



September 20, 2023

L-2023-122  
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  
Corrections to the 2022 Annual Radiological  
Environmental Operating Report

Reference: FPL letter L-2023-041 dated April 4, 2023: Annual Radiological  
Environmental Operating Report for Calendar Year 2022

By letter dated April 4, 2023 (Reference), Florida Power & Light submitted the 2022 Annual Radiological Environmental Operating Report (AREOR) for St. Lucie Units 1 and 2 pursuant to Technical Specification (TS) 6.9.1.8. The 2022 report provided information for the 12-month period beginning January 1, 2022 and ending December 31, 2022.

It was discovered that some quarterly Offsite Dose Calculation Manual (ODCM) required data results were missing. Also, some Radiological Environmental Monitoring Program (REMP) equipment deviations were not reported in Section 5. These items have been corrected and are provided in this submittal. This corrected report replaces the St. Lucie 2022 AREOR report in its entirety.

If you have any questions regarding this submittal, please contact Kenneth Mack at 561-904-3635.

Sincerely,

A handwritten signature in black ink, appearing to read 'Diane S2', is written over a horizontal line.

Dianne Strand  
General Manager, Regulatory Affairs  
Florida Power & Light Company

Enclosure: 2022 Annual Radiological Environmental Operating Report

cc: USNRC Regional Administrator, Region II  
USNRC Project Manager, St. Lucie Nuclear Plant  
USNRC Resident Inspector, St. Lucie Nuclear Plant

**2022**  
**ANNUAL**  
**RADIOLOGICAL ENVIRONMENTAL**  
**OPERATING REPORT**

**ST. LUCIE PLANT**

**UNITS 1 & 2**

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

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

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## 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 6.4% of the required Lower Limit of Detection (LLD) for non-drinking water listed in ODCM Table 4.12-1 and 0.64% 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 0 of the 12 control location samples. The amount of Cs-137 reported was 23% of the required LLD listed in ODCM Table 4.12-1 and 0.9% 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

5136 Watersong Way is now the closest residence to the power plant in the Watersong development. 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 46, 47, and the ERA RadChem Study 131 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 6.4% of the required LLD listed in ODCM Table 4.12-1 and 0.64% of the reporting level listed in ODCM Table 3.12-2. 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 Indicator Location H51 sample was 23% of the required LLD listed in ODCM Table 4.12-1 and 0.9% 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.

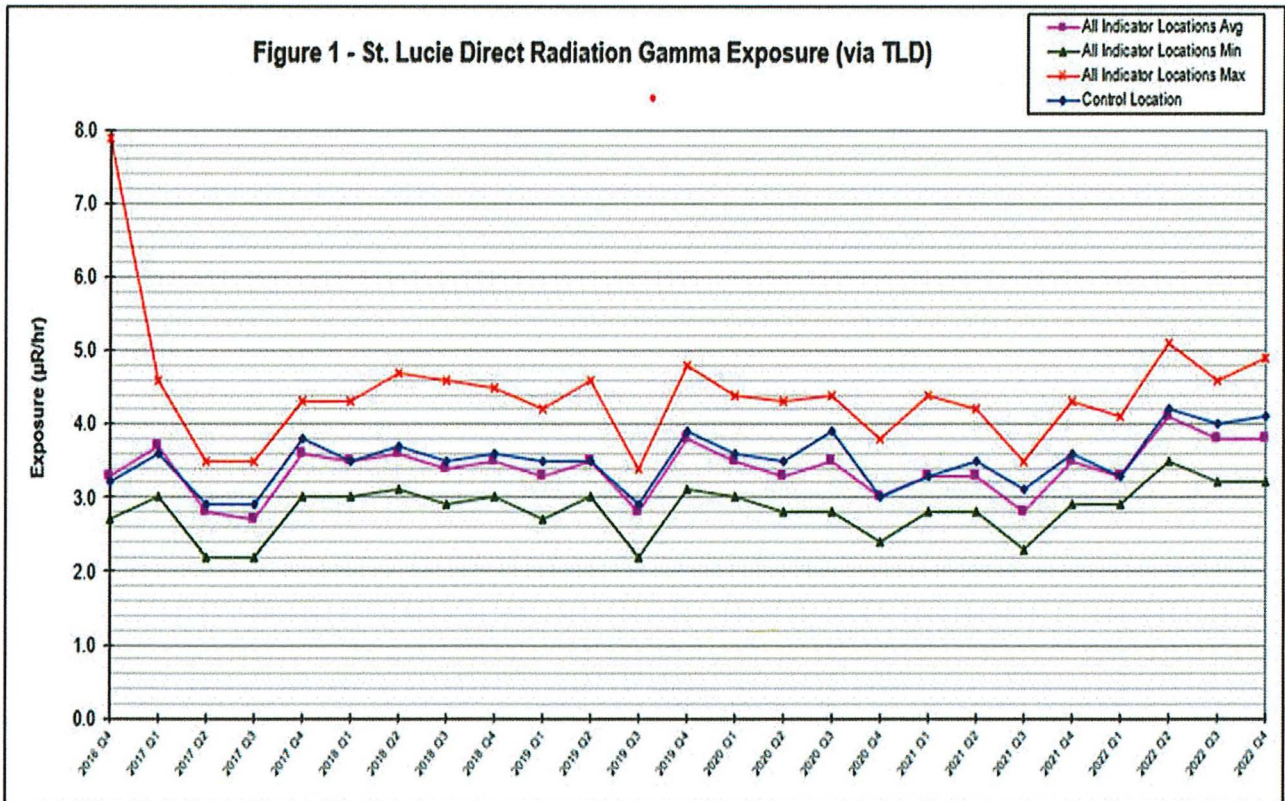


#### 4. Environmental Radiological Monitoring Program Annual Summary

##### I. Direct Radiation

PATHWAY: DIRECT RADIATION						
SAMPLES COLLECTED: TLD						
UNITS: micro-R/hr						
Type of Analyses	Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations	Location with Highest Annual Mean	Control Location	
			Mean (f) <sup>b</sup> Range	Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Mean (f) <sup>b</sup> Range
Exposure <sup>d</sup>	108	-----	3.76 (102/104)	NW-10	4.69 (4/4)	3.91 (4/4)
			2.90-5.13	9.6 mi., NW	4.10-5.13	3.27-4.23
Number of Non-Routine Reported Measurements = 0.						

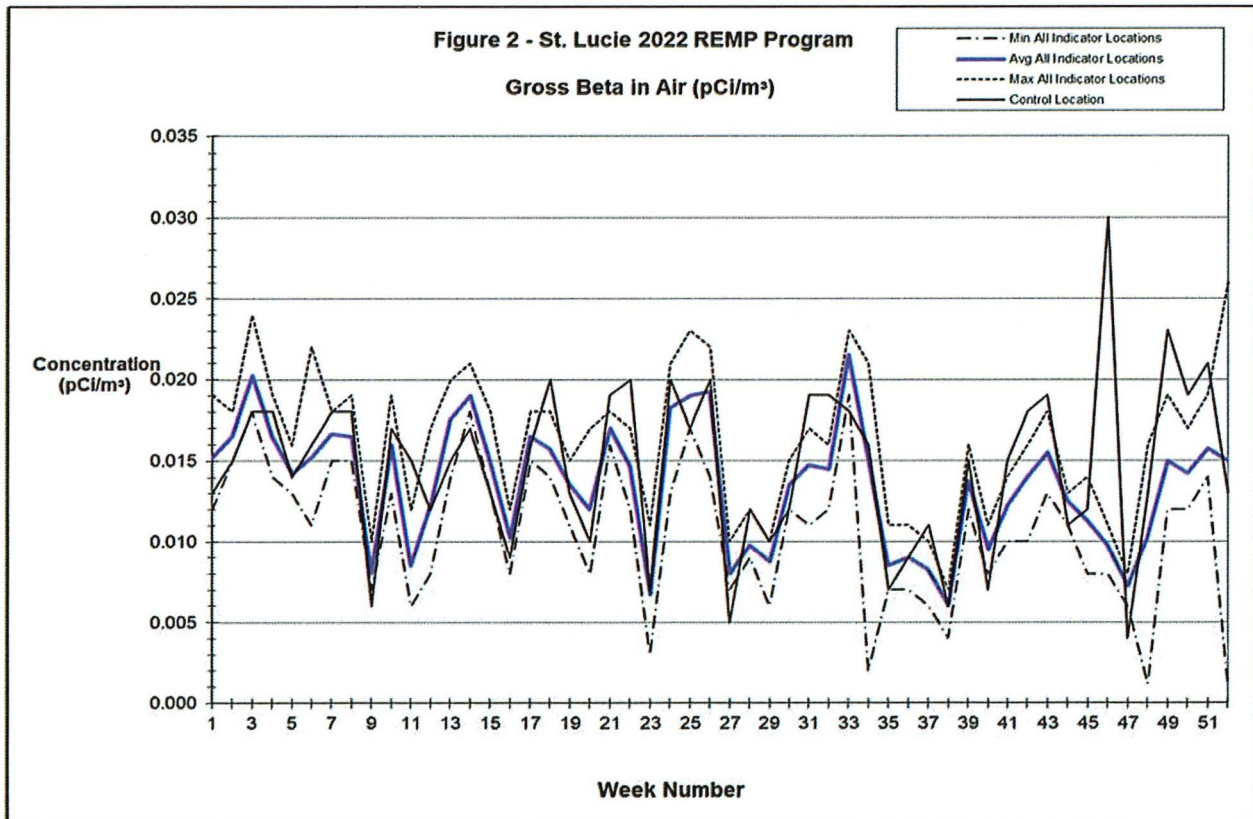
#### Gamma Exposure Trend Chart



## II. Air Particulates/Radioiodine

PATHWAY: AIRBORNE SAMPLES COLLECTED: RADIOIODINE AND PARTICULATES UNITS: pico-Ci/M <sup>3</sup>						
Type of Analyses	Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations	Location with Highest Annual Mean	Control Location	
			Mean (f) <sup>b</sup> Range	Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Mean (f) <sup>b</sup> Range
<sup>131</sup> I	260	0.021	<MDA (0/208)	-----	-----	<MDA (0/52)
Gross Beta	258	0.0064	0.0135 (206/208) 0.001-0.026	H14 1 mi., SE	0.014 (51/52) 0.003-0.023	0.015 (52/52) 0.004-0.030
Composite Gamma	32					
<sup>7</sup> Be	30	0.006	0.1161 (16/16) 0.0728-0.1490	H34 0.5 mi., N	0.1184 (4/4) 0.0728-0.1490	0.1256 (4/4) 0.0982-0.1510
<sup>40</sup> K	30	0.018	<MDA (0/16)	-----	-----	<MDA (0/4)
<sup>134</sup> Cs	30	0.0008	<MDA (0/16)	-----	-----	<MDA (0/4)
<sup>137</sup> Cs	30	0.0008	<MDA (0/16)	-----	-----	<MDA (0/4)
<sup>210</sup> Pb	30	-----	<MDA (0/16)	-----	-----	0.0080 (1/4) 0.0080-0.0080

