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L-88-165

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

Gentlemen:

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
1987 Annual Radiological
Environmental Operating Report

This letter transmits the subject report in accordance with Technical Specification 6.9.1.8 for St. Lucie Units 1 and 2.

Should there be any questions on this information, please contact us.

Very truly yours,

W. F. Conway
Acting Group Vice President
Nuclear Energy

WFC/GMR/gp

Enclosure

cc: Dr. J. Nelson Grace, Regional Administrator,
Region II, USNRC
Senior Resident Inspector, USNRC, St. Lucie Plant

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GRMR.EOR

1987

ANNUAL

RADIOLOGICAL ENVIRONMENTAL

OPERATING REPORT

ST. LUCIE PLANT

UNIT NOS. 1 AND 2

License Nos. DPR-67, NPF-16

Docket Nos. 50-335, 50-389

Data Submitted By: Florida DHRS

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1987
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT - UNITS NOS. 1 AND 2

TABLE OF CONTENTS

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ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT - UNITS NOS. 1 AND 2

I. INTRODUCTION

This report is submitted pursuant to Specification 6.9 of St. Lucie Unit No. 1 and St. Lucie Unit No. 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 No. 1 and Unit No. 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 measureable 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 for the St. Lucie Plant is conducted pursuant to Technical Specifications 3/4.12 of St. Lucie Unit No. 1 and St. Lucie Unit No. 2 Technical Specifications.

1. Sample Locations, Types and Frequencies:

   a. Direct radiation gamma exposure rate is monitored continuously at 27 locations by thermoluminescent dosimeters (TLD's). TLD's 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.

   d. Bottom 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 and Rehabilitative Services (HRS). Samples are collected and analyzed by HRS personnel. Samples are analyzed at the HRS 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 is provided in Attachment B.

D. Land Use Census: A land use census out to a distance of 5 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 sixteen meteorological sectors. A summary of the land use census for the surveillance year is provided in Table 2, Land Use Census Summary.

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

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.

E. Interlaboratory Comparison Program: The State of Florida Environmental Radiation Control Laboratory participates in the Environmental Radioactivity Laboratory Intercomparison Studies Program conducted by the Environmental Protection Agency. Results from the Interlaboratory Comparison Program are provided in Attachment C.

III. DISCUSSION AND INTERPRETATION OF RESULTS

A. Reporting of Results: The Annual Radiological Environmental Operating Report contains the summaries, interpretations and information required by the St. Lucie Plant, Unit Nos. 1 & 2 Technical Specifications. Table 1 provides a summary of the measurements made for the nuclides required by Technical Specifications, 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 ^{40}K, ^{232}Th, ^{226}Ra, ^{228}Ra, ^{7}Be, ^{238}U, and ^{210}Pb which are common in the Florida environment.

B. Interpretation of Results

1. Direct Radiation: The results for 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 preoperational 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 ^{131}I. Gamma isotopic measurements yielded no indication of any nuclides attributed to station opeation. The results for air particulate/radioiodine samples are consistent with measurements which were made during the preoperational surveillance program. Air particulate and radioiodine monitoring results are summarized in Table 1.

3. Surface Water: The results for radioactivity measurements in surface water samples are consistent with past measurements. Tritium was reported as present in four of the weekly surface water samples collected from Site H-15. Although very close to the sample detection limit (MDA), the reported tritium could be attributed to station operation. Subsequent samples indicate there has been no increase nor adverse trend for tritium in surface water samples at H15. The highest measured tritium was less than 0.8% of the reporting level specified by plant technical specifications, Table 3.12-2. No other nuclides attributed to station operation were detected. Results for surface water samples are summarized in Table 1.

4. Waterborne Sediment and Food Products: The results for radioactivity measurements in waterborne sediment, fish and crustacea samples are consistent with past measurements and with measurements made during the preoperational surveillance program. There were no indications of any radionuclides attributed to plant effluents. Results for the waterborne sediment, fish and crustacea samples are summarized in Table 1.

5. Broad Leaf Vegetation: The results for radioactivity measurements in broad leaf vegetation are consistent with past measurements and with measurements made during the preoperational surveillance program. There were no indications of any nuclides attributed to plant effluents. Results for the broad leaf vegetation samples are summarized in Table 1.

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 Unit Nos. 1 & 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 Unit Nos. 1 and 2 Docket No.(s) 50-335 and 50-389

Location of Facility St.Lucie, Florida Reporting Period January 1 - December 31, 1987
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean[c] Name / Distance & Direction	Mean (f)[b] Range	Control Locations Mean (f) Range	Number of Nonroutine Reported Measurements
DIRECT RADIATION							
TLD (mciro-R/hr)	Exposure Rate 105[d]	-	5.3 (105/105)	NW-10 10 miles, NW	6.4 (4/4) 6.3-6.5	6.1 (4/4) 5.9-6.4	0
AIRBORNE							
Radioiodines (pCi/m^3)	^{131}I 260	0.024	< MDA	-	-	< MDA	0
Air Particulates (pCi/m^3)	Gross Beta 260	0.0025	0.012 (260/260) 0.004-0.024	H-08 6 miles, WNW	0.014 (52/52) 0.004-0.024	0.012 (52/52) 0.005-0.023	0
	Gamma Isotopic Composities; 20						
	^{7}Be	0.0052	0.130 (20/20) 0.103-0.194	H-34 0.5 miles, N	0.144 (4/4) 0.123-0.176	0.125 (4/4) 0.107-0.137	0
	^{40}K	0.012	0.015 (1/20)	H-30 2 miles, W	0.015 (1/4)	< MDA	0
	^{134}Cs	0.00069	< MDA	-	-	< MDA	0

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AIR PARTICULATES (cont'd)	Gamma Isotopic Composite (cont'd)						
	^{137}Cs	0.00066	0.0032 (5/20) 0.0025-0.0039	H-30 2 miles, W	0.0039 (1/4)	0.0029 (1/4)	0
	^{210}Pb	-	0.035 (2/20) 0.034-0.036	H-08 6 miles, WNW	0.036 (1/4)	< MDA	0
WATERBORNE							
Surface Water	Tritium 64	230	160 (4/64) 120-250	H-15 < 1 mile ENE/E/ESE	160 (4/52) 120-250	< MDA	0
	^{40}K	60	310 (64/64) 230-390	H-15 < 1 mile ENE/E/ESE	310 (52/52) 230-390	310 (12/12) 280-350	0
	^{54}Mn	4	< MDA	—	—	< MDA	0
	^{59}Fe	8	< MDA	—	—	< MDA	0
	^{58}Co	4	< MDA	—	—	< MDA	0
	^{60}Co	4	< MDA	—	—	< MDA	0
	^{65}Zn	8	< MDA	—	—	< MDA	0
	$^{95}Zr-Nb$	7	< MDA	—	—	< MDA	0

TABLE 1

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AIR PARTICULATES (cont'd)	^{131}I	5	< MDA	-	-	< MDA	0
	^{134}Cs	5	< MDA	-	-	< MDA	0
	^{137}Cs	5	< MDA	-	-	< MDA	0
	$^{140}Ba-La$	11	< MDA	-	-	< MDA	0

TABLE 1

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WATERBORNE							
Sediment (pci/kg, dry)	Gamma Isotopic[c] 4						
	^{40}K	140	400 (4/4) 270-550	H-15 < 1 mile ENE/E/ESE	460 (2/2) 370-550	340 (2/2) 270-400	0
	^{226}Ra	49	250 (4/4) 190-380	H-59 10-20 miles S/SSE	300 (2/2) 220-380	300 (2/2) 220-380	0
	^{228}Ra	-	115 (2/4) 90-140	H-59 10-20 miles, S/SSE	140 (1/2)	140 (1/2)	0
	^{232}Th	52	86 (2/4) 46-126	H-59 10-20 miles, S/SSE	126 (1/2)	126 (1/2)	0
	^{238}U	-	200 (1/4)	H-15 < 1 mile, ENE/E/ESE	200 (1/2)	< MDA	0
	^{7}Be	100	< MDA	-	-	< MDA	0
	^{58}Co	9	< MDA	-	-	< MDA	0
	^{60}Co	12	< MDA	-	-	< MDA	0
	^{134}Cs	14	< MDA	-	-	< MDA	0
	^{137}Cs	12	< MDA	-	-	< MDA	0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

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INGESTION							
Crustacea (pCi/kg, wet)	Gamma Isotopic 3						
	^{40}K	130	1630 (3/3) 1300-2000	H-59 10-20 mile S/SSE	1800 (2/2) 1600-2000	1800 (2/2) 1600-2000	0
	^{226}Ra	20	120 (3/3) 90-150	H-15 < 1 mile, ENE/E/ESE	150 (1/1)	105 (2/2) 90-120	0
	^{232}Th	30	110 (1/3)	H-15 < 1 mile, ENE/E/ESE	110 (1/1)	< MDA	0
	^{54}Mn	9	< MDA	-	-	< MDA	0
	^{59}Fe	16	< MDA	-	-	< MDA	0
	^{58}Co	9	< MDA	-	-	< MDA	0
	^{60}Co	19	< MDA	-	-	< MDA	0
	^{65}Zn	17	< MDA	-	-	< MDA	0
	^{134}Cs	9	< MDA	-	-	< MDA	0
	^{137}Cs	9	< MDA	-	-	< MDA	0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD) [a]	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean [c] Name Distance & Direction	Mean (f) [b] Range	Control Locations Mean (f) Range	Number of Nonroutine Reported Measurements
INGESTION (cont'd)							
Fish (pCi/kg, wet)	Gamma Isotopic 4						
	^{40}K	130	3200 (4/4) 2900-3700	H-59 10-20 miles, S/SSE	3300 (2/2) 2900-3700	3300 (2/2) 2900-3700	0
	^{137}Cs	9	21 (1/4)	H-59 10-20 miles, S/SSE	21 (1/2)	21 (1/2)	0
	^{54}Mn	9	< MDA	-	-	< MDA	0
	^{59}Fe	16	< MDA	-	-	< MDA	0
	^{58}Co	9	< MDA	-	-	< MDA	0
	^{60}Co	10	< MDA	-	-	< MDA	0
	^{65}Zn	17	< MDA	-	-	< MDA	0
	^{134}Cs	9	< MDA	-	-	< MDA	0
	^{226}Ra	18	< MDA	-	-	< MDA	0
	^{232}Th	26	< MDA	-	-	< MDA	0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Name of Facility St. Lucie Unit Nos. 1 and 2 Docket No.(s) 50-335 and 50-389

Location of Facility St.Lucie, Florida Reporting Period January 1 - December 31, 1987
(County, State)

Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD) [a]	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean [c] Name Distance & Direction	Mean (f) [b] Range	Control Locations Mean (f) Range	Number of Nonroutine Reported Measurements
INGESTION (cont'd)							
Broad Leaf Vegetation (pCi/kg, wet)	Gamma Isotopic 36						
	^{7}Be	71	550 (36/36) 300-1080	H-51 1 mile N/NNW	600 (12/12) 350-930	480 (12/12) 300-910	0
	^{40}K	100	2540 (36/36) 1320-4100	H-59 10-20 miles S/SSE	2840 (12/12) 2100-4100	2840 (12/12) 2100-4100	0
	^{226}Ra	18	22 (1/36)	H-59 10-20 miles, S/SSE	22 (12/12)	22 (1/12)	0
	^{131}I	9	< MDA	-	-	< MDA	0
	^{134}Cs	8	< MDA	-	-	< MDA	0
	^{137}Cs	8	< MDA	-	-	< MDA	0

TABLE 1

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.

