Florida Power & Light Company, 6501 S. Ocean Drive, Jensen Beach, FL 34957

FPL

April 19, 2011

L-2011-116
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 2010

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 2010.

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

Sincerely,

Eric S. Katzman
Licensing Manager
St. Lucie Plant

Enclosure

ESK/tlt

IE25
NRR

2010

ANNUAL

RADIOLOGICAL ENVIRONMENTAL

OPERATING REPORT

ST. LUCIE PLANT

UNITS 1 & 2

LICENSE NOS. DPR-67, NPF-16

DOCKET NOS. 50-335, 50-389

(62 pages)

Data Submitted by: Florida DOH

Prepared by: _____

Reviewed by: _____

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT – UNITS 1 & 2

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2010
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 to 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 Units 1 and 2 Offsite Dose Calculation Manual (ODCM) Section 3/4.12.1, Monitoring Program.

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.

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.

Note: Ground Water Protection, NEI Initiative: The program and results are described in Attachment D

2. Analytical Responsibility:

Radiological environmental monitoring for the St. Lucie Plant is conducted by the State of Florida, Department of Health (DOH), and 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 or missing data, if any, are noted and explained in Table 1A. Samples not meeting the specified "A PRIORI" LLD, if any, are noted and explained in Table 1B. 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 a five mile 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 intercomparison program consists of participating in the DOE Mixed Analyte Performance Evaluation Program (MAPEP).

This program provides similar testing (matrices, nuclides, and levels) as the former EPA Interlaboratory Comparison Program and is referred to as the Mixed Analyte Performance Evaluation Program (MAPEP).

The samples are analyzed using the methods applicable to the REMP (gamma spectroscopy, Gross Beta, and Tritium for water).

From the MAPEP handbook:
Acceptance criteria were developed from a review of precision and accuracy data compiled by other performance evaluation programs (PEPs), the analytical methods literature, from several MAPEP pilot studies, and from what is considered reasonable, acceptable, and achievable for routine analyses among the more experienced laboratories.
The results for nuclides associated with the REMP are listed in ATTACHMENT C, RESULTS FROM THE INTERLABORATORY COMPARISON PROGRAM.

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:

The results for radioactivity measurements in surface water are consistent with past measurements and with measurements made during the pre-operational surveillance program. Two indicator location samples, of 52 collected and analyzed, presented a tritium result. The highest value was less than 7% of the required LLD listed in ODCM Table 4.12-1. There were no indications of any other nuclides that could be attributed to plant effluents. 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 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.
One, of 12, control location samples collected & analyzed presented Cs-137 results. The highest value was less than 25% of the Detection Capabilities required in ODCM Table 4.12-1.
There were no indications of any 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. No locations yielding a calculated dose or dose commitment (via the same exposure pathway) 20 percent greater than locations currently being sampled in the radiological environmental monitoring program were identified by the land use census.

7. Interlaboratory Comparison Program:

The State laboratory participated in MAPEP 22 and 23.

In MAPEP 22, the results for Water, Air Filter Gross Beta, mixed gamma emitters in Air Filters, Soil and Vegetation matrices for those nuclides associated with nuclear power plant operation and using analytical methods used in the REMP are acceptable. There was a warning for Mn-54 on air filter; the result is high but within acceptance range.

In MAPEP 23, the results for Water, Air Filter Gross Beta, mixed gamma emitters in Air Filters and Vegetation matrices for those nuclides associated with nuclear power plant operation and using analytical methods used in the REMP are acceptable. In the Soil matrix, the reported results for a 'blank' were too high; a "false positive" was reported.

The results are listed in Attachment C.

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 & 50-389
Location of Facility St. Lucie, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: DIRECT RADIATION
SAMPLES COLLECTED: TLD
UNITS: micro-R/hr

Type and Total Number of Analyses Performed	Lower Limit of Detection [a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name [c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Exposure Rate, 106	—	5.4 (100/102) 3.5 - 5.8	S - 5 5 mi., S	5.6 (4/4) 5.4 – 5.8	5.0 (4/4) 4.8 – 5.3

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, 2010
(County, State)

PATHWAY: AIRBORNE
SAMPLES COLLECTED: RADIOIODINE AND PARTICULATES
UNITS: PICO - Ci/M^3

Type and Total Number of Analyses Performed	Lower Limit of Detection [a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name [c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
^{131}I, 260	0.024	<MDA	—	—	<MDA
Gross Beta, 259	0.0025	0.016 (206/207) 0.004 - 0.033	H-14 1 mile, SE	0.017 (52/52) 0.005 - 0.031	0.015 (52/52) 0.005 - 0.031
Composite Gamma Isotopic, 20					
^{7}Be	0.0052	0.1439 (16/16) 0.0913- 0.1885	H-34 .5 mile, N	0.1502 (4/4) 0.1361 - 0.1817	0.1339 (4/4) 0.1163 - 0.1552
^{134}Cs	0.00069	<MDA	—	—	<MDA
^{137}Cs	0.00066	<MDA	—	—	<MDA
^{210}Pb	—	0.0185 (13/16) 0.0097 - 0.0309	H-14 1 mile, SE	0.0216 (3/4) 0.0183 - 0.0235	0.0179 (2/4) 0.0084 – 0.0300

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, 2010
(County, State)

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SURFACE WATER
UNITS: PICO - Ci/LITER

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Tritium, 64	230	158 (2/52) 149 - 167	H-15 <1 mi., ENE/E/ESE	158 (2/52) 149 - 167	<MDA
Gamma Isotopic, 64					
^{40}K	60	333 (52/52) 249 - 429	H-15 <1 mi., ENE/E/ESE	333 (52/52) 249 - 429	362 (12/12) 255 - 417
^{54}Mn	4	<MDA	—	—	<MDA
^{59}Fe	8	<MDA	—	—	<MDA
^{58}Co	4	<MDA	—	—	<MDA
^{60}Co	4	<MDA	—	—	<MDA
^{65}Zn	8	<MDA	—	—	<MDA
^{95}Zr-Nb	7	<MDA	—	—	<MDA
^{131}I	5	<MDA	—	—	<MDA
^{134}Cs	5	<MDA	—	—	<MDA
^{137}Cs	5	<MDA	—	—	<MDA
^{140}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 & 50-389
Location of Facility St. Lucie, Florida , Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SHORELINE SEDIMENT
UNITS: PICO - Ci/Kg, DRY

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 4					
^{7}Be	—	<MDA	—	—	<MDA
^{40}K	140	686 (2/2) 228 - 1144	H-15 <1 mi, ENE/E/ESE	686 (2/2) 228 - 1144	390 (2/2) 185 - 474
^{58}Co	9	<MDA	—	—	<MDA
^{60}Co	12	<MDA	—	—	<MDA
^{134}Cs	14	<MDA	—	—	<MDA
^{137}Cs	12	<MDA	—	—	<MDA
^{210}Pb	—	431 (2/2) 191 - 671	H-15 <1 mi., ENE/E/ESE	431 (2/2) 191 - 671	<MDA
^{226}Ra	49	240 (2/2) 133 - 341	H-15 <1 mi., ENE/E/ESE	240 (2/2) 133 - 341	784 (2/2) 546 - 1023
^{232}Th	—	138 (2/2) 37 - 220	H-15 <1 mi., ENE/E/ESE	138 (2/2) 37 - 220	<MDA
^{235}U	—	<MDA	—	—	<MDA
^{238}U	—	338 (2/2) 155 - 520	H-15 <1 mi., ENE/E/ESE	338 (2/2) 155 - 520	<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, 2010
(County, State)

PATHWAY: INGESTION
SAMPLES COLLECTED: CRUSTACEA
UNITS: PICO - Ci/Kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 5					
^{40}K	130	1665 (3/3) 1367 – 2008	H-15 <1 mi., ENE/E/ESE	1665 (3/3) 1367 – 2008	2046 (2/2) 1913 - 2178
^{54}Mn	9	<MDA	—	—	<MDA
^{59}Fe	16	<MDA	—	—	<MDA
^{58}Co	9	<MDA	—	—	<MDA
^{60}Co	19	<MDA	—	—	<MDA
^{65}Zn	17	<MDA	—	—	<MDA
^{134}Cs	9	<MDA	—	—	<MDA
^{137}Cs	9	<MDA	—	—	<MDA
^{226}Ra	—	< MDA	—	—	<MDA
^{228}Ra	—	< 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, 2010
(County, State)