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 <sup>a</sup> (LLD)	All Indicator Locations Mean (f) <sup>b</sup> Range	Location with Highest Annual Mean Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Control Locations Mean (f) <sup>b</sup> Range
Tritium	88	172	126 (3/52) 84-191	H15 <1mi., ENE/E/ESE	126 (3/52) 84-191	<MDA (0/12) -----
Gamma Isotopic	88					
<sup>40</sup> K		58	329 (51/52) 245-397	H15 <1mi., ENE/E/ESE	329 (51/52) 245-397	336 (12/12) 273-417
<sup>54</sup> Mn		4	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>59</sup> Fe		4	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>58</sup> Co		4	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>60</sup> Co		8	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>65</sup> Zn		4	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>95</sup> Zr-Nb		8	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>131</sup> I		6	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>134</sup> Cs		5	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>137</sup> Cs		3	<MDA (0/52)	-----	-----	<MDA (0/12)
<sup>140</sup> Ba-La		4	<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 <sup>a</sup> (LLD)	All Indicator Locations	Location with Highest Annual Mean	Control Locations	
			Mean (f) <sup>b</sup> Range	Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Mean (f) <sup>b</sup> Range
Gamma Isotopic	11					
<sup>7</sup> Be		56	<MDA (0/2)	H-15 <1mi, ENE/E/ESE	<MDA (0/2)	<MDA (0/2)
<sup>40</sup> K		100	296 (2/2) 179-412	H15 <1mi, ENE/E/ESE	296 (2/2) 179-412	231 (2/2) 175-287
<sup>56</sup> Co		6	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)
<sup>60</sup> Co		7	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)
<sup>134</sup> Cs		7	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)
<sup>137</sup> Cs		7	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)
<sup>210</sup> Pb		-----	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)
<sup>226</sup> Ra		15	83 (2/2) 55-110	H15 <1mi, ENE/E/ESE	83 (2/2) 55-110	41 (1/2) 41-41
<sup>232</sup> Th		25	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)
<sup>235</sup> U		-----	16 (1/2) 16-16	H15 <1mi, ENE/E/ESE	16 (1/2) 16-16	15 (1/2) 15-15
<sup>238</sup> U		-----	<MDA (0/2)	-----	<MDA (0/2)	<MDA (0/2)

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 UNITS: pico-Ci/kg WET						
Type of Analyses	Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations	Location with Highest Annual Mean	Control Locations	
			Mean (f) <sup>b</sup> Range	Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Mean (f) <sup>b</sup> Range
Gamma Isotopic	5					
<sup>40</sup> K		270	2097 (3/3) 1250-3420	H-15 ----- <1 mi, ENE/E/ESE	2097 (3/3) 1250-3420	1760 (2/2) 1430-2090
<sup>54</sup> Mn		16	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>58</sup> Co		15	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>60</sup> Co		16	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>134</sup> Cs		16	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>137</sup> Cs		18	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>226</sup> Ra		300	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>228</sup> Ra		58	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>59</sup> Fe		28	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)
<sup>65</sup> Zn		32	<MDA (0/3)	-----	<MDA (0/3)	<MDA (0/2)

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

PATHWAY: INGESTION SAMPLES COLLECTED: FISH UNITS: pico-Ci/kg WET						
Type of Analyses	Number of Analyses Performed	Lower Limit of Detection <sup>a</sup> (LLD)	All Indicator Locations	Location with Highest Annual Mean	Control Locations	
			Mean (f) <sup>b</sup> Range	Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Mean (f) <sup>b</sup> Range
Gamma Isotopic	4					
<sup>40</sup> K		270	3190 (2/2) 1630-4750	H15 ----- <1mi., ENE/E/ESE	3190 (2/2) 1630-4750	2830 (2/2) 2760-2900
<sup>54</sup> Mn		23	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>58</sup> Co		25	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>60</sup> Co		25	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>134</sup> Cs		25	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>137</sup> Cs		26	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>226</sup> Ra		217	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>228</sup> Ra		105	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>59</sup> Fe		53	<MDA (0/2)	-----	-----	<MDA (0/2)
<sup>65</sup> Zn		58	<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 <sup>a</sup> (LLD)	All Indicator Locations	Location with Highest Annual Mean	Control Locations	
			Mean (f) <sup>b</sup> Range	Name <sup>c</sup> Distance & Direction	Mean (f) <sup>b</sup> Range	Mean (f) <sup>b</sup> Range
Gamma Isotopic	36					
<sup>7</sup> Be		64	1426 (24/24) 758-2790	H51 1mi., N/NNW	1536 (12/12) 953-2790	974 (12/12) 595-1370
<sup>40</sup> K		120	3743 (24/24) 2240-5600	H52 1mi., S/SSE	3806 (12/12) 3090-5530	2778 (12/12) 1970-3390
<sup>131</sup> I		20	<MDA (0/24)	-----	<MDA (0/12)	<MDA (0/12)
<sup>134</sup> Cs		11	<MDA (0/24)	-----	<MDA (0/12)	<MDA (0/12)
<sup>137</sup> Cs		13	18 (1/24) 18-18	H51 1mi., N/NNW	18 (1/12) 18-18	<MDA (0/12)
<sup>210</sup> Pb		693	468 (9/24) 62-1260	H52 1mi., S/SSE	528 (6/12) 68-1260	558 (3/12) 210-1070
<sup>212</sup> Pb		19	20 (2/24) 19-21	H52 1mi., S/SSE	20 (2/12) 19-21	<MDA (0/12)
<sup>226</sup> Ra		189	297 (1/24) 297-297	H51 1mi., N/NNW	297 (1/12) 297-297	<MDA (0/12)
<sup>228</sup> Ra		29	<MDA (0/24)	-----	<MDA (0/12)	<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 2022. 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.

<b>2022 St. Lucie Land Use Census: Distance to Nearest Location<sup>a, b</sup></b>			
<b>Sector</b>	<b>Residence</b>	<b>Garden<sup>d</sup></b>	<b>Milk Animal<sup>c</sup></b>
N	O <sup>e</sup>	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° <sup>g</sup> (B) 2.0 / 149°	L <sup>f</sup>	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:

<u>Sector</u>	<u>Distance</u>	<u>Description</u>
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: Surface Water: Radioisotopes  
Location: H-15 (Ocean side vicinity of St. Lucie Plant)  
Dates: 11-1-22 (Weekly samples)  
Deviation: Failure to perform environmental surveillance.  
Description: Sample not taken.  
Corrective Action: BRC field team collected and analyzed samples for the following week and were normal levels.
- B. Pathway: Airborne: Radioiodine and Particulates  
Location: H-30 (Power Line – 7609 Indian River Drive)  
Dates: 02-07-22 to 02-16-22  
Deviation: Sample was missing at the time of collection.  
Description: The particulate sample was missing at the time of collection, therefore was not analyzed.  
Corrective Action: Particulate filter was replaced and returned to routine sampling.
- C. Pathway: Airborne: Radioiodine and Particulates  
Location: H-14 (Onsite – SE Near south property line)  
Dates: 05-25-22 to 06-01-22  
Deviation: Sample was missing at the time of collection.  
Description: The particulate sample was missing at the time of collection, therefore was not analyzed.  
Corrective Action: Particulate filter was replaced and returned to routine sampling.
- D. Pathway: Direct Exposure: TLD  
Location: WSW-10 (10 miles WSW at Del Rio and Davis Streets)  
Dates: 1st Quarter, January 1<sup>st</sup> to March 31<sup>st</sup>, 2022  
Deviation: TLD was missing at the time of collection.  
Description: TLD was not available for direct exposure analysis. TLD readings in the vicinity of WSW-10 showed normal levels.  
Corrective Action: TLD was replaced.
- E. Pathway: Direct Exposure: TLD  
Location: NNW-5 (5 miles NNW at Frederick Douglas Beach Entrance)  
Dates: 4th Quarter, October 1<sup>st</sup> to December 31<sup>st</sup>, 2022  
Deviation: TLD was missing at the time of collection.  
Description: TLD was not available for direct exposure analysis. TLD readings in the vicinity of NNW-5 showed normal levels.  
Corrective Action: TLD was replaced.

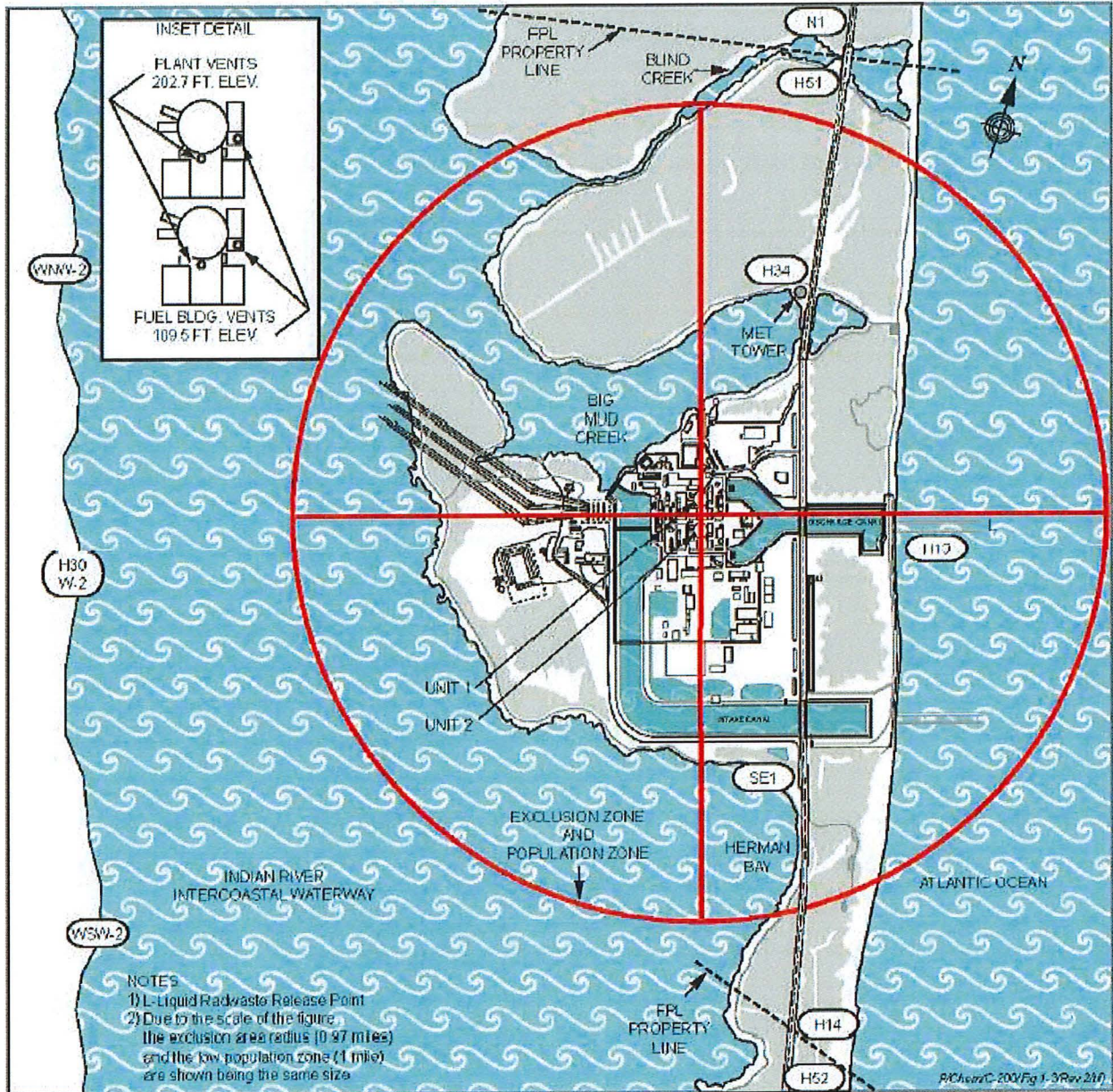
- F. Pathway: REMP Groundwater  
 Location: H-70, H-71, H-72, H-73, H-74, H-75, H-76, H-77, H-78, H-79 (Onsite REMP Program Groundwater Wells)  
 Dates: Quarter 1 2022  
 Deviation: Failure to perform environmental surveillance.  
 Description: Quarterly REMP Program Groundwater Wells were not sampled in Quarter 1 2022.  
 Corrective Action: Second quarter groundwater samples were collected early in the first month of the 2<sup>nd</sup> quarter and showed normal levels. Quarterly management level peer checks of REMP Program sampling activities will be completed at the two month point in the quarter to ensure all quarterly samples have been completed.
- G. Pathway: Waterborne  
 Location: H-15 and H-59 (Onsite - Shoreline Sediment)  
 Dates: Semi-annual Sample Period, Jan 1<sup>st</sup> to June 30<sup>th</sup>, 2022.  
 Deviation: Failure to perform environmental surveillance.  
 Description: Semi-annual required shoreline sediment samples were not collected.  
 Corrective Action: Sediment samples were collected 25 days late in the next semiannual surveillance period and showed normal levels. Semi-annual surveillance checks will be performed with quarterly management level peer checks of REMP Program sampling activities to ensure all sample surveillances are completed on time.