   LLD's 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 are based upon the average net response of two TLDs. (Thermoluminescent dosimeters).

MDA refers to minimum detectable activity.

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ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT, UNIT NOS. 1 & 2

TABLE 1A

DEVIATIONS/MISSING DATA

Date	Location	Description of Problem	Deviation(s)	Corrective Action
12/09/86 to 03/25/87	S/SSE-10	TLD's & utility pole they were mounted on was removed. TLD's not found.	Failure to continuously monitor exposure monitoring at this location for the First Quarter 1987.	Replaced TLD's upon discovery of situation.
03/25/87 to 06/17/87	SSE-5	TLD's stolen from holder.	Failure to continuously monitor exposure monitoring at this location for the Second Quarter 1987.	Replaced TLD's upon discovery of situation.
First half of year	H-15 < 1 mile ENE/E/ESE	Crustacea sampling was unsuccessful despite numerous attempts.	Missing data point for that period of time. Note: Second semi-annual collection effort was successful.	-- None --
09/16/87 to 12/16/87	S/SSE-10	TLD's stolen from holder.	Failure to provide continuous exposure monitoring at this location for the Fourth Quarter 1987.	Replaced TLD's upon discovery of situation.

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ST. LUCIE UNIT NOS. 1 & 2

TABLE 1B

ANALYSES WITH LLDs ABOVE TABLE 4.12-1 DETECTION CAPABILITIES
1/1/87 - 12/31/87

Date	Sample Type	Location	Radionuclide	MDA	Table 4.12-1 LLD	Reason for Deviation

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

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ST. LUCIE PLANT - UNITS NOS. 1 AND 2

TABLE 2

LAND USE CENSUS

DISTANCE TO NEAREST (a, b)

Sector	6/87 Milk (c) Animal	6/87 Residence	6/87 Garden (d)
N	0 (e)	0	0
NNE	0	0	0
NE	0	0	0
ENE	0	0	0
E	0	0	0
ESE	0	0	0
SE	0	1.5/141	0
SSE	L (f)	3.7/152(g)	L
S	L	3.2/191	L
SSW	L	2.2/213	3.1/195
SW	L	1.9/236	1.9/234
WSW	3.7/248	1.9/245(h)	1.9/258
W	4.5/266	1.9/260	2.1/275
WNW	2.6/290	2.3/281	2.6/290
NW	4.9/306	3.5/304	3.7/306
NNW	L	L	L

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ST. LUCIE PLANT - UNITS NOS. 1 AND 2

TABLE 2 NOTES

LAND USE CENSUS

(a) All categories surveyed out to 5 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) 0 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 this sector include the following:

- Fire Station, 1.8/149
- County Club, 3.4/153

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

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ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT - UNITS NOS. 1 AND 2

ATTACHMENT A

KEY TO SAMPLE LOCATIONS

RADIOLOGICAL ENVIRONMENTAL SURVEILLANCE
ST. LUCIE PLANT
Key to Sample Locations

PATHWAY	LOCATION	DESCRIPTION	SAMPLES COLLECTED	SAMPLE COLLECTION FREQUENCY	APPROXIMATE DISTANCE (miles)	DIRECTION SECTOR
Direct Radiation	N-1	North of Blind Creek	TLD	Quarterly	1	N
Direct Radiation	NNW-5	South of Pete Stone Creek	TLD	Quarterly	5	NNW
Direct Radiation	NNW-10	C. G. Station	TLD	Quarterly	9	NNW
Direct Radiation	NW-5	Indian River Drive at Rio Vista Drive	TLD	Quarterly	6	NW
Direct Radiation	NW-10	Intersection of SR 68 and SR 607	TLD	Quarterly	10	NW
Direct Radiation	WNW-2	Cemetery South of 7107 Indian River Drive	TLD	Quarterly	3	WNW
Direct Radiation	WNW-5	US-1 at SR 712	TLD	Quarterly	5	WNW
Direct Radiation	WNW-10	SR 70, West of Turnpike	TLD	Quarterly	10	WNW
Direct Radiation	W-2	7609 Indian River Drive	TLD	Quarterly	2	W
Direct Radiation	W-5	Oleander and Sagar Streets	TLD	Quarterly	5	W
Direct Radiation	W-10	I-95 and SR 709	TLD	Quarterly	9	W
Direct Radiation	WSW-2	8503 Indian River Drive	TLD	Quarterly	2	WSW
Direct Radiation	WSW-5	Prima Vista Blvd. at Yacht Club	TLD	Quarterly	5	WSW
Direct Radiation	WSW-10	Del Rio and Davis Streets	TLD	Quarterly	10	WSW
Direct Radiation	SW-2	9207 Indian River Drive	TLD	Quarterly	2	SW
Direct Radiation	SW-5	US 1 and Village Green Drive	TLD	Quarterly	5	SW
Direct Radiation	SW-10	Port St. Lucie Blvd. and Cairo Road	TLD	Quarterly	10	SW
Direct Radiation	SSW-2	10307 Indian River Drive	TLD	Quarterly	3	SSW
Direct Radiation	SSW-5	Port St. Lucie Blvd. and US 1	TLD	Quarterly	6	SSW
Direct Radiation	SSW-10	Pine Valley and Westmoreland Roads	TLD	Quarterly	8	SSW
Direct Radiation	S-5	13179 Indian River Drive	TLD	Quarterly	5	S

RADIOLOGICAL ENVIRONMENTAL SURVEILLANCE
ST. LUCIE PLANT
Key to Sample Locations

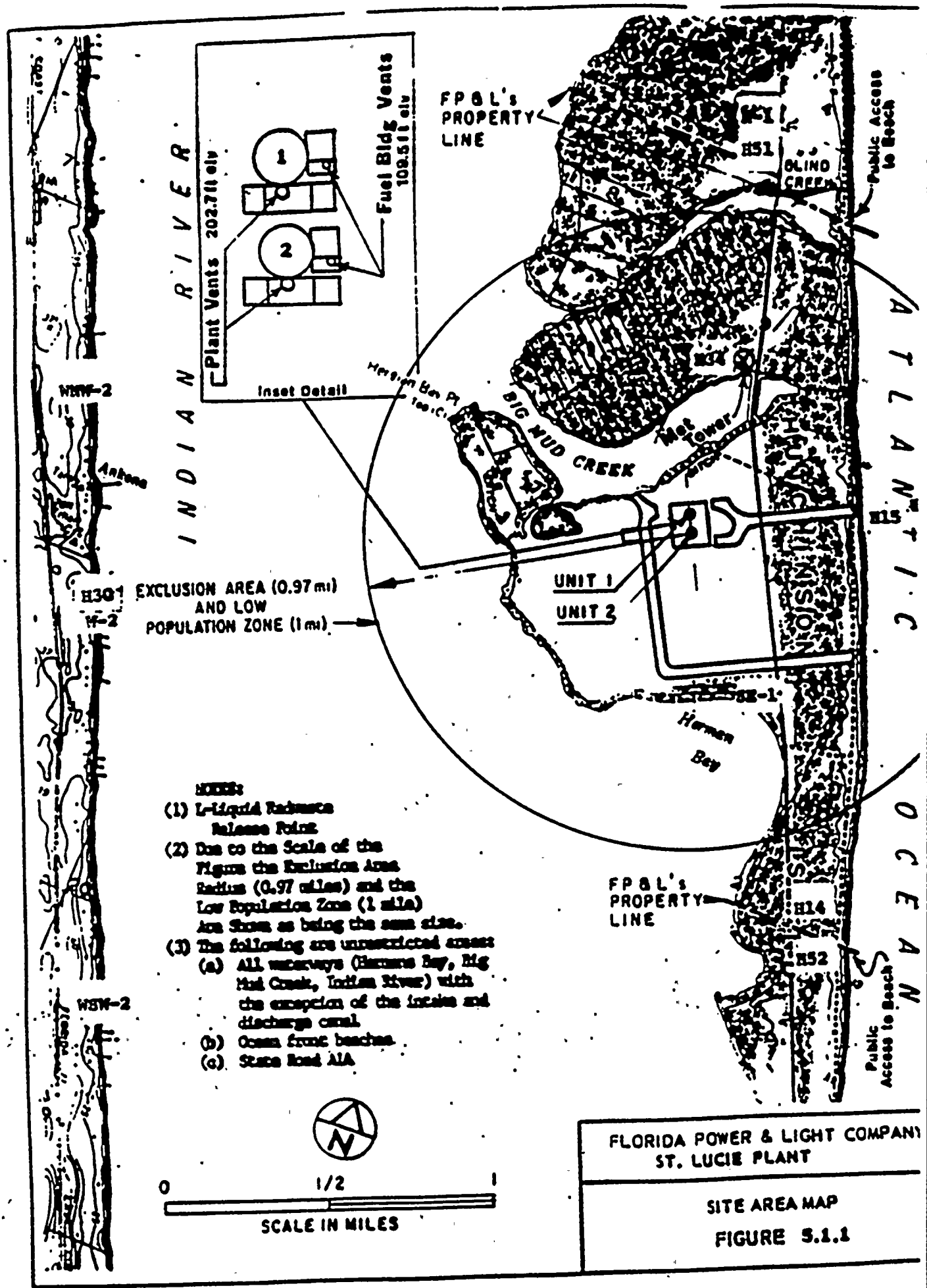
PATHWAY	LOCATION	DESCRIPTION	SAMPLES COLLECTED	SAMPLE COLLECTION FREQUENCY	APPROXIMATE DISTANCE (miles)	DIRECTION SECTOR
Direct Radiation	S-10	US 1 and SR 714	TLD	Quarterly	10	S
Direct Radiation	S/SSE-10	Indian River Drive and Quail Run Lane	TLD	Quarterly	10	SSE
Direct Radiation	SSE-5	Entrance of Nettles Island	TLD	Quarterly	5	SSE
Direct Radiation	SSE-10	Elliot Museum	TLD	Quarterly	10	SSE
Direct Radiation	SE-1	South of Cooling Canal	TLD	Quarterly	1	SE
Direct Radiation	*41-32	U. of Florida-IFAS Entomology Lab Vero Beach	TLD	Quarterly	19	NNW
Airborne	H08	FPL Substation - Westherby Road	Radioiodine & Particulates	Weekly	6	NNW
Airborne	*H12	FPL Substation - SR 76, Stuart	Radioiodine & Particulates	Weekly	12	S
Airborne	H14	Onsite - near south property line	Radioiodine & Particulates	Weekly	1	SE
Airborne	H30	Power Line - 7609 Indian River Drive	Radioiodine & Particulates	Weekly	2	W
Airborne	H34	Onsite - At Meteorological Tower	Radioiodine & Particulates	Weekly	0.5	N
Waterborne	W15	Atlantic Ocean vicinity of public beaches east side of Route AlA	Surface Water (ocean) Sediment From shoreline	Weekly Semi-Annually	<1	NNE/E/ESE
Waterborne	*W59	Near south end of Hutchinson Island	Surface Water (ocean) Sediment From shoreline	Monthly Semi-Annually	10-20	S/SSE

