April 13, 2022

L-2022-062
10 CFR 50.4
10 CFR 50.36

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

Re: St. Lucie Units 1 and 2
Docket Nos. 50-335 and 50-389
Annual Radiological Environmental
Operating Report for Calendar Year 2021

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 2021.

Please contact me at 772-467-7435 with any questions regarding this submittal.

Sincerely,

Wyatt Godes
Regulatory Affairs Manager
St. Lucie Plant

WG/rcs

Enclosure: 2021 Annual Radiological Environmental Operating Report

cc: USNRC Senior Resident Inspector, St. Lucie Units 1 and 2

2021

ANNUAL

RADIOLOGICAL ENVIRONMENTAL

OPERATING REPORT

ST. LUCIE PLANT

UNITS 1 & 2

LICENSE NOS. DPR-67, NPF-16

DOCKET NOS. 50-335, 50-389

Prepared by: _____

Reviewed by: _____

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1. 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 (AREOR) 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.

2. Radiological Environmental Monitoring Program

A. Purpose

The purpose of the Radiological Environmental Monitoring Program (REMP) 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 radioactive effluents monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected based on the effluent measurements and the modeling of the environmental exposure pathways.

B. Program Description

The Radiological Environmental Monitoring Program for the St. Lucie Plant (PSL) 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 weekly. Analyses include Iodine-131 and gross beta weekly, and gamma isotopic measurements of composite quarterly by location.

    c. Surface water samples are collected from two locations. The indicator samples are collected and analyzed weekly, while control samples are collected and analyzed monthly. 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.

2. Analytical Responsibility

Radiological environmental monitoring for PSL is conducted by the State of Florida, Department of Health (DOH), Bureau of Radiation Control (BRC). Samples are collected and analyzed by DOH field and laboratory personnel, respectively. The samples are analyzed at the DOH BRC Environmental Radiation Control Laboratory in Orlando, Florida.

C. Analytical Results

Summarized analysis data and results for all specified samples collected and analyzed during the surveillance period is provided in Section 4. Deviations from the sample schedule or missing data, if any, are noted and explained in Section 5. Samples not meeting the specified "a priori" LLD, if any, are noted and explained in Section 6. Detailed analysis data and results for all samples collected and analyzed by the BRC during the surveillance period is provided in Section 9.

D. Land Use Census

A Land Use Census survey out to a five-mile radius around PSL 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 Section 4.

E. Interlaboratory Comparison Program

The interlaboratory comparison program consists of participating in the DOE Mixed Analyte Performance Evaluation Program (MAPEP) and the Environmental Resources Associates (ERA) RadChem Study proficiency testing. The samples are analyzed using the methods applicable to the REMP (gamma spectroscopy, gross beta, and tritium for water). Results for the interlaboratory comparison program are listed in Section 10.

3. Discussion and Interpretation of Results

A. Reporting of Results

This AREOR contains the summaries, interpretations, and information required by the PSL ODCM. The following tables provide 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 PSL operation. These include nuclides such as Be-7, K-40, Th-232, and Ra-226 which are common and naturally occurring 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 showed no indication of any adverse trends attributed to effluents from the plant. The measured exposure rates were consistent with exposure rates that were observed during the pre-operational surveillance program.

2. Air Particulates/Radioiodine

   The results for radioactive air particulate and radioiodine attributed to plant effluents indicated no trends attributable to plant effluents and were consistent with past measurements. No detectable I-131 was present in any of the radioiodine samples. Gamma isotopic measurements yielded no indication of any nuclides attributed to PSL operation. The results for air particulate/radioiodine samples were consistent with measurements that were made during the pre-operational surveillance program.

3. Waterborne, Surface Water

   The results for radioactivity measurements in surface water were consistent with past measurements and with measurements made during the pre-operational surveillance program. Tritium was reported as present in surface water in 3 out of 52 weekly ODCM-required indicator location samples and 1 out of 12 monthly control location samples. The highest amount of tritium reported was 12% of the required Lower Limit of Detection (LLD) for non-drinking water listed in ODCM Table 4.12-1 and 1.2% of the reporting level for non-drinking water listed in ODCM Table 3.12-2. There was no indication of any other nuclides attributable to plant effluents.

4. Waterborne, Sediment and Food Products

   The results for radioactivity measurements in waterborne sediment and fish samples were consistent with past measurements and with measurements made during the pre-operational surveillance program. For the Fish Ingestion Pathway, Cs-137 was not reported in any indicator samples or control samples. Crustacean samples were not able to be collected during the surveillance period. There was no indication of any other nuclides attributable to plant effluents.

5. Broad Leaf Vegetation

   The results for radioactivity measurements in broad leaf vegetation were consistent with past measurements and with measurements made during the pre-operational surveillance program. Cs-137 was not present in any of the 24 ODCM-required indicator samples and was present in 1 of the 12 control location samples. The amount of Cs-137 reported was 15% of the required LLD listed in ODCM Table 4.12-1 and 0.6% of the reporting level listed in ODCM Table 3.12-2.There were no indications of any other nuclides attributable to plant effluents.

6. Land Use Census

   Two changes were identified as compared to the 2020 Land Use Census results; two previously identified gardens were no longer present. No locations within a 5-mile radius of PSL were identified with gardens or with potential milk-producing animals (cows or goats).

   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 as part of the REMP were identified by the Land Use Census.

7. Interlaboratory Comparison Program

   The State of Florida DOH BRC laboratory participated in MAPEP Series 44, MAPEP Series 45, and the ERA RadCheM Study 125 with satisfactory results. This satisfied the requirements for the Interlaboratory Comparison Program as directed in the PSL ODCM.

C. Conclusions

The data obtained through the PSL REMP 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 increasing due to station operation. Measured exposure rates are consistent with the exposure rates observed during the pre-operational surveillance program.

- Results for air particulate/radioiodine samples are consistent with measurements that were made during the pre-operational surveillance program.
- The highest value for tritium in surface water, based on 3 positive indicator samples, was 12% of the required LLD listed in ODCM Table 4.12-1 and 1.2% of the reporting level listed in ODCM Table 3.12-1. There was no indication of any other nuclides attributable to plant effluents.
- There was no indication of any nuclides in the waterborne sediment or food product samples that could be attributed to plant effluents.
- The amount of Cs-137 reported in the single positive broad leaf vegetation control sample was 15% of the required LLD listed in ODCM Table 4.12-1 and 0.6% of the reporting level listed in ODCM Table 3.12-2. There were no indications of any other nuclides attributable to plant effluents.

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

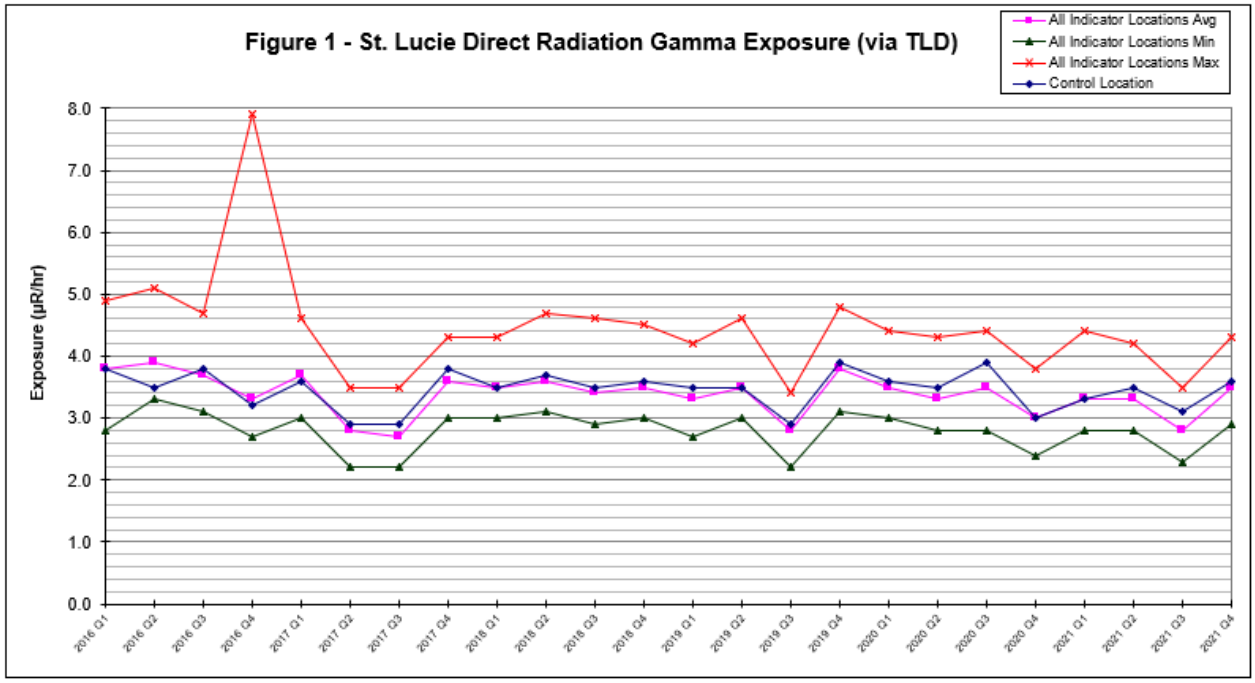
4. Environmental Radiological Monitoring Program Annual Summary

I. Direct Radiation

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

Type of Analyses	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 Location Mean (f)[b] Range
Exposure[d]	108	----------	3.22 (104/104) 2.27-4.35	NW-10 9.6 mi., NW	4.09 (4/4) 3.48-4.35	3.37 (4/4) 3.06-3.62

Number of Non-Routine Reported Measurements = 0.

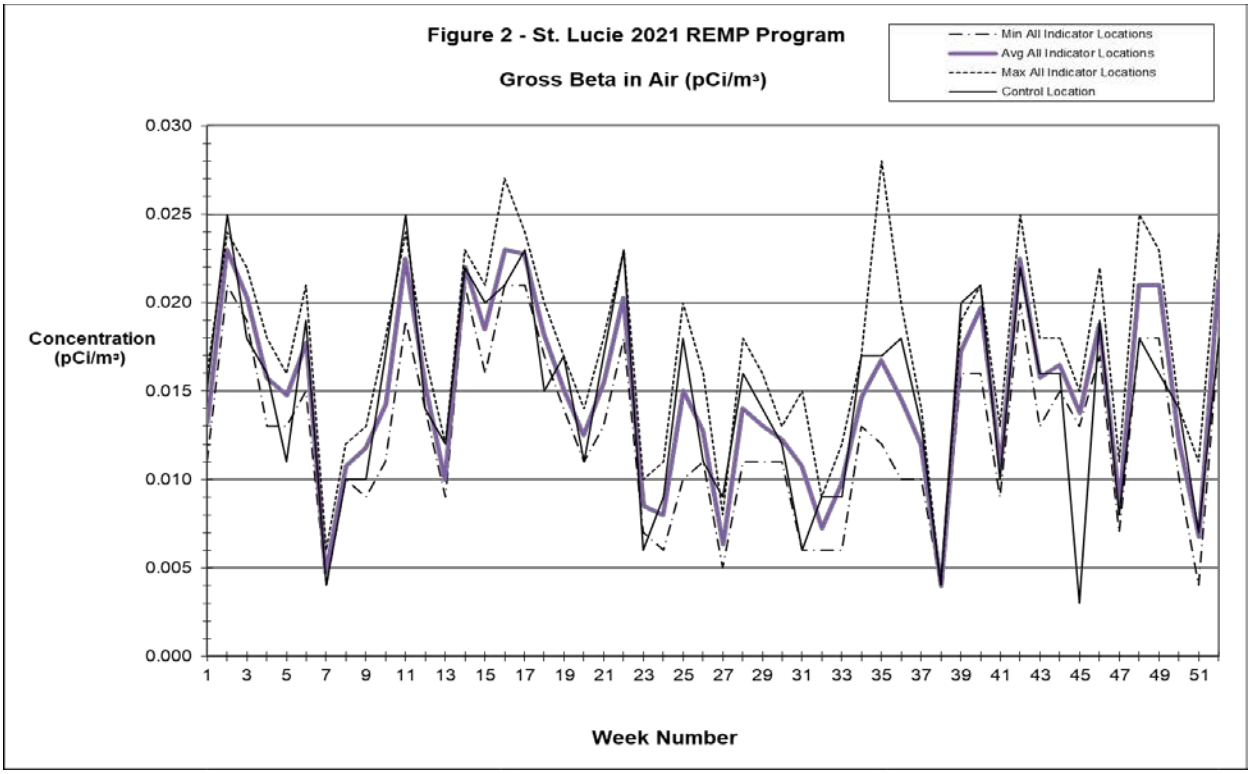


II. Air Particulates/Radioiodine

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

Type of Analyses	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	Mean (f)[b] Range	Control Location Mean (f)[b] Range
^{131}I	260	0.012	<MDA (0/208)	----------	----------	<MDA (0/52)
			----------	----------	----------	----------
Gross Beta	260	0.0064	0.0147 (202/208)	H30	0.015 (50/52)	0.015 (52/52)
			0.004-0.028	2 mi., W	0.004-0.028	0.003-0.025
Composite Gamma	100					
^{7}Be		0.006	0.1297 (16/16)	H14	0.1382 (4/4)	0.1344 (4/4)
			0.0738-0.1880	1 mi., SE	0.0999-0.1880	0.0967-0.1750
^{40}K		0.018	<MDA (0/16)	----------	----------	<MDA (0/4)
^{134}Cs		0.0008	<MDA (0/16)	----------	----------	<MDA (0/4)
^{137}Cs		0.0008	<MDA (0/16)	----------	----------	<MDA (0/4)
^{210}Pb		----------	0.0105 (4/16)	H30	0.0145 (1/4)	0.0099 (2/4)
			0.0063-0.0145	2 mi., W	0.0145-0.0145	0.0065-0.0132

Be-7, K-40, and Pb-210 are naturally occurring.
Number of Non-Routine Reported Measurements = 0.