PATHWAY: INGESTION
SAMPLES COLLECTED: FISH
UNITS: PICO - Ci/Kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 4					
^{40}K	130	2788 (2/2) 2782 - 2794	H-15 <1 mi., ENE/E/ESE	2788 (2/2) 2782 - 2794	3005 (2/2) 2540 - 3470
^{54}Mn	9	<MDA	—	—	<MDA
^{59}Fe	16	<MDA	—	—	<MDA
^{58}Co	9	<MDA	—	—	<MDA
^{60}Co	10	<MDA	—	—	<MDA
^{65}Zn	17	<MDA	—	—	<MDA
^{134}Cs	9	<MDA	—	—	<MDA
^{137}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, 2010
(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[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 36					
^{7}Be	71	875 (24/24) 335 - 1544	H-52 1 mi., S/SSE	936 (12/12) 521 - 1544	895 (12/12) 473 - 1732
^{40}K	100	4527 (24/24) 3018 - 6257	H-52 1 mi., S/SSE	4777 (12/12) 3018 - 6257	4017 (12/12) 3191 - 5375
^{58}Co	6	<MDA	—	—	<MDA
^{60}Co	8	<MDA	—	—	< MDA
^{131}I	9	<MDA	—	—	<MDA
^{134}Cs	8	<MDA	—	—	<MDA
^{137}Cs	8	<MDA	—	—	17 (1/12)
^{210}Pb	—	1096 (3/24) 73 - 3012	H-51 1 mi., N/NNW	1096 (3/12) 73 - 3012	<MDA)
^{212}Pb	—	22 (2/24) 4 - 39	H-51 1 mi., N/NNW	22 (2/12) 4 - 39	<MDA
^{226}Ra	—	280 (7/24) 29 - 439	H-52 1 mi., S/SSE	284 (2/12) 278 - 285	<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, 2010
(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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ST. LUCIE PLANT - UNITS 1 & 2

TABLE 1A

DEVIATIONS / MISSING DATA

A)	Pathway:	Direct Exposure - TLDs
	Location:	W-5, 5 Miles West
	Dates:	6/8/10 – 9/7/10
	Deviation:	Failure to perform continuous monitoring
	Description of Problem:	TLD failed during readout.
	Corrective Action:	Removed TLD from inventory.
B)	Pathway:	Direct Exposure - TLDs
	Location:	SSE-5, 5 miles South Southeast
	Dates:	6/8/10 – 9/7/10
	Deviation:	Failure to perform continuous monitoring
	Description of Problem:	TLD missing, not found during collection attempt.
	Corrective Action:	Replaced TLD.
C)	Pathway:	Airborne, Particulates & Radioiodine
	Location:	H-34 , 0.5 miles North
	Dates:	1/05/10 – 10/12/10
	Deviation:	Failure to perform continuous monitoring
	Description of Problem:	Construction work in and around sample station interrupted sampling & found some sample pipes disconnected.
	Corrective Action:	Reconnected sampling pipes, verified equipment as operable.
D)	Pathway:	Airborne, Particulates & Radioiodine
	Location:	H-12 , 12 miles South
	Dates:	7/16/09 – 7/21/09
	Deviation:	Failure to perform continuous monitoring
	Description of Problem:	Sample pump failure during sampling period; estimated sampling duration of 126 hours of 190 hour sampling period.
	Corrective Action:	Replaced pump, verified equipment as operable.

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TABLE 1B

ANALYSIS WITH LLDs ABOVE THE REQUIRED DETECTION CAPABILITIES
(LLDs) Listed in ODCM TABLE 4.12-1
1/1/2010 – 12/31/2010

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
(Page 1 of 2)

Survey Performed July & August 2010

Distance to Nearest (a, b)

Sector	Milk (c) Animal	Residence	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	1.5/142	O
SSE	L (f)	2.0/149 (g)	L
S	L	3.3/190	L
SSW	L	2.2/212	4.4/207
SW	L	1.9/235	L
WSW	L	1.9/240	L
W	L	1.9/260	L
WNW	L	2.2/281	L
NW	L	3.5/304	L
NNW	L	2.7/344	L

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TABLE 2

LAND USE CENSUS
(Page 2 of 2)

NOTES

a. All categories surveyed out to a 5-mile 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 142 degrees is recorded as 1.5/142.

c. Potential milk animal locations.

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:

Sector	Distance	Description
SSE	1.8/147	Fire Station

ATTACHMENT A

KEY TO SAMPLE LOCATIONS

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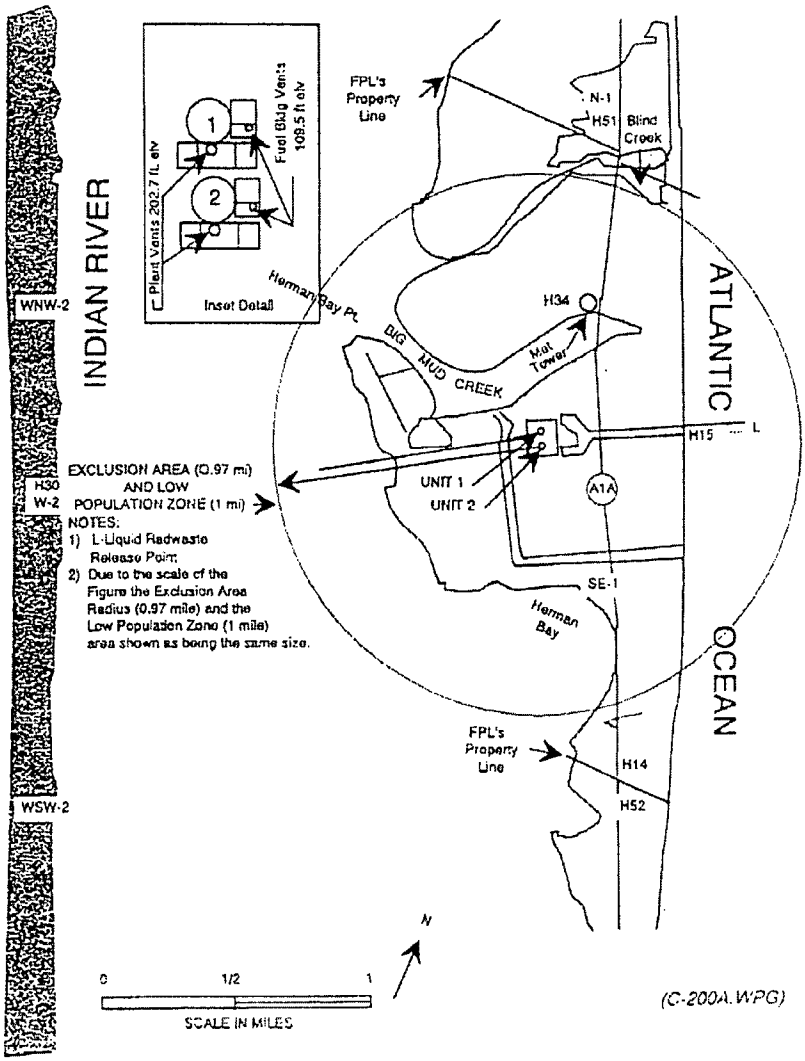
SITE AREA MAP & ENVIRONMENTAL SAMPLE LOCATIONS