* Denotes Control Sample

RADIOLOGICAL ENVIRONMENTAL SURVEILLANCE
ST. LUCIE PLANT
Key to Sample Locations

PATHWAY	LOCATION	DESCRIPTION	SAMPLES COLLECTED	SAMPLE COLLECTION FREQUENCY	APPROXIMATE DISTANCE (miles)	DIRECTION SECTOR
Food Products	H15	Ocean side vicinity of St. Lucie Plant	Crustacea Fish	Semi-Annually Semi-Annually	< 1	ENE/E/ESE
Food Products	H51	Offsite near north property line	Broad leaf vegetation (mangrove)	Monthly (when available)	1	N/NNW
Food Products	H52	Offsite near south property line	Broad leaf vegetation (mangrove)	Monthly (when available)	1	S/SSE
Food Products	*H59	Near south end of Hutchinson Island	Crustacea Fish Broad leaf vegetation (mangrove)	Semi-Annually Semi-Annually Monthly	10-20	S/SSE

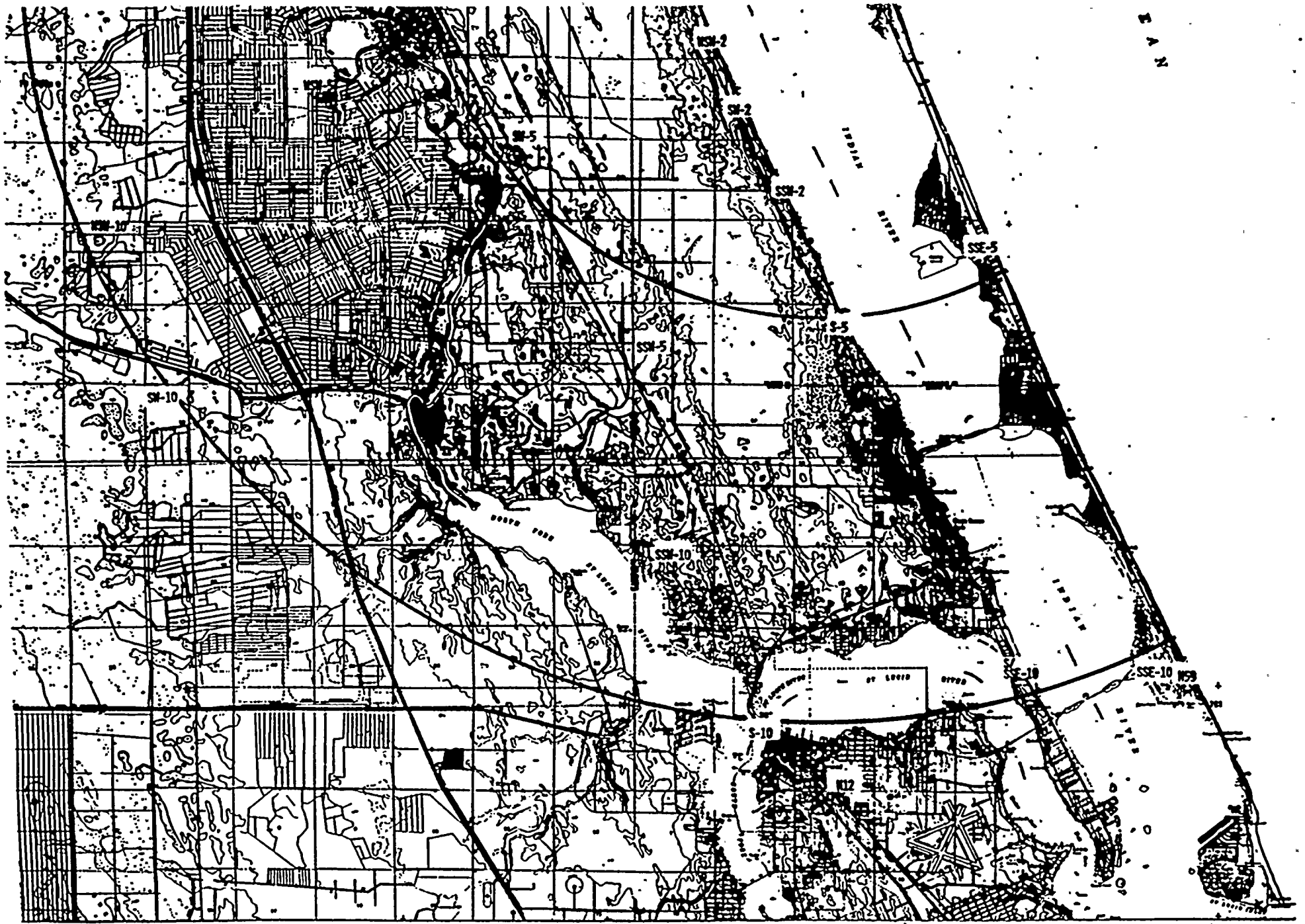
* Denotes control sample



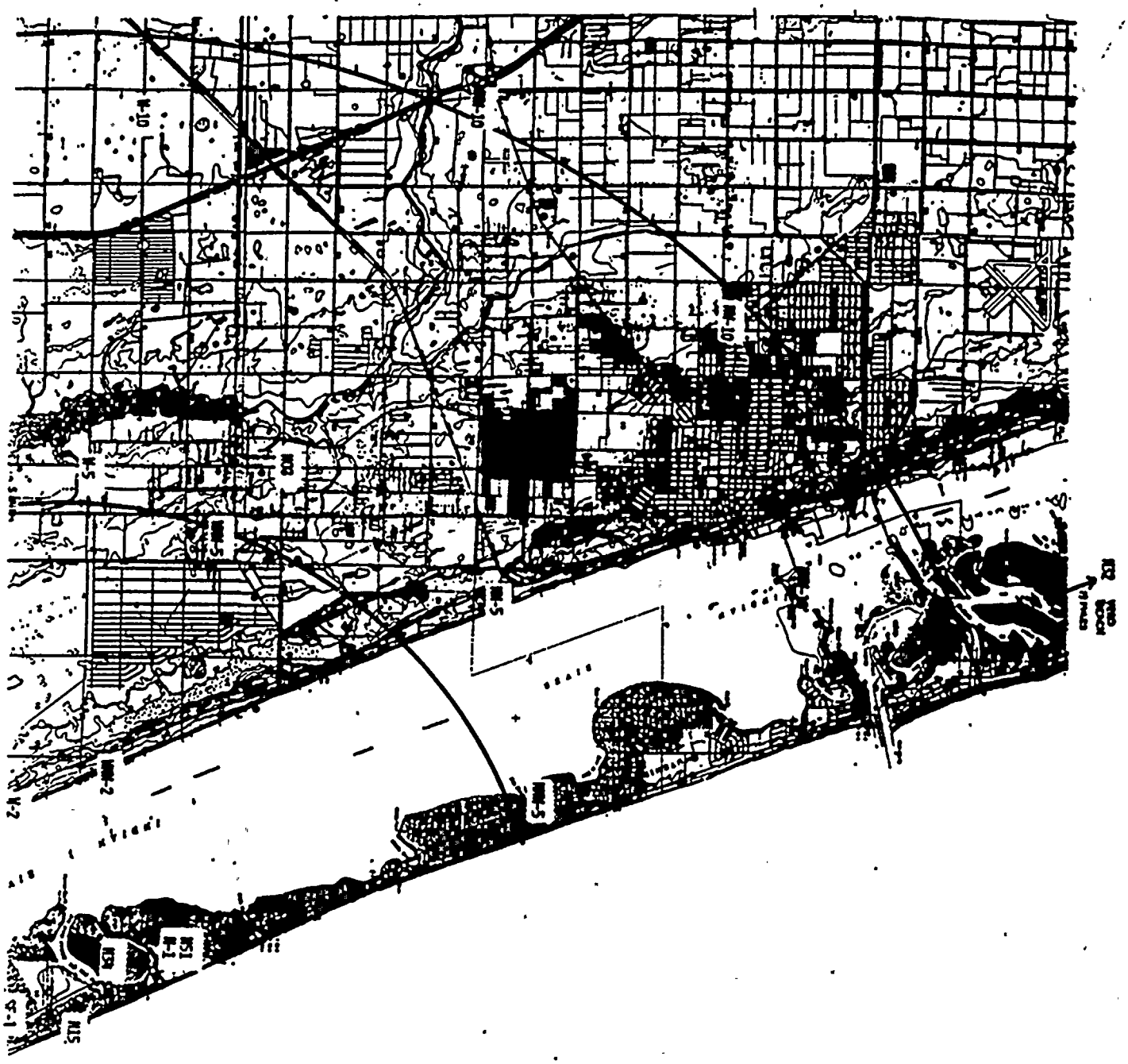
FLORIDA POWER & LIGHT COMPANY
ST. LUCIE PLANT

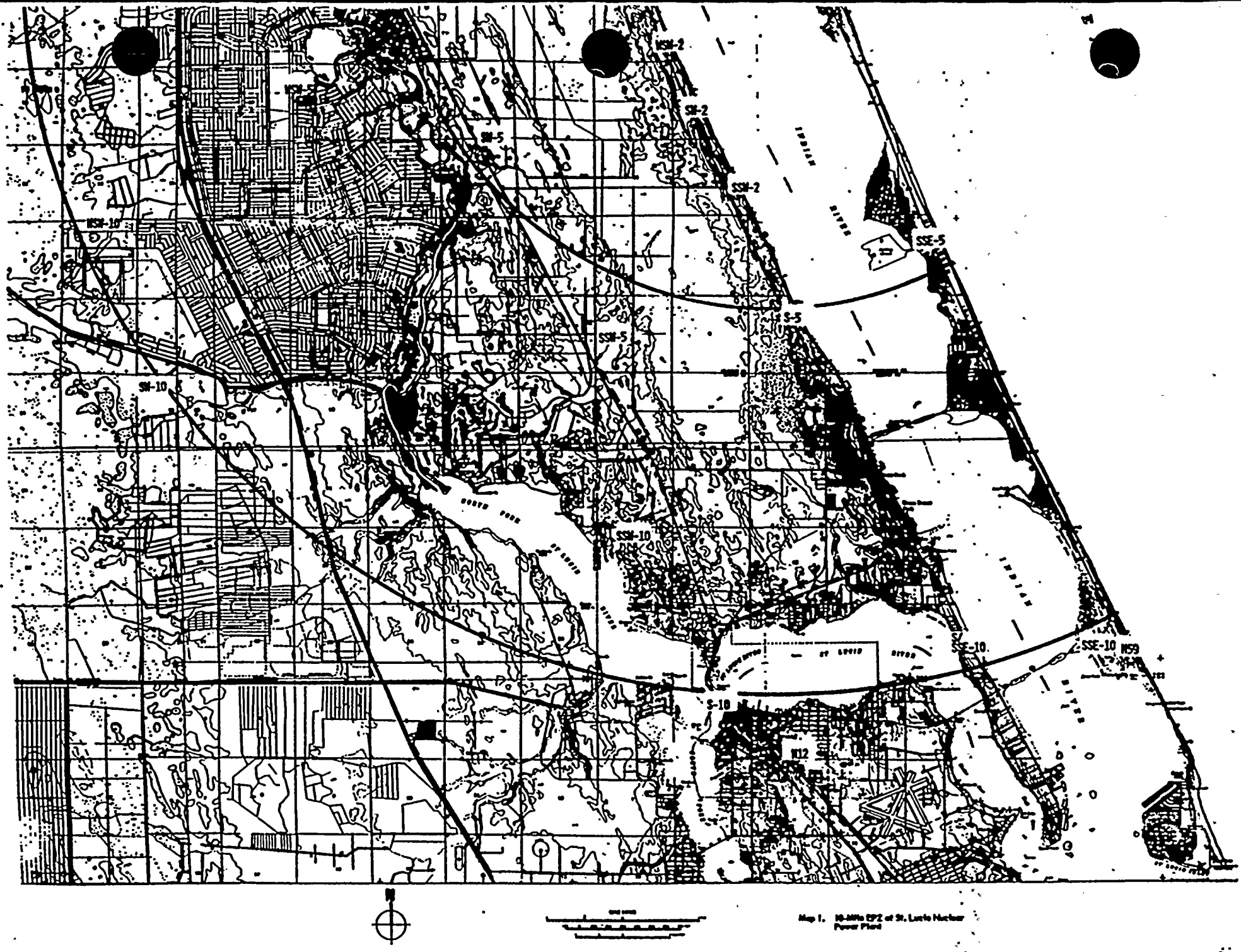
SITE AREA MAP

FIGURE 5.1.1



Map 1. 10-Mile EPZ at St. Lucie Nuclear Power Plant


ATLANTIC



Map 1. 10-Mile EPZ at St. Lucie Nuclear Power Plant

1987
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT - UNITS NOS. 1 AND 2

ATTACHMENT B

RADIOLOGICAL SURVEILLANCE OF
FLORIDA POWER AND LIGHT COMPANY'S

ST. LUCIE SITE

1987

First Quarter, 1987
Second Quarter, 1987
Third Quarter, 1987
Fourth Quarter, 1987

RADIOLOGICAL SURVEILLANCE OF

FLORIDA POWER AND LIGHT COMPANY'S

ST. LUCIE SITE

First Quarter, 1987

Office of Radiation Control

Florida Department of Health
and Rehabilitative Services

ST. LUCIE SITE

Technical Specifications Sampling

First Quarter, 1987

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	27	52
2. Airborne			
2.a Air Iodines	Weekly	5	65
2.b Air Particulates	Weekly	5	69*
3. Waterborne			
3.a Surface Water	Weekly	1	13
	Monthly	1	3
3.b Shoreline sediment	Semiannually	2	3*
4. Ingestion			
4.a Fish and Invertebrates			
4.a.1 Crustacea	Semiannually	2	1
4.a.2 Fish	Semiannually	2	2
4.b Food Products			
4.b.1 Broadleaf Vegetation	Monthly	3	9
			Total: 217

* - Includes DOE split samples.

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 <u>not</u> significantly above background are reported as "non-detectable" (ND) or 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.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

First Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Each result is the average net response of two dosimeters.

Sample Site	Deployment / Collection	12-09-87 / 03-25-87
N-1	5.2 ± 0.3	
NNW-5	5.2 ± 0.3	
NNW-10	5.1 ± 0.3	
NW-5	5.3 ± 0.3	
NW-10	6.5 ± 0.3	
WNW-2	5.6 ± 0.3	
WNW-5	5.3 ± 0.3	
WNW-10	5.3 ± 0.3	
W-2	5.6 ± 0.3	
W-5	5.5 ± 0.3	
W-10	5.3 ± 0.3	