III. Waterborne, Surface Water

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

Type of Analyses	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	172	206 (3/52)	H15	206 (3/52)	94 (1/12)
			106-360	<1mi., ENE/E/ESE	106-360	94-94
Gamma Isotopic	704					
^{40}K		58	350 (52/52)	H15	350 (52/52)	343 (12/12)
			300-430	<1mi., ENE/E/ESE	300-430	288-382
^{54}Mn		3	<MDA (0/52)	---	---	<MDA (0/12)
^{59}Fe		6	<MDA (0/52)	---	---	<MDA (0/12)
^{58}Co		3	<MDA (0/52)	---	---	<MDA (0/12)
^{60}Co		4	<MDA (0/52)	---	---	<MDA (0/12)
^{65}Zn		7	<MDA (0/52)	---	---	<MDA (0/12)
^{95}Zr-Nb		6-3	<MDA (0/52)	---	---	<MDA (0/12)
^{131}I		4	<MDA (0/52)	---	---	<MDA (0/12)
^{134}Cs		4	<MDA (0/52)	---	---	<MDA (0/12)
^{137}Cs		4	<MDA (0/52)	---	---	<MDA (0/12)
^{140}Ba-La		9-3	<MDA (0/52)	---	---	<MDA (0/12)

K-40 is naturally occurring.
Number of Non-Routine Reported Measurements = 0.

IV. Waterborne, Sediment and Food Products

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SHORELINE SEDIMENT
UNITS: pico-Ci/kg DRY

Type of Analyses	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	44					
^{7}Be		56	75 (1/2)	H-15	75 (1/2)	<MDA (0/2)
			75-75	<1mi, ENE/E/ESE	75-75	----------
^{40}K		100	212 (2/2)	H15	212 (2/2)	136 (2/2)
			184-239	<1mi, ENE/E/ESE	184-239	102-169
^{58}Co		6	<MDA (0/2)	----------	----------	<MDA (0/2)
^{60}Co		7	<MDA (0/2)	----------	----------	<MDA (0/2)
^{134}Cs		7	<MDA (0/2)	----------	----------	<MDA (0/2)
^{137}Cs		7	<MDA (0/2)	----------	----------	<MDA (0/2)
^{210}Pb		----------	<MDA (0/2)	----------	----------	<MDA (0/2)
^{226}Ra		15	285 (1/2)	H15	285 (1/2)	245 (1/2)
			285-285	<1mi, ENE/E/ESE	285-285	245-245
^{232}Th		25	53 (1/2)	H15	53 (1/2)	<MDA (0/2)
			53-53	<1mi, ENE/E/ESE	53-53	----------
^{235}U		----------	18 (1/2)	H15	18 (1/2)	15 (1/2)
			18-18	<1mi, ENE/E/ESE	18-18	15-15
^{238}U		----------	132 (2/2)	H15	132 (2/2)	120 (2/2)
			43-220	<1mi, ENE/E/ESE	43-220	80-160

Be-7, K-40, Pb-210, Ra-226, Th-232, U-235, and U-238 are naturally occurring.
Number of Non-Routine Reported Measurements = 0.

PATHWAY: INGESTION
SAMPLES COLLECTED: CRUSTACEA — Unable to collect sample during 2021.
UNITS: pico-Ci/kg WET

Type of Analyses	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	0					
^{40}K		270	----------	----------	----------	----------
^{54}Mn		16	----------	----------	----------	----------
^{58}Co		15	----------	----------	----------	----------
^{60}Co		16	----------	----------	----------	----------
^{134}Cs		16	----------	----------	----------	----------
^{137}Cs		18	----------	----------	----------	----------
^{226}Ra		300	----------	----------	----------	----------
^{228}Ra		58	----------	----------	----------	----------
^{59}Fe		28	----------	----------	----------	----------
^{65}Zn		32	----------	----------	----------	----------

K-40, Ra-226, and Ra-228 are naturally occurring.
Number of Non-Routine Reported Measurements = 0.

Per Technical Specification 3.12.4 and the ODCM, “In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted as soon as possible in a supplementary report.” After repeated attempts, crustacean samples were unable to be obtained during the surveillance period. The crabs normally collected live under large rocks in the deepest part of the canal (25+ feet deep). The crabs are collected while free-diving, which only allows a few seconds for a diver on the canal bottom to flip a rock and collect the specimen. Crab traps were deployed but were not able to be placed in the areas where the crabs live. St. Lucie Nuclear Chemistry personnel are continuing to work with the DOH BRC staff on a method to reliably obtain crustaceans for analysis is 2022.

PATHWAY: INGESTION
SAMPLES COLLECTED: FISH
UNITS: pico-Ci/kg WET

Type of Analyses	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	40					
^{40}K		270	2640 (2/2)	H15	2640 (2/2)	2455 (2/2)
			2500-2780	<1mi., ENE/E/ESE	2500-2780	2410-2500
^{54}Mn		16	<MDA (0/2)	----------	----------	<MDA (0/2)
^{58}Co		15	<MDA (0/2)	----------	----------	<MDA (0/2)
^{60}Co		16	<MDA (0/2)	----------	----------	<MDA (0/2)
^{134}Cs		16	<MDA (0/2)	----------	----------	<MDA (0/2)
^{137}Cs		18	<MDA (0/2)	----------	----------	<MDA (0/2)
^{226}Ra		300	<MDA (0/2)	----------	----------	<MDA (0/2)
^{228}Ra		58	<MDA (0/2)	----------	----------	<MDA (0/2)
^{59}Fe		28	<MDA (0/2)	----------	----------	<MDA (0/2)
^{65}Zn		32	<MDA (0/2)	----------	----------	<MDA (0/2)

K-40, Ra-226, and Ra-228 are naturally occurring.
Number of Non-Routine Reported Measurements = 0.

V. Broad Leaf Vegetation

PATHWAY: INGESTION
SAMPLES COLLECTED: BROADLEAF VEGETATION
UNITS: pico-Ci/kg WET

Type of Analyses	Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean Name Distance & Direction	Location with Highest Annual Mean Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic	324					
^{7}Be		64	1333 (24/24)	H51	1412 (12/12)	976 (12/12)
			385-3010	1mi., N/NNW	385-3010	483-1460
^{40}K		120	3519 (24/24)	H51	3929 (12/12)	2514 (12/12)
			1830-5110	1mi., N/NNW	1850-5110	2040-3270
^{131}I		8	<MDA (0/24)	----------	----------	<MDA (0/12)
^{134}Cs		8	<MDA (0/24)	----------	----------	<MDA (0/12)
^{137}Cs		8	<MDA (0/24)	----------	----------	12 (1/12)
						12-12
^{210}Pb		----------	261 (12/24)	H52	296 (6/12)	126 (2/12)
			130-455	1mi., S/SSE	166-455	108-143
^{212}Pb		----------	37 (3/24)	H51	37 (3/12)	35 (3/12)
			24-56	1mi., N/NNW	24-56	24-40
^{226}Ra		189	<MDA (0/24)	----------	----------	<MDA (0/12)
^{228}Ra		29	<MDA (0/24)	----------	----------	<MDA (0/12)

Be-7, K-40, Pb-210, Pb-212, Ra-226, and Ra-228 are naturally occurring.
Number of Non-Routine Reported Measurements = 0.

NOTES

a. The LLD is an "a priori" value 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 are at the time of sample measurement.

   Minimum Detectable Activity (MDA) reported in the Quarterly Reports (Section 9) for the individual samples have been corrected to the time of sample collection.

b. Mean and Range are based upon detectable measurements only. The fraction of detectable measurements at specified locations is indicated in parentheses (f).

c. Specific identifying information for each sample location is provided in Section 7.

d. Results were based upon the average net response of three elements in a TLD.

VI. Land Use Census

The PSL Annual Land Use Census Survey was performed during the months of June and July 2021. Two changes were identified as compared to the 2020 Land Use Census; 2 previously identified gardens no longer existed within the SSW and WSW sectors. No locations with a garden or with potential milk-producing animals (cows or goats) were identified within a 5-mile radius of the St. Lucie Plant.

2021 St. Lucie Land Use Census: Distance to Nearest Location[a, b]			
Sector	**Residence**	**Garden[d]**	**Milk Animal[c]**
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	(A) 1.5 / 142° (B) 1.6 / 145°	O	O
SSE	(A) 1.8 / 147°[g] (B) 2.0 / 149°	L[f]	L
S	3.3 / 190°	L	L
SSW	2.2 / 212°	L	L
SW	1.9 / 234°	L	L
WSW	1.9 / 240°	L	L
W	1.9 / 260°	L	L
WNW	2.3 / 281°	L	L
NW	3.4 / 304°	L	L
NNW	(A) 2.7 / 344° (B) 2.8 / 343°	L	L

NOTES

a. All categories surveyed out to a 5-mile radius from the St. Lucie Plant.

b. The format used to denote location is:

distance (miles) / bearing (degrees).

For example, a residence located in the southeast sector at 1.5 miles bearing 142 degrees is recorded as 1.5 / 142°.

c. Potential milk animal locations.

d. Only gardens with an estimated total area of 500 square feet or more and producing green leafy vegetables are considered.

e. “O” denotes the sector is predominantly an ocean area.

f. “L” denotes the sector is predominantly a land area that is unoccupied by the category type.

g. Non-residential occupied buildings in this sector include:

Sector	Distance	Description
SSE (A)	1.8 / 147°	Fire Station

5. Deviations / Missing Data

Instances of missing data and air sampler partial run times are listed below.

A. Pathway: Ingestion – Food Products (Crustacea)
Location: H15 (Ocean side vicinity of St. Lucie Plant)
Dates: 1/1/21 – 12/31/21 (2 semi-annual indicator samples)
Deviation: Failure to perform environmental surveillance.
Description: Crustaceans were not able to be located and collected for semi-annual analysis during 2021.
Corrective Action: Continue working with BRC field team staff in 2022 to obtain crustacea for analysis. Report results, when available, in a supplemental report per the ODCM.

B. Pathway: Ingestion – Food Products (Crustacea)
Location: H59 (Near south end of Hutchinson Island)
Dates: 1/1/21 – 12/31/21 (2 semi-annual control samples)
Deviation: Failure to perform environmental surveillance.
Description: Crustaceans were not able to be located and collected for semi-annual analysis during 2021.
Corrective Action: Continue working with BRC field team staff in 2022 to obtain crustacea for analysis. Report results, when available, in a supplemental report per the ODCM.

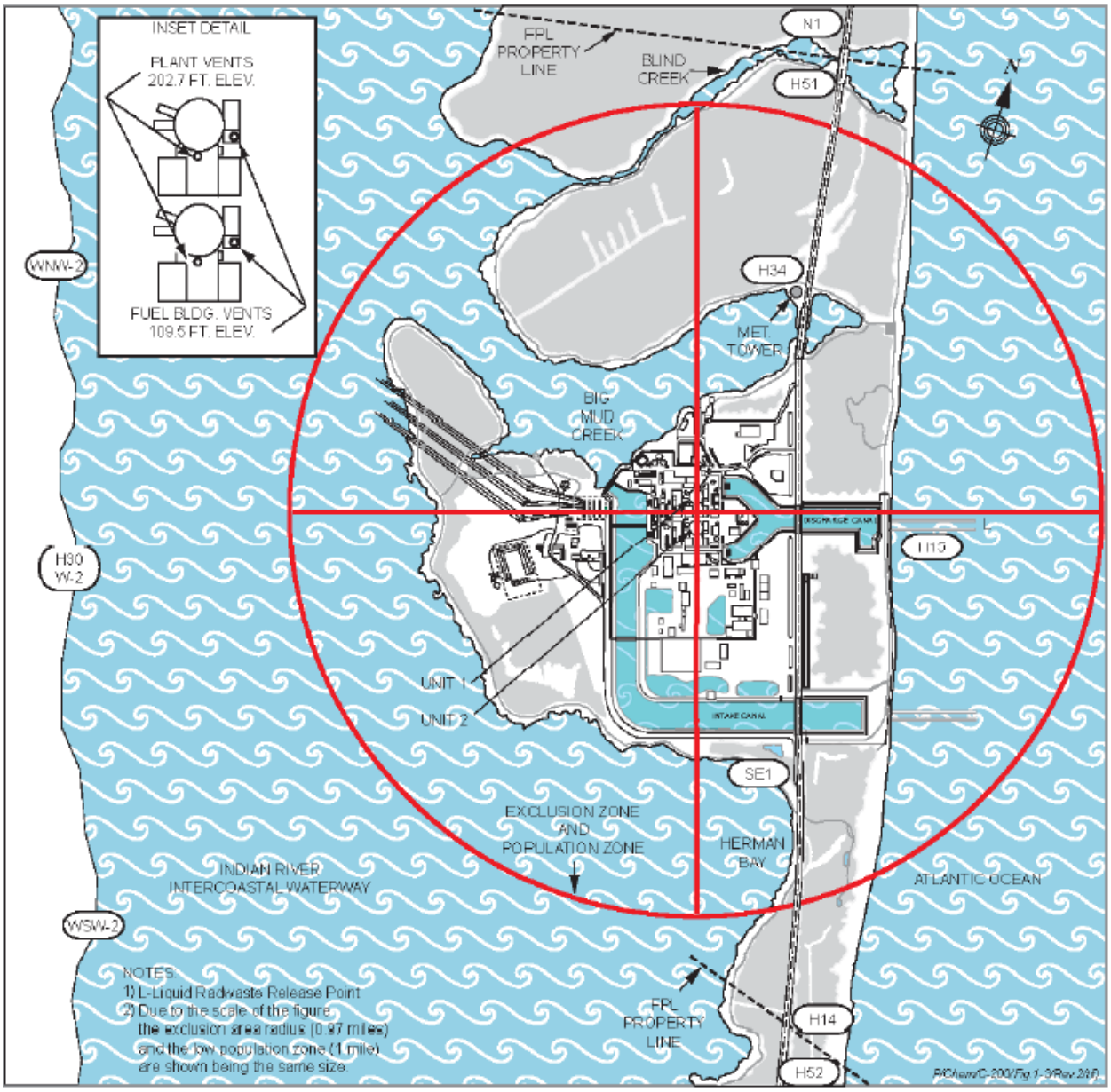
C. Pathway: Airborne: Radioiodine and Particulates
Location: H34 (Onsite – at Meteorological Tower)
Dates: 03/30/21-04/08/21
Deviation: Failure to perform continuous monitoring.
Description: Sample pump failure during the sampling week. Estimated run time for the week was 111 hours out of 217 (106 hours down time).
Corrective Action: Replaced the pump.