## 6. Analyses with LLDs Above Required Detection Capabilities

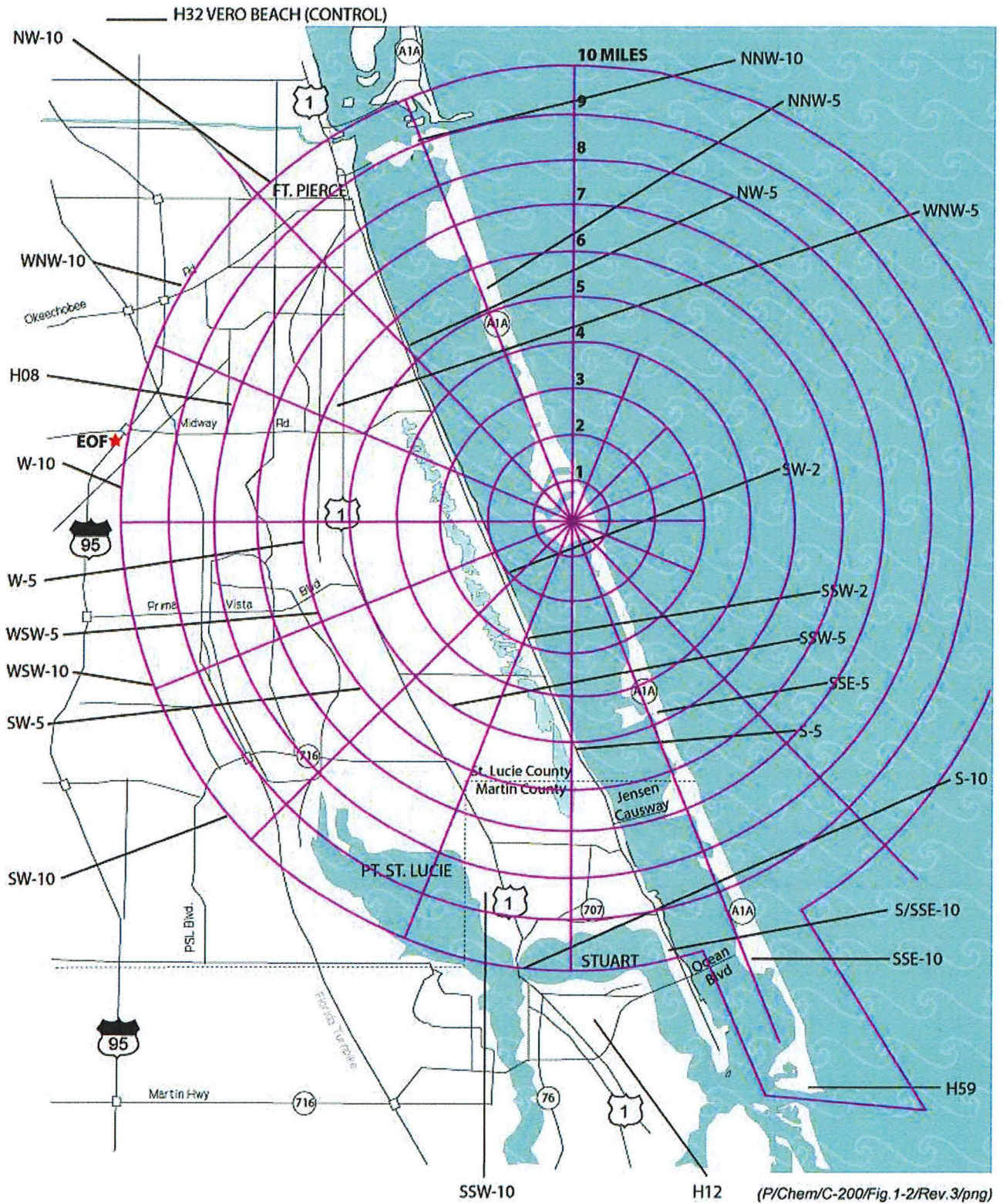
The values specified in ODCM Table 4.12-1 Detection Capabilities For Environmental Sample Analysis were achieved for all samples. REMP sampling deviations and missing data are listed in Section 5.

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

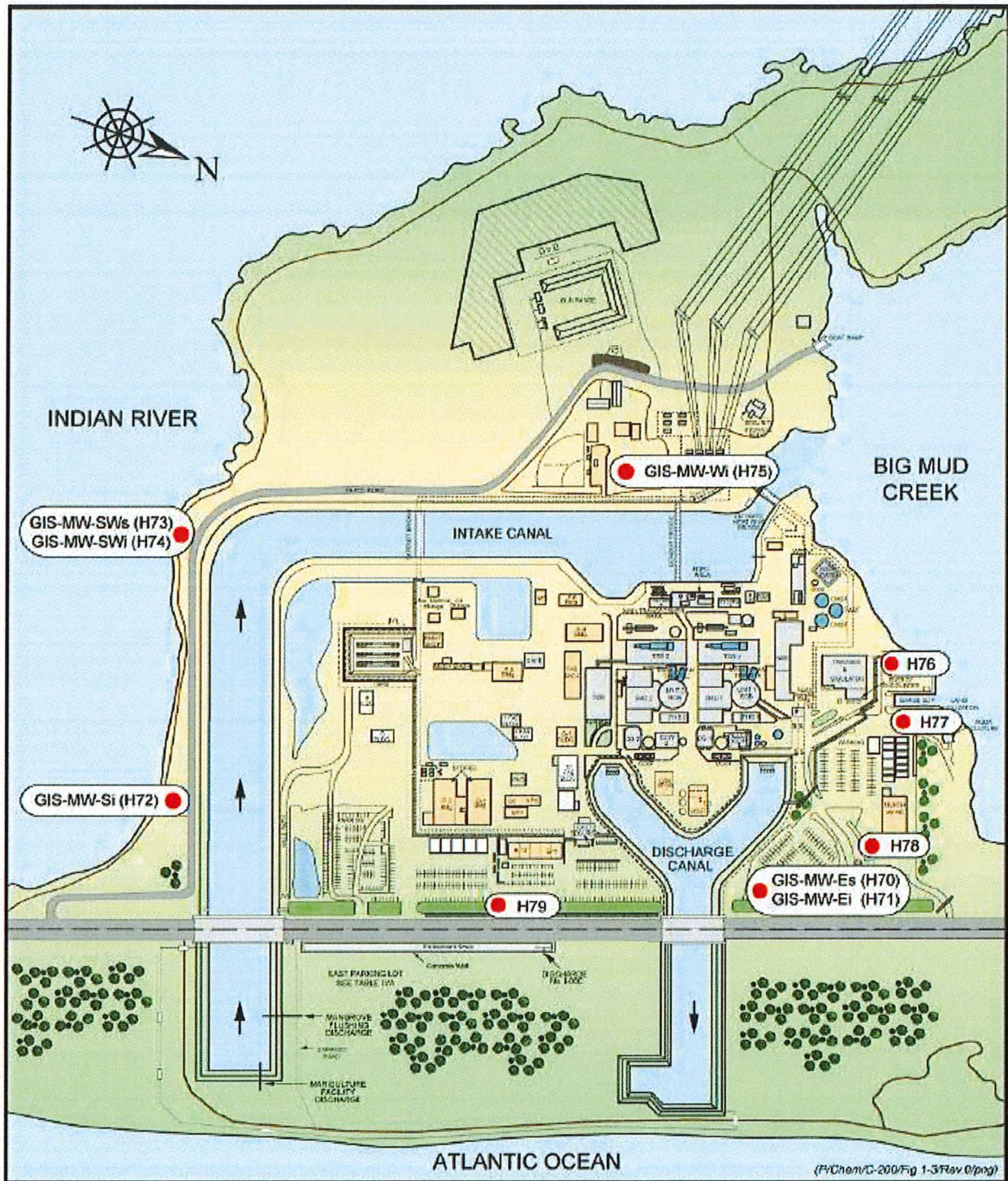
B. St. Lucie 2022 Tritium Results<sup>(1)</sup> Summary (pCi/L)

State ID	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
H70	(2)	94	<132	<134
H71	(2)	413	<135	436
H72	(2)	<134	<135	<134
H73	(2)	<134	<135	<129
H74	(2)	<134	<135	<129
H75	(2)	<134	<135	<129
H76	(2)	<134	<135	<129
H77	(2)	<134	<132	<129
H78	(2)	<139	<132	<134
H79	(2)	<139	<132	<134

1. Samples analyzed for H3 and principle gamma emitters; tritium was the only fission product identified. Naturally occurring K-40 was occasionally identified.
2. First Quarter Ground Water samples were not collected by the BRC.



C. Map of Groundwater Water Protection – Industry Initiative Wells



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

A. First Quarter 2022



RADIOLOGICAL SURVEILLANCE  
OF  
FLORIDA POWER AND LIGHT COMPANY

**ST. LUCIE PLANT**

FIRST QUARTER 2022

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

First Quarter, 2022

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	27	24
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	64
3. Waterborne			
3.a. Surface Water	Weekly	1	13
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	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: 180

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 15-Dec-21 Collection 11-Mar-22	Sample Site	Deployment 15-Dec-21 Collection 11-Mar-22
N-1	3.3 ± 0.4	SW-2	3.19 ± 0.22
NNW-5	3.4 ± 0.5	SW-5	3.66 ± 0.71
NNW-10	4.0 ± 0.7	SW-10	3.28 ± 0.57
NW-5	3.13 ± 0.16	SSW-2	3.23 ± 0.32
NW-10	4.1 ± 0.1	SSW-5	3.55 ± 0.39
WNW-2	3.2 ± 0.1	SSW-10	3.01 ± 0.45
WNW-5	3.5 ± 0.3	S-5	3.36 ± 0.63
WNW-10	3.3 ± 0.2	S-10	3.04 ± 0.11
W-2	3.3 ± 0.3	S/SSE-10	3.51 ± 0.16
W-5	2.9 ± 0.2	SSE-5	3.22 ± 0.43
W-10	3.6 ± 0.2	SSE-10	3.14 ± 0.36
WSW-2	2.9 ± 0.2	SE-1	3.04 ± 0.39
WSW-5	3.5 ± 0.2	H-32	3.27 ± 0.48
WSW-10	(A)		

(A) TLDs were missing when collection was attempted.

(B) TLD was mistakenly not switched out.