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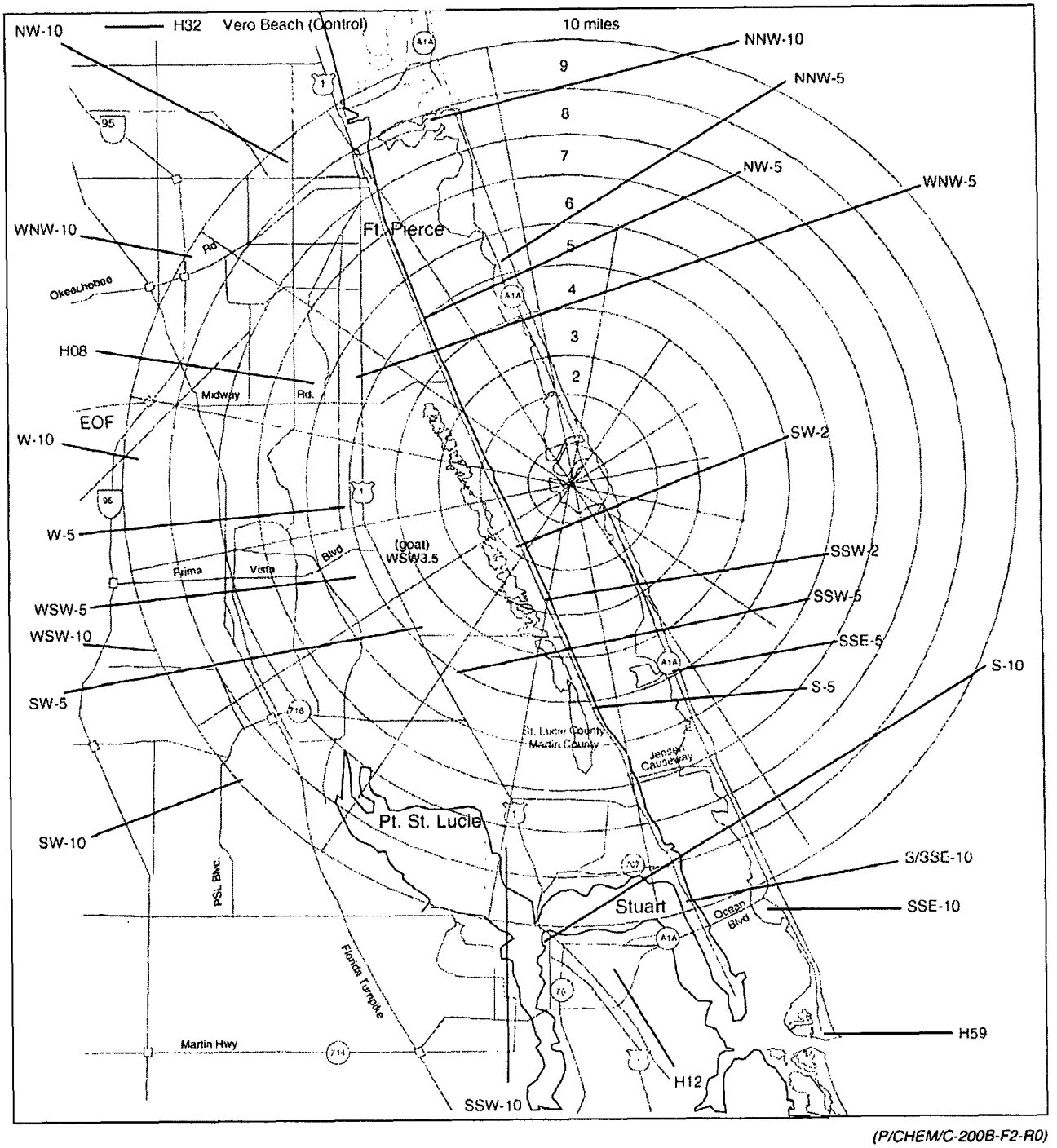
ENVIRONMENTAL SAMPLE LOCATIONS (10 MILES)



(P/CHEM/C-200B-F2-R0)

ATTACHMENT A

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

Location Name	Direction Sector	Approximate Distance (miles)	Description
N-1	N	1	A1A, North of Blind Creek
NNW-5	NNW	4.8	Frederick Douglas Beach Entrance
NNW-10	NNW	8.7	Coast Guard Station
NW-5	NW	5.4	Indian River Dr., at Rio Vista Dr.
NW-10	NW	9.6	FPL Facility, S.R. 68 at 33RD St.
WNW-2	WNW	2.3	Cemetery South of 7107 Indian River Dr.
WNW-5	WNW	5.1	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	5.4	Oleander and Sager Street
W-10	W	10.3	Interstate 95 at S.R. 709
WSW-2	WSW	1.8	8503 Indian River Dr.
WSW-5	WSW	5.6	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	4.5	U.S. 1 at Village Green Dr.
SW-10	SW	10.2	Port St. Lucie Blvd. at Cairo Rd.
SSW-2	SSW	2.6	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	5.2	13179 Indian River Drive
S-10	S	10.8	U.S. 1 at S.R. 714
S/SSE-10	SSE	9.9	Indian River Dr. at Quail Run Lane
SSE-5	SSE	5.1	North of entrance to Miramar
SSE-10	SSE	10.2	Elliot Museum
SE-1	SE	1	South of Cooling Canal
Control:			
H-32	NNW	18.1	University of Florida IFAS Vero Beach

ATTACHMENT A

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

Location Name	Direction Sector	Approximate Distance (miles)	Description
H-08	WNW	6	FPL Substation, Weatherbee 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

ATTACHMENT A

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SURFACE WATER (OCEAN)
SAMPLE COLLECTION FREQUENCY: H-15 WEEKLY, H-59 MONTHLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
H-15	ENE/E/SSE	<1	Atlantic Ocean, public beaches east side A1A
Control:			
H-59	S/SSE	10-20	Near south end of Hutchinson Island

SAMPLES COLLECTED: SHORELINE SEDIMENT
SAMPLE COLLECTION FREQUENCY: SEMI-ANNUALLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
H-15	ENE/E/ESE	<1	Atlantic Ocean, public beaches east side A1A
Control:			
H-59	S/SSE	10-20	Near south end of Hutchinson Island

ATTACHMENT A

PATHWAY: INGESTION
SAMPLES COLLECTED: CRUSTACEA AND FISH
SAMPLE COLLECTION FREQUENCY: SEMI-ANNUALLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
H-15	ENE/E/ESE	<1	Ocean Side, Vicinity of St. Lucie Plant
Control:			
H-59	S/SSE	10-20	Near south end of Hutchinson Island

SAMPLES COLLECTED: BROAD LEAF VEGETATION
SAMPLE COLLECTION FREQUENCY: MONTHLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
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	Near south end of Hutchinson Island

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
ST. LUCIE PLANT - UNITS 1 & 2

ATTACHMENT B

RADIOLOGICAL SURVEILLANCE OF

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE SITE

2010

First Quarter 2010

Second Quarter 2010

Third Quarter 2010

Fourth Quarter 2010

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

First Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
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. Broadleaf Vegetation	Monthly	3	9
			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.

The marine fauna listed in this report were collected in part, under Florida FWC SAL030.

1. DIRECT RADIATION - TLDs - (μR/hour)

Sample Site	Deployment 02-Dec-09 Collection 03-Mar-10	Sample Site	Deployment 02-Dec-09 Collection 03-Mar-10
N-1	4.2 ± 0.4	SW-2	4.3 ± 0.4
NNW-5	4.2 ± 0.4	SW-5	5.3 ± 0.6
NNW-10	4.7 ± 0.4	SW-10	4.7 ± 0.5
NW-5	4.2 ± 0.4	SSW-2	4.4 ± 0.4
NW-10	5.5 ± 0.4	SSW-5	5.2 ± 0.5
WNW-2	4.3 ± 0.4	SSW-10	5.0 ± 0.5
WNW-5	4.3 ± 0.4	S-5	5.6 ± 0.5
WNW-10	5.0 ± 0.5	S-10	4.4 ± 0.4
W-2	4.1 ± 0.3	S/SSE-10	4.0 ± 0.4
W-5	4.9 ± 0.6	SSE-5	4.1 ± 0.4
W-10	4.3 ± 0.5	SSE-10	4.5 ± 0.4
WSW-2	4.5 ± 0.4	SE-1	4.3 ± 0.5
WSW-5	4.3 ± 0.4	H-32	5.3 ± 0.6
WSW-10	4.0 ± 0.5		

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

Collection Date	H08	H12	H14	H30	H34
05-Jan-10	<0.04	<0.04	<0.03	<0.03	<0.03
12-Jan-10	<0.03	<0.03	<0.03	<0.03	<0.03
21-Jan-10	<0.01	<0.01	<0.01	<0.01	<0.01
26-Jan-10	<0.02	<0.02	<0.02	<0.02	<0.02
02-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
09-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
16-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
23-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
03-Mar-10	<0.02	<0.02	<0.02	<0.02	<0.02
09-Mar-10	<0.03	<0.03	<0.03	<0.03	<0.03
16-Mar-10	<0.02	<0.02	<0.02	<0.02	<0.02
24-Mar-10	<0.02	<0.02	<0.02	<0.02	<0.02
30-Mar-10	<0.03	<0.03	<0.03	<0.03	<0.03