6. Analyses with LLDs Above Required Detection Capabilities

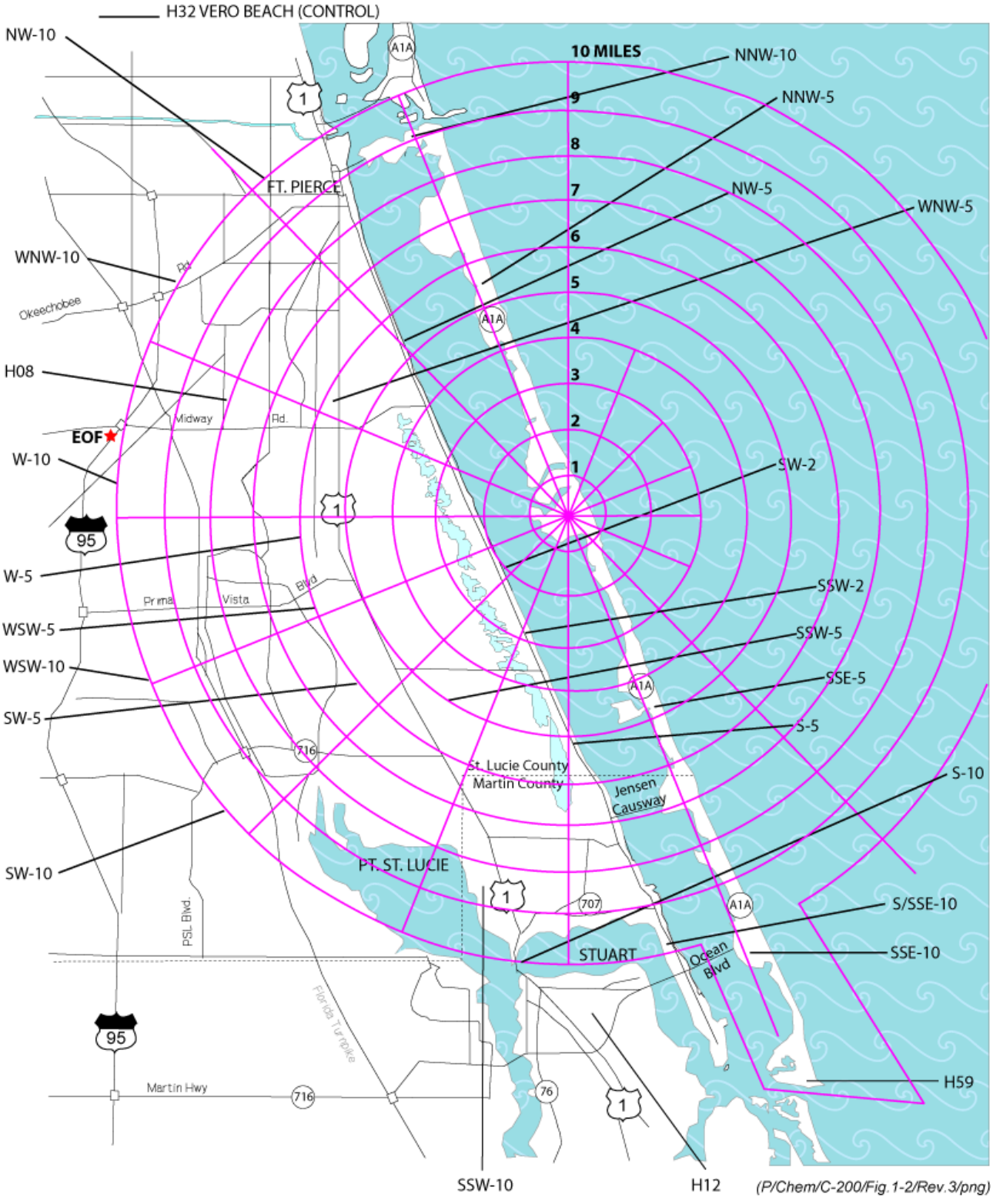
The values specified in ODCM Table 4.12-1 Detection Capabilities For Environmental Sample Analysis were achieved for all samples. REMP sampling deviations and missing data are listed in Section 5.

7. Key to Sample Locations

Site Area Map & Environmental Sample Locations



Environmental Sample Locations (10 Miles)



PATHWAY: Direct Radiation
SAMPLES COLLECTED: TLD
SAMPLE FREQUENCY: Quarterly

Location Name	Direction Sector	Approximate Distance (Miles)	Description
N-1	N	1	North of Blind Creek (A1A)
NNW-5	NNW	4.8	Frederick Douglas Beach Entrance
NNW-10	NNW	8.7	Coast Guard Station
NW-5	NW	5.4	Indian River Drive at Rio Vista Drive
NW-10	NW	9.6	Intersection of SR 68 and 33rd St (FPL Facility)
WNW-2	WNW	2.3	Cemetery South of 7107 Indian River Drive
WNW-5	WNW	5.1	US-1 at SR 712
WNW-10	WNW	10	SR 70, Just West of I-95
W-2	W	2	Power Line - 77609 Indian River Drive
W-5	W	5.4	Oleander and Sager Streets
W-10	W	10.3	I-95 and SR 709
WSW-2	WSW	1.8	8503 Indian River Drive
WSW-5	WSW	5.6	Prima Vista Blvd. at Yacht Club
WSW-10	WSW	10	Del Rio and Davis Streets
SW-2	SW	2	9205 Indian River Drive
SW-5	SW	4.5	FPL Walton Service Center
SW-10	SW	10.2	Port St. Lucie Blvd. and Cairo Road
SSW-2	SSW	2.6	10307 Indian River Drive
SSW-5	SSW	6	Port St. Lucie Blvd. and US-1
SSW-10	SSW	8	Pine Valley and Westmoreland Roads
S-5	S	5.2	13189 Indian River Drive
S-10	S	10.8	US 1 and Palm City Ave
S/SSE-10	SSE	9.9	Indian River Drive and 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
H32 (Control)	NNW	18.1	U. of Florida - IFAS Entomology Lab Vero Beach

PATHWAY: Airborne
SAMPLES COLLECTED: Radioiodine and Particulates
SAMPLE FREQUENCY: Weekly

Location Name	Direction Sector	Approximate Distance (Miles)	Description
H08	WNW	6	FPL Substation – Weatherbee Road
H14	SE	1	On-Site - Near South Property Line
H30	W	2	Power Line - 7609 Indian River Drive
H34	N	0.5	On-Site - At Meteorological Tower
H12 (Control)	S	12	FPL Substation, SR-76 Stuart

PATHWAY: Waterborne
SAMPLES COLLECTED: Surface Water (Ocean)
SAMPLE FREQUENCY: H-15 Weekly; H-59 Monthly

Location Name	Direction Sector	Approximate Distance (Miles)	Description
H15	ENE/E/ESE	<1	Atlantic Ocean Public Beaches, East Side A1A
H59 (Control)	S/SSE	10-20	Near South End of Hutchinson Island

SAMPLES COLLECTED: Shoreline Sediment
SAMPLE FREQUENCY: Semi-Annually

Location Name	Direction Sector	Approximate Distance (Miles)	Description
H15	ENE/E/ESE	<1	Atlantic Ocean Public Beaches, East Side A1A
H59 (Control)	S/SSE	10-20	Near South End of Hutchinson Island

PATHWAY: Ingestion – Food Products
SAMPLES COLLECTED: Crustacea and Fish
SAMPLE FREQUENCY: Semi-Annually

Location Name	Direction Sector	Approximate Distance (Miles)	Description
H15	ENE/E/ESE	<1	Ocean Side, Vicinity of St. Lucie Plant
H59 (Control)	S/SSE	10-20	Near South End of Hutchinson Island

SAMPLES COLLECTED: Broad Leaf Vegetation – Food Products
SAMPLE FREQUENCY: Monthly

Location Name	Direction Sector	Approximate Distance (Miles)	Description
H51	N/NNW	1	Off-Site Near North Property Line
H52	S/SSE	1	Off-Site Near South Property Line
H59 (Control)	S/SSE	10-20	Near South End of Hutchinson Island

8. Ground Water Protection – Industry Initiative

A. Description of Program

Quarterly ground water sampling was performed by the State of Florida Department of Health (DOH), Bureau of Radiation Control (BRC), pursuant to an agreement between FPL and the DOH as part of the ODCM REMP sampling program. Samples were analyzed for tritium and principle gamma emitters, and tritium was the only fission product identified. Naturally occurring potassium (K-40) was identified occasionally.

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 10 wells are on the outside perimeter of PSL's Protected Area. The two locations with the St. Lucie Plant ID ending in "S" (H70 and H73) are shallower wells adjacent (within a few feet) to a deeper well at the same location.

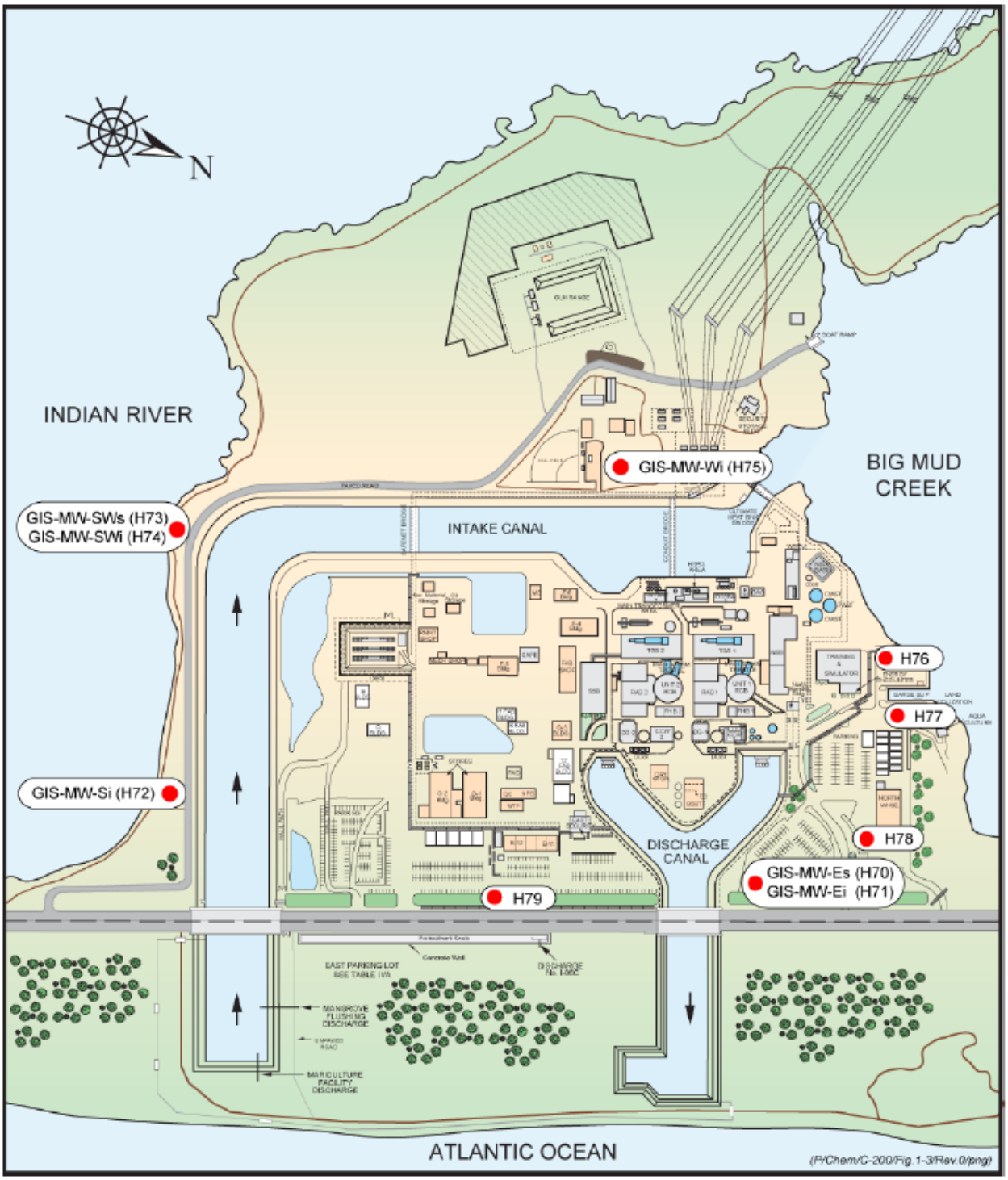
State ID	St. Lucie Plant ID	Location Description
H70	GIS-MW-ES	West of A1A; Between the Discharge Canal and Gate "B"
H71	GIS-MW-EI	West of A1A; Between the Discharge Canal and Gate "B"
H72	GIS-MW-SI	South of Intake Canal and the adjacent access road
H73	GIS-MW-SWS	S/W corner of Intake Canal and the adjacent 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 Land Utilization Building
H78	H78	South of North Warehouse
H79	H79	West of A1A and East of Parking Lot