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
04-Jan-22	<0.02	<0.02	<0.02	<0.02	<0.02
12-Jan-22	<0.02	<0.02	<0.02	<0.02	<0.02
18-Jan-22	<0.02	<0.02	<0.02	<0.02	<0.02
25-Jan-22	<0.02	<0.02	<0.02	<0.02	<0.02
01-Feb-22	<0.02	<0.02	<0.02	<0.02	<0.02
07-Feb-22	<0.02	<0.02	<0.02	<0.02	<0.02
16-Feb-22	<0.02	<0.02	<0.02	<0.02	<0.02
22-Feb-22	<0.03	<0.03	<0.03	<0.03	<0.03
01-Mar-22	<0.02	<0.02	<0.02	<0.02	<0.02
07-Mar-22	<0.03	<0.03	<0.03	<0.03	<0.03
15-Mar-22	<0.02	<0.02	<0.02	<0.02	<0.02
22-Mar-22	<0.02	<0.02	<0.02	<0.02	<0.02
29-Mar-22	<0.02	<0.02	<0.02	<0.02	<0.02

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
04-Jan-22	0.012 ± 0.002	0.013 ± 0.002	0.015 ± 0.002	0.019 ± 0.002	0.015 ± 0.002
12-Jan-22	0.018 ± 0.002	0.015 ± 0.002	0.016 ± 0.002	0.015 ± 0.002	0.017 ± 0.002
18-Jan-22	0.024 ± 0.002	0.018 ± 0.002	0.018 ± 0.002	0.020 ± 0.002	0.019 ± 0.002
25-Jan-22	0.015 ± 0.002	0.018 ± 0.002	0.019 ± 0.002	0.018 ± 0.002	0.014 ± 0.002
01-Feb-22	0.015 ± 0.002	0.014 ± 0.002	0.016 ± 0.002	0.013 ± 0.002	0.013 ± 0.002
07-Feb-22	0.015 ± 0.002	0.016 ± 0.002	0.022 ± 0.002	0.013 ± 0.002	0.011 ± 0.002
16-Feb-22	0.018 ± 0.002	0.018 ± 0.002	0.017 ± 0.002	(A)	0.015 ± 0.002
22-Feb-22	0.019 ± 0.002	0.018 ± 0.002	0.015 ± 0.002	0.016 ± 0.002	0.016 ± 0.002
01-Mar-22	0.008 ± 0.002	0.006 ± 0.002	0.010 ± 0.002	0.007 ± 0.002	0.007 ± 0.002
07-Mar-22	0.014 ± 0.002	0.017 ± 0.002	0.018 ± 0.002	0.019 ± 0.002	0.013 ± 0.002
15-Mar-22	0.008 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.008 ± 0.002	0.006 ± 0.001
22-Mar-22	0.013 ± 0.002	0.012 ± 0.002	0.008 ± 0.002	0.011 ± 0.002	0.017 ± 0.002
29-Mar-22	0.014 ± 0.002	0.015 ± 0.002	0.020 ± 0.002	0.016 ± 0.002	0.020 ± 0.002
Average:	0.015 ± 0.001	0.015 ± 0.001	0.016 ± 0.001	0.013 ± 0.001	0.014 ± 0.001

(A) sample was missing at time of collection

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H08	0.1450 ± 0.0095	<0.0149	<0.0012	<0.0009	<0.0157
H12	0.1510 ± 0.0093	<0.0168	<0.0011	<0.0010	<0.0149
H14	0.1390 ± 0.0096	<0.0164	<0.0010	<0.0006	<0.0317
H30	0.1280 ± 0.0091	<0.0132	<0.0012	<0.0010	<0.0145
H34	0.1250 ± 0.0093	<0.0144	<0.0010	<0.0008	<0.0336

3.a. SURFACE WATER – (pCi/L)

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	04-Jan-22	<137	319 ± 26	<3	<4	<9	<4	<8	<7	<12	<4	<3	<8
	12-Jan-22	<137	259 ± 23	<3	<4	<8	<4	<7	<6	<5	<3	<3	<6
	18-Jan-22	<137	317 ± 25	<3	<3	<6	<4	<8	<6	<4	<3	<4	<4
	25-Jan-22	<137	348 ± 26	<3	<3	<6	<4	<9	<6	<3	<3	<4	<4
	02-Feb-22	84 ± 42	298 ± 25	<4	<3	<7	<4	<8	<6	<4	<3	<4	<4
	07-Feb-22	<131	352 ± 26	<4	<3	<8	<3	<8	<6	<4	<4	<4	<4
	16-Feb-22	<131	343 ± 27	<4	<3	<6	<4	<8	<6	<4	<3	<4	<4
	22-Feb-22	<135	305 ± 25	<4	<4	<7	<4	<9	<5	<4	<4	<4	<4
	01-Mar-22	<135	320 ± 31	<4	<4	<9	<4	<8	<7	<4	<3	<4	<6
	07-Mar-22	<135	273 ± 25	<3	<3	<7	<4	<7	<6	<4	<3	<3	<4
	15-Mar-22	<135	377 ± 28	<3	<3	<6	<3	<8	<6	<4	<3	<4	<4
	22-Mar-22	<143	336 ± 27	<3	<3	<6	<4	<8	<6	<4	<3	<3	<4
	29-Mar-22	<143	293 ± 28	<3	<3	<7	<3	<8	<6	<4	<3	<4	<4
H59	05-Jan-22	<137	344 ± 26	<3	<4	<7	<3	<9	<6	<10	<3	<3	<6
	02-Feb-22	<133	288 ± 24	<3	<3	<7	<3	<7	<5	<4	<3	<4	<4
	02-Mar-22	<135	355 ± 27	<4	<3	<6	<4	<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.

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

Sample Site	Collection Date	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15	These samples not yet collected											
H59												

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

Sample Site	Collection Date	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	These samples not yet collected.										
H59											

4.a.2. FISH – (pCi/kg, wet weight)

Sample Site	Collection Date	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	25-Mar-22	1630 ± 124	<16	<17	<28	<15	<28	<16	<17	<302	<56
H59	02-Mar-22	2760 ± 214	<25	<26	<57	<28	<59	<22	<26	<539	<97



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

Sample Site	Collection Date	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Pb-212</u>	<u>Ra-226</u>	<u>Ra-228</u>
H51	05-Jan-22	1630 ± 80	2570 ± 149	<37	<12	<15	<315	<24	<284	<51
	02-Feb-22	2570 ± 79	2240 ± 108	<9	<8	<8	584 ± 99	<18	<212	<34
	02-Mar-22	1560 ± 68	4590 ± 193	<11	<11	<12	399 ± 94	<24	<251	<50
H52	05-Jan-22	1140 ± 56	3450 ± 152	<30	<9	<10	278 ± 73	<18	<207	<40
	02-Feb-22	1070 ± 54	3310 ± 149	<11	<9	<10	<264	<18	<231	<43
	02-Mar-22	1650 ± 63	3860 ± 161	<10	<9	<9	308 ± 74	<19	<202	<39
H59	05-Jan-22	781 ± 57	2430 ± 135	<35	<10	<12	<260	<22	<255	<42
	02-Feb-22	1130 ± 56	2940 ± 137	<11	<9	<11	210 ± 68	<19	<209	<37
	02-Mar-22	1370 ± 65	2050 ± 117	<12	<10	<12	394 ± 96	<22	<252	<46

ST. LUCIE SITE

Supplemental Sampling

First Quarter, 2022

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	25
2.b. Air Particulates	Weekly	3	25
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	0
4. Ingestion			
4.a. Garden Crop	Annually	1	0
4.b. Citrus	Annually	1	1

Total: 66

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 – ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 15-Dec-21 Collection 11-Mar-22
H08	$3.8 \pm 0.3$
H09	$3.8 \pm 0.2$
H12	$7.5 \pm 1.1$
H14	$3.8 \pm 0.8$
H33	$3.5 \pm 0.3$
H34	$3.5 \pm 0.2$
H60	$3.4 \pm 0.3$
H61	$4.5 \pm 0.3$
H62	$4.0 \pm 0.7$

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES – ( $\text{pCi}/\text{m}^3$ )

Collection Date	H09	H32	H33
04-Jan-22	<0.02	<0.02	(B)
12-Jan-22	<0.02	<0.02	(B)
18-Jan-22	<0.02	<0.02	(B)
25-Jan-22	<0.02	<0.03	(B)
01-Feb-22	<0.02	(A)	(B)
07-Feb-22	<0.02	(A)	<0.02
16-Feb-22	<0.02	(A)	<0.02
22-Feb-22	<0.03	(A)	<0.03
01-Mar-22	<0.02	(A)	<0.02
07-Mar-22	<0.03	(A)	<0.03
15-Mar-22	<0.02	(A)	<0.02
22-Mar-22	<0.02	(A)	<0.02
29-Mar-22	<0.02	(A)	<0.02

(A) Site power was out for extended period

(B) Site power was out for extended period

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

<u>Collection Date</u>	<u>H09</u>	<u>H32</u>	<u>H33</u>
04-Jan-22	0.015 ± 0.002	0.012 ± 0.002	(B)
12-Jan-22	0.018 ± 0.002	0.014 ± 0.002	(B)
18-Jan-22	0.025 ± 0.002	0.020 ± 0.002	(B)
25-Jan-22	0.018 ± 0.002	0.021 ± 0.003	(B)
01-Feb-22	0.017 ± 0.002	(A)	(B)
07-Feb-22	0.017 ± 0.002	(A)	0.015 ± 0.002
16-Feb-22	0.018 ± 0.002	(A)	0.011 ± 0.001
22-Feb-22	0.017 ± 0.002	(A)	0.018 ± 0.002
01-Mar-22	0.007 ± 0.002	(A)	0.005 ± 0.001
07-Mar-22	0.019 ± 0.002	(A)	0.015 ± 0.002
15-Mar-22	0.009 ± 0.002	(A)	0.006 ± 0.001
22-Mar-22	0.012 ± 0.002	(A)	0.016 ± 0.002
29-Mar-22	0.015 ± 0.002	(A)	0.018 ± 0.002
Average	0.016 ± 0.001	0.017 ± 0.001	0.013 ± 0.001

(A) Site power was out for extended period

(B) Site power was out for extended period

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H09	0.1260 ± 0.0095	<0.0143	<0.0010	<0.0010	<0.0338
H32	0.1180 ± 0.0201	<0.0499	<0.0037	<0.0032	<0.1060
H33	0.1570 ± 0.0131	<0.0270	<0.0018	<0.0014	<0.0233

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	05-Jan-22	<133	295 ± 24	<4	<3	<7	<4	<8	<6	<4	<3	<4	<4
	02-Feb-22	<131	285 ± 24	<3	<3	<8	<4	<7	<5	<4	<3	<4	<4
	02-Mar-22	<135	367 ± 27	<3	<3	<6	<4	<7	<6	<4	<3	<3	<4
H36	05-Jan-22	96 ± 43	286 ± 25	<3	<3	<8	<4	<7	<5	<4	<3	<3	<4
	02-Feb-22	<133	312 ± 25	<4	<3	<7	<4	<8	<6	<4	<3	<3	<5
	02-Mar-22	<135	322 ± 25	<3	<4	<7	<4	<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	These samples have not yet been collected											
H16												
H19												
H36												

3.c. BEACH SAND – (pCi/kg, dry weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15	These samples have not yet been collected											
H16												
H19												

3.d. GROUND WATER – (pCi/L)

Sample Site	Collection Date	<u>H-3</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	Zr-95 <u>Nb-95</u> (A)	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	Ba-140 <u>La-140</u> (B)
H70	These samples were not collected												
H71													
H72													
H73													
H74													
H75													
H76													
H77													
H78													
H79													

(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)

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

4.b. CITRUS – (pCi/kg, wet weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>
H23	28-Jan-22	<45	1630 ± 79	<6	<6	<7



B. Second Quarter 2022



RADIOLOGICAL SURVEILLANCE  
OF  
FLORIDA POWER AND LIGHT COMPANY

**ST. LUCIE PLANT**

SECOND QUARTER 2022

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Second Quarter, 2022

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	64
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	0
4.b. Broadleaf Vegetation	Monthly	3	9

Total: 18

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 - ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 15-March-22 Collection 22-June-22	Sample Site	Deployment 15-March-22 Collection 22-June-22
N-1	$4.00 \pm 0.28$	SW-2	$3.93 \pm 0.11$
NNW-5	$3.67 \pm 0.09$	SW-5	$4.75 \pm 0.09$
NNW-10	$4.69 \pm 0.38$	SW-10	$3.99 \pm 0.11$
NW-5	$3.84 \pm 0.31$	SSW-2	$3.86 \pm 0.2$
NW-10	$5.13 \pm 0.33$	SSW-5	$4.52 \pm 0.19$
WNW-2	$3.78 \pm 0.28$	SSW-10	$3.7 \pm 0.32$
WNW-5	$4.01 \pm 0.5$	S-5	$3.84 \pm 0.22$
WNW-10	$3.84 \pm 0.12$	S-10	$5.13 \pm 0.39$
W-2	$3.51 \pm 0.22$	S/SSE-10	$4.47 \pm 0.19$
W-5	$4.32 \pm 0.46$	SSE-5	$3.93 \pm 0.32$
W-10	$3.56 \pm 0.15$	SSE-10	$4.31 \pm 0.27$
WSW-2	$4.00 \pm 0.55$	SE-1	$4.04 \pm 0.13$
WSW-5	$4.18 \pm 0.22$	H-32	$4.23 \pm 0.36$
WSW-10	$4.49 \pm 0.19$		

