	2020 ± 51	<6	<4	27 ± 3	<303	<7	<99
	07-Nov-00	516 ± 62	3073 ± 128	<9	<9	<12	<764	<19	<225
	05-Dec-00	786 ± 70	2415 ± 115	<19	<10	34 ± 5	1023 ± 285	<16	<214

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ST. LUCIE PLANT - UNITS 1 & 2**

**ATTACHMENT C**

**RESULTS FROM THE INTERLABORATORY**

**COMPARISON PROGRAM 2000**

**DEPARTMENT OF ENERGY**

**QAP 52, June 2000**

**AND**

**QAP 53, December 2000**

## DOE-QAP 52 RESULTS

Radionuclide	Reported Value	Reported Error	EML Value	EML Error	Reported EML	Evaluation
<b>Matrix: AI Air Filter Bq/filter</b>						
AM241	0.080	0.010	0.088	0.005	0.909	A
CO57	6.060	0.060	5.310	0.220	1.141	W
CO60	5.740	0.070	5.320	0.260	1.079	A
CS137	6.800	0.100	6.100	0.300	1.115	A
GROSS ALPHA	2.240	0.080	3.020	0.300	0.742	W
GROSS BETA	2.830	0.080	2.420	0.200	1.169	A
MN54	30.260	0.040	27.200	0.800	1.112	A
RU106	2.100	0.700	2.010	1.940	1.045	A
<b>Matrix: SO Soil Bq/kg</b>						
AC228	89.000	4.000	97.600	4.200	0.912	A
AM241	1.600	0.700	3.360	0.510	0.476	N
BI212	89.000	4.000	106.000	7.000	0.840	A
BI214	93.000	2.000	86.700	3.800	1.073	A
Bq U	256.000	8.000	229.000	23.000	1.118	A
CS137	333.000	5.000	339.000	9.300	0.982	A
K40	790.000	20.000	811.000	29.000	0.974	A
PB212	93.000	2.000	97.300	4.600	0.956	A
PB214	98.000	2.000	86.500	6.800	1.113	A
TH234	128.000	4.000	130.000	5.000	0.985	A
<b>Matrix: VE Vegetation Bq/kg</b>						
AM241	10.000	1.000	10.400	1.400	0.962	A
CO60	53.900	0.700	52.800	1.000	1.021	A
CS137	1515.000	2.000	1380.000	20.000	1.098	A
K40	580.000	10.000	521.000	20.000	1.113	A
<b>Matrix: WA Water Bq/L</b>						
AM241	2.000	0.500	1.950	0.180	1.026	A
CO60	51.500	0.300	48.900	1.800	1.053	A
CS137	109.500	0.900	103.000	4.000	1.063	A
GROSS ALPHA	1780.000	30.000	1700.000	170.000	1.047	A
GROSS BETA	980.000	20.000	690.000	70.000	1.420	W
H3	84.000	3.000	79.400	2.500	1.058	A
NI63	95.000	1.000	112.000	11.000	0.848	A
SR90	2.780	0.020	3.390	0.120	0.820	W

Evaluation: A = Acceptable, W = Acceptable with Warning, N = Not Acceptable

## DOE-QAP 53 RESULTS

Radionuclide	Reported Value	Reported Error	EML Value	EML Error	Reported EML	Evaluation
<b>Matrix: AI Air Filter Bq/filter</b>						
AM241	0.040	0.020	0.032	0.001	1.250	A
CO57	16.490	0.040	14.550	0.460	1.133	A
CO60	8.900	0.100	8.430	0.480	1.056	A
CS137	8.130	0.060	7.410	0.360	1.097	A
GROSS ALPHA	2.260	0.050	2.350	0.150	0.962	A
GROSS BETA	1.800	0.040	1.520	0.150	1.184	A
MN54	46.900	0.300	43.200	1.300	1.086	A
<b>Matrix: SO Soil Bq/kg</b>						
AC228	71.420	1.740	80.200	3.600	0.891	A
AM241	7.290	1.220	8.270	0.700	0.881	A
BI212	89.540	6.160	80.500	6.600	1.112	W
BI214	89.180	1.620	83.300	4.200	1.071	A
CS137	999.980	2.180	1020.000	51.000	0.980	A
K40	663.800	3.40	713.000	38.000	0.931	A
PB212	77.740	2.350	79.300	4.300	0.980	A
PB214	58.170	12.990	86.300	4.300	0.674	N
TH234	108.650	5.370	148.000	10.000	0.734	W
U238	108.650	5.370	163.000	10.000	0.667	W
<b>Matrix: VE Vegetation Bq/kg</b>						
AM241	5.980	0.430	5.600	0.670	1.068	A
CO60	31.420	0.280	32.800	1.300	0.958	A
CS137	871.480	2.490	867.000	44.000	1.005	A
K40	626.520	8.550	639.000	34.000	0.980	A
<b>Matrix: WA Water Bq/L</b>						
AM241	1.190	0.230	1.190	0.045	1.000	A
CO60	72.690	0.180	73.700	2.900	0.986	A
CS137	67.980	0.460	67.000	3.500	1.015	A
GROSS ALPHA	1202.950	16.750	1070.000	100.000	1.124	W
GROSS BETA	1051.180	10.110	950.000	90.000	1.107	A
H3	121.120	3.380	91.300	.0300	1.327	W

Evaluation: A = Acceptable, W = Acceptable with Warning, N = Not Acceptable