B. St. Lucie 2021 Tritium Results[1] Summary (pCi/L)

State ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
H70	<142	94	<136	<133
H71	511	413	386	541
H72	<142	<134	<136	<133
H73	<136	<134	<136	<133
H74	<136	<134	<136	<131
H75	<142	<134	<136	<131
H76	<142	<134	<136	<133
H77	<142	<134	<136	<131
H78	<142	<139	<136	<131
H79	<142	<139	105	<133

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

C. Map of Groundwater Water Protection – Industry Initiative Wells



9. Radiological Surveillance of Florida Power & Light Company - St. Lucie Site

A. First Quarter 2021

RADIOLOGICAL SURVEILLANCE

OF

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT

FIRST QUARTER 2021

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

First Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	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	0
4.a.2. Fish	Semiannually	2	0
4.b. Broadleaf Vegetation	Monthly	3	9

Total: 184

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 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 – DEPLOYED TLD's – (μR/hour)

Sample Site	Deployment 15-Dec-20 Collection 11-Mar-21	Sample Site	Deployment 15-Dec-20 Collection 11-Mar-21
N-1	3.16 ± 0.12	SW-2	3.19 ± 0.22
NNW-5	3.15 ± 0.37	SW-5	3.66 ± 0.71
NNW-10	3.88 ± 0.34	SW-10	3.28 ± 0.57
NW-5	3.13 ± 0.16	SSW-2	3.23 ± 0.32
NW-10	4.35 ± 0.34	SSW-5	3.55 ± 0.39
WNW-2	3.22 ± 0.26	SSW-10	3.01 ± 0.45
WNW-5	3.56 ± 0.02	S-5	3.36 ± 0.63
WNW-10	3.17 ± 0.39	S-10	3.04 ± 0.11
W-2	3.28 ± 0.44	S/SSE-10	3.51 ± 0.16
W-5	3.67 ± 0.37	SSE-5	3.22 ± 0.43
W-10	2.77 ± 0.36	SSE-10	3.14 ± 0.36
WSW-2	3.39 ± 0.30	SE-1	3.04 ± 0.39
WSW-5	3.48 ± 0.12	H-32	3.27 ± 0.48
WSW-10	2.88 ± 0.25		

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

Collection Date	H08	H12	H14	H30	H34
05-Jan-21	<0.03	<0.03	<0.03	<0.03	<0.03
13-Jan-21	<0.01	<0.01	<0.01	<0.01	<0.01
20-Jan-21	<0.01	<0.01	<0.01	<0.01	<0.01
26-Jan-21	<0.02	<0.02	<0.02	<0.02	<0.02
03-Feb-21	<0.02	<0.02	<0.02	<0.02	<0.02
09-Feb-21	<0.03	<0.03	<0.02	<0.03	<0.03
16-Feb-21	<0.02	<0.02	<0.02	<0.02	<0.02
23-Feb-21	<0.02	<0.02	<0.02	<0.02	<0.02
03-Mar-21	<0.01	<0.01	<0.01	<0.01	<0.01
10-Mar-21	<0.02	<0.02	<0.02	<0.02	<0.02
17-Mar-21	<0.02	<0.02	<0.02	<0.02	<0.02
22-Mar-21	<0.04	<0.04	<0.04	<0.04	<0.04
30-Mar-21	<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
05-Jan-21	0.011 ± 0.002	0.015 ± 0.002	0.013 ± 0.002	0.016 ± 0.002	0.013 ± 0.002
13-Jan-21	0.024 ± 0.002	0.025 ± 0.002	0.023 ± 0.002	0.024 ± 0.002	0.021 ± 0.002
20-Jan-21	0.022 ± 0.002	0.018 ± 0.002	0.019 ± 0.002	0.019 ± 0.002	0.021 ± 0.002
26-Jan-21	0.013 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.015 ± 0.002	0.017 ± 0.002
03-Feb-21	0.016 ± 0.002	0.011 ± 0.002	0.013 ± 0.002	0.015 ± 0.002	0.015 ± 0.002
09-Feb-21	0.021 ± 0.002	0.019 ± 0.002	0.018 ± 0.002	0.017 ± 0.002	0.015 ± 0.002
16-Feb-21	0.004 ± 0.001	0.004 ± 0.001	0.006 ± 0.002	0.004 ± 0.001	0.005 ± 0.001
23-Feb-21	0.011 ± 0.002	0.010 ± 0.002	0.012 ± 0.002	0.010 ± 0.002	0.010 ± 0.002
03-Mar-21	0.013 ± 0.002	0.010 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.009 ± 0.002
10-Mar-21	0.018 ± 0.002	0.017 ± 0.002	0.016 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
17-Mar-21	0.019 ± 0.002	0.025 ± 0.002	0.024 ± 0.002	0.024 ± 0.002	0.023 ± 0.002
22-Mar-21	0.014 ± 0.002	0.014 ± 0.002	0.016 ± 0.002	0.014 ± 0.002	0.017 ± 0.002
30-Mar-21	0.010 ± 0.002	0.012 ± 0.002	0.012 ± 0.002	0.009 ± 0.002	0.009 ± 0.002
Average:	0.015 ± 0.002	0.015 ± 0.001	0.016 ± 0.002	0.015 ± 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	0.1440 ± 0.0093	<0.0150	<0.0012	<0.0009	<0.0152
H12	0.1750 ± 0.0112	<0.0160	<0.0010	<0.0009	<0.0106
H14	0.1880 ± 0.0104	<0.0125	<0.0013	<0.0009	<0.0157
H30	0.1460 ± 0.0084	<0.0171	<0.0009	<0.0008	0.0145 ± 0.0029
H34	0.1300 ± 0.0080	<0.0182	<0.0009	<0.0008	0.0127 ± 0.0026

3.a. SURFACE WATER – (pCi/L)

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	05-Jan-21	<136	370 ± 31	<4	<4	<9	<4	<7	<7	<8	<4	<4	<6
	13-Jan-21	<136	376 ± 27	<3	<3	<7	<4	<7	<6	<4	<4	<4	<4
	20-Jan-21	<137	348 ± 27	<3	<4	<6	<4	<7	<5	<4	<4	<4	<4
	26-Jan-21	<137	414 ± 29	<3	<3	<7	<3	<8	<6	<4	<3	<4	<4
	03-Feb-21	<142	384 ± 27	<3	<3	<6	<4	<7	<6	<4	<4	<3	<4
	09-Feb-21	<136	361 ± 27	<4	<3	<7	<3	<8	<6	<4	<4	<4	<4
	16-Feb-21	<136	345 ± 26	<3	<3	<7	<4	<8	<7	<4	<3	<4	<4
	23-Feb-21	<142	309 ± 24	<4	<4	<8	<4	<8	<6	<4	<3	<4	<4
	03-Mar-21	<136	366 ± 27	<3	<3	<7	<4	<8	<5	<4	<3	<4	<4
	11-Mar-21	<139	346 ± 26	<3	<3	<7	<4	<8	<6	<4	<4	<4	<4
	17-Mar-21	<138	430 ± 29	<3	<4	<6	<3	<7	<6	<3	<3	<3	<4
	22-Mar-21	<138	354 ± 26	<4	<3	<8	<3	<7	<6	<4	<3	<4	<4
	30-Mar-21	<138	425 ± 29	<3	<3	<8	<3	<7	<4	<4	<3	<4	<4
H59	13-Jan-21	<136	371 ± 27	<3	<3	<7	<4	<7	<6	<4	<3	<4	<4
	17-Feb-21	<136	332 ± 26	<4	<3	<7	<4	<8	<6	<3	<3	<4	<4
	11-Mar-21	<139	288 ± 24	<3	<3	<7	<3	<8	<7	<4	<3	<3	<4

(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	17-Feb-21	<78	184 ± 32	<7	<6	<7	<7	<339	<232	<49	<34	43 ± 21
H59	17-Feb-21	<67	169 ± 43	<8	<8	<7	<7	<330	<188	<62	<12	80 ± 21

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	These samples not yet collected.										
H59											

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	These samples not yet collected.										
H59											

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	13-Jan-21	1780 ± 65	4550 ± 177	<9	<8	<10	130 ± 28	<20	<220	<38
	17-Feb-21	1250 ± 55	3400 ± 150	<9	<9	<9	<248	<18	<213	<40
	11-Mar-21	1620 ± 63	1850 ± 103	<10	<8	<9	<669	<19	<215	<33
H52	13-Jan-21	1970 ± 75	3000 ± 145	<12	<10	<11	455 ± 84	<21	<235	<49
	17-Feb-21	1310 ± 58	1830 ± 109	<9	<10	<10	330 ± 75	<14	<229	<38
	11-Mar-21	1490 ± 60	3910 ± 158	<14	<8	<9	<107	<18	<200	<38
H59	13-Jan-21	1160 ± 46	2780 ± 117	<9	<7	<8	<84	<16	<170	<31
	17-Feb-21	715 ± 44	2040 ± 113	<9	<9	<10	108 ± 66	24 ± 6	<222	<39
	11-Mar-21	692 ± 38	2140 ± 105	<11	<7	<8	<545	<15	<187	<26

ST. LUCIE SITE

Supplemental Sampling

First Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	9	9
2. Airborne			
2.a. Air Iodines	Weekly	3	39
2.b. Air Particulates	Weekly	3	39
3. Waterborne			
3.a. Surface Water	Monthly	2	6
3.b. Shoreline Sediment	Semiannually	4	4
3.c. Beach Sand	Semiannually	3	3
3.d. Ground Water	Quarterly	10	10
4. Ingestion			
4.a. Garden Crop	Annually	1	0
4.b. Citrus	Annually	1	1

Total: 111

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

1. DIRECT RADIATION – DEPLOYED TLD's – (μR/hour)

Sample Site	Deployment 15-Dec-20 Collection 11-Mar-21
H08	3.66 ± 0.24
H09	3.71 ± 0.38
H12	7.24 ± 0.21
H14	3.52 ± 0.44
H33	3.48 ± 0.33
H34	3.31 ± 0.43
H60	3.35 ± 0.50
H61	4.58 ± 0.55
H62	3.82 ± 0.55

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

Collection Date	H09	H32	H33
05-Jan-21	<0.03	<0.03	<0.03
13-Jan-21	<0.01	<0.01	<0.01
20-Jan-21	<0.01	<0.01	<0.01
26-Jan-21	<0.02	<0.02	<0.02
03-Feb-21	<0.02	<0.02	<0.02
09-Feb-21	<0.03	<0.03	<0.03
16-Feb-21	<0.02	<0.03	<0.03
23-Feb-21	<0.02	<0.02	<0.02
03-Mar-21	<0.01	<0.01	<0.01
10-Mar-21	<0.02	<0.02	<0.02
17-Mar-21	<0.02	<0.02	<0.02
22-Mar-21	<0.04	<0.04	<0.04
30-Mar-21	<0.02	<0.02	<0.02