WSW-2	5.3 ± 0.3	
WSW-5	5.2 ± 0.3	
WSW-10	4.9 ± 0.3	
SW-2	4.8 ± 0.3	
SW-5	5.0 ± 0.3	
SW-10	5.2 ± 0.3	
SSW-2	5.1 ± 0.3	
SSW-5	4.8 ± 0.3	
SSW-10	5.4 ± 0.3	
S-5	5.1 ± 0.3	
S-10	5.5 ± 0.3	
S/SSE-10	(A)	
SSE-5	5.7 ± 0.3	
SSE-10	5.3 ± 0.3	
SE-1	5.1 ± 0.3	
H-32	6.0 ± 0.3	

Notes:

A. The dosimeters for site S/SSE-10 were missing when collection was attempted. The utility pole upon which they were mounted had been removed. Efforts to locate the missing dosimeters were not successful. New dosimeters were deployed in this vicinity.

B. These results have been determined with the assumption that fading is negligible, although detailed testing to confirm this has not been completed.

C. Testing to confirm compliance with NRC Reg. Guide 4.13 and ANSI N545-1975 performance standards has not been completed.

2.a IODINE-131 IN WEEKLY AIR FILTERS - (pCi/m^3)

Collection Date	Sample Site H08	H12	H14	H30	H34
01-06-87	<0.03	<0.03	<0.03	<0.03	<0.03
01-13-87	<0.03	<0.03	<0.03	<0.03	<0.03
01-20-87	<0.02	<0.02	<0.02	<0.02	<0.02
01-27-87	<0.02	<0.02	<0.02	<0.02	<0.02
02-03-87	<0.03	<0.03	<0.03	<0.03	<0.03
02-10-87	<0.03	<0.03	<0.03	<0.03	<0.03
02-17-87	<0.02	<0.02	<0.02	<0.02	<0.02
02-24-87	<0.02	<0.02	<0.02	<0.02	<0.02
03-03-87	<0.02	<0.02	<0.02	<0.02	<0.02
03-10-87	<0.03	<0.03	<0.03	<0.03	<0.03
03-18-87	<0.02	<0.02	<0.02	<0.02	<0.02
03-24-87	<0.04	<0.04	<0.04	<0.04	<0.04
03-31-87	<0.03	<0.03	<0.03	<0.03	<0.03

2.b AIR PARTICULATES - GROSS BETA - (pCi/m^3)

Collection Date	Sample Site H08	H12	H14	H30	H34
01-06-87	0.016 ± 0.002	0.008 ± 0.002	0.010 ± 0.002	0.015 ± 0.002	0.010 ± 0.002
01-13-87	0.015 ± 0.002	0.013 ± 0.002	0.018 ± 0.002	0.014 ± 0.002	0.014 ± 0.002
01-20-87	0.012 ± 0.002	0.010 ± 0.002	0.012 ± 0.002	0.011 ± 0.002	0.010 ± 0.002
01-27-87	0.010 ± 0.002	0.010 ± 0.002	0.011 ± 0.002	0.007 ± 0.002	0.011 ± 0.002
02-03-87	0.014 ± 0.002	0.009 ± 0.002	*0.017 ± 0.002	0.014 ± 0.002	0.015 ± 0.002
02-10-87	0.006 ± 0.002	0.006 ± 0.002	*0.008 ± 0.002	0.007 ± 0.002	0.009 ± 0.002
02-17-87	0.010 ± 0.002	0.011 ± 0.002	*0.020 ± 0.002	0.015 ± 0.002	0.014 ± 0.002
02-24-87	0.011 ± 0.002	0.009 ± 0.002	*0.009 ± 0.002	0.010 ± 0.002	0.013 ± 0.002
03-03-87	0.016 ± 0.002	0.012 ± 0.002	0.014 ± 0.002	0.013 ± 0.002	0.011 ± 0.002
03-10-87	0.013 ± 0.002	0.010 ± 0.002	0.015 ± 0.002	0.009 ± 0.002	0.010 ± 0.002
03-18-87	0.018 ± 0.002	0.018 ± 0.002	0.020 ± 0.002	0.014 ± 0.002	0.019 ± 0.002
03-24-87	0.015 ± 0.002	0.013 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.014 ± 0.002
03-31-87	0.010 ± 0.002	0.012 ± 0.002	0.006 ± 0.001	0.007 ± 0.002	0.006 ± 0.002
Means:	0.013 ± 0.001	0.011 ± 0.001	0.013 ± 0.001	0.011 ± 0.001	0.012 ± 0.001

* - DOE split samples.