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	H08	H12	H14	H30	H34
05-Jan-10	0.021 ± 0.003	0.019 ± 0.003	0.028 ± 0.003	0.021 ± 0.003	0.023 ± 0.003
12-Jan-10	0.022 ± 0.002	0.022 ± 0.002	0.021 ± 0.002	0.019 ± 0.002	0.020 ± 0.002
21-Jan-10	0.012 ± 0.002	0.013 ± 0.002	0.014 ± 0.002	0.011 ± 0.002	0.011 ± 0.002
26-Jan-10	0.013 ± 0.003	0.012 ± 0.002	0.013 ± 0.002	0.010 ± 0.002	0.009 ± 0.002
02-Feb-10	0.014 ± 0.002	0.012 ± 0.002	0.016 ± 0.002	0.015 ± 0.002	0.013 ± 0.002
09-Feb-10	0.008 ± 0.002	0.009 ± 0.002	0.010 ± 0.002	0.009 ± 0.002	0.008 ± 0.002
16-Feb-10	0.015 ± 0.002	0.019 ± 0.002	0.015 ± 0.002	0.019 ± 0.002	0.013 ± 0.002
23-Feb-10	0.017 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.016 ± 0.002	0.015 ± 0.002
03-Mar-10	0.018 ± 0.002	0.018 ± 0.002	0.023 ± 0.002	0.015 ± 0.002	0.022 ± 0.002
09-Mar-10	0.012 ± 0.002	0.016 ± 0.002	0.018 ± 0.003	0.014 ± 0.002	0.016 ± 0.002
16-Mar-10	0.015 ± 0.002	0.015 ± 0.002	0.017 ± 0.002	0.012 ± 0.002	0.022 ± 0.002
24-Mar-10	0.009 ± 0.002	0.009 ± 0.002	0.010 ± 0.002	0.005 ± 0.002	0.009 ± 0.002
30-Mar-10	0.013 ± 0.002	0.010 ± 0.002	0.016 ± 0.002	0.013 ± 0.002	0.017 ± 0.002
Average:	0.015 ± 0.001	0.014 ± 0.001	0.016 ± 0.001	0.014 ± 0.001	0.015 ± 0.001

2.b.2. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.1185 ± 0.0129	<0.0307	<0.0033	<0.0024	0.0203 ± 0.0045
H12	0.1163 ± 0.0061	<0.0100	<0.0007	<0.0006	0.0150 ± 0.0024
H14	0.1429 ± 0.0140	<0.0268	<0.0013	<0.0016	0.0229 ± 0.0041
H30	0.1128 ± 0.0046	0.0054 ± 0.0014	<0.0009	<0.0008	0.0148 ± 0.0016
H34	0.1384 ± 0.0138	<0.0348	<0.0032	<0.0024	0.0151 ± 0.0041

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-Jan-10	<159	398 ± 34	<3	<4	<8	<5	<9	<7	<5	<5	<4	<7
	12-Jan-10	<159	356 ± 35	<4	<4	<8	<4	<7	<7	<5	<4	<4	<8
	21-Jan-10	<159	328 ± 18	<3	<3	<6	<3	<7	<4	<3	<3	<3	<10
	26-Jan-10	<159	398 ± 26	<3	<3	<5	<3	<6	<4	<3	<3	<3	<5
	02-Feb-10	<151	296 ± 21	<3	<3	<7	<3	<7	<5	<4	<3	<3	<13
	09-Feb-10	<151	381 ± 32	<3	<4	<8	<5	<8	<6	<5	<4	<4	<8
	16-Feb-10	<151	289 ± 31	<2	<2	<4	<2	<5	<3	<2	<2	<2	<7
	23-Feb-10	<150	329 ± 19	<1	<1	<3	<2	<3	<3	<2	<1	<2	<3
	03-Mar-10	<148	323 ± 35	<4	<3	<7	<4	<7	<6	<5	<4	<3	<8
	09-Mar-10	<148	395 ± 32	<4	<3	<7	<4	<8	<6	<4	<5	<4	<12
	16-Mar-10	<148	419 ± 35	<3	<4	<9	<5	<10	<6	<4	<5	<4	<15
	24-Mar-10	<148	317 ± 28	<3	<3	<5	<4	<8	<5	<4	<4	<3	<8
	30-Mar-10	<144	382 ± 36	<4	<4	<7	<4	<8	<7	<5	<4	<4	<12
H59	12-Jan-10	<159	413 ± 42	<4	<6	<11	<6	<8	<10	<6	<5	<5	<12
	02-Feb-10	<151	398 ± 34	<4	<3	<8	<4	<9	<7	<5	<4	<3	<8
	03-Mar-10	<148	392 ± 35	<4	<4	<8	<5	<9	<6	<4	<5	<4	<10

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

(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 Site	Collection Date	Be-7	K-40	Co-58	Co-60	Cs-134	Cs-137	Pb-210	Ra-226	Th-232	U-235	U-238
H15	02-Feb-10	<59	228 ± 24	<7	<7	<8	<8	191 ± 30	133 ± 50	27 ± 4	<6	155 ± 15
H59	02-Feb-10	<71	185 ± 49	<7	<8	<10	<9	<553	546 ± 99	<57	<81	<409

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	03-Feb-10	1367 ± 550	<43	<62	<173	<45	<99	<48	<40	<666	<162
H59	30-Mar-10	2178 ± 188	<22	<19	<46	<25	<42	<28	<20	<436	<111

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	03-Feb-10	2782 ± 145	<14	<15	<29	<16	<33	<16	<15	<274	<61
H59	23-Feb-10	2540 ± 270	<37	<33	<78	<34	<91	<41	<30	<490	<121

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	Ra-226	Ra-228	Others:
H51	05-Jan-10	1358 ± 81	4007 ± 161	<13	<14	<11	<719	<279	<49	
	02-Feb-10	816 ± 67	4976 ± 161	<12	<14	<9	<659	<252	<51	
	04-Mar-10	1243 ± 83	3383 ± 180	<14	<18	<15	<1492	297 ± 142	<84	Pb-212: 39 ± 12
H52	05-Jan-10	1058 ± 68	4936 ± 196	<14	<16	<14	<1404	<248	<66	
	02-Feb-10	1292 ± 84	3018 ± 163	<12	<13	<12	<1294	289 ± 87	<57	
	03-Mar-10	1442 ± 84	3714 ± 181	<15	<16	<14	<1626	<281	<68	
H59	05-Jan-10	1602 ± 94	3998 ± 212	<18	<19	<17	<1798	<329	<69	
	02-Feb-10	686 ± 75	4907 ± 209	<14	<17	<14	<1423	<269	<50	
	03-Mar-10	712 ± 64	4472 ± 148	<11	<10	<10	<528	<226	<45	

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Second Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
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	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	1
4.a.2. Fish	Semiannually	2	0
4.b. Broadleaf Vegetation	Monthly	3	9
			Total: 183

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.

The marine fauna listed in this report were collected in part, under Florida FWC SAL030.

1. DIRECT RADIATION - TLDs - (μR/hour)

Sample Site	Deployment 03-Mar-10 Collection 08-Jun-10	Sample Site	Deployment 03-Mar-10 Collection 08-Jun-10
N-1	4.1 ± 0.5	SW-2	4.6 ± 0.4
NNW-5	4.2 ± 0.4	SW-5	5.3 ± 0.6
NNW-10	4.6 ± 0.4	SW-10	4.8 ± 0.5
NW-5	4.1 ± 0.4	SSW-2	4.4 ± 0.5
NW-10	5.6 ± 0.4	SSW-5	5.3 ± 0.5
WNW-2	4.4 ± 0.4	SSW-10	5.1 ± 0.6
WNW-5	4.3 ± 0.4	S-5	5.8 ± 0.6
WNW-10	5.1 ± 0.5	S-10	4.7 ± 0.5
W-2	4.2 ± 0.4	S/SSE-10	4.3 ± 0.3
W-5	5.0 ± 0.5	SSE-5	4.1 ± 0.4
W-10	4.6 ± 0.5	SSE-10	4.5 ± 0.5
WSW-2	4.5 ± 0.4	SE-1	4.3 ± 0.4
WSW-5	4.3 ± 0.5	H-32	4.8 ± 0.4
WSW-10	4.1 ± 0.4		

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/ m³)

Collection Date	H08	H12	H14	H30	H34
07-Apr-10	<0.02	<0.02	<0.02	<0.02	<0.02
13-Apr-10	<0.03	<0.03	<0.04	<0.03	<0.03
20-Apr-10	<0.02	<0.02	<0.02	<0.02	<0.02
27-Apr-10	<0.03	<0.03	<0.03	<0.03	<0.03
03-May-10	<0.03	<0.03	<0.03	<0.03	<0.03
12-May-10	<0.02	<0.02	<0.02	<0.02	<0.02
18-May-10	<0.03	<0.03	<0.03	<0.03	<0.03
25-May-10	<0.02	<0.02	<0.02	<0.02	<0.02
01-Jun-10	<0.01	<0.01	<0.01	<0.01	<0.01
08-Jun-10	<0.03	<0.03	<0.03	<0.03	<0.03
15-Jun-10	<0.03	<0.03	<0.03	<0.03	<0.03
22-Jun-10	<0.02	<0.02	<0.02	<0.02	<0.02
29-Jun-10	<0.02	<0.02	<0.02	<0.02	<0.02