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

Collection Date	H09	H32	H33
05-Jan-21	0.010 ± 0.002	0.014 ± 0.002	0.013 ± 0.002
13-Jan-21	0.027 ± 0.002	0.025 ± 0.002	0.022 ± 0.002
20-Jan-21	0.023 ± 0.002	0.019 ± 0.002	0.016 ± 0.002
26-Jan-21	0.017 ± 0.002	0.018 ± 0.002	0.017 ± 0.002
03-Feb-21	0.015 ± 0.002	0.016 ± 0.002	0.018 ± 0.002
09-Feb-21	0.020 ± 0.002	0.019 ± 0.002	0.010 ± 0.002
16-Feb-21	0.004 ± 0.001	0.005 ± 0.002	0.006 ± 0.002
23-Feb-21	0.008 ± 0.001	0.011 ± 0.002	0.011 ± 0.002
03-Mar-21	0.009 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
10-Mar-21	0.015 ± 0.002	0.012 ± 0.002	0.012 ± 0.002
17-Mar-21	0.019 ± 0.002	0.024 ± 0.002	0.017 ± 0.002
22-Mar-21	0.015 ± 0.002	0.012 ± 0.002	0.013 ± 0.002
30-Mar-21	0.011 ± 0.002	0.013 ± 0.002	0.010 ± 0.002
Average:	0.015 ± 0.001	0.015 ± 0.001	0.014 ± 0.001

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

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H09	0.1630 ± 0.0087	<0.0184	<0.0010	<0.0007	0.0117 ± 0.0026
H32	0.1620 ± 0.0110	<0.0144	<0.0010	<0.0008	0.0123 ± 0.0036
H33	0.1490 ± 0.0093	<0.0164	<0.0013	<0.0009	<0.0148

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)
H13	13-Jan-21	<136	262 ± 23	<3	<3	<6	<4	<7	<6	<4	<4	<4	<4
	17-Feb-21	<136	291 ± 24	<3	<3	<7	<3	<7	<6	<4	<3	<3	<4
	11-Mar-21	<139	330 ± 26	<3	<3	<7	<3	<8	<6	<4	<4	<3	<4
H36	13-Jan-21	<136	308 ± 25	<4	<3	<8	<4	<8	<7	<4	<4	<4	<4
	17-Feb-21	561 ± 53	371 ± 28	<3	<3	<7	<4	<9	<6	<3	<3	<4	<4
	11-Mar-21	<139	345 ± 26	<4	<4	<6	<3	<8	<6	<4	<3	<4	<4

(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
H13	17-Feb-21	<93	397 ± 54	<8	<8	<7	<7	<341	<187	<66	<12	51 ± 21
H16	17-Feb-21	<73	192 ± 31	<7	<6	<7	<7	<254	<223	<50	<14	67 ± 20
H19	17-Feb-21	<62	174 ± 44	<8	<7	<7	<7	<319	<203	<64	<13	145 ± 44
H36	17-Feb-21	<159	4280 ± 177	<22	<18	<17	23 ± 5	4800 ± 349	627 ± 78	119 ± 25	40 ± 5	844 ± 46

3.c. BEACH SAND – (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	17-Feb-21	<71	253 ± 49	<9	<7	<8	<7	<383	<206	<66	<13	77 ± 20
H16	17-Feb-21	<85	110 ± 41	<9	<6	<7	<7	<327	<203	<61	<13	<91
H19	17-Feb-21	<89	<129	<8	<7	<7	<7	<302	<204	<63	<13	240 ± 46

3.d. GROUND 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)
H70	22-Feb-21	<142	<78	<4	<3	<8	<4	<8	<6	<5	<4	<5	<6
H71	22-Feb-21	511 ± 53	344 ± 34	<4	<5	<8	<4	<9	<7	<5	<4	<4	<7
H72	22-Feb-21	<142	302 ± 26	<4	<4	<8	<4	<11	<8	<5	<4	<5	<4
H73	22-Feb-21	<136	65 ± 13	<4	<3	<7	<4	<10	<7	<4	<4	<4	<4
H74	22-Feb-21	<136	233 ± 22	<3	<4	<7	<4	<10	<6	<4	<4	<4	<4
H75	22-Feb-21	<142	276 ± 24	<3	<4	<7	<4	<9	<6	<4	<3	<5	<4
H76	22-Feb-21	<142	<79	<4	<4	<8	<4	<9	<7	<6	<4	<5	<8
H77	22-Feb-21	<142	<42	<3	<3	<7	<3	<8	<5	<5	<4	<3	<5
H78	22-Feb-21	<142	<55	<4	<4	<7	<4	<9	<6	<5	<4	<4	<5
H79	22-Feb-21	<142	<37	<4	<3	<6	<3	<8	<6	<4	<3	<3	<5

(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.

4.a. GARDEN CROP – (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H41	This sample has not been available.					

4.b. CITRUS – (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H23	22-Feb-21	<35	1730 ± 74	<4	<4	<5

B. Second Quarter 2021

RADIOLOGICAL SURVEILLANCE

OF

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT

SECOND QUARTER 2021

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Second Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	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	2
4.b. Broadleaf Vegetation	Monthly	3	9

Total: 184

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 - DEPLOYED TLD's - (µR/hour)

Sample Site	Deployment 11-Mar-21 Collection 16-Jun-21	Sample Site	Deployment 11-Mar-21 Collection 16-Jun-21
N-1	3.25 ± 0.38	SW-2	3.11 ± 0.27
NNW-5	3.22 ± 0.35	SW-5	3.62 ± 0.34
NNW-10	3.96 ± 0.10	SW-10	3.46 ± 0.51
NW-5	3.11 ± 0.30	SSW-2	3.43 ± 0.18
NW-10	4.21 ± 0.81	SSW-5	3.79 ± 0.54
WNW-2	3.30 ± 0.26	SSW-10	2.93 ± 0.60
WNW-5	3.30 ± 0.62	S-5	3.34 ± 0.11
WNW-10	3.29 ± 0.21	S-10	3.24 ± 1.02
W-2	2.79 ± 0.60	S/SSE-10	3.53 ± 0.67
W-5	3.33 ± 0.36	SSE-5	3.20 ± 0.27
W-10	2.78 ± 0.25	SSE-10	2.91 ± 0.28
WSW-2	3.35 ± 0.20	SE-1	3.25 ± 0.37
WSW-5	3.60 ± 0.10	H-32	3.51 ± 0.24
WSW-10	2.94 ± 0.37		

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

Collection Date	H08	H12	H14	H30	H34
08-Apr-21	<0.02	<0.02	<0.02	<0.02	<0.03 (A)
14-Apr-21	<0.02	<0.02	<0.02	<0.02	<0.02
21-Apr-21	<0.02	<0.02	<0.02	<0.02	<0.02
27-Apr-21	<0.02	<0.02	<0.02	<0.02	<0.02
03-May-21	<0.02	<0.02	<0.02	<0.02	<0.02
10-May-21	<0.03	<0.03	<0.03	<0.03	<0.03
17-May-21	<0.02	<0.02	<0.02	<0.02	<0.02
26-May-21	<0.01	<0.01	<0.01	<0.01	<0.01
02-Jun-21	<0.02	<0.02	<0.01	<0.02	<0.01
08-Jun-21	<0.03	<0.03	<0.03	<0.03	<0.03
15-Jun-21	<0.02	<0.02	<0.02	<0.02	<0.02
22-Jun-21	<0.02	<0.02	<0.02	<0.02	<0.02
28-Jun-21	<0.02	<0.02	<0.02	<0.02	<0.02

(A) Due to failed vacuum pump, run time was estimated at 111 hours out of 217.

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

Collection Date	H08	H12	H14	H30	H34
08-Apr-21	0.022 ± 0.002	0.022 ± 0.002	0.021 ± 0.002	0.023 ± 0.002	0.022 ± 0.003 (A)
14-Apr-21	0.021 ± 0.003	0.020 ± 0.002	0.019 ± 0.002	0.018 ± 0.002	0.016 ± 0.002
21-Apr-21	0.021 ± 0.002	0.021 ± 0.002	0.023 ± 0.002	0.027 ± 0.002	0.021 ± 0.002
27-Apr-21	0.023 ± 0.003	0.023 ± 0.003	0.023 ± 0.003	0.024 ± 0.003	0.021 ± 0.002
03-May-21	0.020 ± 0.002	0.015 ± 0.002	0.018 ± 0.002	0.017 ± 0.002	0.018 ± 0.002
10-May-21	0.017 ± 0.002	0.017 ± 0.002	0.014 ± 0.002	0.015 ± 0.002	0.014 ± 0.002
17-May-21	0.013 ± 0.002	0.011 ± 0.002	0.014 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
26-May-21	0.013 ± 0.002	0.017 ± 0.002	0.018 ± 0.002	0.017 ± 0.002	0.014 ± 0.002
02-Jun-21	0.021 ± 0.002	0.023 ± 0.002	0.023 ± 0.002	0.019 ± 0.002	0.018 ± 0.002
08-Jun-21	0.007 ± 0.002	0.006 ± 0.002	0.010 ± 0.002	0.010 ± 0.002	0.007 ± 0.002
15-Jun-21	0.007 ± 0.002	0.009 ± 0.002	0.008 ± 0.001	0.006 ± 0.001	0.011 ± 0.002
22-Jun-21	0.020 ± 0.002	0.018 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.010 ± 0.002
28-Jun-21	0.011 ± 0.002	0.011 ± 0.002	0.016 ± 0.002	0.012 ± 0.002	0.012 ± 0.002
Average:	0.017 ± 0.001	0.016 ± 0.001	0.017 ± 0.001	0.017 ± 0.001	0.015 ± 0.001

(A) Due to failed vacuum pump, run time was estimated at 111 hours out of 217.

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	0.1440 ± 0.0099	<0.0149	<0.0014	<0.0010	<0.0151
H12	0.1440 ± 0.0087	<0.0181	<0.0009	<0.0007	0.0132 ± 0.0027
H14	0.1470 ± 0.0101	<0.0138	<0.0013	<0.0007	<0.0146
H30	0.1690 ± 0.0114	<0.0197	<0.0012	<0.0010	<0.0108
H34	0.1410 ± 0.0112	<0.0168	<0.0011	<0.0008	<0.0114

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	08-Apr-21	<134	328 ± 25	<3	<3	<7	<4	<7	<5	<4	<4	<4	<4
	14-Apr-21	360 ± 49	379 ± 27	<4	<3	<7	<4	<8	<6	<3	<3	<4	<4
	21-Apr-21	<134	332 ± 26	<3	<4	<7	<4	<8	<6	<4	<3	<4	<4
	27-Apr-21	152 ± 44	379 ± 27	<4	<3	<8	<4	<8	<5	<4	<4	<3	<4
	03-May-21	<134	341 ± 26	<4	<4	<6	<3	<9	<5	<4	<4	<4	<4
	10-May-21	<135	331 ± 32	<4	<4	<7	<4	<8	<7	<5	<4	<4	<5
	17-May-21	<140	323 ± 26	<4	<3	<7	<4	<8	<5	<4	<3	<3	<4
	26-May-21	<139	321 ± 25	<4	<3	<7	<3	<7	<5	<3	<3	<4	<4
	02-Jun-21	<139	348 ± 26	<3	<3	<7	<4	<7	<6	<4	<4	<4	<4
	08-Jun-21	<139	344 ± 26	<4	<4	<6	<4	<7	<6	<4	<3	<3	<4
	16-Jun-21	<139	337 ± 26	<3	<4	<6	<4	<8	<6	<4	<4	<4	<4
	22-Jun-21	<139	370 ± 27	<3	<3	<6	<3	<8	<5	<4	<3	<4	<5
	28-Jun-21	<139	339 ± 25	<3	<3	<7	<3	<7	<6	<4	<3	<3	<4
H59	14-Apr-21	94 ± 43	327 ± 26	<3	<3	<6	<3	<8	<6	<4	<4	<4	<4
	11-May-21	<135	354 ± 26	<4	<3	<7	<3	<8	<6	<5	<3	<3	<4
	10-Jun-21	<139	340 ± 26	<3	<4	<7	<4	<7	<5	<4	<3	<4	<4

(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	These samples previously collected.											
H59												

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	These samples not yet collected.										
H59											

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	21-Apr-21	2500 ± 171	<18	<16	<38	<19	<39	<20	<22	<388	<74
H59	23-Apr-21	2410 ± 159	<18	<17	<35	<18	<41	<16	<21	<379	<66

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	14-Apr-21	1320 ± 58	3990 ± 170	<9	<10	<11	383 ± 88	24 ± 7	<220	<46
	11-May-21	587 ± 38	3660 ± 150	<10	<8	<8	<585	<17	<198	<32
	10-Jun-21	385 ± 33	4980 ± 197	<9	<9	<10	<617	56 ± 8	<210	<37
H52	14-Apr-21	859 ± 45	3430 ± 149	<10	<8	<7	<701	<20	<227	<39
	11-May-21	998 ± 53	3480 ± 156	<11	<9	<9	288 ± 86	<20	<223	<43
	10-Jun-21	583 ± 36	2730 ± 123	<8	<7	<9	<536	<16	<189	<32
H59	14-Apr-21	851 ± 47	2520 ± 126	<9	<9	<9	<194	<19	<205	<41
	11-May-21	483 ± 37	3270 ± 146	<10	<9	<10	<216	<13	<218	<40
	10-Jun-21	1100 ± 50	2080 ± 109	<9	<8	<9	<223	40 ± 7	<208	<39

ST. LUCIE SITE

Supplemental Sampling

Second Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	9	9
2. Airborne			
2.a. Air Iodines	Weekly	3	39
2.b. Air Particulates	Weekly	3	39
3. Waterborne			
3.a. Surface Water	Monthly	2	6
3.b. Shoreline Sediment	Semiannually	4	0
3.c. Beach Sand	Semiannually	3	0
3.d. Ground Water	Quarterly	10	10
4. Ingestion			
4.a. Garden Crop	Annually	1	0
4.b. Citrus	Annually	1	0

Total: 103

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

1. DIRECT RADIATION - DEPLOYED TLD's - (µR/hour)

Sample Site	Deployment 11-Mar-21 Collection 16-Jun-21
H08	3.46 ± 0.57
H09	3.78 ± 0.72
H12	7.73 ± 0.69
H14	3.64 ± 0.10
H33	3.49 ± 0.54
H34	3.44 ± 0.14
H60	3.43 ± 0.42
H61	4.70 ± 0.32
H62	3.75 ± 0.11

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

Collection Date	H09	H32	H33
08-Apr-21	<0.02	<0.02	<0.02
14-Apr-21	<0.02	<0.02	<0.02
21-Apr-21	<0.02	<0.02	<0.01
27-Apr-21	<0.02	<0.02	<0.02
03-May-21	<0.02	<0.02	<0.02
10-May-21	<0.03	<0.03	<0.03
17-May-21	<0.02	<0.02	<0.02
26-May-21	<0.01	<0.01	<0.01
02-Jun-21	<0.02	<0.02	<0.02
08-Jun-21	<0.03	<0.03	<0.02
15-Jun-21	<0.02	<0.02	<0.02
22-Jun-21	<0.02	<0.05 (A)	<0.02
28-Jun-21	<0.02	<0.02	<0.02

(A) Due to failed vacuum pump, run time was estimated at 72 hours out of 168.