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
05-Apr-22	<0.02	<0.02	<0.02	<0.02	<0.02
13-Apr-22	<0.02	<0.02	<0.02	<0.02	<0.02
20-Apr-22	<0.02	<0.02	<0.02	<0.02	<0.02
26-Apr-22	<0.02	<0.02	<0.02	<0.02	<0.02
04-May-22	<0.02	<0.02	<0.02	<0.02	<0.02
11-May-22	<0.02	<0.02	<0.02	<0.02	<0.02
17-May-22	<0.02	<0.02	<0.02	<0.02	<0.02
25-May-22	<0.02	<0.02	<0.02	<0.02	<0.02
01-Jun-22	<0.02	<0.02	<0.02	<0.02	<0.02
08-Jun-22	<0.02	<0.02	<0.02	<0.02	<0.02
15-Jun-22	<0.02	<0.02	<0.02	<0.02	<0.02
23-Jun-22	<0.02	<0.02	<0.02	<0.02	<0.02
28-Jun-22	<0.04	<0.03	<0.03	<0.03	<0.03

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
05-Apr-22	0.019 ± 0.002	0.017 ± 0.002	0.018 ± 0.002	0.021 ± 0.002	0.018 ± 0.002
13-Apr-22	0.015 ± 0.002	0.013 ± 0.002	0.013 ± 0.002	0.018 ± 0.002	0.014 ± 0.002
20-Apr-22	0.010 ± 0.002	0.009 ± 0.002	0.012 ± 0.002	0.008 ± 0.002	0.011 ± 0.002
26-Apr-22	0.017 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.016 ± 0.002	0.015 ± 0.002
04-May-22	0.014 ± 0.002	0.020 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.015 ± 0.002
11-May-22	0.013 ± 0.002	0.013 ± 0.002	0.011 ± 0.002	0.015 ± 0.002	0.015 ± 0.002
17-May-22	0.008 ± 0.002	0.010 ± 0.002	0.017 ± 0.002	0.009 ± 0.002	0.014 ± 0.002
25-May-22	0.016 ± 0.002	0.019 ± 0.002	0.017 ± 0.002	0.018 ± 0.002	0.017 ± 0.002
01-Jun-22	0.012 ± 0.002	0.020 ± 0.002	(A)	0.015 ± 0.002	0.017 ± 0.002
08-Jun-22	0.011 ± 0.002	0.007 ± 0.002	0.003 ± 0.001	0.009 ± 0.002	0.004 ± 0.001
15-Jun-22	0.019 ± 0.002	0.020 ± 0.002	0.021 ± 0.002	0.020 ± 0.002	0.013 ± 0.002
23-Jun-22	0.018 ± 0.002	0.017 ± 0.002	0.023 ± 0.002	0.017 ± 0.002	0.018 ± 0.002
28-Jun-22	0.021 ± 0.003	0.020 ± 0.003	0.020 ± 0.003	0.022 ± 0.003	0.014 ± 0.002
Average	0.014 ± 0.001	0.015 ± 0.001	0.015 ± 0.001	0.015 ± 0.001	0.014 ± 0.001

(A) Sample was missing at time of collection

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H08	0.126 ± 0.0088	<0.0109	<0.0009	<0.001	<0.0109
H12	0.122 ± 0.089	<0.0107	<0.0010	<0.001	0.008 ± 0.002
H14	0.109 ± 0.0088	<0.0171	<0.0007	<0.001	<0.0306
H30	0.12 ± 0.0092	<0.0140	<0.0009	<0.001	<0.0107
H34	0.120 ± 0.0092	<0.0126	<0.0009	<0.001	<0.0115

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

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	05-Apr-22	<133	386 ± 28	<3	<3	<7	<3	<8	<7	<5	<3	<4	<5
	14-Apr-22	<137	362 ± 28	<4	<3	<6	<3	<8	<6	<4	<3	<4	<4
	20-Apr-22	<137	340 ± 27	<4	<3	<7	<4	<7	<6	<4	<4	<4	<4
	26-Apr-22	<140	335 ± 26	<3	<3	<7	<4	<8	<5	<3	<4	<3	<4
	04-May-22	<134	319 ± 25	<3	<3	<6	<3	<8	<6	<4	<3	<3	<4
	11-May-22	191 ± 45	371 ± 27	<4	<3	<8	<3	<7	<5	<4	<4	<4	<4
	17-May-22	<134	338 ± 26	<4	<4	<7	<4	<8	<6	<4	<3	<4	<4
	25-May-22	<133	346 ± 26	<3	<3	<7	<4	<8	<5	<4	<3	<3	<4
	01-Jun-22	<132	318 ± 26	<3	<3	<6	<4	<7	<5	<4	<4	<4	<3
	08-Jun-22	<132	333 ± 27	<3	<3	<7	<4	<7	<6	<4	<4	<4	<3
	16-Jun-22	<132	342 ± 27	<4	<3	<7	<4	<7	<5	<3	<3	<3	<3
	22-Jun-22	<134	340 ± 26	<3	<4	<6	<4	<8	<5	<4	<3	<4	<3
	28-Jun-22	103 ± 43	363 ± 28	<3	<3	<8	<4	<8	<6	<6	<4	<4	<4
H59	05-Apr-22	<133	302 ± 42	<5	<6	<12	<6	<11	<10	<12	<4	<6	<7
	02-May-22	<134	320 ± 36	<5	<6	<11	<5	<12	<10	<8	<5	<6	<11
	08-Jun-22	<198	294 ± 24	<3	<3	<7	<3	<7	<6	<4	<3	<4	<3

(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)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15	25-Jul-22	<92	179 ±	<8	<6	<8	<7	<334	55 ± 10	<48	16 ± 5	<48
H59	25-Jul-22	<65	175 ±	<7	<9	<6	<8	<80	<180	<40	<40	<60

NOTE: Samples collected late due to scheduling error.

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

<u>Sample</u>	<u>Collection Date</u>	<u>K-40</u>	<u>Mn</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	16-Jun-22	1620 ± 153	<22	<20	<44	<22	<57	<20	<2	784 ± 164	<116
H59	16-Jun-22	1430 ± 166	<22	<24	<51	<20	<46	<18	<23	<539	<117

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

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

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

Sample Site	Collection Date	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Pb-212</u>	<u>Ra-226</u>	<u>Ra-228</u>
H51	05-Apr-22	1020 ±	4940 ±	<18	<13	<15	<930	<32	297 ± 136	<70
	02-May-22	1140 ±	3550 ±	<33	<14	<17	<1010	<32	<414	<69
	08-Jun-22	953 ±	3830 ±	<16	<13	18 ± 4	<101	<26	<305	<48
H52	05-Apr-22	1930 ±	3290 ±	<19	<12	<15	774 ± 322	<32	<353	<62
	02-May-22	1050 ±	3660 ±	<24	<12	<14	<931	<26	<330	<51
	08-Jun-22	1680 ±	3850 ±	<35	<17	<20	<7860	<43	<542	<65
H59	05-Apr-22	1010 ±	1970 ±	<11	<10	<12	<113	<21	<218	<37
	02-May-22	1110 ±	2370 ±	<19	<10	<11	<120	<20	<228	<38
	08-Jun-22	1070 ±	3130 ±	<17	<10	<12	<90	<21	<249	<39



ST. LUCIE SITE

Supplemental Sampling

Second Quarter, 2022

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	26
2.b. Air Particulates	Weekly	3	26
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: 77

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 - ( $\mu\text{R}/\text{hour}$ )

Sample Site	Deployment 15-Mar-22 Collection 22-June-22
H08	4.48 $\pm$ 0.15
H09	4.6 $\pm$ 0.49
H12	9.44 $\pm$ 0.23
H14	4.69 $\pm$ 0.46
H33	4.36 $\pm$ 0.24
H34	4.25 $\pm$ 0.11
H60	4.34 $\pm$ 0.17
H61	5.79 $\pm$ 0.22
H62	4.89 $\pm$ 0.31

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - ( $\text{pCi}/\text{m}^3$ )

Collection Date	H09	H32	H33
05-Apr-22	<0.02	(A)	<0.02
13-Apr-22	<0.02	(A)	<0.02
20-Apr-22	<0.02	(A)	<0.02
26-Apr-22	<0.02	(A)	<0.02
04-May-22	<0.02	(A)	<0.02
11-May-22	<0.02	(A)	<0.02
17-May-22	<0.02	(A)	<0.02
25-May-22	<0.02	(A)	<0.02
01-Jun-22	<0.02	(A)	<0.02
08-Jun-22	<0.02	(A)	<0.02
15-Jun-22	<0.02	(A)	<0.02
22-Jun-22	<0.02	(A)	<0.02
28-Jun-22	<0.03	(A)	<0.03

(A) Site power was out for an extended period.

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

<u>Collection Date</u>	<u>H09</u>	<u>H32</u>	<u>H33</u>
05-Apr-22	0.013 ± 0.002	(A)	0.013 ± 0.002
13-Apr-22	0.014 ± 0.002	(A)	0.016 ± 0.002
20-Apr-22	0.009 ± 0.002	(A)	0.012 ± 0.002
26-Apr-22	0.019 ± 0.002	(A)	0.018 ± 0.002
04-May-22	0.017 ± 0.002	(A)	0.013 ± 0.002
11-May-22	0.018 ± 0.002	(A)	0.014 ± 0.002
17-May-22	0.011 ± 0.002	(A)	0.012 ± 0.002
25-May-22	0.017 ± 0.002	(A)	0.016 ± 0.002
01-Jun-22	0.014 ± 0.002	(A)	0.011 ± 0.002
08-Jun-22	0.004 ± 0.001	(A)	0.009 ± 0.002
15-Jun-22	0.019 ± 0.002	(A)	0.017 ± 0.002
22-Jun-22	0.021 ± 0.002	(A)	0.020 ± 0.002
28-Jun-22	0.009 ± 0.002	(A)	0.016 ± 0.002
Average	0.014 ± 0.001	(A)	0.014 ± 0.001

(A) Site power was out for an extended period.

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H09	0.1130 ± 0.0090	<0.0134	<0.0008	<0.0009	<0.0009
H32	Site power was out for an extended period.				
H33	0.1140 ± 0.0096	<0.0139	<0.0008	<0.0008	0.0382 ± 0.0109

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	05-Apr-22	<132	381 ± 44	<5	<5	<12	<5	<12	<11	<10	<4	<6	<7
	02-May-22	<134	325 ± 35	<5	<5	<11	<6	<14	<9	<8	<5	<5	<21
	08-Jun-22	<198	197 ± 19	<3	<3	<7	<3	<7	<5	<3	<3	<3	<3
H36	05-Apr-22	<132	297 ± 24	<3	<3	<8	<4	<8	<7	<7	<4	<4	<5
	02-May-22	<134	288 ± 23	<4	<3	<6	<4	<8	<6	<4	<3	<4	<5
	08-Jun-22	<198	297 ± 24	<3	<3	<8	<4	<7	<7	<4	<3	<4	<3

2. - These tabulated LLD values for Zr/Nb-95 are the higher of the individual parent or daughter LLD's.
3. - 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	These samples have not yet been collected.											
H16												
H19												
H36												

3.c. BEACH SAND - (pCi/kg, dry weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15	These samples have not yet been collected.											
H16												
H19												

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

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

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

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

C. Third Quarter 2022



RADIOLOGICAL SURVEILLANCE OF  
FLORIDA POWER AND LIGHT COMPANY

**ST. LUCIE PLANT**

THIRD QUARTER 2022

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE



Offsite Dose Calculation Manual Sampling

Third Quarter, 2022

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	27	27
4. Airborne			
4.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Weekly	1	13
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	0	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	1	1
4.a.2. Fish	Semiannually	0	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 - DEPLOYED TLD's - ( $\mu$ R/hour)