2.b AIR PARTICULATES - GAMMA SCANS OF QUARTERLY COMPOSITES - (pCi/m^3)

First Quarter, 1987

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.121 ± 0.008	<0.022	<0.0008	<0.0008	0.036 ± 0.016
H12	0.127 ± 0.009	<0.024	<0.0008	<0.0007	<0.035
H14	0.112 ± 0.009	<0.024	<0.0008	<0.0007	0.034 ± 0.013
H30	0.109 ± 0.009	<0.025	<0.0007	<0.0007	<0.032
H34	0.123 ± 0.009	<0.026	<0.0008	<0.0008	<0.036

3.a SURFACE WATER - (pCi/l)

Sample Site	Collection Date	H-3	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	01-06-87	<190	240 ± 50	<5	<9	<4	<4	<10	<8	<6	<5	<5	<5
	01-13-87	<260	270 ± 60	<4	<10	<4	<4	<12	<8	<8	<5	<5	<6
	01-20-87	<230	330 ± 50	<3	<11	<5	<4	<8	<7	<7	<4	<4	<8
	01-27-87	<230	300 ± 50	<5	<9	<4	<5	<9	<8	<4	<4	<4	<8
	02-03-87	<180	290 ± 50	<5	<10	<4	<4	<9	<7	<8	<5	<3	<8
	02-10-87	<180	390 ± 50	<4	<9	<5	<5	<11	<7	<6	<5	<4	<5
	02-17-87	<180	310 ± 50	<3	<9	<4	<5	<10	<8	<7	<4	<4	<6
	02-24-87	<180	310 ± 60	<4	<11	<4	<5	<9	<7	<4	<5	<5	<8
	03-03-87	<180	340 ± 60	<4	<8	<5	<6	<10	<7	<6	<4	<4	<6
	03-10-87	<180	290 ± 50	<4	<10	<4	<5	<9	<9	<5	<4	<5	<8
	03-18-87	<180	300 ± 50	<5	<9	<4	<5	<9	<7	<6	<4	<4	<7
	03-24-87	<180	280 ± 50	<3	<12	<3	<4	<8	<8	<7	<5	<4	<7
	03-31-87	<180	350 ± 50	<3	<9	<4	<4	<10	<6	<8	<4	<5	<6
H59	01-06-87	<190	310 ± 50	<5	<9	<4	<6	<11	<9	<7	<5	<4	<6
	02-04-87	<180	280 ± 50	<4	<13	<3	<4	<9	<9	<8	<4	<4	<8
	03-04-87	<180	330 ± 50	<4	<10	<4	<5	<8	<8	<5	<5	<3	<11

(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.

4.b.1 BROADLEAF VEGETATION - Mangrove - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H51	01-07-87	930 ± 50	2500 ± 100	<12	<7	<7
	02-04-87	800 ± 50	2000 ± 100	<14	<8	<8
	03-04-87	700 ± 70	1600 ± 200	<13	<16	<14
H52	01-07-87	500 ± 50	2800 ± 100	<12	<9	<9
	02-04-87	670 ± 50	3100 ± 100	<13	<7	<7
	03-04-87	400 ± 60	2100 ± 100	<11	<10	<14
H59	01-06-87	910 ± 60	3100 ± 100	<14	<11	<11
	02-04-87	490 ± 50	1900 ± 100	<11	<8	<7
	03-04-87	590 ± 70	2300 ± 200	<12	<14	<14

RADIOLOGICAL SURVEILLANCE OF FLORIDA POWER AND LIGHT COMPANY'S ST. LUCIE SITE

Second Quarter, 1987

Office of Radiation Control

Florida Department of Health
and Rehabilitative Services

ST. LUCIE SITE

Technical Specifications Sampling

Second Quarter, 1987

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	27	52
2. Airborne			
2.a Air Iodines	Weekly	5	60
2.b Air Particulates	Weekly	5	64*
3. Waterborne			
3.a Surface Water	Weekly	1	12
	Monthly	1	3
3.b Shoreline sediment	Semiannually	0	0
4. Ingestion			
4.a Fish and Invertebrates			
4.a.1 Crustacea	Semiannually	1	0
4.a.2 Fish	Semiannually	0	0
4.b Food Products			
4.b.1 Broadleaf Vegetation	Monthly	3	9
			Total: 200

* - Includes DOE split samples.

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 "non-detectable" (ND) or 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.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

Second Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Each result is the average net response of two dosimeters.

Sample Site	Deployment Collection 03-25-87 06-17-87	
N-1	5.0 ± 0.3	
NNW-5	4.9 ± 0.3	
NNW-10	5.1 ± 0.3	
NW-5	5.2 ± 0.3	
NW-10	6.3 ± 0.3	
WNW-2	5.3 ± 0.3	
WNW-5	5.2 ± 0.3	<(A)
WNW-10	5.0 ± 0.3	
W-2	5.2 ± 0.3	
W-5	5.2 ± 0.3	
W-10	5.2 ± 0.3	
WSW-2	4.9 ± 0.3	
WSW-5	5.2 ± 0.3	
WSW-10	4.5 ± 0.2	
SW-2	4.9 ± 0.3	
SW-5	4.8 ± 0.3	
SW-10	5.2 ± 0.3	
SSW-2	5.1 ± 0.3	
SSW-5	5.1 ± 0.3	
SSW-10	5.3 ± 0.3	
S-5	5.2 ± 0.3	
S-10	5.2 ± 0.3	
S/SSE-10	5.1 ± 0.3	<(B)
SSE-5		<(C)
SSE-10	5.1 ± 0.3	
SE-1	4.9 ± 0.3	
H-32	6.1 ± 0.3	

See notes on the following page.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

Second Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Notes:

(A) The TLDs at site WNW-5 were relocated to across the street from their previous location on 4-14-87 due to construction operations and impending removal of the utility pole on which they were mounted.

(B) The TLDs for site S/SSE-10 had been temporarily relocated during this sample interval to a pole about 50 feet south of their usual location due to construction operations there. The new dosimeters for the next sampling interval were installed at the original location.

(C) The dosimeters for site SSE-5 were missing when collection was attempted. The empty holder was intact on the utility pole. A search of the area failed to locate the missing dosimeters. We suspect that the dosimeters were stolen.

(D) These results have been determined with the assumption that fading is negligible, although detailed testing to confirm this has not been completed.

(E) Testing to confirm compliance with NRC Reg. Guide 4.13 and ANSI N545-1975 performance standards has not been completed.

2.a IODINE-131 IN WEEKLY AIR FILTERS - (pCi/m^3)

Collection Date	Sample Site				
	H08	H12	H14	H30	H34
04-07-87	<0.03	<0.03	<0.03	<0.03	<0.03
04-14-87	<0.02	<0.02	<0.02	<0.02	<0.02
04-21-87	<0.03	<0.03	<0.03	<0.03	<0.03
04-28-87	<0.02	<0.02	<0.02	<0.02	<0.02
05-06-87	<0.02	<0.02	<0.02	<0.02	<0.02
05-12-87	<0.02	<0.03	<0.02	<0.03	<0.02
05-19-87	<0.02	<0.02	<0.02	<0.02	<0.02
05-27-87	<0.03	<0.03	<0.03	<0.03	<0.02
06-02-87	<0.02	<0.02	<0.02	<0.02	<0.02
06-08-87	<0.03	<0.03	<0.03	<0.02	<0.02
06-16-87	<0.02	<0.02	<0.02	<0.02	<0.02
06-23-87	<0.02	<0.02	<0.02	<0.02	<0.02

2.b AIR PARTICULATES - GROSS BETA - (pCi/m^3)

Collection Date	Sample Site H08	H12	H14	H30	H34
04-07-87	0.014 ± 0.002	0.017 ± 0.002	0.019 ± 0.002	0.020 ± 0.002	0.020 ± 0.002
04-14-87	0.017 ± 0.002	0.020 ± 0.002	0.012 ± 0.002	0.016 ± 0.002	0.017 ± 0.002
04-21-87	0.015 ± 0.002	0.014 ± 0.002	0.009 ± 0.002	0.014 ± 0.002	0.016 ± 0.002
04-28-87	0.019 ± 0.002	0.014 ± 0.002	0.009 ± 0.002	0.018 ± 0.002	0.016 ± 0.002
05-06-87	0.024 ± 0.002	0.015 ± 0.002	*0.016 ± 0.002	0.016 ± 0.002	0.016 ± 0.002
05-12-87	0.012 ± 0.002	0.017 ± 0.002	*0.009 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
05-19-87	0.013 ± 0.002	0.014 ± 0.002	*0.012 ± 0.002	0.013 ± 0.002	0.012 ± 0.002
05-27-87	0.015 ± 0.002	0.012 ± 0.002	*0.010 ± 0.002	0.011 ± 0.002	0.013 ± 0.002
06-02-87	0.006 ± 0.002	0.007 ± 0.002	0.007 ± 0.002	0.005 ± 0.002	0.006 ± 0.002
06-08-87	0.013 ± 0.002	0.011 ± 0.002	0.008 ± 0.002	0.009 ± 0.002	0.007 ± 0.002
06-16-87	0.012 ± 0.002	0.010 ± 0.002	0.010 ± 0.002	0.008 ± 0.002	0.010 ± 0.002
06-23-87	0.010 ± 0.002	0.012 ± 0.002	0.008 ± 0.002	0.012 ± 0.002	0.010 ± 0.002
Means:	0.014 ± 0.001	0.014 ± 0.001	0.011 ± 0.001	0.013 ± 0.001	0.013 ± 0.001

* - DOE split samples.