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

Collection Date	H09	H32	H33
08-Apr-21	0.019 ± 0.002	0.022 ± 0.002	0.011 ± 0.001
14-Apr-21	0.021 ± 0.002	0.017 ± 0.002	0.015 ± 0.002
21-Apr-21	0.022 ± 0.002	0.025 ± 0.002	0.019 ± 0.002
27-Apr-21	0.022 ± 0.002	0.021 ± 0.002	0.020 ± 0.002
03-May-21	0.018 ± 0.002	0.018 ± 0.002	0.011 ± 0.002
10-May-21	0.018 ± 0.002	0.019 ± 0.002	0.020 ± 0.002
17-May-21	0.007 ± 0.002	0.008 ± 0.002	0.006 ± 0.001
26-May-21	0.013 ± 0.001	0.014 ± 0.002	0.011 ± 0.001
02-Jun-21	0.019 ± 0.002	0.024 ± 0.002	0.016 ± 0.002
08-Jun-21	0.011 ± 0.002	0.009 ± 0.002	0.007 ± 0.002
15-Jun-21	0.007 ± 0.002	0.009 ± 0.002	0.010 ± 0.002
22-Jun-21	0.015 ± 0.002	0.008 ± 0.003	0.015 ± 0.002
28-Jun-21	0.013 ± 0.002	<0.006	0.010 ± 0.002
Average:	0.016 ± 0.001	<0.015	0.013 ± 0.001

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

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H09	0.1530 ± 0.0114	<0.0169	<0.0010	<0.0007	0.0072 ± 0.0033
H32	0.1330 ± 0.0090	<0.0161	<0.0009	<0.0008	<0.0099
H33	0.1190 ± 0.0091	<0.0144	<0.0011	<0.0009	<0.0143

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)
H13	14-Apr-21	<135	316 ± 25	<3	<3	<8	<4	<8	<6	<4	<4	<4	<4
	11-May-21	<135	352 ± 26	<3	<3	<8	<3	<7	<6	<4	<4	<4	<4
	10-Jun-21	<139	393 ± 28	<3	<4	<6	<3	<8	<5	<4	<3	<3	<4
H36	14-Apr-21	22398 ± 213	298 ± 24	<4	<3	<7	<4	<7	<6	<4	<4	<4	<4
	11-May-21	1065 ± 61	304 ± 25	<4	<3	<6	<3	<8	<6	<4	<3	<3	<4
	10-Jun-21	<134	346 ± 26	<3	<3	<8	<4	<8	<6	<4	<4	<4	<4

(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
	These samples previously collected.											

3.c. BEACH SAND - (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
	These samples previously collected.											

3.d. GROUND 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)
H70	07-Jun-21	94 ± 45	<67	<4	<4	<8	<4	<9	<7	<5	<4	<5	<8
H71	07-Jun-21	413 ± 50	380 ± 34	<5	<4	<8	<4	<9	<7	<5	<4	<5	<8
H72	07-Jun-21	<134	296 ± 25	<4	<4	<7	<4	<10	<7	<5	<5	<4	<4
H73	07-Jun-21	<134	81 ± 14	<4	<4	<7	<4	<8	<7	<4	<4	<4	<4
H74	07-Jun-21	<134	315 ± 25	<3	<4	<7	<4	<10	<6	<4	<4	<4	<4
H75	07-Jun-21	<134	235 ± 22	<3	<4	<7	<4	<10	<6	<4	<4	<4	<4
H76	07-Jun-21	<134	<45	<4	<4	<7	<4	<9	<7	<5	<4	<4	<8
H77	07-Jun-21	<134	<67	<4	<4	<7	<4	<8	<7	<4	<4	<4	<10
H78	07-Jun-21	<139	56 ± 13	<5	<4	<8	<4	<9	<7	<5	<4	<4	<8
H79	07-Jun-21	<139	<51	<3	<4	<6	<3	<7	<6	<4	<4	<4	<4

(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.

4.a. GARDEN CROP - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H41	This sample has not been available.					

4.b. CITRUS - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H23	This sample previously collected.					

C. Third Quarter 2021

RADIOLOGICAL SURVEILLANCE OF

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT

THIRD QUARTER 2021

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Third Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	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	0
4.a.2. Fish	Semiannually	2	0
4.b. Broadleaf Vegetation	Monthly	3	9

Total: 184

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 - DEPLOYED TLD's - (µR/hour)

Sample Site	Deployment 16-Jun-21 Collection 23-Sep-21	Sample Site	Deployment 16-Jun-21 Collection 23-Sep-21
N-1	2.68 ± 0.33	SW-2	2.75 ± 0.50
NNW-5	2.41 ± 0.24	SW-5	3.43 ± 0.93
NNW-10	3.13 ± 0.38	SW-10	2.75 ± 0.14
NW-5	2.56 ± 0.13	SSW-2	2.73 ± 0.48
NW-10	3.48 ± 0.56	SSW-5	3.15 ± 0.54
WNW-2	2.68 ± 0.29	SSW-10	2.27 ± 0.45
WNW-5	2.75 ± 0.22	S-5	2.79 ± 0.30
WNW-10	2.68 ± 0.26	S-10	2.72 ± 0.54
W-2	2.79 ± 0.38	S/SSE-10	2.89 ± 0.13
W-5	2.93 ± 0.35	SSE-5	2.75 ± 0.50
W-10	2.44 ± 0.45	SSE-10	3.03 ± 0.34
WSW-2	2.63 ± 0.26	SE-1	2.68 ± 0.61
WSW-5	2.83 ± 0.17	H-32	3.06 ± 0.13
WSW-10	2.59 ± 0.53		

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

Collection Date	H08	H12	H14	H30	H34
07-Jul-21	<0.01	<0.01	<0.01	<0.01	<0.01
14-Jul-21	<0.02	<0.02	<0.02	<0.02	<0.02
21-Jul-21	<0.02	<0.02	<0.02	<0.02	<0.02
28-Jul-21	<0.02	<0.02	<0.02	<0.02	<0.02
04-Aug-21	<0.03	<0.03	<0.03	<0.03	<0.04
11-Aug-21	<0.03	<0.03	<0.03	<0.03	<0.03
18-Aug-21	<0.02	<0.02	<0.02	<0.02	<0.02
25-Aug-21	<0.02	<0.02	<0.02	<0.02	<0.02
01-Sep-21	<0.02	<0.02	<0.02	<0.02	<0.02
08-Sep-21	<0.02	<0.01	<0.02	<0.01	<0.01
15-Sep-21	<0.01	<0.01	<0.01	<0.01	<0.01
22-Sep-21	<0.02	<0.02	<0.02	<0.02	<0.02
29-Sep-21	<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-Jul-21	0.006 ± 0.001	0.009 ± 0.002	0.005 ± 0.001	0.008 ± 0.002	<0.005
14-Jul-21	0.011 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.015 ± 0.002	0.012 ± 0.002
21-Jul-21	0.011 ± 0.002	0.014 ± 0.002	0.012 ± 0.002	0.016 ± 0.002	0.013 ± 0.002
28-Jul-21	0.013 ± 0.002	0.012 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.011 ± 0.002
04-Aug-21	0.010 ± 0.002	0.006 ± 0.002	0.006 ± 0.002	0.012 ± 0.002	0.015 ± 0.002
11-Aug-21	0.008 ± 0.002	0.009 ± 0.002	0.006 ± 0.002	0.009 ± 0.002	0.006 ± 0.002
18-Aug-21	0.006 ± 0.001	0.009 ± 0.002	0.012 ± 0.002	0.012 ± 0.002	0.009 ± 0.002
25-Aug-21	0.013 ± 0.002	0.017 ± 0.002	0.014 ± 0.002	<0.005	0.017 ± 0.002
01-Sep-21	0.014 ± 0.002	0.017 ± 0.002	0.013 ± 0.002	0.028 ± 0.003	0.012 ± 0.002
08-Sep-21	0.016 ± 0.002	0.018 ± 0.002	0.020 ± 0.002	0.012 ± 0.002	0.010 ± 0.002
15-Sep-21	0.012 ± 0.002	0.013 ± 0.002	0.012 ± 0.002	0.014 ± 0.002	0.010 ± 0.002
22-Sep-21	0.004 ± 0.002	0.004 ± 0.001	<0.006	<0.007	<0.005
29-Sep-21	0.018 ± 0.002	0.020 ± 0.002	0.016 ± 0.002	0.016 ± 0.002	0.019 ± 0.002
Average:	0.011 ± 0.001	0.012 ± 0.001	<0.011	<0.013	<0.011

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	0.0889 ± 0.0072	<0.0168	<0.0008	<0.0009	0.0084 ± 0.0022
H12	0.0967 ± 0.0074	<0.0139	<0.0008	<0.0007	0.0065 ± 0.0022
H14	0.0999 ± 0.0083	<0.0100	<0.0012	<0.0009	<0.0137
H30	0.0909 ± 0.0080	<0.0156	<0.0011	<0.0010	<0.0138
H34	0.0738 ± 0.0068	<0.0146	<0.0009	<0.0008	0.63 ± 0.0023

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-Jul-21	<139	360 ± 27	<3	<4	<6	<4	<8	<5	<4	<3	<4	<4
	14-Jul-21	<134	347 ± 26	<3	<3	<7	<3	<7	<5	<4	<3	<4	<4
	21-Jul-21	<142	343 ± 26	<3	<3	<7	<4	<8	<5	<4	<3	<4	<4
	28-Jul-21	<142	377 ± 27	<3	<3	<8	<3	<7	<5	<4	<4	<4	<4
	04-Aug-21	<137	380 ± 38	<5	<5	<13	<5	<11	<11	<43	<4	<4	<18
	11-Aug-21	<137	313 ± 25	<4	<4	<9	<3	<9	<7	<21	<3	<4	<11
	18-Aug-21	<137	322 ± 28	<4	<4	<10	<4	<7	<8	<13	<4	<4	<8
	25-Aug-21	<134	321 ± 25	<4	<4	<7	<4	<8	<6	<6	<3	<4	<5
	01-Sep-21	<136	310 ± 25	<3	<3	<7	<3	<7	<6	<4	<3	<4	<4
	08-Sep-21	<134	352 ± 34	<4	<4	<9	<4	<9	<8	<4	<4	<4	<8
	15-Sep-21	<134	356 ± 26	<4	<3	<7	<3	<7	<5	<3	<3	<4	<4
	22-Sep-21	<136	309 ± 24	<3	<3	<7	<4	<8	<6	<4	<3	<4	<4
	29-Sep-21	<136	366 ± 26	<3	<3	<6	<3	<7	<5	<4	<3	<3	<4
H59	14-Jul-21	<134	313 ± 26	<4	<3	<7	<4	<8	<5	<4	<3	<3	<5
	04-Aug-21	<137	352 ± 34	<4	<5	<11	<4	<10	<9	<39	<3	<4	<19
	09-Sep-21	<134	382 ± 27	<3	<3	<8	<3	<9	<6	<4	<4	<3	<4

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

4 - 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	09-Sep-21	75 ± 30	239 ± 52	<11	<8	<8	<9	<392	285 ± 71	53 ± 15	18 ± 4	220 ± 24
H59	09-Sep-21	<89	102 ± 28	<8	<6	<8	<7	<299	245 ± 76	<46	15 ± 5	160± 24