<u>Sample Site</u>	<u>Deployment 22-June-22 Collection 20-Sep-22</u>
N-1	$3.57 \pm 0.2$
NNW-5	$3.6 \pm 0.5$
NNW-10	$4.36 \pm 0.23$
NW-5	$3.49 \pm 0.21$
NW-10	$4.62 \pm 0.02$
WNW-2	$3.66 \pm 0.36$
WNW-5	$3.73 \pm 0.36$
WNW-10	$3.57 \pm 0.34$
W-2	$3.51 \pm 44$
W-5	$4.12 \pm 0.26$
W-10	$3.16 \pm 0.26$
WSW-2	$3.71 \pm 0.05$
WSW-5	$3.83 \pm 0.38$
WSW-10	$4.08 \pm 0.43$
SW-2	$3.5 \pm 0.47$
SW-5	$4.32 \pm 0.36$
SW-10	$3.56 \pm 0.46$
SSW-2	$3.5 \pm 0.32$
SSW-5	$4.18 \pm 0.68$
SSW-10	$3.32 \pm 0.54$
S-5	$3.41 \pm 0.29$
S-10	$4.05 \pm 0.57$
S/SSE-10	$3.96 \pm 0.21$
SSE-5	$3.5 \pm 0.31$
SSE-10	$3.93 \pm 0.26$
SE-1	$3.3 \pm 0.06$
H-32	$4.03 \pm 0.39$

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

Collection Date	H08	H12	H14	H30	H34
06-Jul-22	<0.02	<0.02	<0.02	<0.02	<0.02
12-Jul-22	<0.03	<0.03	<0.03	<0.03	<0.03
18-Jul-22	<0.03	<0.03	<0.03	<0.03	<0.03
26-Jul-22	<0.02	<0.02	<0.02	<0.02	<0.02
02-Aug-22	<0.02	<0.02	<0.02	<0.02	<0.02
09-Aug-22	<0.02	<0.02	<0.02	<0.02	<0.02
16-Aug-22	<0.02	<0.02	<0.02	<0.02	<0.02
22-Aug-22	<0.03	<0.03	<0.03	<0.03	<0.03
30-Aug-22	<0.03	<0.03	<0.03	<0.03	<0.03
07-Sep-22	<0.01	<0.01	<0.01	<0.01	<0.01
13-Sep-22	<0.03	<0.03	<0.03	<0.03	<0.03
20-Sep-22	<0.02	<0.02	<0.02	<0.02	<0.02
27-Sep-22	<0.03	<0.03	<0.03	<0.03	<0.03

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
06-Jul-22	0.007 ± 0.001	0.005 ± 0.001	0.010 ± 0.002	0.008 ± 0.001	0.007 ± 0.001
12-Jul-22	0.012 ± 0.002	0.012 ± 0.002	0.009 ± 0.002	0.009 ± 0.002	0.009 ± 0.002
18-Jul-22	0.010 ± 0.002	0.010 ± 0.002	0.010 ± 0.002	0.006 ± 0.002	0.009 ± 0.002
26-Jul-22	0.015 ± 0.002	0.012 ± 0.002	0.012 ± 0.002	0.014 ± 0.002	0.013 ± 0.002
02-Aug-22	0.011 ± 0.002	0.019 ± 0.002	0.016 ± 0.002	0.017 ± 0.002	0.015 ± 0.002
09-Aug-22	0.014 ± 0.002	0.019 ± 0.002	0.016 ± 0.002	0.012 ± 0.002	0.016 ± 0.002
16-Aug-22	0.021 ± 0.002	0.018 ± 0.002	0.019 ± 0.002	0.023 ± 0.002	0.023 ± 0.002
22-Aug-22	0.002 ± 0.001	0.016 ± 0.002	0.021 ± 0.002	0.019 ± .002	0.018 ± 0.002
30-Aug-22	0.011 ± 0.002	0.007 ± 0.001	0.009 ± 0.001	0.007 ± 0.001	0.007 ± 0.001
07-Sep-22	0.008 ± 0.002	0.009 ± 0.002	0.007 ± 0.002	0.011 ± 0.002	0.010 ± 0.002
13-Sep-22	0.008 ± 0.002	0.011 ± 0.002	0.009 ± 0.002	0.010 ± 0.002	0.006 ± 0.002
20-Sep-22	0.004 ± 0.001	0.006 ± 0.001	0.007 ± 0.002	0.006 ± 0.001	0.007 ± 0.002
27-Sep-22	0.013 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.016 ± 0.002	0.014 ± 0.002
Average	0.010 ± 0.001	0.012 ± 0.001	0.012 ± 0.001	0.012 ± 0.001	0.012 ± 0.001

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H08	0.0728 ± 0.0067	<0.0116	<0.0104	<0.0009	<0.0093
H12	0.0982 ± 0.0075	<0.0096	<0.0137	<0.0009	<0.0098
H14	0.0830 ± 0.0071	<0.0097	<0.0139	<0.0007	<0.0303
H30	0.0789 ± 0.0070	<0.0102	<0.0151	<0.0007	<0.0298
H34	0.0796 ± 0.0074	<0.0132	<0.0142	<0.0006	<0.0278

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-22	<135	358 ± 28	<4	<4	<8	<3	<9	<8	<6	<4	<3	<4
	12-Jul-22	<135	322 ± 26	<3	<4	<7	<3	<7	<6	<4	<3	<4	<3
	18-Jul-22	<132	350 ± 27	<3	<3	<7	<4	<8	<6	<5	<3	<3	<3
	26-Jul-22	<137	312 ± 26	<3	<3	<6	<3	<7	<6	<4	<4	<3	<3
	02-Aug-22	<136	312 ± 25	<4	<3	<7	<4	<6	<6	<4	<3	<4	<3
	09-Aug-22	<136	365 ± 40	<5	<9	<7	<14	<11	<6	<5	<5	<12	<3
	16-Aug-22	<136	245 ± 23	<3	<3	<7	<4	<7	<6	<4	<3	<4	<3
	22-Aug-22	<133	311 ± 25	<3	<3	<7	<4	<8	<6	<4	<4	<4	<3
	30-Aug-22	<133	294 ± 24	<3	<3	<6	<4	<8	<6	<4	<3	<4	<4
	07-Sep-22	<136	362 ± 28	<4	<4	<9	<4	<8	<7	<6	<4	<4	<3
	13-Sep-22	<136	305 ± 26	<3	<3	<7	<4	<7	<5	<4	<3	<3	<2
	20-Sep-22	<136	319 ± 26	<3	<3	<7	<4	<8	<6	<4	<4	<3	<9
	27-Sep-22	<136	338 ± 36	<6	<6	<11	<6	<10	<1	<8	<5	<6	<7
H59	06-Jul-22	<135	336 ± 37	<5	<5	<12	<3	<15	<9	<9	<5	<5	<12
	09-Aug-22	<136	365 ± 40	<6	<5	<9	<7	<14	<11	<6	<5	<5	<3
	01-Sep-22	<133	361±27	<3	<7	<4	<6	<5	<4	<3	<4	<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)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15	01-Sep-22	<94	412 ± 46	<9	<9	<9	<11	<1130	110 ± 13	<75	<22	<233
H59	01-Sep-22	<87	287 ± 40	<8	<6	<8	<9	<936	41 ± 11	<65	15 ± 5	<169

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

<u>Sample Site</u>	<u>Collection Date</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	14-Jul-22	1250 ± 115	<14	<16	<33	<19	<36	<16	<18	<408	<64
H59		Sample to be collected									

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

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

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

Sample Site	Collection Date	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Pb-212</u>	<u>Ra-226</u>	<u>Ra-228</u>
H51	06-Jul-22	1090 ± 51	3200 ± 139	<16	<8	<10	62 ± 18	<17	<205	<38
	09-Aug-22	1920 ± 107	2280 ± 144	<14	<11	<13	<984	<29	<341	<57
	01-Sep-22	984 ± 68	5600 ± 240	<12	<11	<13	<796	<18	<307	<58
H52	06-Jul-22	758 ± 66	3980 ± 198	<25	<12	<12	481 ± 317	<27	<341	<60
	09-Aug-22	1590 ± 65	5530 ± 213	<12	<10	<13	<90	<22	<238	<41
	01-Sep-22	1180 ± 53	4380 ± 174	<10	<9	<10	68 ± 18	<19	<210	<36
H59	06-Jul-22	595 ± 40	3270 ± 147	<20	<9	<12	<83	<20	<234	<36
	09-Aug-22	925 ± 50	2960 ± 135	<11	<9	<12	<80	<19	<207	<38
	01-Sep-22	739 ± 64	3390 ± 179	<15	<11	<17	1070 ± 295	<32	<315	<64

ST. LUCIE SITE

Supplemental Sampling

Third Quarter, 2022

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
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	0	0
4.b. Citrus	Annually	0	0

Total: 77

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 - ( $\mu\text{R}/\text{hour}$ )

<u>Sample Site</u>	<u>Deployment 22-June-22 Collection 20-Sep-22</u>
H08	4.03 $\pm$ 0.39
H09	4.04 $\pm$ 0.40
H12	7.95 $\pm$ 0.57
H14	4.07 $\pm$ 0.42
H33	3.87 $\pm$ 0.05
H34	3.76 $\pm$ 0.50
H60	3.6 $\pm$ 0.25
H61	3.8 $\pm$ 0.05
H62	4.91 $\pm$ 0.39

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - ( $\text{pCi}/\text{m}^3$ )

<u>Collection Date</u>	<u>H09</u>	<u>H32</u>	<u>H33</u>
06-Jul-22	<0.02	(A)	<0.02
12-Jul-22	<0.03	(A)	<0.03
18-Jul-22	<0.03	(A)	<0.03
26-Jul-22	<0.02	(A)	<0.02
02-Aug-22	<0.02	(A)	<0.02
09-Aug-22	<0.02	<0.02	<0.02
16-Aug-22	<0.02	<0.02	<0.02
22-Aug-22	<0.03	<0.03	<0.03
30-Aug-22	<0.03	<0.03	<0.03
07-Sep-22	<0.01	<0.01	<0.01
13-Sep-22	<0.03	<0.03	<0.03
20-Sep-22	<0.02	<0.02	<0.02
27-Sep-22	<0.03	<0.03	<0.03

(A) Site power was out for an extended period.

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

<u>Collection Date</u>	<u>H09</u>	<u>H32</u>	<u>H33</u>
06-Jul-22	0.004 ± 0.001	(A)	0.010 ± 0.002
12-Jul-22	0.010 ± 0.002	(A)	0.008 ± 0.002
18-Jul-22	0.011 ± 0.002	(A)	0.011 ± 0.002
26-Jul-22	0.015 ± 0.002	(A)	0.015 ± 0.002
02-Aug-22	0.015 ± 0.002	(A)	0.010 ± 0.002
09-Aug-22	0.020 ± 0.002	0.013 ± 0.002	0.014 ± 0.002
16-Aug-22	0.020 ± 0.002	0.020 ± 0.002	0.011 ± 0.002
22-Aug-22	0.018 ± 0.002	0.017 ± 0.002	0.016 ± 0.002
30-Aug-22	0.007 ± 0.001	0.003 ± 0.001	0.005 ± 0.001
07-Sep-22	0.009 ± 0.002	0.010 ± 0.002	0.010 ± 0.002
13-Sep-22	0.009 ± 0.002	0.007 ± 0.002	0.010 ± 0.002
20-Sep-22	0.007 ± 0.002	0.006 ± 0.001	0.011 ± 0.002
27-Sep-22	0.014 ± 0.002	0.019 ± 0.002	0.015 ± 0.002
Average	0.012 ± 0.001	0.012 ± 0.001	0.011 ± 0.001

(A) Site power was out for an extended period.