2.b AIR PARTICULATES - GAMMA SCANS OF QUARTERLY COMPOSITES - (pCi/m^3)

Second Quarter, 1987

Sample Site	Be-7	K-40	Cs-134	Cs-137
H08	0.123 ± 0.009	<0.028	<0.0007	<0.0009
H12	0.130 ± 0.009	<0.017	<0.0008	<0.0008
H14	0.110 ± 0.008	<0.017	<0.0008	<0.0008
H30	0.129 ± 0.009	<0.017	<0.0009	<0.0007
H34	0.138 ± 0.010	<0.024	<0.0008	<0.0008

3.a SURFACE WATER - (pCi/l)

Sample Site	Collection Date	H-3	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	04-07-87	<190	320 ± 50	<4	<9	<5	<5	<12	<8	<7	<5	<5	<6
	04-14-87	<190	370 ± 50	<5	<11	<4	<5	<11	<7	<7	<4	<5	<6
	04-21-87	<200	370 ± 60	<4	<11	<4	<6	<10	<8	<6	<4	<4	<6
	04-28-87	<190	290 ± 60	<4	<8	<4	<4	<7	<8	<5	<5	<4	<5
	05-05-87	<190	280 ± 50	<4	<10	<4	<4	<11	<7	<7	<5	<4	<4
	05-12-87	<190	250 ± 50	<3	<10	<4	<5	<10	<7	<5	<4	<5	<6
	05-19-87	<190	330 ± 60	<4	<12	<4	<4	<10	<7	<5	<5	<4	<8
	05-27-87	<190	300 ± 50	<5	<8	<4	<5	<10	<7	<6	<5	<4	<7
	06-02-87	<180	300 ± 50	<4	<11	<4	<3	<9	<7	<4	<4	<5	<10
	06-08-87	<180	360 ± 50	<5	<11	<5	<6	<8	<10	<10	<4	<5	<7
	06-16-87	<180	370 ± 50	<4	<7	<4	<5	<10	<7	<5	<4	<4	<5
	06-23-87	<180	230 ± 50	<4	<9	<3	<4	<8	<8	<6	<5	<5	<8
H59	04-08-87	<190	310 ± 50	<4	<10	<4	<4	<11	<8	<8	<5	<4	<7
	05-06-87	<190	340 ± 50	<5	<10	<5	<4	<11	<8	<7	<4	<4	<5
	06-03-87	<200	320 ± 50	<4	<10	<4	<5	<9	<6	<5	<5	<4	<13

(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.

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

Sample Site	Collection Date	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Cs-134	Cs-137	Ra-226
H15	This sample was not available despite numerous attempts at collection.									

4.b.1 BROADLEAF VEGETATION - Mangrove - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H51	04-08-87	660 ± 60	1800 ± 100	<14	<8	<7
	05-06-87	530 ± 40	2400 ± 100	<11	<8	<7
	06-03-87	350 ± 30	1320 ± 90	<6	<6	<7
H52	04-08-87	630 ± 50	2800 ± 100	<12	<8	<7
	05-06-87	360 ± 40	2300 ± 100	<10	<7	<7
	06-03-87	430 ± 40	2000 ± 100	<5	<7	<7
H59	04-08-87	640 ± 50	2100 ± 100	<12	<10	<9
	05-06-87	380 ± 40	2700 ± 100	<12	<6	<8
	06-03-87	300 ± 40	3000 ± 100	<8	<9	<8

RADIOLOGICAL SURVEILLANCE OF
FLORIDA POWER AND LIGHT COMPANY'S
ST. LUCIE SITE

Third Quarter, 1987

Office of Radiation Control

Florida Department of Health
and Rehabilitative Services

ST. LUCIE SITE

Technical Specifications Sampling

Third Quarter, 1987

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	27	54
2. Airborne			
2.a Air Iodines	Weekly	5	70
2.b Air Particulates	Weekly	5	74*
3. Waterborne			
3.a Surface Water	Weekly	1	14
	Monthly	1	3
3.b Shoreline sediment	Semiannually	2	3*
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			
4.b.1 Broadleaf Vegetation	Monthly	3	9
			Total: 231

* - Includes DOE split samples.

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 "non-detectable" (ND) or 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.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

Third Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Each result is the average net response of two dosimeters.

Sample Site	Deployment 06-17-87 Collection 09-16-87	
N-1	5.2 ± 0.3	
NNW-5	4.9 ± 0.3	
NNW-10	5.0 ± 0.3	
NW-5	5.2 ± 0.3	
NW-10	6.4 ± 0.3	
WNW-2	5.2 ± 0.3	
WNW-5	5.0 ± 0.3	
WNW-10	5.2 ± 0.3	
W-2	5.6 ± 0.3	
W-5	5.5 ± 0.3	
W-10	5.3 ± 0.3	
WSW-2	5.2 ± 0.3	
WSW-5	5.2 ± 0.3	
WSW-10	4.8 ± 0.3	
SW-2	4.8 ± 0.3	
SW-5	4.7 ± 0.2	
SW-10	5.4 ± 0.3	
SSW-2	5.2 ± 0.3	
SSW-5	5.3 ± 0.3	
SSW-10	5.6 ± 0.3	
S-5	5.5 ± 0.3	<(A)
S-10	5.9 ± 0.3	
S/SSE-10	5.2 ± 0.3	
SSE-5	5.8 ± 0.3	
SSE-10	5.6 ± 0.3	
SE-1	5.5 ± 0.3	
H-32	6.4 ± 0.3	

See the notes on the following page.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

Third Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Notes:

(A) The TLDs at site S-5 were re-hung on a new utility pole on 7-14-87 after the old pole was knocked down by a motor vehicle a few days earlier.

(B) These results have been determined with the assumption that fading is negligible, although detailed testing to confirm this has not been completed.

(C) Testing to confirm compliance with NRC Reg. Guide 4.13 and ANSI N545-1975 performance standards has not been completed.

2.a IODINE-131 IN WEEKLY AIR FILTERS - (pCi/m^3)

Collection Date	Sample Site H08	H12	H14	H30	H34
07-01-87	<0.02	<0.02	<0.02	<0.02	<0.02
07-07-87	<0.03	<0.03	<0.03	<0.03	<0.05(A)
07-14-87	<0.02	<0.02	<0.02	<0.02	<0.02
07-21-87	<0.02	<0.02	<0.03	<0.02	<0.03
07-28-87	<0.03	<0.03	<0.03	<0.03	<0.03
08-04-87	<0.02	<0.02	<0.02	<0.02	<0.03
08-11-87	<0.02	<0.02	<0.02	<0.02	<0.02
08-18-87	<0.02	<0.02	<0.03	<0.02	<0.03
08-25-87	<0.02	<0.02	<0.03	<0.03	<0.03
09-01-87	<0.02	<0.02	<0.03	<0.02	<0.03
09-08-87	<0.03	<0.03	<0.03	<0.03	<0.03
09-15-87	<0.03	<0.03	<0.03	<0.03	<0.03
09-22-87	<0.04	<0.04	<0.04	<0.04	<0.04
09-29-87	<0.03	<0.03	<0.03	<0.03	<0.03

(A) This sample had a low collected volume due to a low flowrate setting.

2.b AIR PARTICULATES - GROSS BETA - (pCi/m^3)

Collection Date	Sample Site H08	H12	H14	H30	H34
07-01-87	0.012 ± 0.002	0.007 ± 0.002	0.006 ± 0.001	0.009 ± 0.002	0.008 ± 0.002
07-07-87	0.005 ± 0.002	0.011 ± 0.002	0.007 ± 0.002	0.011 ± 0.002	(A0.009 ± 0.003
07-14-87	0.019 ± 0.002	0.018 ± 0.002	0.010 ± 0.002	0.013 ± 0.002	0.017 ± 0.002
07-21-87	0.011 ± 0.002	0.009 ± 0.002	0.006 ± 0.002	0.011 ± 0.002	0.010 ± 0.002
07-28-87	0.021 ± 0.002	0.023 ± 0.002	0.018 ± 0.002	0.024 ± 0.002	0.019 ± 0.002
08-04-87	0.007 ± 0.002	0.009 ± 0.002	*0.007 ± 0.002	0.010 ± 0.002	0.009 ± 0.002
08-11-87	0.017 ± 0.002	0.017 ± 0.002	*0.019 ± 0.002	0.014 ± 0.002	0.018 ± 0.002
08-18-87	0.018 ± 0.002	0.017 ± 0.002	*0.020 ± 0.002	0.016 ± 0.002	0.016 ± 0.002
08-25-87	0.018 ± 0.002	0.018 ± 0.002	*0.011 ± 0.002	0.015 ± 0.002	0.020 ± 0.002
09-01-87	0.013 ± 0.002	0.013 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.015 ± 0.002
09-08-87	0.006 ± 0.001	0.005 ± 0.001	0.008 ± 0.002	0.006 ± 0.002	0.009 ± 0.002
09-15-87	0.018 ± 0.002	0.011 ± 0.002	0.009 ± 0.002	0.009 ± 0.002	0.011 ± 0.002
09-22-87	0.008 ± 0.002	0.009 ± 0.002	0.008 ± 0.002	0.010 ± 0.002	0.010 ± 0.002
09-29-87	0.024 ± 0.002	0.014 ± 0.002	0.017 ± 0.002	0.019 ± 0.002	0.021 ± 0.002
Means:	0.014 ± 0.001	0.013 ± 0.001	0.011 ± 0.001	0.013 ± 0.001	0.014 ± 0.001

* - DOE split samples.

(A) This sample had a low collected volume due to a low flowrate setting.

2.b AIR PARTICULATES - GAMMA SCANS OF QUARTERLY COMPOSITES - (pCi/m^3)

Third Quarter, 1987

Sample Site	Be-7	K-40	Cs-134	Cs-137
H08	0.119 ± 0.010	<0.025	<0.0007	0.0025 ± 0.0004
H12	0.107 ± 0.009	<0.025	<0.0008	0.0029 ± 0.0004
H14	0.103 ± 0.009	<0.023	<0.0008	0.0035 ± 0.0005
H30	0.116 ± 0.011	0.015 ± 0.008	<0.0006	0.0039 ± 0.0004
H34	0.140 ± 0.011	<0.018	<0.0009	0.0032 ± 0.0006

3.a SURFACE WATER - (pCi/l)

Sample Site	Collection Date	H-3	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	07-01-87	<190	340 ± 50	<4	<10	<4	<5	<7	<7	<7	<5	<4	<7
	07-07-87	<180	330 ± 50	<4	<13	<5	<4	<11	<7	<7	<5	<5	<8
	07-14-87	<180	310 ± 50	<4	<9	<5	<5	<10	<9	<9	<5	<5	<7
	07-21-87	<180	320 ± 50	<5	<10	<4	<5	<10	<9	<9	<4	<5	<8
	07-28-87	<180	310 ± 50	<4	<9	<4	<5	<10	<6	<4	<4	<4	<6
	08-05-87	<190	390 ± 50	<4	<9	<4	<6	<10	<9	<7	<5	<4	<6
	08-11-87	130 ± 60	370 ± 50	<5	<13	<5	<5	<9	<8	<8	<5	<5	<8
	08-18-87	<190	300 ± 50	<4	<10	<5	<5	<9	<8	<10	<5	<4	<6
	08-26-87	120 ± 60	340 ± 50	<4	<9	<4	<6	<10	<6	<6	<4	<4	<5
	09-01-87	140 ± 60	280 ± 40	<5	<10	<6	<5	<11	<9	<8	<6	<5	<5
	09-08-87	<190	330 ± 50	<5	<9	<5	<5	<11	<7	<6	<5	<5	<10
	09-15-87	<190	380 ± 50	<5	<11	<5	<4	<8	<10	<9	<5	<5	<8
	09-22-87	<190	380 ± 50	<4	<10	<4	<4	<9	<8	<7	<5	<4	<9
	09-29-87	<190	350 ± 50	<4	<11	<5	<4	<9	<7	<6	<5	<5	<6
H59	07-08-87	<180	330 ± 50	<4	<9	<4	<5	<10	<7	<8	<4	<4	<6
	08-05-87	<200	340 ± 50	<4	<8	<5	<5	<8	<8	<6	<5	<4	<8
	09-02-87	<190	270 ± 40	<5	<10	<5	<4	<10	<9	<8	<6	<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 SEDIMENT - (pCi/kg, dry weight)

Sample Site	Collection Date	Be-7	K-40	Co-58	Co-60	Cs-134	Cs-137	Ra-226	Ra-228	Th-232	U-238
H15*	08-26-87	<90	550 ± 70	<8	<8	<8	<9	190 ± 20	<60	<24	<230
H59	08-26-87	<100	400 ± 60	<9	<10	<12	<8	220 ± 10	<70	<29	<290

* - DOE split sample.