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	H08	H12	H14	H30	H34
07-Apr-10	0.018 ± 0.002	0.018 ± 0.002	0.017 ± 0.002	0.017 ± 0.002	0.015 ± 0.002
13-Apr-10	0.014 ± 0.002	0.018 ± 0.003	0.014 ± 0.002	0.011 ± 0.002	0.019 ± 0.003
20-Apr-10	0.015 ± 0.002	0.017 ± 0.002	0.014 ± 0.002	0.016 ± 0.002	0.019 ± 0.002
27-Apr-10	0.015 ± 0.002	0.018 ± 0.002	0.013 ± 0.002	0.016 ± 0.002	0.014 ± 0.002
03-May-10	0.019 ± 0.003	0.019 ± 0.002	0.023 ± 0.003	0.014 ± 0.002	0.019 ± 0.002
12-May-10	0.022 ± 0.002	0.025 ± 0.002	0.019 ± 0.002	0.014 ± 0.002	0.015 ± 0.002
18-May-10	0.012 ± 0.002	0.014 ± 0.002	0.016 ± 0.002	0.014 ± 0.002	0.016 ± 0.002
25-May-10	0.008 ± 0.002	0.011 ± 0.002	0.005 ± 0.002	0.004 ± 0.002	0.010 ± 0.002
01-Jun-10	0.010 ± 0.002	0.008 ± 0.002	0.007 ± 0.002	0.012 ± 0.002	0.008 ± 0.002
08-Jun-10	0.013 ± 0.002	0.010 ± 0.002	0.012 ± 0.002	0.010 ± 0.002	0.012 ± 0.002
15-Jun-10	0.018 ± 0.002	0.018 ± 0.002	0.018 ± 0.002	0.018 ± 0.002	0.018 ± 0.002
22-Jun-10	0.008 ± 0.002	0.008 ± 0.002	0.011 ± 0.002	0.009 ± 0.002	0.008 ± 0.002
29-Jun-10	0.013 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.010 ± 0.002
Average:	0.014 ± 0.001	0.015 ± 0.001	0.014 ± 0.001	0.013 ± 0.001	0.014 ± 0.001

2.b.2. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.1490 ± 0.0101	<0.0176	<0.0016	<0.0015	0.0149 ± 0.0022
H12	0.1469 ± 0.0100	<0.0205	<0.0017	<0.0013	0.0084 ± 0.0019
H14	0.1317 ± 0.0133	<0.0243	<0.0014	<0.0013	<0.0534
H30	0.1433 ± 0.0098	<0.0208	<0.0019	<0.0011	0.0097 ± 0.0019
H34	0.1444 ± 0.0113	<0.0153	<0.0011	<0.0009	<0.0327

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	07-Apr-10	<147	298 ± 20	<1	<1	<3	<2	<3	<2	<2	<1	<1	<3
	13-Apr-10	<147	296 ± 51	<3	<3	<7	<4	<9	<6	<4	<4	<3	<12
	20-Apr-10	<143	286 ± 61	<3	<4	<7	<4	<9	<6	<3	<4	<4	<12
	27-Apr-10	<143	290 ± 16	<3	<2	<6	<3	<6	<4	<3	<3	<3	<10
	03-May-10	<155	295 ± 21	<3	<3	<7	<4	<8	<5	<4	<3	<4	<6
	12-May-10	<154	304 ± 12	<1	<1	<3	<2	<3	<2	<2	<1	<1	<3
	18-May-10	<154	303 ± 13	<1	<1	<3	<2	<3	<2	<2	<1	<2	<4
	25-May-10	<154	264 ± 20	<3	<3	<6	<4	<7	<6	<4	<3	<4	<11
	01-Jun-10	<147	338 ± 23	<3	<3	<6	<3	<8	<5	<3	<4	<3	<12
	08-Jun-10	<147	309 ± 12	<1	<1	<3	<2	<3	<2	<2	<1	<2	<4
	15-Jun-10	<150	319 ± 22	<3	<3	<7	<4	<8	<6	<3	<4	<4	<12
	22-Jun-10	<150	288 ± 21	<3	<3	<7	<4	<8	<6	<4	<3	<3	<8
	29-Jun-10	<144	321 ± 22	<3	<3	<6	<4	<8	<6	<3	<4	<3	<11
H59	07-Apr-10	<147	407 ± 23	<2	<2	<4	<3	<5	<4	<3	<3	<2	<5
	03-May-10	<155	370 ± 34	<4	<4	<9	<3	<10	<7	<4	<5	<4	<8
	09-Jun-10	<147	271 ± 20	<3	<3	<7	<4	<8	<5	<4	<3	<3	<12

(A) - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLD's.
(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 Site	Collection Date	Be-7	K-40	Co-58	Co-60	Cs-134	Cs-137	Pb-210	Ra-226	Th-232
These samples were previously collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	18-May-10	2008 ± 738	<62	<81	<218	<62	<148	<68	<55	<1044	<207
H59	This sample was previously collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	This sample was previously collected.										
H59	This sample was previously collected.										

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	Ra-228
H51	07-Apr-10	1256 ± 57	4139 ± 152	<14	<13	<10	<1107	<56	234 ± 105	<52
	03-May-10	502 ± 60	4829 ± 226	<15	<17	<14	<1211	<72	<279	<62
	09-Jun-10	549 ± 66	4262 ± 195	<13	<18	<13	<1402	<72	401 ± 99	<66
H52	07-Apr-10	1544 ± 89	5306 ± 226	<14	<16	<15	<1612	<78	278 ± 122	<72
	03-May-10	864 ± 72	5791 ± 256	<18	<20	<15	<1811	<85	<304	<76
	09-Jun-10	1154 ± 80	6257 ± 250	<13	<20	<15	<1482	<73	<301	<85
H59	07-Apr-10	643 ± 35	5375 ± 104	<9	<9	<7	<680	<34	<139	<30
	03-May-10	887 ± 96	4085 ± 202	<16	<18	<13	<1793	<82	<316	<70
	09-Jun-10	1149 ± 82	3799 ± 197	<12	<19	<13	<1640	<82	<292	<58

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Third Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
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.

The marine fauna listed in this report were collected in part, under Florida FWC SAL030.

1. DIRECT RADIATION - TLDs - (μR/hour)

Sample Site	Deployment 08-Jun-10 Collection 07-Sep-10	Sample Site	Deployment 08-Jun-10 Collection 07-Sep-10
N-1	4.1 ± 0.4	SW-2	4.3 ± 0.3
NNW-5	4.0 ± 0.5	SW-5	(A)
NNW-10	5.0 ± 0.5	SW-10	4.9 ± 0.5
NW-5	4.1 ± 0.4	SSW-2	4.4 ± 0.4
NW-10	5.4 ± 0.5	SSW-5	5.3 ± 0.6
WNW-2	4.5 ± 0.5	SSW-10	4.9 ± 0.4
WNW-5	4.3 ± 0.4	S-5	5.8 ± 0.5
WNW-10	5.1 ± 0.5	S-10	4.7 ± 0.4
W-2	4.1 ± 0.5	S/SSE-10	4.5 ± 0.4
W-5	4.7 ± 0.5	SSE-5	(B)
W-10	4.4 ± 0.5	SSE-10	4.8 ± 0.5
WSW-2	4.5 ± 0.4	SE-1	4.2 ± 0.4
WSW-5	4.5 ± 0.4	H-32	5.0 ± 0.4
WSW-10	4.1 ± 0.4		

(A) TLD failed; data not reliable.
(B) TLD lost when utility pole was replaced.