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H09	0.0864 ± 0.0076	<0.0123	<0.0159	<0.0007	<0.0351
H32	Site power was out for an extended period.				
H33	0.0757 ± 0.0072	<0.0137	<0.0111	<0.0009	<0.0093

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	06-Jul-22	<135	306 ± 35	<6	<5	<11	<5	<14	<10	<8	<5	<5	<8
	09-Aug-22	<136	356 ± 37	<5	<5	<11	<6	<11	<8	<7	<5	<5	<13
	01-Sep-22	<133	339 ± 27	<3	<4	<7	<4	<8	<6	<5	<3	<3	<3
H36	06-Jul-22	<135	367 ± 27	<3	<4	<8	<4	<8	<6	<6	<3	<3	<3
	09-Aug-22	<136	317 ± 27	<4	<4	<8	<4	<7	<6	<5	<4	<4	<3
	01-Sep-22	<133	400 ± 38	<6	<5	12	<6	<11	<9	<9	<5	<6	<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
H13	01-Sep-22	53 ± 13	666 ± 44	<6	<6	<7	<8	<393	<254	<52	<16	<122
H16	01-Sep-22	<75	474 ± 56	<10	<9	<9	<10	<1096	<341	<69	<22	<205
H19	01-Sep-22	<93	445 ± 51	<10	<9	<9	<11	<836	<327	<69	<21	<211
H36	13-Sep-22	<126	7860 ± 272	<15	<11	<18	<16	5280 ± 398	<552	<96	<35	<324

3.c. BEACH SAND - (pCi/kg, dry weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15	01-Sep-22	<88	282 ± 39	<78	<8	<8	<9	<1010	325 ± 98	<68	20 ± 6	<198
H16	01-Sep-22	<81	203 ± 33	<69	<9	<7	<10	<1090	411 ± 95	<60	26 ± 6	<173
H19	01-Sep-22	<98	<157	<10	<11	<10	<11	<916	225 ± 122	63 ± 24	16 ± 8	<203

3.d. GROUND WATER - (pCi/L)

Sample Site	Collection Date	<u>H-3</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	Zr-95 Nb-95 (A)	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	Ba-140 La-140 (B)
H70	14-Jul-22	<132	<82	<5	<5	<12	<6	<12	<9	<7	<5	<5	<19
H71	14-Jul-22	<135	313 ± 36	<6	<6	<13	<7	<14	<10	<7	<6	<6	<17
H72	14-Jul-22	<135	77 ± 13	<3	<3	<7	<7	<8	<6	<4	<4	<4	<3
H73	14-Jul-22	<135	318 ± 38	<5	<5	<10	<6	<11	<10	<6	<5	<5	<17
H74	14-Jul-22	<135	212 ± 21	<4	<3	<6	<4	<8	<6	<4	<4	<4	<3
H75	14-Jul-22	<135	<86	<5	<6	<11	<5	<11	<10	<8	<5	<6	<10
H76	14-Jul-22	<135	<37	<3	<4	<7	<3	<8	<6	<5	<3	<3	<3
H77	14-Jul-22	<132	<81	<5	<5	<9	<4	<12	<9	<9	<5	<5	<7
H78	14-Jul-22	<132	<63	<5	<4	<10	<5	<11	<9	<9	<4	<6	<8
H79	14-Jul-22	<132	<82	<5	<5	<12	<6	<12	<9	<7	<5	<5	<19

(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	<u>Be-7</u>	<u>K-40</u>	<u>I-&lt;13&lt;1</u>	<u>Cs-&lt;134</u>	<u>Cs-&lt;137</u>
H41	This sample has not been available.					

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

Sample Site	Collection Date	<u>Be-7</u>	<u>K-40</u>	<u>I-&lt;13&lt;1</u>	<u>Cs-&lt;134</u>	<u>Cs-&lt;137</u>
H23	This sample was previously collected.					

D. Fourth Quarter 2022



RADIOLOGICAL SURVEILLANCE

OF

FLORIDA POWER AND LIGHT COMPANY

**ST. LUCIE PLANT**

FOURTH QUARTER 2022

BUREAU OF RADIATION CONTROL

ST. LUCIE SITE

Offsite Dose Calculation Manual Sampling

Fourth Quarter, 2022

Sample Type	Collection Frequency	Number of Sample Locations	Number of Samples
1. Direct Radiation	Quarterly	27	26
2. Airborne			
2.a. Air Iodines	Weekly	5	60
2.b. Air Particulates	Weekly	5	60
3. Waterborne			
3.a. Surface Water	Weekly	1	12
	Monthly	1	3
3.b. Shoreline Sediment	Semiannually	0	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	2
4.a.2. Fish	Semiannually	2	2
4.b. Broadleaf Vegetation	Monthly	3	9

Total: 177

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 - ( $\mu$ R/hour)

<u>Sample Site</u>	<u>Deployment 20-Sep-22</u> <u>Collection 21-Dec-22</u>
N-1	$3.5 \pm 0.3$
NNW-5	(A)
NNW-10	$4.2 \pm 0.4$
NW-5	$3.6 \pm 0.3$
NW-10	$4.9 \pm 0.3$
WNW-2	$3.6 \pm 0.1$
WNW-5	$3.8 \pm 0.1$
WNW-10	$3.5 \pm 0.2$
W-2	$3.4 \pm 0.2$
W-5	$4.1 \pm 0.2$
W-10	$3.2 \pm 0.2$
WSW-2	$3.8 \pm 0.1$
WSW-5	$3.9 \pm 0.1$
WSW-10	$4.3 \pm 0.4$
SW-2	$3.5 \pm 0.2$
SW-5	$4.3 \pm 0.1$
SW-10	$3.7 \pm 0.2$
SSW-2	$3.6 \pm 0.3$
SSW-5	$4.1 \pm 0.2$
SSW-10	$3.5 \pm 0.2$
S-5	$3.4 \pm 0.3$
S-10	$4.1 \pm 0.1$
S/SSE-10	$4.0 \pm 0.2$
SSE-5	$3.8 \pm 0.3$
SSE-10	$3.7 \pm 0.3$
SE-1	$3.4 \pm 0.2$
H-32	$4.1 \pm 0.2$

(A) Missing at time of collection

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
04-Oct-22	<0.02	<0.02	<0.02	<0.02	<0.02
11-Oct-22	<0.03	<0.03	<0.03	<0.03	<0.03
18-Oct-22	<0.02	<0.02	<0.02	<0.02	<0.02
24-Oct-22	<0.03	<0.03	<0.03	<0.03	<0.03
02-Nov-22	<0.02	<0.02	<0.02	<0.02	<0.02
08-Nov-22	<0.02	<0.02	<0.02	<0.02	<0.02
14-Nov-22	<0.02	<0.02	<0.02	<0.01	<0.02
22-Nov-22	<0.01	<0.01	<0.01	<0.01	<0.01
30-Nov-22	<0.01	<0.01	<0.01	<0.01	<0.01
07-Dec-22	<0.01	<0.01	<0.01	<0.01	<0.01
13-Dec-22	<0.02	<0.02	<0.02	<0.02	<0.02
22-Dec-22	<0.02	<0.02	<0.01	<0.01	<0.01
28-Dec-22	<0.02	<0.01	<0.02	<0.02	<0.02

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

<u>Collection Date</u>	<u>H08</u>	<u>H12</u>	<u>H14</u>	<u>H30</u>	<u>H34</u>
04-Oct-22	0.010 ± 0.002	0.007 ± 0.002	0.009 ± 0.001	0.008 ± 0.002	0.011 ± 0.002
11-Oct-22	0.013 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.014 ± 0.002	0.010 ± 0.002
18-Oct-22	0.015 ± 0.002	0.018 ± 0.002	0.015 ± 0.002	0.016 ± 0.002	0.010 ± 0.002
24-Oct-22	0.015 ± 0.002	0.019 ± 0.002	0.018 ± 0.002	0.013 ± 0.002	0.016 ± 0.002
02-Nov-22	0.013 ± 0.002	0.011 ± 0.002	0.013 ± 0.002	0.013 ± 0.002	0.011 ± 0.001
08-Nov-22	0.008 ± 0.002	0.012 ± 0.002	0.010 ± 0.002	0.014 ± 0.002	0.013 ± 0.002
14-Nov-22	0.011 ± 0.002	0.030 ± 0.003	0.011 ± 0.002	0.009 ± 0.002	0.008 ± 0.002
22-Nov-22	0.008 ± 0.002	0.004 ± 0.001	0.008 ± 0.002	0.007 ± 0.001	0.006 ± 0.001
30-Nov-22	0.012 ± 0.002	0.013 ± 0.002	0.010 ± 0.002	0.016 ± 0.002	0.014 ± 0.002
07-Dec-22	0.016 ± 0.002	0.023 ± 0.002	0.019 ± 0.002	0.013 ± 0.002	0.012 ± 0.002
13-Dec-22	0.017 ± 0.002	0.019 ± 0.002	0.012 ± 0.002	0.015 ± 0.002	0.013 ± 0.002
22-Dec-22	0.016 ± 0.002	0.021 ± 0.002	0.019 ± 0.002	0.014 ± 0.002	0.014 ± 0.002
28-Dec-22	0.014 ± 0.002	0.013 ± 0.002	0.019 ± 0.002	0.001 ± 0.001	0.026 ± 0.003
Average	0.013 ± 0.001	0.016 ± 0.001	0.014 ± 0.001	0.012 ± 0.001	0.013 ± 0.001

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H08	0.1230 ± 0.0098	<0.0112	<0.0009	<0.0011	<0.0010
H12	0.1310 ± 0.0102	<0.0144	<0.0007	<0.0008	<0.0008
H14	0.1300 ± 0.0107	<0.0217	<0.0009	<0.0011	<0.0010
H30	0.1290 ± 0.0098	<0.0146	<0.0008	<0.0010	<0.0008
H34	0.1490 ± 0.0107	<0.0231	<0.0010	<0.0012	<0.0011

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

Sample Site	Collection Date	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-95 Nb-95 (A)	I-131	Cs-134	Cs-137	Ba-140 La-140 (B)
H15	04-Oct-22	<130	318 ± 26	<3	<3	<7	<4	<8	<6	<4	<3	<4	<3
	11-Oct-22	<129	331 ± 26	<4	<3	<7	<3	<7	<6	<4	<3	<3	<3
	18-Oct-22	<129	332 ± 25	<3	<3	<7	<4	<7	<6	<4	<3	<4	<3
	24-Oct-22	<130	309 ± 25	<4	<3	<8	<4	<7	<7	<5	<3	<4	<3
	08-Nov-22	<134	310 ± 36	<5	<5	<13	<5	<11	<8	<11	<4	<5	<8
	14-Nov-22	<133	310 ± 26	<3	<3	<6	<3	<6	<5	<4	<3	<4	<3
	22-Nov-22	<129	331 ± 27	<3	<4	<8	<3	<8	<6	<6	<3	<4	<4
	30-Nov-22	<133	318 ± 25	<3	<4	<7	<3	<8	<5	<4	<3	<3	<3
	07-Dec-22	<128	292 ± 25	<3	<3	<8	<3	<8	<6	<4	<4	<4	<3
	13-Dec-22	<134	397 ± 27	<3	<3	<7	<4	<8	<6	<4	<3	<4	<3
	22-Dec-22	<134	320 ± 26	<3	<4	<7	<4	<8	<6	<6	<3	<4	<4
	28-Dec-22	<134	367 ± 27	<3	<4	<7	<4	<7	<5	<4	<4	<3	<3
H59	04-Oct-22	<131	273 ± 24	<3	<3	<7	<3	<7	<6	<4	<4	<4	<3
	02-Nov-22	<129	381 ± 40	<6	<5	<13	<6	<11	<10	<6	<4	<6	<10
	07-Dec-22	<134	417 ± 32	<4	<3	<8	<4	<8	<6	<5	<3	<4	<8

(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	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15												
H59		These Samples Previously Collected										

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

Sample Site	Collection Date	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	11-Oct-22	3420 ±	<20	<23	<41	<22	<41	<21	<23	<457	<87
H59	29-Nov-22	2090 ±	<218	<23	<18	<45	<28	<51	<21	<498	<129

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

Sample Site	Collection Date	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ra-226</u>	<u>Ra-228</u>
H15	20-Oct-22	4750 ± 280	<26	<28	<61	<23	<65	<29	<29	<63	<122
H59	14-Dec-22	2900 ± 207	<20	<23	<45	<26	<52	<21	<23	<371	<98

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

Sample Site	Collection Date	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Pb-212</u>	<u>Ra-226</u>	<u>Ra-228</u>
H51	04-Oct-22	1660 ± 103	4560 ± 226	<17	<13	<16	<976	<28	<334	<70
	02-Nov-22	2790 ± 243	2710 ± 139	<32	<9	<15	<699	<21	<248	<44
	07-Dec-22	1120 ± 109	4080 ± 195	<13	<13	<12	<726	<24	<257	<50
H52	04-Oct-22	1110 ± 73	4060 ± 196	<14	<10	<14	<830	19 ± 7	<311	<52
	02-Nov-22	1630 ± 106	3210 ± 181	<44	<11	<13	1260 ± 369	<30	<376	<53
	07-Dec-22	1010 ± 68	3090 ± 164	<13	<12	<12	<709	21 ± 7	<307	<53
H59	04-Oct-22	933 ± 70	3390 ± 186	<16	<11	<15	<834	<30	<334	<54
	02-Nov-22	978 ± 96	2210 ± 123	<30	<9	<10	<704	<19	<206	<37
	07-Dec-22	1050 ± 47	3330 ± 139	<9	<7	<9	<69	<18	<187	<33