4.a.1 CRUSTACEA - (H15: Mixed Crustacea), (H59: Blue Crab) - (pCi/kg, wet weight)

Sample Site	Collection Date	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Th-232
H15	08-27-87	1300 ± 100	<14	<30	<14	<14	<34	<16	<14	150 ± 10	110 ± 30
H59	08-05-87	2000 ± 100	<10	<26	<12	<11	<26	<13	<13	120 ± 10	<20

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

Sample Site	Collection Date	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Th-232
H15	08-05-87	3100 ± 200	<18	<46	<19	<17	<39	<11	<23	<43	<40
H59	08-05-87	3700 ± 200	<10	<26	<12	<12	<30	<10	<14	<23	<20

4.b.1 BROADLEAF VEGETATION - Mangrove - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Ra-226
H51	07-08-87	370 ± 40	2500 ± 100	<18	<9	<8	<19
	08-05-87	540 ± 40	2300 ± 100	<10	<7	<7	<14
	09-02-87	390 ± 40	2300 ± 100	<12	<8	<7	<16
H52	07-08-87	420 ± 40	3100 ± 100	<17	<8	<8	<16
	08-05-87	490 ± 40	3400 ± 100	<10	<8	<7	<14
	09-02-87	390 ± 40	3000 ± 100	<13	<8	<6	<17
H59	07-08-87	370 ± 50	3100 ± 100	<17	<8	<9	22 ± 6
	08-05-87	510 ± 40	2900 ± 100	<11	<7	<7	<14
	09-02-87	400 ± 50	4100 ± 100	<15	<9	<9	<20

RADIOLOGICAL SURVEILLANCE OF FLORIDA POWER AND LIGHT COMPANY'S ST. LUCIE SITE

Fourth Quarter, 1987

Office of Radiation Control

Florida Department of Health
and Rehabilitative Services

ST. LUCIE SITE

Technical Specifications Sampling

Fourth Quarter, 1987

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	27	52
2. Airborne			
2.a Air Iodines	Weekly	5	65
2.b Air Particulates	Weekly	5	69*
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			
4.b.1 Broadleaf Vegetation	Monthly	3	9
			Total: 211

* - Includes DOE split samples.

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 "non-detectable" (ND) or 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.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

Fourth Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Each result is the average net response of two dosimeters.

Sample Site	Deployment Collection	09-16-87 12-16-87
N-1	5.1 ± 0.3	
NNW-5	4.9 ± 0.3	
NNW-10	5.1 ± 0.3	
NW-5	5.2 ± 0.3	
NW-10	6.4 ± 0.3	
WNW-2	5.3 ± 0.3	
WNW-5	5.1 ± 0.3	
WNW-10	5.2 ± 0.3	
W-2	5.5 ± 0.3	
W-5	5.2 ± 0.3	
W-10	5.1 ± 0.3	
WSW-2	5.0 ± 0.3	
WSW-5	5.1 ± 0.3	
WSW-10	4.7 ± 0.2	
SW-2	5.0 ± 0.3	
SW-5	4.9 ± 0.3	
SW-10	5.1 ± 0.3	
SSW-2	5.0 ± 0.3	
SSW-5	5.3 ± 0.3	
SSW-10	5.4 ± 0.3	
S-5	5.1 ± 0.3	
S-10	5.2 ± 0.3	
S/SSE-10		<<(C)
SSE-5	5.4 ± 0.3	
SSE-10	5.3 ± 0.3	
SE-1	5.0 ± 0.3	
H-32	5.9 ± 0.3	

See the notes on the following page.

ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

Fourth Quarter, 1987

1. DIRECT RADIATION - TLDs - (micro-R/hour)

Notes:

(A) These results have been determined with the assumption that fading is negligible, although detailed testing to confirm this has not been completed.

(B) Testing to confirm compliance with NRC Reg. Guide 4.13 and ANSI N545-1975 performance standards has not been completed.

(C) The dosimeters for site S/SSE-10 were missing when collection was attempted. The receptacle for the dosimeters was found on the ground. The receptacle was re-installed on the utility pole, and new dosimeters were deployed.

2.a IODINE-131 IN WEEKLY AIR FILTERS - (pCi/m^3)

Collection Date	Sample Site				
	H08	H12	H14	H30	H34
10-07-87	<0.03	<0.03	<0.03	<0.03	<0.03
10-14-87	<0.03	<0.03	<0.04	<0.04	<0.04
10-21-87	<0.04	<0.04	<0.04	<0.04	<0.04
10-27-87	<0.04	<0.04	<0.05	<0.04	<0.05
11-04-87	<0.03	<0.03	<0.03	<0.03	<0.03
11-10-87	<0.04	<0.04	<0.04	<0.04	<0.04
11-17-87	<0.03	<0.03	<0.03	<0.03	<0.03
11-24-87	<0.03	<0.03	<0.03	<0.03	<0.03
12-01-87	<0.02	<0.02	<0.02	<0.02	<0.02
12-09-87	<0.02	<0.02	<0.03	<0.02	<0.02
12-15-87	<0.03	<0.03	<0.02	<0.03	<0.03
12-22-87	<0.02	<0.02	<0.02	<0.02	<0.02
12-29-87	<0.02	<0.02	<0.02	<0.02	<0.02

2.b AIR PARTICULATES - GROSS BETA - (pCi/m^3)

Collection Date	Sample Site H08	H12	H14	H30	H34
10-07-87	0.016 ± 0.002	0.016 ± 0.002	0.014 ± 0.002	0.013 ± 0.002	0.015 ± 0.002
10-14-87	0.015 ± 0.002	0.013 ± 0.002	0.011 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
10-21-87	0.010 ± 0.002	0.010 ± 0.002	0.005 ± 0.002	0.010 ± 0.002	0.009 ± 0.002
10-27-87	0.011 ± 0.002	0.017 ± 0.002	0.011 ± 0.002	0.007 ± 0.002	0.014 ± 0.002
11-04-87	0.011 ± 0.002	0.012 ± 0.002	*0.014 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
11-10-87	0.014 ± 0.002	0.007 ± 0.002	*0.013 ± 0.002	0.008 ± 0.002	0.012 ± 0.002
11-17-87	0.014 ± 0.002	0.008 ± 0.002	*0.011 ± 0.002	0.008 ± 0.002	0.010 ± 0.002
11-24-87	0.013 ± 0.002	0.008 ± 0.002	*0.015 ± 0.002	0.008 ± 0.002	0.014 ± 0.002
12-01-87	0.004 ± 0.002	0.005 ± 0.002	0.007 ± 0.002	0.008 ± 0.002	0.005 ± 0.002
12-09-87	0.016 ± 0.002	0.018 ± 0.002	0.019 ± 0.002	0.016 ± 0.002	0.018 ± 0.002
12-15-87	0.014 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.014 ± 0.002	0.020 ± 0.002
12-22-87	0.014 ± 0.002	0.011 ± 0.002	0.013 ± 0.002	0.011 ± 0.002	0.012 ± 0.002
12-29-87	0.013 ± 0.002	0.005 ± 0.002	0.009 ± 0.002	0.009 ± 0.002	0.013 ± 0.002
Means:	0.013 ± 0.001	0.011 ± 0.001	0.012 ± 0.001	0.010 ± 0.001	0.013 ± 0.001

* - DOE split samples.

2.b AIR PARTICULATES - GAMMA SCANS OF QUARTERLY COMPOSITES - (pCi/m^3)

Fourth Quarter, 1987

Sample Site	Be-7	K-40	Cs-134	Cs-137
H08	0.145 ± 0.010	<0.018	<0.0009	<0.0008
H12	0.137 ± 0.010	<0.026	<0.0008	<0.0007
H14	0.194 ± 0.011	<0.026	<0.0009	<0.0008
H30	0.147 ± 0.010	<0.016	<0.0008	<0.0007
H34	0.176 ± 0.010	<0.027	<0.0009	<0.0008

3.a SURFACE WATER - (pCi/l)

Sample Site	Collection Date	H-3	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	10-08-87	250 ± 60	280 ± 50	<5	<11	<4	<4	<11	<7	<15	<5	<4	<9
	10-14-87	<190	300 ± 50	<5	<11	<6	<4	<10	<10	<15	<5	<4	<9
	10-21-87	<190	290 ± 50	<5	<9	<4	<4	<9	<9	<7	<5	<4	<4
	10-27-87	<190	280 ± 50	<5	<10	<5	<5	<9	<9	<5	<5	<4	<9
	11-04-87	<190	270 ± 50	<4	<10	<5	<5	<11	<7	<6	<4	<5	<6
	11-10-87	<190	280 ± 50	<4	<10	<4	<5	<10	<6	<8	<5	<5	<8
	11-17-87	<190	360 ± 50	<4	<12	<5	<4	<9	<9	<15	<5	<5	<8
	11-24-87	<190	330 ± 50	<4	<11	<5	<3	<12	<7	<7	<5	<5	<4
	12-01-87	<200	300 ± 50	<6	<9	<5	<5	<10	<8	<6	<5	<4	<8
	12-09-87	<190	250 ± 40	<4	<11	<4	<5	<9	<6	<7	<4	<5	<5
	12-15-87	<190	340 ± 50	<5	<10	<3	<5	<8	<9	<6	<5	<4	<6
	12-22-87	<190	250 ± 50	<4	<9	<5	<2	<8	<10	<7	<5	<4	<6
	12-29-87	<190	260 ± 40	<5	<10	<4	<6	<10	<6	<8	<4	<5	<6
H59	10-08-87	<190	350 ± 50	<6	<11	<4	<5	<11	<6	<14	<5	<5	<7
	11-05-87	<190	270 ± 50	<3	<9	<4	<5	<9	<6	<7	<4	<4	<8
	12-02-87	<190	290 ± 50	<5	<9	<4	<5	<12	<8	<8	<5	<4	<8

(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.