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

Collection Date	H08	H12	H14	H30	H34
06-Jul-10	<0.03	<0.02	<0.02	<0.02	<0.02
14-Jul-10	<0.01	<0.01	<0.01	<0.01	<0.01
21-Jul-10	<0.02	<0.02	<0.02	<0.02	<0.02
28-Jul-10	<0.02	<0.02	<0.02	<0.02	<0.02
04-Aug-10	<0.02	<0.02	<0.02	<0.02	<0.02
09-Aug-10	<0.04	<0.03	<0.03	<0.03	<0.03
18-Aug-10	<0.02	<0.02	<0.02	<0.02	<0.02
24-Aug-10	<0.02	<0.02	<0.02	<0.02	<0.02
01-Sep-10	<0.02	<0.02	<0.02	<0.02	<0.02
07-Sep-10	<0.02	<0.02	<0.02	<0.02	<0.02
14-Sep-10	<0.03	<0.03	<0.03	<0.03	<0.03
21-Sep-10	<0.02	<0.02	<0.02	<0.02	<0.02
28-Sep-10	<0.02	<0.02	<0.02	<0.02	<0.02

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	H08	H12	H14	H30	H34
06-Jul-10	0.005 ± 0.002	0.010 ± 0.002	0.009 ± 0.002	0.006 ± 0.002	0.011 ± 0.002
14-Jul-10	0.015 ± 0.002	0.012 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.018 ± 0.002
21-Jul-10	0.017 ± 0.002	0.016 ± 0.002	0.023 ± 0.002	0.009 ± 0.002	0.019 ± 0.002
28-Jul-10	0.013 ± 0.002	0.010 ± 0.002	0.015 ± 0.002	0.014 ± 0.002	0.018 ± 0.002
04-Aug-10	0.010 ± 0.002	0.014 ± 0.002	0.013 ± 0.002	0.009 ± 0.002	0.018 ± 0.002
09-Aug-10	<0.01	0.008 ± 0.002	0.013 ± 0.003	0.009 ± 0.002	0.005 ± 0.002
18-Aug-10	0.009 ± 0.001	0.007 ± 0.001	0.011 ± 0.002	0.011 ± 0.002	0.007 ± 0.001
24-Aug-10	0.007 ± 0.002	0.005 ± 0.002	0.009 ± 0.002	0.005 ± 0.002	0.008 ± 0.002
01-Sep-10	0.010 ± 0.002	0.014 ± 0.002	0.013 ± 0.002	0.010 ± 0.002	0.012 ± 0.002
07-Sep-10	0.018 ± 0.002	0.017 ± 0.002	0.016 ± 0.002	0.014 ± 0.002	0.013 ± 0.002
14-Sep-10	0.013 ± 0.002	0.013 ± 0.002	0.019 ± 0.002	0.013 ± 0.002	0.012 ± 0.002
21-Sep-10	0.026 ± 0.002	0.025 ± 0.002	0.025 ± 0.002	0.024 ± 0.002	0.023 ± 0.002
28-Sep-10	0.013 ± 0.002	0.012 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.017 ± 0.002
Average:	<0.013	0.013 ± 0.001	0.015 ± 0.001	0.012 ± 0.001	0.014 ± 0.001

2.b.2. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.1247 ± 0.0092	<0.0194	<0.0020	<0.0014	0.0116 ± 0.0019
H12	0.1173 ± 0.0108	<0.0192	<0.0014	<0.0009	0.0183 ± 0.0029
H14	0.1469 ± 0.0108	<0.0241	<0.0016	<0.0008	0.0247 ± 0.0034
H30	0.0913 ± 0.0113	<0.0186	<0.0010	<0.0011	0.0190 ± 0.0044
H34	0.1361 ± 0.0097	<0.0198	<0.0016	<0.0013	0.0105 ± 0.0019

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	06-Jul-10	<145	267 ± 20	<3	<3	<7	<4	<7	<5	<4	<4	<3	<6
	14-Jul-10	<145	272 ± 20	<3	<3	<6	<4	<8	<5	<4	<3	<3	<7
	21-Jul-10	<145	342 ± 33	<4	<3	<8	<5	<9	<7	<4	<5	<4	<7
	28-Jul-10	<145	385 ± 38	<3	<4	<6	<5	<9	<6	<5	<5	<4	<10
	04-Aug-10	<145	327 ± 26	<4	<3	<7	<4	<9	<7	<4	<4	<4	<8
	09-Aug-10	<142	424 ± 44	<6	<6	<10	<5	<11	<7	<6	<6	<5	<11
	18-Aug-10	<142	409 ± 35	<4	<4	<10	<5	<10	<7	<4	<4	<4	<14
	24-Aug-10	<142	265 ± 23	<4	<3	<7	<5	<9	<6	<4	<4	<4	<13
	01-Sep-10	<145	421 ± 36	<4	<4	<7	<4	<10	<8	<4	<4	<4	<9
	08-Sep-10	<145	275 ± 23	<4	<4	<7	<4	<9	<6	<4	<4	<4	<13
	14-Sep-10	<145	429 ± 37	<4	<4	<7	<5	<10	<6	<5	<4	<4	<7
	21-Sep-10	<145	318 ± 32	<4	<4	<7	<4	<9	<9	<5	<4	<4	<11
	28-Sep-10	<145	285 ± 21	<3	<3	<6	<4	<8	<6	<4	<3	<4	<7
H59	06-Jul-10	<145	275 ± 20	<3	<4	<7	<4	<8	<5	<4	<4	<4	<5
	05-Aug-10	<145	400 ± 39	<4	<3	<10	<5	<9	<7	<5	<5	<5	<14
	08-Sep-10	<145	255 ± 22	<4	<3	<7	<4	<9	<6	<4	<3	<4	<12

(A) - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLD's.
(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 Site	Collection Date	Be-7	K-40	Co-58	Co-60	Cs-134	Cs-137	Pb-210	Ra-226	Th-232	U-238
H15	05-Aug-10	<73	1144 ± 60	<7	<7	<9	<7	671 ± 227	347 ± 104	220 ± 14	520 ± 109
H59	05-Aug-10	<174	474 ± 86	<17	<16	<20	<19	<1097	1023 ± 247	<101	<676

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15*	30-Aug-10	1619 ± 177	<17	<22	<54	<18	<42	<20	<17	<294	<63
H59†	05-Aug-10	1913 ± 293	<21	<20	<44	<23	<49	<23	<21	<382	<83

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	05-Aug-10	2794 ± 247	<32	<24	<62	<31	<74	<40	<34	<488	<148
H59	05-Aug-10	3470 ± 238	<21	<26	<50	<27	<55	<33	<30	<396	<101

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	Ra-228
H51	06-Jul-10	690 ± 89	5332 ± 229	<17	<19	<15	<1484	<83	<292	
	05-Aug-10	335 ± 10	3768 ± 125	<3	<4	<3	73 ± 10	4 ± 1	23 ± 8	
	08-Sep-10	1038 ± 85	4253 ± 203	<14	<21	<16	3102 ± 854	<89	<308	
H52	06-Jul-10	521 ± 68	6047 ± 263	<16	<21	<19	<1683	<86	<305	
	05-Aug-10	547 ± 75	5405 ± 234	<16	<19	<16	<2349	<88	<299	
	08-Sep-10	593 ± 67	4053 ± 174	<11	<15	<12	<1751	<59	<223	
H59	06-Jul-10	1085 ± 81	3531 ± 204	<15	<18	<15	<1637	<72	276 ± 128	
	05-Aug-10	522 ± 54	3191 ± 149	<16	<13	<13	<779	<92	<262	
	08-Sep-10	1732 ± 88	5051 ± 223	<15	<16	<17	<2534	<110	<287	

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Fourth Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
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	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	0
4.a.2. Fish	Semiannually	2	0
4.b. Broadleaf Vegetation	Monthly	3	9
		Total:	182

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.

The marine fauna listed in this report were collected in part, under Florida FWC SAL030.

1. DIRECT RADIATION - TLDs - (μR/hour)

Sample Site	Deployment 07-Sep-10 Collection 07-Dec-10	Sample Site	Deployment 07-Sep-10 Collection 07-Dec-10
N-1	4.2 ± 0.4	SW-2	3.9 ± 0.5
NNW-5	4.4 ± 0.4	SW-5	4.9 ± 0.6
NNW-10	5.4 ± 0.5	SW-10	4.4 ± 0.5
NW-5	4.2 ± 0.5	SSW-2	3.9 ± 0.4
NW-10	5.6 ± 0.5	SSW-5	4.8 ± 0.4
WNW-2	4.2 ± 0.4	SSW-10	4.8 ± 0.5
WNW-5	4.0 ± 0.4	S-5	5.4 ± 0.4
WNW-10	4.8 ± 0.5	S-10	4.3 ± 0.4
W-2	3.8 ± 0.4	S/SSE-10	4.0 ± 0.4
W-5	4.4 ± 0.4	SSE-5	4.1 ± 0.4
W-10	4.2 ± 0.5	SSE-10	4.1 ± 0.5
WSW-2	4.3 ± 0.5	SE-1	4.4 ± 0.3
WSW-5	4.2 ± 0.4	H-32	4.8 ± 0.5
WSW-10	3.5 ± 0.4		

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/ m³)

Collection Date	H08	H12	H14	H30	H34
05-Oct-10	<0.03	<0.03	<0.03	<0.03	<0.03
12-Oct-10	<0.02	<0.02	<0.02	<0.02	<0.03(A)
19-Oct-10	<0.02	<0.02	<0.02	<0.02	<0.02
26-Oct-10	<0.02	<0.02	<0.02	<0.02	<0.02
04-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
10-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
16-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
23-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
30-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
06-Dec-10	<0.04	<0.03	<0.03	<0.03	<0.03
14-Dec-10	<0.02	<0.04(B)	<0.02	<0.03	<0.02
21-Dec-10	<0.02	<0.01	<0.02	<0.02	<0.02
29-Dec-10	<0.02	<0.02	<0.02	<0.02	<0.02

(A) Hut door open, vacuum tubing found unplugged; no particulate on filter. Fence and locked gate around hut had been completely removed, apparently for met tower maintenance. Padlock now placed on hut door latch.