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 not yet collected.										
H59	This sample not yet 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 not yet collected.										
H59	This sample not yet 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	14-Jul-21	1610 ± 64	4500 ± 182	<10	<9	<11	<242	<20	<210	<40
	04-Aug-21	938 ± 57	3610 ± 159	<52	<9	<10	158 ± 64	<19	<209	<42
	09-Sep-21	1750 ± 67	3120 ± 143	<9	<9	<9	160 ± 69	31 ± 7	<230	<37
H52	14-Jul-21	1480 ± 68	2830 ± 150	<13	<13	<11	<278	<23	<261	<49
	04-Aug-21	1810 ± 72	3070 ± 133	<45	<8	<11	<98	<18	<217	<33
	09-Sep-21	1350 ± 58	3140 ± 146	<10	<8	<10	259 ± 81	<20	<231	<40
H59	14-Jul-21	1460 ± 66	2760 ± 139	<13	<11	12 ± 3	<128	<24	<289	<51
	04-Aug-21	1330 ± 60	2110 ± 102	<41	<8	<10	<90	<16	<196	<34
	09-Sep-21	1100 ± 55	2810 ± 138	<10	<10	<12	143 ± 77	40 ± 6	<229	<40

ST. LUCIE SITE

Supplemental Sampling

Third Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	9	8
2. Airborne			
2.a. Air Iodines	Weekly	3	39
2.b. Air Particulates	Weekly	3	39
4 Waterborne			
4.a Surface Water	Monthly	2	6
3.b. Shoreline Sediment	Semiannually	4	4
3.c. Beach Sand	Semiannually	3	3
3.d. Ground Water	Quarterly	10	10
4. Ingestion			
4.a. Garden Crop	Annually	1	3
4.b. Citrus	Annually	1	0

Total: 112

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

1. DIRECT RADIATION - DEPLOYED TLD's - (µR/hour)

Sample Site	Deployment 16-Jun-21 Collection 23-Sep-21
H08	3.25 ± 0.51
H09	3.31 ± 0.54
H12	6.00 ± 0.74
H14	2.78 ± 0.42
H33	2.85 ± 0.87
H34	2.58 ± 0.51
H60	2.75 ± 0.71
H61	3.35 ± 0.29
H62	(A)

(A)TLD missing

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

Collection Date	H09	H32	H33
07-Jul-21	<0.01	<0.01	<0.01
14-Jul-21	<0.02	<0.02	<0.02
21-Jul-21	<0.02	<0.02	<0.02
28-Jul-21	<0.02	<0.02	<0.02
04-Aug-21	<0.03	<0.04	<0.04
11-Aug-21	<0.03	<0.03	<0.03
18-Aug-21	<0.02	<0.02	<0.02
25-Aug-21	<0.02	<0.02	<0.02
01-Sep-21	<0.02	<0.02	<0.02
08-Sep-21	<0.01	<0.01	<0.02
15-Sep-21	<0.01	<0.01	<0.01
22-Sep-21	<0.02	<0.02	<0.02
29-Sep-21	<0.02	<0.02	<0.03

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

Collection Date	H09	H32	H33
07-Jul-21	0.007 ± 0.001	0.008 ± 0.001	0.003 ± 0.001
14-Jul-21	0.013 ± 0.002	0.017 ± 0.002	0.011 ± 0.002
21-Jul-21	0.016 ± 0.002	0.016 ± 0.002	0.009 ± 0.002
28-Jul-21	0.010 ± 0.002	0.009 ± 0.002	0.013 ± 0.002
04-Aug-21	0.009 ± 0.002	0.009 ± 0.002	0.007 ± 0.002
11-Aug-21	0.007 ± 0.002	0.007 ± 0.002	0.010 ± 0.002
18-Aug-21	0.010 ± 0.002	0.007 ± 0.002	0.009 ± 0.001
25-Aug-21	0.020 ± 0.002	0.017 ± 0.002	0.015 ± 0.001
01-Sep-21	0.012 ± 0.002	0.012 ± 0.002	0.009 ± 0.002
08-Sep-21	0.012 ± 0.002	0.013 ± 0.002	0.004 ± 0.002
15-Sep-21	0.017 ± 0.002	0.015 ± 0.002	0.015 ± 0.002
22-Sep-21	0.005 ± 0.002	<0.006	<0.007
29-Sep-21	0.013 ± 0.002	0.016 ± 0.002	0.015 ± 0.002
Average:	0.012 ± 0.001	<0.012	<0.010

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

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H09	0.1170 ± 0.0096	<0.0111	<0.0011	<0.0009	<0.0143
H32	0.0828 ± 0.0068	<0.0137	<0.0006	<0.0008	0.0091 ± 0.0026
H33	0.0971 ± 0.0083	<0.0124	<0.0012	<0.0009	<0.0148

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)
H13	14-Jul-21	<134	343 ± 26	<3	<4	<6	<4	<7	<6	<4	<3	<4	<4
	04-Aug-21	<137	200 ± 21	<4	<5	<11	<3	<7	<7	<36	<4	<4	<14
	09-Sep-21	<134	255 ± 23	<3	<4	<7	<3	<7	<5	<4	<3	<3	<4
H36	14-Jul-21	<134	288 ± 24	<4	<3	<8	<4	<7	<6	<5	<4	<4	<4
	04-Aug-21	<137	364 ± 27	<4	<4	<12	<4	<9	<7	<38	<3	<4	<16
	09-Sep-21	<134	285 ± 24	<3	<3	<6	<4	<7	<6	<4	<3	<4	<4

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

4. - 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
H13	09-Sep-21	125 ± 24	720 ± 66	<10	<7	<7	<7	<348	257 ± 64	<58	16 ± 4	81 ± 22
H16	09-Sep-21	<79	169 ± 48	<9	<7	<7	<7	<350	<195	<63	<12	91 ± 20
H19	09-Sep-21	109 ± 27	89 ± 44	<9	<7	<7	<7	<366	<185	<58	<12	107 ± 27
H36	09-Sep-21	<194	7640 ± 379	<22	<19	<15	16 ± 6	4680 ± 313	<344	373 ± 30	60 ± 12	849 ± 49

3.c. BEACH SAND - (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	09-Sep-21	<98	104 ± 44	<9	<7	<8	<8	<383	319 ± 66	33 ± 14	20 ± 4	146 ± 22
H16	09-Sep-21	<96	68 ± 27	<8	<6	<7	<7	<293	<235	<38	<15	165 ± 41
H19	09-Sep-21	109 ± 29	<139	<9	<6	<7	<7	<326	171 ± 62	<58	11 ± 4	102 ± 21

3.d. GROUND 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)
H70	29-Sep-21	<136	<50	<4	<4	<7	<4	<10	<6	<5	<4	<4	<4
H71	29-Sep-21	386 ± 49	346 ± 26	<4	<4	<7	<4	<10	<7	<4	<4	<4	<4
H72	29-Sep-21	<136	323 ± 25	<4	<4	<8	<4	<12	<7	<5	<5	<5	<5
H73	29-Sep-21	<136	<66	<3	<3	<8	<4	<8	<7	<7	<4	<4	<5
H74	29-Sep-21	<136	294 ± 24	<3	<4	<7	<3	<8	<7	<6	<4	<4	<6
H75	29-Sep-21	<136	253 ± 23	<4	<4	<6	<4	<8	<6	<4	<4	<4	<4
H76	29-Sep-21	<136	<46	<4	<4	<7	<4	<8	<6	<6	<3	<4	<5
H77	29-Sep-21	<136	<71	<4	<4	<8	<3	<8	<7	<7	<4	<5	<7
H78	29-Sep-21	<136	68 ± 24	<4	<4	<8	<4	<10	<7	<7	<3	<4	<6
H79	29-Sep-21	105 ± 44	<43	<4	<3	<8	<3	<7	<6	<6	<3	<3	<6

(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.

4.a. GARDEN CROP - (pCi/kg, wet weight)

Sample ~~Site~~	Collection ~~Date~~	Be-7	K-40	I-131	Cs-134	Cs-137
H41 (WNW-10)	04-Aug-21	1150 ± 61	2920 ± 131	<87	<9	12 ± 3
H41A (WNW)	11-Aug-21	1440 ± 67	4700 ± 184	<47	<9	<10
H41B (NW)	11-Aug-21	791 ± 58	2550 ± 135	<69	<11	<11

Note: In lieu of garden crop, which was unavailable, broad leaf vegetation sampling was performed at the site boundary in each of two different direction sectors with the highest predicted D/Qs (WNW and NW) and one sample of similar broad leaf vegetation at an available location 15-30 kilometers distant in the least prevalent wind direction based upon historical data in the ODCM (WNW-10).

4.b. CITRUS - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H23	This sample previously collected.					

D. Fourth Quarter 2021

RADIOLOGICAL SURVEILLANCE

OF

FLORIDA POWER AND LIGHT COMPANY

ST. LUCIE PLANT

FOURTH QUARTER 2021

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Fourth Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	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	2
4.b. Broadleaf Vegetation	Monthly	3	9

Total: 184

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 SAL030A.

1. DIRECT RADIATION - DEPLOYED TLD's - (µR/hour)

Sample Site	Deployment 23-Sep-21 Collection 16-Dec-21	Sample Site	Deployment 23-Sep-21 Collection 16-Dec-21
N-1	3.01 ± 0.46	SW-2	3.15 ± 0.16
NNW-5	3.31 ± 0.55	SW-5	3.96 ± 0.26
NNW-10	4.10 ± 0.41	SW-10	3.46 ± 0.18
NW-5	3.25 ± 0.24	SSW-2	3.29 ± 0.17
NW-10	4.30 ± 0.36	SSW-5	3.82 ± 0.05
WNW-2	3.24 ± 0.12	SSW-10	3.16 ± 0.34
WNW-5	3.82 ± 0.32	S-5	3.26 ± 0.33
WNW-10	3.38 ± 0.50	S-10	3.27 ± 0.27
W-2	3.25 ± 0.05	S/SSE-10	3.75 ± 0.40
W-5	3.75 ± 0.49	SSE-5	3.44 ± 0.43
W-10	3.05 ± 0.15	SSE-10	3.60 ± 0.09
WSW-2	3.50 ± 0.57	SE-1	3.29 ± 0.36
WSW-5	3.42 ± 0.26	H-32	3.62 ± 0.18
WSW-10	2.89 ± 0.15		

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

Collection Date	H08	H12	H14	H30	H34
06-Oct-21	<0.03	<0.03	<0.03	<0.03	<0.03
13-Oct-21	<0.02	<0.01	<0.01	<0.01	<0.01
20-Oct-21	<0.03	<0.03	<0.03	<0.03	<0.03
26-Oct-21	<0.02	<0.02	<0.02	<0.02	<0.02
02-Nov-21	<0.02	<0.02	<0.02	<0.02	<0.02
10-Nov-21	<0.02	<0.02	<0.02	<0.02	<0.02
16-Nov-21	<0.02	<0.02	<0.02	<0.02	<0.02
23-Nov-21	<0.02	<0.03	<0.03	<0.03	<0.03
02-Dec-21	<0.02	<0.02	<0.02	<0.02	<0.02
08-Dec-21	<0.02	<0.02	<0.02	<0.02	<0.02
15-Dec-21	<0.03	<0.03	<0.02	<0.03	<0.02
21-Dec-21	<0.01	<0.02	<0.02	<0.02	<0.02
29-Dec-21	<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-Oct-21	0.021 ± 0.002	0.021 ± 0.002	0.016 ± 0.002	0.021 ± 0.002	0.021 ± 0.002
13-Oct-21	0.009 ± 0.002	0.010 ± 0.002	0.009 ± 0.002	0.012 ± 0.002	0.013 ± 0.002
20-Oct-21	0.023 ± 0.002	0.022 ± 0.002	0.020 ± 0.002	0.025 ± 0.002	0.022 ± 0.002
26-Oct-21	0.016 ± 0.002	0.016 ± 0.002	0.016 ± 0.002	0.013 ± 0.002	0.018 ± 0.002
02-Nov-21	0.015 ± 0.002	0.016 ± 0.002	0.016 ± 0.002	0.017 ± 0.002	0.018 ± 0.002
10-Nov-21	0.014 ± 0.002	0.003 ± 0.001	0.013 ± 0.002	0.013 ± 0.002	0.015 ± 0.002
16-Nov-21	0.017 ± 0.002	0.019 ± 0.002	0.022 ± 0.003	0.019 ± 0.003	0.017 ± 0.002
23-Nov-21	<0.006	0.008 ± 0.002	0.011 ± 0.002	0.008 ± 0.002	0.007 ± 0.002
02-Dec-21	0.018 ± 0.002	0.018 ± 0.002	0.025 ± 0.002	0.022 ± 0.002	0.019 ± 0.002
08-Dec-21	0.021 ± 0.002	0.016 ± 0.002	0.022 ± 0.002	0.023 ± 0.003	0.018 ± 0.002
15-Dec-21	0.011 ± 0.002	0.014 ± 0.002	0.014 ± 0.002	0.010 ± 0.002	0.014 ± 0.002
21-Dec-21	0.011 ± 0.002	0.007 ± 0.002	0.004 ± 0.002	0.005 ± 0.002	0.007 ± 0.002
29-Dec-21	0.018 ± 0.002	0.018 ± 0.002	0.024 ± 0.002	0.021 ± 0.002	0.022 ± 0.002
Average:	<0.015	0.015 ± 0.001	0.016 ± 0.002	0.016 ± 0.002	0.016 ± 0.002

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	0.1320 ± 0.0093	<0.0136	<0.0013	<0.0009	<0.0159
H12	0.1220 ± 0.0089	<0.0155	<0.0014	<0.0009	<0.0147
H14	0.1180 ± 0.0079	<0.0140	<0.0009	<0.0007	0.0127 ± 0.0029
H30	0.1340 ± 0.0096	<0.0142	<0.0013	<0.0010	0.0133 ± 0.0031
H34	0.1300 ± 0.0082	<0.0149	<0.0009	<0.0007	<0.0096