4.b.1 BROADLEAF VEGETATION - Mangrove - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H51	10-08-87	420 ± 50	2200 ± 100	<24	<10	<8
	11-05-87	770 ± 40	2300 ± 90	<7	<7	<6
	12-02-87	750 ± 50	2500 ± 100	<8	<7	<8
H52	10-08-87	400 ± 40	2800 ± 100	<21	<9	<7
	11-05-87	1080 ± 50	1880 ± 90	<7	<7	<7
	12-02-87	830 ± 50	2500 ± 100	<7	<7	<6
H59	10-08-87	360 ± 40	3800 ± 100	<22	<8	<8
	11-05-87	360 ± 30	2800 ± 100	<8	<8	<7
	12-02-87	530 ± 50	2300 ± 100	<9	<8	<8

1987
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT - UNITS NOS. 1 AND 2

ATTACHMENT C

RESULTS FROM THE
INTERLABORATORY COMPARISON PROGRAM
1987

FLORIDA DEPT. OF HRS - EPA INTERLABORATORY CROSS-CHECK PROGRAM DATA

January through June, 1987

Media	Nuclide	Collection Mon	Day	Yr	EPA Known	Units	Normal. Range	Mean of Analyses	N.D.K.	Action Level
FILTER	Alpha	04	10	87	14	pCi/F	0.118	13.33	-0.23	
FILTER	Beta	04	10	87	43	pCi/F	0.118	41.33	-0.58	
FILTER	Cs-137	04	10	87	8	pCi/F	0.118	9.67	0.58	
FILTER	Sr-90	04	10	87	17	pCi/F	0.395	16.33	-0.77	
FOOD	I-131	01	30	87	78	pCi/Kg	0.370	72.00	-1.30	
FOOD	Cs-137	01	30	87	84	pCi/Kg	0.118	78.67	-1.84	
FOOD	K	01	30	87	980	pCi/Kg	0.725	940.00	-1.41	
FOOD	Sr-90	01	30	87	49	pCi/Kg	0.118	24.00	-4.33	1
MILK	I-131	10	31	86	49	pCi/L			NDP	
MILK	I-131	06	26	87		pCi/L			NA	
MILK	Cs-137	10	31	86	39	pCi/L			NDP	
MILK	Cs-137	06	26	87		pCi/L			NA	
MILK	K	10	31	86	1565	mg/L			NDP	
MILK	K	06	26	87		pCi/L			NA	
MILK	Sr-89	10	31	86	9	pCi/L			NDP	
MILK	Sr-89	06	26	87		pCi/L			NA	
MILK	Sr-90	10	31	86	0	pCi/L			NDP	
MILK	Sr-90	06	26	87		pCi/L			NA	
WATER	Alpha	01	23	87	11	pCi/L	0.000	9.00	-0.69	
WATER	Alpha	03	20	87	3	pCi/L	0.118	4.33	0.46	
WATER	Alpha	05	22	87	11	pCi/L	0.118	9.67	-0.46	
WATER	Beta	01	23	87	10	pCi/L	0.118	12.66	0.92	
WATER	Beta	03	20	87	13	pCi/L	0.237	16.66	1.27	
WATER	Beta	05	22	87	7	pCi/L	0.000	8.00	0.34	
WATER	Cr-51	06	05	87		pCi/L			NA	
WATER	Co-60	02	06	87	50	pCi/L	0.237	51.00	0.34	
WATER	Co-60	06	05	87		pCi/L			NA	
WATER	Zn-65	02	06	87	91	pCi/L	0.474	95.00	1.38	
WATER	Zn-65	06	05	87		pCi/L			NA	
WATER	Ru-106	02	06	87	100	pCi/L	0.711	95.33	-1.61	
WATER	Ru-106	06	05	87		pCi/L			NA	
WATER	Cs-134	02	06	87	59	pCi/L	0.237	54.33	-1.61	
WATER	Cs-134	06	05	87		pCi/L			NA	
WATER	Cs-137	02	06	87	87	pCi/L	0.355	87.33	0.11	
WATER	Cs-137	06	05	87		pCi/L			NA	
WATER	H-3	02	13	87	4209	pCi/L	0.098	4336.66	0.53	
WATER	H-3	06	12	87	2895	pCi/L	0.066	2840.00	-0.26	
WATER	Sr-89	01	09	87	25	pCi/L	0.237	23.33	-0.58	
WATER	Sr-89	05	08	87		pCi/L			NA	
WATER	Sr-90	01	09	87	25	pCi/L	4.855	21.00	-4.62	2
WATER	Sr-90	05	08	87		pCi/L			NA	

NOTES:

Normal.: Normalized range. As defined in "Environmental Radioactivity Laboratory Intercomparison Studies Program Fiscal Year 1981 - 1982", Environmental Monitoring Systems Laboratory, U. S. Environmental Protection Agency, P. O. Box 15027, Las Vegas, Nevada, 89114. EPA-600/4-81-004, February, 1981.

N.D.K.: Normalized deviation of the mean from the known value. As defined in EPA-600/4-81-004.

NDP: No data provided. No data was provided to EPA for inclusion in their report.

NA: Not available. Report containing this data has not yet been received from EPA, Las Vegas.

(1) Cause: Poor chemical recovery of strontium carrier. Corrective action: Try to improve chemical recovery.

(2) Cause: Unknown. Corrective action: None at this time.

FLORIDA DEPT. OF HRS - EPA INTERLABORATORY CROSS-CHECK PROGRAM DATA

July through December, 1987

Media	Nuclide	Collection Mont	Mon	Day	Yr	EPA Known	Units	Normal. Range	Mean of Analyses	N.D.K.	Action Level
FILTER	Alpha	AUG	08	28	87	10	pCi/F	0.237	10.00	0.00	
FILTER	Beta	AUG	08	28	87	30	pCi/F	0.237	28.00	-0.69	
FILTER	Cs-137	AUG	08	28	87	10	pCi/F	0.000	10.00	0.00	
FILTER	Sr-90	AUG	08	28	87	10	pCi/F	0.395	8.33	-1.92	
FOOD	I-131	JUL	07	31	87	80	pCi/Kg	0.222	81.67	0.36	
FOOD	Cs-137	JUL	07	31	87	50	pCi/Kg	0.237	54.67	1.62	
FOOD	K	JUL	07	31	87	1680	mg/Kg	0.635	1743.33	1.31	
FOOD	Sr-89	JUL	07	31	87	20	pCi/Kg	0.118	15.33	-1.62	
FOOD	Sr-90	JUL	07	31	87	30	pCi/Kg	0.395	24.67	-6.16	1
MILK	I-131	JUN	06	26	87	59	pCi/L	0.493	61.67	0.77	
MILK	Cs-137	JUN	06	26	87	74	pCi/L	0.592	77.33	1.15	
MILK	K	JUN	06	26	87	1525	mg/L	0.546	1573.33	1.10	
MILK	Sr-89	JUN	06	26	87	69	pCi/L	0.118	56.33	-4.39	2
MILK	Sr-90	JUN	06	26	87	35	pCi/L	0.395	29.66	-6.16	3
WATER	Alpha	JUL	07	24	87	5	pCi/L	0.118	4.33	-0.23	
WATER	Alpha	SEP	09	18	87	4	pCi/L	0.000	3.00	-0.35	
WATER	Alpha	NOV	11	20	87	7	pCi/L	0.000	6.00	-0.35	
WATER	Beta	JUL	07	24	87	5	pCi/L	0.237	7.00	0.69	
WATER	Beta	SEP	09	18	87	12	pCi/L	0.237	13.00	0.35	
WATER	Beta	NOV	11	20	87	19	pCi/L	0.118	21.67	0.92	
WATER	Cr-51	JUN	06	05	87	41	pCi/L	0.711	36.33	-1.61	
WATER	Cr-51	OCT	10	09	87	70	pCi/L	0.829	64.67	-1.85	
WATER	Co-60	JUN	06	05	87	64	pCi/L	0.118	66.67	0.92	
WATER	Co-60	OCT	10	09	87	15	pCi/L	0.118	15.67	0.23	
WATER	Zn-65	JUN	06	05	87	10	pCi/L	0.355	11.33	0.46	
WATER	Zn-65	OCT	10	09	87	46	pCi/L	0.592	44.00	-0.69	
WATER	Ru-106	JUN	06	05	87	75	pCi/L	1.351	76.67	0.58	
WATER	Ru-106	OCT	10	09	87	61	pCi/L	0.829	61.67	0.23	
WATER	Cs-134	JUN	06	05	87	40	pCi/L	0.237	36.66	-1.15	
WATER	Cs-134	OCT	10	09	87	25	pCi/L	0.118	23.33	-0.58	
WATER	Cs-137	JUN	06	05	87	80	pCi/L	0.592	79.00	-0.34	
WATER	Cs-137	OCT	10	09	87	51	pCi/L	0.474	50.00	-0.35	
WATER	H-3	OCT	10	16	87	4492	pCi/L	0.079	4713.33	0.85	
WATER	I-131	AUG	08	07	87	48	pCi/L	0.099	49.33	0.38	
WATER	I-131	DEC	12	04	87	26	pCi/L	0.197	25.00	-0.29	
WATER	Sr-89	MAY	05	08	87	41	pCi/L	0.118	37.33	-1.27	
WATER	Sr-90	MAY	05	08	87	20	pCi/L	0.000	19.00	-1.15	

NOTES:

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N.D.K.: Normalized deviation of the mean from the known value. As defined in EPA-600/4-81-004.

NDP: No data provided. No data was provided to EPA for inclusion in their report.

NA: Not available. Report containing this data has not yet been received from EPA, Las Vegas.

Action Level:

(1) Cause: Erroneously over estimated chemical recovery of strontium carrier. Corrective action: Try to improve purity of isolated strontium carrier.

(2) Cause: Erroneously over estimated chemical recovery of strontium carrier. Corrective action: Try to improve purity of isolated strontium carrier.

(3) Cause: Erroneously over estimated chemical recovery of strontium carrier. Corrective action: Try to improve purity of isolated strontium carrier.