(B) Pump failed and was replaced. Estimated run time 125.7 out of 189.8 hours.

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	H08	H12	H14	H30	H34
05-Oct-10	0.011 ± 0.002	0.012 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.013 ± 0.002
12-Oct-10	0.032 ± 0.003	0.027 ± 0.003	0.028 ± 0.003	0.027 ± 0.003	<0.005(A)
19-Oct-10	0.033 ± 0.003	0.025 ± 0.003	0.029 ± 0.003	0.027 ± 0.003	0.029 ± 0.003
26-Oct-10	0.032 ± 0.003	0.031 ± 0.003	0.031 ± 0.003	0.013 ± 0.002	0.033 ± 0.003
04-Nov-10	0.014 ± 0.002	0.015 ± 0.002	0.017 ± 0.002	0.013 ± 0.002	0.013 ± 0.002
10-Nov-10	0.018 ± 0.002	0.018 ± 0.002	0.018 ± 0.002	0.016 ± 0.002	0.017 ± 0.002
16-Nov-10	0.017 ± 0.002	0.021 ± 0.003	0.020 ± 0.003	0.021 ± 0.002	0.020 ± 0.002
23-Nov-10	0.019 ± 0.002	0.018 ± 0.002	0.021 ± 0.002	0.023 ± 0.002	0.022 ± 0.002
30-Nov-10	0.012 ± 0.002	0.008 ± 0.002	0.010 ± 0.002	0.010 ± 0.002	0.013 ± 0.002
06-Dec-10	0.029 ± 0.003	0.029 ± 0.003	0.027 ± 0.003	0.028 ± 0.003	0.026 ± 0.003
14-Dec-10	0.022 ± 0.002	0.016 ± 0.003(B)	0.017 ± 0.002	0.016 ± 0.002	0.017 ± 0.002
21-Dec-10	0.019 ± 0.002	0.012 ± 0.002	0.017 ± 0.002	0.013 ± 0.002	0.009 ± 0.002
29-Dec-10	0.020 ± 0.002	0.017 ± 0.002	0.022 ± 0.002	0.019 ± 0.002	0.025 ± 0.002
Average:	0.021 ± 0.001	0.019 ± 0.001	0.021 ± 0.001	0.018 ± 0.001	<0.019

(A) Hut door open, vacuum tubing found unplugged; no particulate on filter. Fence and locked gate around hut had been completely removed, apparently for met tower maintenance. Padlock now placed on hut door latch.

(B) Pump failed and was replaced. Estimated run time 125.7 out of 189.8 hours.

2.b.2. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H08	0.1758 ± 0.0123	<0.0226	<0.0013	<0.0010	0.0309 ± 0.0039
H12	0.1552 ± 0.0101	<0.0138	<0.0010	<0.0007	0.0300 ± 0.0027
H14	0.1770 ± 0.0133	<0.0206	<0.0016	<0.0008	0.0235 ± 0.0038
H30	0.1885 ± 0.0121	<0.0171	<0.0016	<0.0010	0.0292 ± 0.0033
H34	0.1817 ± 0.0156	<0.0201	<0.0012	<0.0017	<0.0608

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-10	<138	249 ± 19	<3	<3	<7	<4	<9	<5	<4	<4	<3	<7
	12-Oct-10	<140	252 ± 22	<3	<4	<8	<4	<11	<6	<4	<4	<4	<9
	19-Oct-10	<140	419 ± 37	<4	<3	<7	<4	<7	<6	<4	<5	<4	<14
	26-Oct-10	<140	335 ± 33	<3	<3	<8	<5	<8	<6	<4	<4	<4	<15
	04-Nov-10	<140	370 ± 34	<4	<3	<7	<5	<9	<7	<4	<3	<4	<14
	10-Nov-10	<139	363 ± 27	<4	<5	<9	<5	<12	<8	<7	<5	<5	<8
	16-Nov-10	<160	364 ± 25	<4	<4	<8	<4	<8	<7	<5	<4	<4	<7
	23-Nov-10	<141	362 ± 25	<4	<3	<8	<4	<10	<7	<4	<4	<4	<15
	30-Nov-10	<141	320 ± 23	<4	<4	<8	<4	<8	<7	<4	<4	<3	<13
	06-Dec-10	<140	306 ± 23	<4	<4	<8	<4	<8	<7	<4	<4	<5	<9
	14-Dec-10	<134	328 ± 31	<4	<3	<7	<4	<6	<5	<4	<4	<4	<12
	21-Dec-10	149 ± 42	321 ± 21	<4	<4	<7	<4	<10	<6	<4	<4	<4	<12
	29-Dec-10	167 ± 41	372 ± 23	<2	<3	<5	<3	<6	<4	<4	<3	<3	<4
H59	05-Oct-10	<138	356 ± 32	<3	<4	<7	<4	<9	<7	<5	<5	<4	<8
	04-Nov-10	<140	417 ± 35	<4	<3	<7	<5	<8	<7	<5	<5	<5	<11
	07-Dec-10	<140	386 ± 39	<4	<4	<7	<4	<10	<7	<4	<4	<4	<12

(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 Site	Collection Date	Be-7	K-40	Co-58	Co-60	Cs-134	Cs-137	Pb-210	Ra-226	Th-232	U-238
H15	This sample was previously collected.										
H59	This sample was previously collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	This sample was previously collected.										
H59	This sample was previously collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
H15	This sample was previously collected.										
H59	This sample was previously collected.										

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	Ra-228
H51	05-Oct-10	701 ± 82	3943 ± 209	<17	<19	<15	<2330	<89	439 ± 113	<88
	04-Nov-10	429 ± 29	4253 ± 156	<15	<13	<11	112 ± 28	<20	<215	<47
	07-Dec-10	855 ± 89	4190 ± 263	<19	25	<18	<2570	<103	<374	<90
H52	05-Oct-10	644 ± 63	3614 ± 181	<16	<17	<17	<2205	<77	<278	<62
	04-Nov-10	659 ± 67	4312 ± 149	<15	<12	<9	<770	<82	<222	<44
	07-Dec-10	914 ± 62	4869 ± 162	<11	<12	<11	<771	<80	<222	<38
H59	05-Oct-10	600 ± 75	3835 ± 201	<16	<17	17 ± 6	<2259	<78	<301	<66
	04-Nov-10	473 ± 74	3414 ± 136	<16	<12	<10	<776	<83	<236	<41
	07-Dec-10	653 ± 82	3624 ± 216	<14	20	<17	<2232	<95	<336	<72

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ATTACHMENT C

RESULTS FROM THE 2010

INTERLABORATORY COMPARISON PROGRAM

CONDUCTED BY

DEPARTMENT OF ENERGY

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DOE-MAPEP 22 RESULTS

Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
Matrix: RdF Air Filter Bq/filter				
MN54	3.75	3.02	W	2.11 - 3.93
CO57	0.003		A	Blank (no activity)
CO60	2.62	2.473	A	1.731 - 3.215
ZN65	- 0.001		A	Blank (no activity)
CS134	2.33	2.13	A	1.49 - 2.77
CS137	1.74	1.53	A	107 - 1.99
Matrix: GrF Air Filter Bq/filter				
Gross Beta	1.45	1.29	A	0.65 - 1.94
Matrix: MaS Soil Bq/kg				
K40	602.69	559	A	391 - 727
MN54	915.25	849	A	594 - 1104
CO57	560.22	522	A	365 - 679
CO60	647.25	622	A	435 - 809
ZN65	2.27		A	Blank (no activity)
CS134	704.01	733	A	513 - 953
CS137	816.78	779	A	545 - 1013
Matrix: MaW Water Bq/L				
H3	94.61	90.8	A	63.6 - 118.0
MN54	28.38	26.9	A	18.8 - 35.0
CO57	27.1	28.3	A	19.8 - 36.8
CO60	0.07		A	Blank (no activity)
NI63	62.40	59.9	A	41.9 - 77.9
ZN65	44.83	40.7	A	28.5 - 52.9
CS134	0.11		A	Blank (no activity)
CS137	61.69	60.6	A	42.4 - 78.8
Matrix: RdV Vegetation, Bq/sample :				
MN54	- 0.06		A	Blank (no activity)
CO57	0.08		A	Blank (no activity)
CO60	3.01	3.27	A	2.29 - 4.25
ZN65	6.88	7.1	A	4.97 - 9.23
CS134	3.93	4.39	A	3.07 - 5.71
CS137	2.78	3.06	A	2.14 - 3.98