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-Oct-21	<136	353 ± 34	<4	<4	<7	<4	<9	<6	<4	<4	<4	<8
	13-Oct-21	106 ± 44	343 ± 26	<4	<4	<8	<4	<7	<7	<7	<3	<4	<5
	20-Oct-21	<136	300 ± 26	<4	<3	<7	<3	<8	<6	<4	<4	<4	<4
	26-Oct-21	<136	333 ± 25	<3	<3	<7	<3	<8	<6	<4	<3	<3	<4
	02-Nov-21	<135	393 ± 28	<3	<3	<7	<3	<9	<6	<4	<4	<3	<4
	10-Nov-21	<140	302 ± 25	<4	<3	<8	<3	<8	<6	<4	<4	<4	<4
	16-Nov-21	<139	332 ± 26	<3	<3	<7	<4	<7	<5	<3	<3	<4	<4
	23-Nov-21	<139	364 ± 27	<3	<3	<8	<3	<7	<5	<3	<4	<4	<4
	02-Dec-21	<132	358 ± 29	<3	<3	<8	<4	<8	<5	<6	<3	<4	<5
	08-Dec-21	<136	335 ± 25	<3	<4	<7	<3	<7	<6	<4	<3	<4	<4
	15-Dec-21	<132	363 ± 35	<4	<4	<7	<4	<8	<7	<6	<3	<4	<6
	21-Dec-21	<131	350 ± 26	<3	<3	<7	<3	<8	<6	<4	<4	<4	<4
	29-Dec-21	<132	321 ± 34	<4	<4	<10	<4	<9	<7	<8	<4	<4	<6
H59	07-Oct-21	<136	380 ± 27	<3	<3	<7	<3	<9	<6	<3	<3	<3	<4
	03-Nov-21	<135	321 ± 25	<3	<3	<6	<4	<8	<5	<3	<4	<3	<4
	01-Dec-21	<136	355 ± 32	<4	<4	<8	<5	<8	<7	<6	<4	<4	<7

(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
	These samples 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 unable to be collected.										
H59	This sample unable to be collected.										

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	03-Dec-21	2780 ± 216	<20	<20	<50	<21	<53	<23	<20	<414	<89
H59	27-Dec-21	2500 ± 197	<19	<22	<42	<21	<53	<22	<24	<395	<98

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-Oct-21	3010 ± 96	3880 ± 163	<17	<9	<11	156 ± 35	<22	<261	<47
	03-Nov-21	1070 ± 59	4500 ± 190	<11	<12	<13	365 ± 99	<19	<262	<50
	01-Dec-21	1620 ± 62	5110 ± 192	<10	<8	<9	<101	<18	<217	<37
H52	07-Oct-21	1010 ± 51	3180 ± 140	<13	<8	<11	280 ± 77	<17	<190	<38
	03-Nov-21	920 ± 51	3460 ± 152	<10	<10	<11	166 ± 69	<22	<228	<43
	01-Dec-21	1280 ± 54	3240 ± 141	<9	<8	<9	<611	<16	<201	<35
H59	07-Oct-21	756 ± 46	2750 ± 130	<12	<8	<11	<202	<16	<193	<32
	03-Nov-21	837 ± 49	2470 ± 123	<11	<10	<12	<240	<20	<215	<43
	01-Dec-21	1230 ± 56	2440 ± 122	<11	<8	<11	<221	<19	<222	<41

ST. LUCIE SITE

Supplemental Sampling

Fourth Quarter, 2021

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	9	9
2. Airborne			
2.a. Air Iodines	Weekly	3	34
2.b. Air Particulates	Weekly	3	34
3. Waterborne			
3.a. Surface Water	Monthly	2	6
3.b. Shoreline Sediment	Semiannually	4	0
3.c. Beach Sand	Semiannually	3	0
3.d. Ground Water	Quarterly	10	10
4. Ingestion			
4.a. Garden Crop	Annually	1	0
4.b. Citrus	Annually	1	0

Total: 93

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

1. DIRECT RADIATION - DEPLOYED TLD's - (µR/hour)

Sample Site	Deployment 23-Sep-21 Collection 16-Dec-21
H08	3.85 ± 0.08
H09	3.90 ± 0.35
H12	8.02 ± 0.72
H14	3.87 ± 0.48
H33	3.73 ± 0.29
H34	3.54 ± 0.37
H60	3.62 ± 0.16
H61	4.85 ± 0.50
H62	4.12 ± 0.37

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

Collection Date	H09	H32	H33
06-Oct-21	<0.03	<0.03	<0.03
13-Oct-21	<0.01	<0.01	<0.02
20-Oct-21	<0.03	<0.03	<0.03
26-Oct-21	<0.02	<0.02	<0.02
02-Nov-21	<0.02	<0.02	<0.02
10-Nov-21	<0.02	<0.02	<0.03
16-Nov-21	<0.02	<0.02	<0.02
23-Nov-21	<0.03	<0.03	<0.04
02-Dec-21	<0.02	<0.02	(A)
08-Dec-21	<0.02	<0.02	(A)
15-Dec-21	<0.02	<0.03	(A)
21-Dec-21	<0.01	<0.02	(A)
29-Dec-21	<0.02	<0.02	(A)

(A) No power at air station.

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

Collection Date	H09	H32	H33
06-Oct-21	0.020 ± 0.002	0.020 ± 0.002	0.019 ± 0.002
13-Oct-21	0.013 ± 0.002	0.013 ± 0.002	0.010 ± 0.002
20-Oct-21	0.022 ± 0.002	0.025 ± 0.002	0.015 ± 0.002
26-Oct-21	0.016 ± 0.002	0.013 ± 0.002	0.013 ± 0.002
02-Nov-21	0.018 ± 0.002	0.018 ± 0.002	0.018 ± 0.002
10-Nov-21	0.012 ± 0.002	0.012 ± 0.002	0.016 ± 0.002
16-Nov-21	0.013 ± 0.002	0.015 ± 0.002	0.018 ± 0.002
23-Nov-21	0.006 ± 0.002	0.012 ± 0.002	0.010 ± 0.003
02-Dec-21	0.021 ± 0.002	0.023 ± 0.002	(A)
08-Dec-21	0.023 ± 0.003	0.027 ± 0.003	(A)
15-Dec-21	0.010 ± 0.002	0.012 ± 0.002	(A)
21-Dec-21	0.004 ± 0.002	0.003 ± 0.001	(A)
29-Dec-21	0.024 ± 0.002	0.022 ± 0.002	(A)
Average:	0.016 ± 0.001	0.017 ± 0.001	0.015 ± 0.003

(A) No power at air station.

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

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
H09	0.1450 ± 0.0096	<0.0142	<0.0011	<0.0007	<0.0152
H32	0.1380 ± 0.0082	<0.0166	<0.0010	<0.0007	0.0120 ± 0.0027
H33	0.0954 ± 0.0112	<0.0302	<0.0025	<0.0016	<0.0253

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)
H13	07-Oct-21	<136	343 ± 26	<3	<3	<6	<3	<8	<6	<4	<3	<3	<4
	03-Nov-21	105 ± 43	288 ± 24	<3	<4	<6	<4	<8	<6	<4	<3	<4	<4
	01-Dec-21	<136	388 ± 33	<4	<4	<8	<4	<9	<7	<6	<4	<4	<6
H36	07-Oct-21	<136	314 ± 25	<3	<3	<6	<3	<8	<5	<4	<3	<4	<4
	03-Nov-21	<135	332 ± 26	<3	<3	<8	<4	<8	<6	<4	<3	<3	<4
	01-Dec-21	<136	372 ± 28	<3	<3	<8	<3	<7	<7	<7	<4	<4	<5

(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
	These samples previously collected.											

3.c. BEACH SAND - (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
	These samples previously collected.											

3.d. GROUND 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)
H70	20-Dec-21	<133	<78	<4	<4	<7	<4	<8	<7	<8	<4	<4	<6
H71	20-Dec-21	541 ± 52	363 ± 27	<3	<4	<8	<4	<8	<6	<8	<4	<4	<5
H72	20-Dec-21	<133	319 ± 25	<4	<4	<9	<4	<11	<8	<5	<4	<4	<5
H73	20-Dec-21	<133	101 ± 14	<4	<4	<7	<4	<7	<7	<8	<3	<4	<6
H74	20-Dec-21	<131	293 ± 24	<4	<4	<7	<4	<10	<6	<5	<4	<4	<4
H75	20-Dec-21	<131	291 ± 24	<4	<3	<7	<4	<9	<6	<4	<4	<4	<4
H76	20-Dec-21	<133	<83	<4	<5	<8	<4	<10	<8	<5	<4	<5	<9
H77	20-Dec-21	<131	<82	<4	<4	<8	<4	<9	<7	<5	<4	<5	<8
H78	20-Dec-21	<131	<86	<4	<5	<9	<5	<10	<7	<5	<4	<5	<10
H79	20-Dec-21	<133	<59	<4	<4	<9	<3	<10	<7	<8	<4	<4	<7

(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.

4.a. GARDEN CROP - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H41	This sample previously collected.					

4.b. CITRUS - (pCi/kg, wet weight)

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137
H23	This sample previously collected.					

10. Results from the BRC Interlaboratory Comparison Program – 2021

DOE MAPEP Series 44 and ERA RAD-125 BRC Results

Matrix: Air Filter (Bq/sample)				
Radionuclide	**Result**	**Ref. Value**	**Flag (Evaluation)**	**Acceptance Range**
Mn-54	0.300	0.312	A	0.218 - 0.406
Co-60	0.018	----	A	False Positive
Zn-65	0.358	0.352	A	0.246 - 0.458
Cs-134	1.841	2.14	A	1.50 - 2.78
Cs-137	0.004	----	A	False Positive
Gross Alpha	2.01	1.77	A	0.53 - 3.01
Gross Beta	0.7915	0.649	A	0.325 - 0.974

Matrix: Soil (Bq/kg)				
Radionuclide	**Result**	**Ref. Value**	**Flag (Evaluation)**	**Acceptance Range**
K-40	620.25	618	A	433 - 803
Mn-54	0.70	----	A	False Positive
Co-60	1320.00	1370	A	423 - 785
Zn-65	630.88	604	A	423 - 785
Cs-134	0.12	----	A	False Positive
Cs-137	1541.25	1550	A	1085 - 2015
U-238	177.62	208	A	146 - 270

Matrix: Water (Bq/L)				
Radionuclide	**Result**	**Ref. Value**	**Flag (Evaluation)**	**Acceptance Range**
H-3 (pCi/L)	15364	14600	A	12800 - 16100
K-40	0.795	----	A	False Positive
Mn-54	16.200	15.5	A	10.9 - 20.2
Co-60	0.10	----	A	False Positive
Zn-65	11.500	10.5	A	7.4 - 13.7
Cs-134	10.908	11.5	A	8.1 - 15.0
Cs-137	8.270	7.9	A	5.5 - 10.3
Ra-226	0.574	0.632	A	0.442 - 0.822
Gross Alpha	0.9495	0.87	A	0.26 - 1.48
Gross Beta	2.712	2.50	A	1.25 - 3.75

Flag (Evaluation): A = Acceptable, W = Acceptable with Warning, N = Not Acceptable

DOE MAPEP Series 45 Results

Matrix: Air Filter (Bq/sample)				
Radionuclide	**Result**	**Ref. Value**	**Flag (Evaluation)**	**Acceptance Range**
Mn-54	1.540	1.460	A	1.02 - 1.90
Co-60	2.23	2.28	A	1.60 - 2.96
Zn-65	0.014	----	A	False Positive
Cs-134	1.202	1.32	A	0.92 - 1.72
Cs-137	1.305	1.28	A	0.90 - 1.66
Gross Alpha	1.247	0.96	A	0.288 - 1.632
Gross Beta	0.66	0.553	A	0.277 - 0.830

Matrix: Soil (Bq/kg)				
Radionuclide	**Result**	**Ref. Value**	**Flag (Evaluation)**	**Acceptance Range**
K-40	578.61	607	A	425 - 789
Mn-54	404.87	410	A	287 - 533
Co-60	679.30	722	A	505 - 939
Zn-65	913.99	907	A	635 - 1179
Cs-134	1152.05	1170	A	819 - 1521
Cs-137	553.85	572	A	400 - 744
U-238	153.89	168	A	118 - 218

Matrix: Water (Bq/L)				
Radionuclide	**Result**	**Ref. Value**	**Flag (Evaluation)**	**Acceptance Range**
K-40	0.547	----	A	False Positive
Mn-54	9.053	9	A	6.3 – 11.7
Co-60	13.45	14	A	9.8 – 18.2
Zn-65	0.277	----	A	False Positive
Cs-134	9.349	10.4	A	7.3 – 13.5
Cs-137	-0.010	----	A	False Positive
Ra-226	0.237	0.226	A	0.158 - 0.294
Gross Alpha	0.254	0.232	A	0.070 – 0.394
Gross Beta	2.642	2.81	A	1.404 - 4.211

Flag (Evaluation): A = Acceptable, W = Acceptable with Warning, N = Not Acceptable