ST. LUCIE SITE

Supplemental Sampling

Fourth Quarter, 2022

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	0	0
3.c. Beach Sand	Semiannually	0	0
3.d. Ground Water	Quarterly	10	10
4. Ingestion			
4.a. Garden Crop	Annually	0	0
4.b. Citrus	Annually	0	0

Total: 77

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 - ( $\mu\text{R}/\text{hour}$ )

<u>Sample Site</u>	<u>Deployment 20-Sep-22 Collection 21-Dec-22</u>
H08	4.10 $\pm$ 0.19
H09	4.04 $\pm$ 0.31
H12	8.02 $\pm$ 0.27
H14	4.10 $\pm$ 0.19
H33	3.88 $\pm$ 0.59
H34	3.58 $\pm$ 0.27
H60	3.67 $\pm$ 0.39
H61	4.93 $\pm$ 0.10
H62	4.43 $\pm$ 0.31

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - ( $\text{pCi}/\text{m}^3$ )

<u>Collection Date</u>	<u>H09</u>	<u>H32</u>	<u>H33</u>
04-Oct-22	<0.02	<0.02	<0.02
11-Oct-22	<0.03	<0.03	<0.48 (B)
18-Oct-22	<0.02	<0.02	(A)
24-Oct-22	<0.03	<0.03	(A)
02-Nov-22	<0.02	<0.02	(A)
08-Nov-22	<0.02	<0.02	(A)
14-Nov-22	<0.02	<0.02	<0.02
22-Nov-22	<0.01	<0.01	(A)
30-Nov-22	<0.01	<0.01	<0.01
07-Dec-22	<0.01	<0.01	<0.01
13-Dec-22	<0.02	<0.02	<0.02
21-Dec-22	<0.02	<0.02	<0.01
28-Dec-22	<0.01	<0.03	<0.02

(A) Site power was out for an extended period.

(B) Measurement due to low volume from power being out



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

<u>Collection Date</u>	<u>H09</u>	<u>H32</u>	<u>H33</u>
04-Oct-22	0.011 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
11-Oct-22	0.007 ± 0.002	0.013 ± 0.002	<0.020 (B)
18-Oct-22	0.015 ± 0.002	0.014 ± 0.002	(A)
24-Oct-22	0.014 ± 0.002	0.020 ± 0.002	(A)
02-Nov-22	0.011 ± 0.002	0.017 ± 0.002	(A)
08-Nov-22	0.014 ± 0.002	0.009 ± 0.002	(A)
14-Nov-22	0.009 ± 0.002	0.007 ± 0.002	0.007 ± 0.002
22-Nov-22	0.007 ± 0.002	0.006 ± 0.001	(A)
30-Nov-22	0.015 ± 0.002	0.017 ± 0.002	0.003 ± 0.001
07-Dec-22	0.016 ± 0.002	0.025 ± 0.002	0.013 ± 0.002
13-Dec-22	0.017 ± 0.002	0.019 ± 0.002	0.015 ± 0.002
21-Dec-22	0.018 ± 0.002	0.021 ± 0.002	0.009 ± 0.001
28-Dec-22	0.013 ± 0.002	0.035 ± 0.004	0.019 ± 0.003
Average	0.013 ± 0.001	0.017 ± 0.001	0.010 ± 0.001

(A) Site power was out for an extended period.

(B) Measurement due to low volume from power being out

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

<u>Sample Site</u>	<u>Be-7</u>	<u>K-40</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>
H09	0.1350 ± 0.0101	<0.0150	<0.0190	<0.0009	<0.0009
H32	0.1480 ± 0.0106	<0.0163	<0.0208	<0.0009	<0.0010
H33	0.1230 ± 0.0125	<0.0184	<0.0273	<0.0014	<0.0012

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

Sample Site	Collection Date	<u>H-3</u>	<u>K-40</u>	<u>Mn-54</u>	<u>Co-58</u>	<u>Fe-59</u>	<u>Co-60</u>	<u>Zn-65</u>	<u>Zr-95 Nb-95 (A)</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Ba-140 La-140 (B)</u>
H13	04-Oct-22	<131	285 ± 25	<3	<3	<7	<3	<7	<5	<4	<3	<4	<3
	02-Nov-22	<134	237 ± 23	<3	<3	<6	<4	<7	<5	<4	<3	<3	<3
	07-Dec-22	<134	274 ± 24	<4	<3	<6	<4	<9	<6	<4	<3	<3	<3
H36	04-Oct-22	<131	253 ± 24	<3	<3	<7	<3	<7	<6	<4	<4	<4	<2
	02-Nov-22	86 ± 41	324 ± 27	<4	<4	<7	<4	<8	<6	<4	<4	<4	<3
	07-Dec-22	<128	300 ± 25	<4	<3	<8	<3	<8	<6	<4	<3	<3	<3

(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	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H13												
H16		These Samples Previously Collected										
H19												
H36												

3.c. BEACH SAND - (pCi/kg, dry weight)

<u>Sample Site</u>	<u>Collection Date</u>	<u>Be-7</u>	<u>K-40</u>	<u>Co-58</u>	<u>Co-60</u>	<u>Cs-134</u>	<u>Cs-137</u>	<u>Pb-210</u>	<u>Ra-226</u>	<u>Th-232</u>	<u>U-235</u>	<u>U-238</u>
H15												
H16		These Samples Previously Collected										
H19												

3.e. 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)
70	27-Oct-22	<134	<54	<3	<3	<6	<4	<8	<6	<6	<4	<4	<3
71	27-Oct-22	436 ± 50	315 ± 27	<4	<4	<8	<4	<9	<7	<6	<4	<4	<4
72	27-Oct-22	<134	339 ± 36	<5	<6	<10	<7	<12	<10	<9	<4	<6	<10
73	27-Oct-22	<129	<64	<3	<3	<7	<3	<8	<7	<6	<3	<3	<3
74	27-Oct-22	<129	309 ± 38	<7	<5	<12	<7	<12	<11	<11	<5	<6	<11
75	27-Oct-22	<129	251 ± 23	<3	<4	<7	<3	<8	<6	<6	<4	<4	<3
76	27-Oct-22	<129	<64	<4	<5	<10	<5	<9	<9	<10	<5	<5	<8
77	27-Oct-22	<129	<40	<3	<4	<5	<3	<8	<5	<6	<4	<3	<6
78	27-Oct-22	<134	<96	<7	<8	<13	<6	<13	<17	<21	<8	<10	<11
79	27-Oct-22	<134	<67	<5	<6	<11	<5	<10	<10	<9	<5	<6	<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	<u>Be-7</u>	<u>K-40</u>	<u>I-131</u>	<u>Cs-134</u>	<u>Cs-137</u>
H41	This sample has not been available.					

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

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

10. Results from the BRC Interlaboratory Comparison Program – 2022

DOE MAPEP Series 46 Results

Matrix: Air Filter (Bq/sample)				
Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
Mn-54	0.004	----	A	False Positive
Co-60	0.728	0.72	A	0.50 – 0.94
Zn-65	-0.005	----	A	False Positive
Cs-134	0.852	0.93	A	0.65 – 1.21
Cs-137	0.733	0.726	A	0.508 – 0.944
Gross Alpha	0.916	1.20	A	0.36 – 2.04
Gross Beta	0.645	0.681	A	0.341 - 1.022

Matrix: Soil (Bq/kg)				
Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
K-40	568.25	596	A	417 - 775
Mn-54	1104.17	1140	A	798 - 1482
Co-60	410.83	443	A	310 - 576
Zn-65	0.86	----	A	False Positive
Cs-134	886.32	890	A	623 - 1157
Cs-137	335.00	365	A	256 - 475
U-238	105.31	123	A	86 - 160

Matrix: Water (Bq/L)				
Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
H-3 (pCi/L)	322.92	300	A	210 - 390
K-40	-0.256	----	A	False Positive
Mn-54	18.347	18.9	A	13.2 – 24.6
Co-60	8.778	9.3	A	6.5 – 12.1
Zn-65	26.704	26.2	A	18.3 – 34.1
Cs-134	0.047	----	A	False Positive
Cs-137	7.469	7.64	A	5.35 – 9.93
Ra-226	0.724	0.8	A	0.6 – 1.0

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

### DOE MAPEP Series 46 Results

<b>Matrix: Vegetation (Bq/sample)</b>				
<b>Radionuclide</b>	<b>Result</b>	<b>Ref. Value</b>	<b>Flag (Evaluation)</b>	<b>Acceptance Range</b>
Am-241	0.104	0.101	A	0.071 – 0.131
Mn-54	2.895	2.59	A	1.81 - 3.37
Co-60	0.021	----	A	False Positive
Zn-65	1.718	1.47	A	1.03 – 1.91
Cs-134	8.082	7.61	A	5.33 – 9.89
Cs-137	1.733	1.52	A	1.06 - 1.98
U-238	0.074	0.074	A	0.052 – 0.096

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

**DOE MAPEP Series 47 Results and ERA RAD-131 BRC Results**

<b>Matrix: Air Filter (Bq/sample)</b>				
<b>Radionuclide</b>	<b>Result</b>	<b>Ref. Value</b>	<b>Flag (Evaluation)</b>	<b>Acceptance Range</b>
Mn-54	2.029	1.880	A	1.32 - 2.44
Co-60	1.954	1.99	A	1.39 - 2.59
Zn-65	1.872	1.580	A	1.11 - 2.05
Cs-134	0.045	----	A	False Positive
Cs-137	1.593	1.53	A	1.07 - 1.99
Gross Alpha	1.11	0.90	A	0.27 - 1.53
Gross Beta	1.22	1.31	A	0.66 - 1.97

<b>Matrix: Soil (Bq/kg)</b>				
<b>Radionuclide</b>	<b>Result</b>	<b>Ref. Value</b>	<b>Flag (Evaluation)</b>	<b>Acceptance Range</b>
K-40	534.14	537	A	376 - 698
Mn-54	828.11	841	A	589 - 1093
Co-60	0.15	----	A	False Positive
Zn-65	1156.63	1140	A	798 - 1482
Cs-134	641.82	627	A	439 - 815
Cs-137	1.14	----	A	False Positive
U-238	141.16	157	A	110 - 204

<b>Matrix: Water (Bq/L)</b>				
<b>Radionuclide</b>	<b>Result</b>	<b>Ref. Value</b>	<b>Flag (Evaluation)</b>	<b>Acceptance Range</b>
H-3 (pCi/L)	15317	15100	A	13200 - 16600
K-40	1.378	----	A	False Positive
Mn-54	0.198	----	A	False Positive
Co-60	16.46	17	A	11.9 - 22.1
Zn-65	11.824	11.3	A	7.9 - 14.7
Cs-134	16.178	17.1	A	12.0 - 22.2
Cs-137	16.710	16.8	A	11.8 - 21.8
Ra-226	19.760	19	A	14.1 - 21.7

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



**DOE MAPEP Series 47 Results and ERA RAD-131 BRC Results**

<b>Matrix: Vegetation (Bq/sample)</b>				
<b>Radionuclide</b>	<b>Result</b>	<b>Ref. Value</b>	<b>Flag (Evaluation)</b>	<b>Acceptance Range</b>
Am-241	0.245	0.189	W	0.132 - 0.246
Mn-54	2.613	2.43	A	1.70 - 3.16
Co-60	4.776	4.620	A	3.23 - 6.01
Zn-65	8.217	7.49	A	5.24 - 9.74
Cs-134	-0.005	----	A	False Positive
Cs-137	1.189	1.083	A	0.758 - 1.408
U-238	0.155	0.13	A	0.091 - 0.169

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