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

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DOE-MAPEP 23 RESULTS

Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
Matrix: RdF Air Filter Bq/filter				
MN54	3.56	3.18	A	2.23 – 4.13
CO57	3.78	4.08	A	2.86 – 5.30
CO60	2.86	2.92	A	2.04 – 3.80
ZN65	0.06			Blank (no activity)
CS134	2.85	2.98	A	2.09 – 3.87
CS137	- 0.01		A	Blank (no activity)
Matrix: GrF Air Filter Bq/filter				
Gross Beta	0.498	0.50	A	0.25 – 0.75
Matrix: MaS Soil Bq/kg				
K40	716.80	699	A	489 - 909
MN54	874.59	820	A	574 - 1066
CO57	1.20		N	Blank (no activity)
CO60	345.8	343	A	240 - 446
ZN65	290.23	265	A	186 - 345
CS134	952.61	940	A	658 - 1222
CS137	694.27	670	A	469 - 871
Matrix: MaW Water Bq/L				
H3	471.58	453.0	A	317.4 – 589.4
MN54	- 0.14		A	Blank (no activity)
CO57	36.04	36.0	A	25.2 – 46.8
CO60	27.15	28.3	A	19.8 – 36.8
ZN65	32.64	31.0	A	21.7 – 40.3
SR90	7.66	8.3	A	5.8 – 10.8
CS134	30.98	31.4	A	22.0 – 40.8
CS137	44.26	44.2	A	30.9 – 57.5
Matrix: RdV Vegetation, Bq/sample :				
MN54	5.76	6.287	A	4.401 – 8.173
CO57	7.41	8.27	A	5.79 – 10.75
CO60	0.08		A	Blank (no activity)
ZN65	5.14	5.39	A	3.77 – 7.01
CS134	4.56	4.79	A	3.35- 6.23
CS137	5.32	5.88	A	4.12 – 7.64

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

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ATTACHMENT D

Industry Initiative

Ground Water Protection Program

Tritium in Ground Water Monitoring

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A. Description of Program:

Quarterly sampling & analysis for Tritium & principle gamma emitters is performed by the State of Florida Department of Health (DOH) and Bureau of Radiation Control (BRC), pursuant to an Agreement between FPL and DOH, as part of the ODCM REMP sampling program.

The wells identified for radiological environmental sampling in support of the industry initiative are listed below, and in Appendix B-2 of the ODCM. The ten wells are on the 'outside' perimeter of the protected area. Two locations where the Plant ID ends with "S" are shallower wells adjacent, within a few feet, of a deeper well at the same location.

State ID	St. Lucie Plant ID	Location Description
H70	GIS-MW-ES	West of A1A; between the discharge canal and Gate "B"
H71	GIS-MW-EI	West of A1A; between the discharge canal and Gate "B"
H72	GIS-MW-SI	South of Intake canal and the adjacent access road
H73	GIS-MW-SWS	S/W corner of Intake canal and the adjacent access road
H74	GIS-MW-SWI	S/W corner of Intake canal and the adjacent access road
H75	GIS-MW-WI	West of plant site and intake canal; South of switchyard
H76	H76	North of Simulator; South of Big Mud Creek
H77	H77	East of Barge Slip; By LU bldg
H78	H78	South of North Warehouse
H79	H79	West of A1A and East of Parking Lot

B. St. Lucie 2009 Tritium Results [(1)] Summary, pCi/L

Well number	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
H-70	< 150	< 143	< 145	< 140
H-71	316	284	280	432
H-72	< 159	< 143	< 145	< 140
H-73	< 159	< 143	< 145	< 140
H-74	< 159	< 143	< 145	< 140
H-75	< 159	< 143	< 145	< 140
H76	124	< 143	139	122
H77	<159	< 143	< 145	< 140
H78	< 159	< 143	< 145	< 140
H79	<159	< 143	< 145	< 140

Notes

1. Samples analyzed for H3 and principle gamma emitters; tritium is the only fission product identified. Naturally occurring K-40 is occasionally identified.

2. Laboratory H3 MDA is about 140 pCi/liter

Map depicting the well locations follows.

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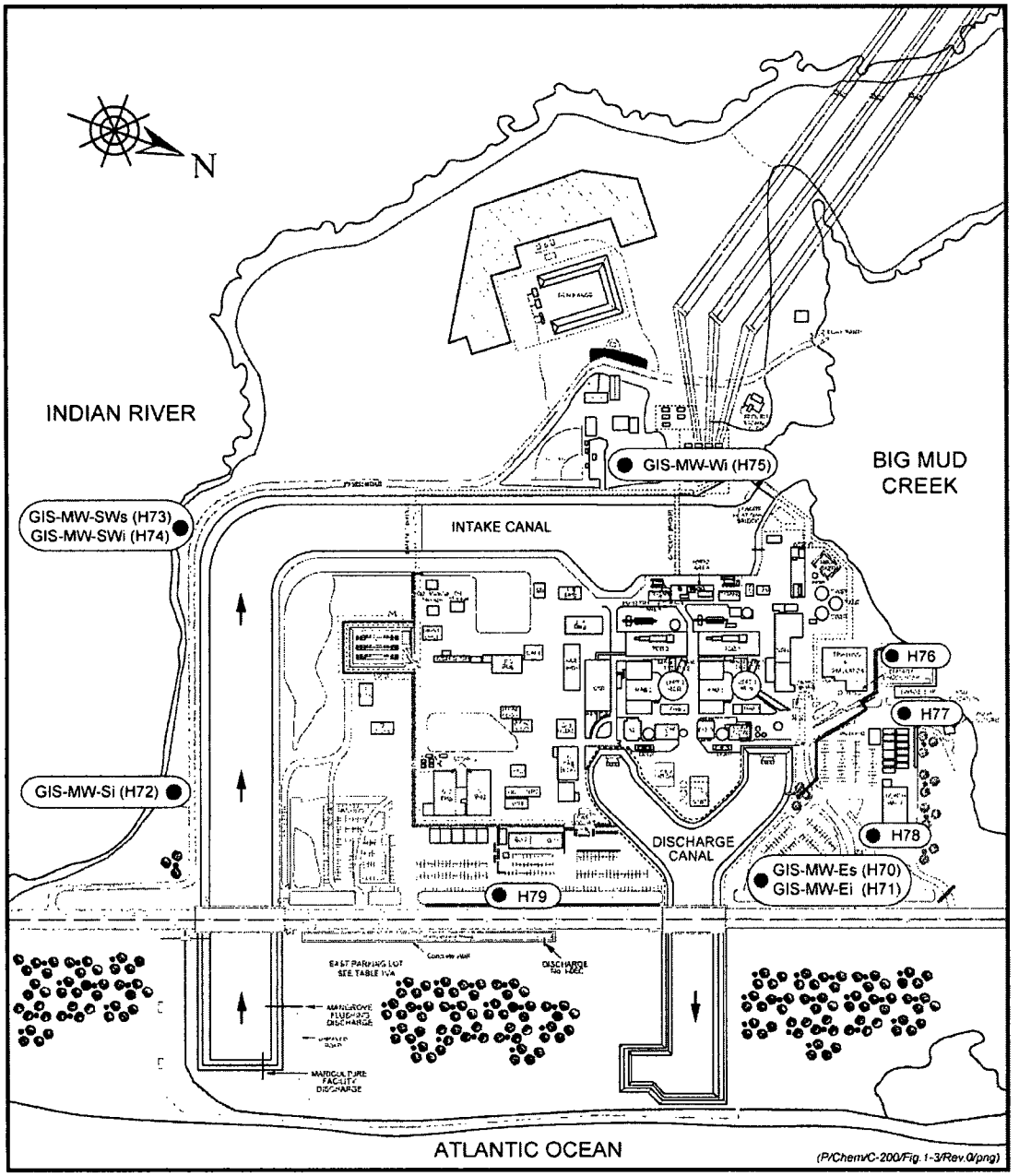
RADIOLOGICAL ENVIRONMENTAL SAMPLING LOCATIONS IN SUPPORT OF THE INDUSTRY INITIATIVE