

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

First Quarter, 1985

Office of Radiation Control  
Florida Department of Health  
and Rehabilitative Services

ST. LUCIE SITE

Technical Specifications Sampling

First Quarter, 1985

<u>Sample Type</u>	<u>Frequency</u>	<u>Locations Sampled</u>	<u>Number of Samples</u>
1. Direct Radiation	Quarterly	27	54
2. Airborne			
2.a Air Iodines	Weekly	5	65
2.b Air Particulates	Weekly	5	69*
3. Waterborne			
3.a Surface Water	Weekly	1	13
	Monthly	1	3
3.b Shoreline Sediment	Semiannually	2	3*
4. Ingestion			
4.a Fish and Invertebrates			
4.a.1 Crustacea	Semiannually	2	2
4.a.2 Fish	Semiannually	2	3
4.b Food Products			
4.b.1 Broadleaf Vegetation	Monthly	3	9
		Total	<u>221</u>

\* - Includes DOE split samples.

NOTE: Measurement results having magnitudes that are significantly above the background of the measurement system are reported as net values plus or minus a one-standard-deviation error term.

Measurement results that are not significantly above background are reported as "Non-detectable" (ND) or as less than a Lower Limit of Detection (<LLD), which is the estimated activity that would have to be present to have a 95 percent probability of yielding significant results.

## ST. LUCIE TECHNICAL SPECIFICATIONS SAMPLING

FIRST QUARTER, 1985

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

Each result is the average net response of two dosimeters.

<u>Sample Site</u>	<u>Deployed 12-17-85</u> <u>Collected 3-20-85</u>
N-1	5.0 ± 0.3
NNW-5	5.1 ± 0.3
NNW-10	5.2 ± 0.3 << See Note 4.
NW-5	5.0 ± 0.3
NW-10	6.1 ± 0.3
WNW-2	5.1 ± 0.3
WNW-5	5.1 ± 0.3
WNW-10	4.9 ± 0.3
W-2	5.3 ± 0.3
W-5	5.1 ± 0.3
W-10	4.9 ± 0.3
WSW-2	4.9 ± 0.3
WSW-5	5.0 ± 0.3
WSW-10	4.6 ± 0.2
SW-2	4.9 ± 0.3
SW-5	4.7 ± 0.2
SW-10	4.8 ± 0.3
SSW-2	5.0 ± 0.3
SSW-5	4.7 ± 0.2
SSW-10	5.3 ± 0.3
S-5	5.1 ± 0.3
S-10	5.2 ± 0.3
S/SSE-10	4.9 ± 0.3
SSE-5	5.3 ± 0.3
SSE-10	5.2 ± 0.3
SE-1	4.6 ± 0.2
H-32	5.9 ± 0.3

## NOTES:

1. The error terms reported above are based on an empirical statistical analysis of the differences in the results from the individual dosimeters at each site. As such, these error terms are representative of the typical error for such measurements rather than accurately representing the error terms for individual measurements.
2. These results have been determined with the assumption that fading is negligible, although detailed testing to confirm this has not been done.
3. Testing to confirm compliance with NRC Reg. Guide 4.13 and ANSI N545-1975 performance standards has not been completed.
4. The result for site NNW-10 is based on the reading from a single dosimeter, since one of this pair was broken.

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

Collection Date	Sampling Location				
	H08	H12	H14	H30	H34
1-02-85	<0.03	<0.03	<0.03	<0.03	<0.03
1-08-85	<0.03	<0.03	<0.03	<0.03	<0.03
1-15-85	<0.03	<0.03	<0.02	<0.03	<0.02
1-22-85	<0.02	<0.02	<0.02	<0.02	<0.02
1-29-85	<0.03	<0.03	<0.03	<0.03	<0.03
2-05-85	<0.02	<0.02	<0.02	<0.02	<0.02
2-12-85	<0.02	<0.02	<0.03	<0.02	<0.03
2-19-85	<0.02	<0.02	<0.02	<0.02	<0.02
2-26-85	<0.02	<0.02	<0.02	<0.02	<0.02
3-05-85	<0.02	<0.02	<0.02	<0.02	<0.02
3-12-85	<0.03	<0.03	<0.03	<0.03	<0.03
3-19-85	<0.02	<0.02	<0.03	<0.02	<0.02
3-26-85	<0.02	<0.02	<0.02	<0.02	<0.02

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

Collection Date	Sampling Location				
	H08	H12	H14	H30	H34
1-02-85	0.008 ± 0.001	0.008 ± 0.001	0.008 ± 0.001	0.008 ± 0.001	0.007 ± 0.001
1-08-85	0.012 ± 0.002	0.012 ± 0.002	0.013 ± 0.002	0.016 ± 0.002	0.016 ± 0.002
1-15-85	0.023 ± 0.002	0.022 ± 0.002	0.012 ± 0.002	0.024 ± 0.002	0.020 ± 0.002
1-22-85	0.021 ± 0.002	0.016 ± 0.002	0.022 ± 0.002	0.019 ± 0.002	0.017 ± 0.002
1-29-85	0.017 ± 0.002	0.014 ± 0.002	0.014 ± 0.002	0.012 ± 0.002	0.016 ± 0.002
2-05-85	0.013 ± 0.002	0.013 ± 0.002	0.016 ± 0.002	0.011 ± 0.002	0.011 ± 0.002
2-12-85	0.018 ± 0.002	0.012 ± 0.002	*0.019 ± 0.002	0.013 ± 0.002	0.013 ± 0.002
2-19-85	0.015 ± 0.002	0.019 ± 0.002	*0.011 ± 0.002	0.013 ± 0.002	0.017 ± 0.002
2-26-85	0.012 ± 0.002	0.011 ± 0.002	*0.011 ± 0.002	0.013 ± 0.002	0.010 ± 0.002
3-05-85	0.015 ± 0.002	0.009 ± 0.001	*0.010 ± 0.001	0.009 ± 0.001	0.013 ± 0.002
3-12-85	0.017 ± 0.002	0.017 ± 0.002	0.008 ± 0.001	0.015 ± 0.002	0.018 ± 0.002
3-19-85	0.019 ± 0.002	0.018 ± 0.002	0.008 ± 0.002	0.017 ± 0.002	0.018 ± 0.002
3-26-85	0.014 ± 0.002	0.013 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.018 ± 0.002
Means:	0.016 ± 0.001	0.014 ± 0.001	0.013 ± 0.001	0.014 ± 0.001	0.015 ± 0.001

\* - DOE split samples.

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

First Quarter, 1985

Location	Be-7	Cs-134	Cs-137
H08	0.122 ± 0.008	<0.0008	<0.0009
H12	0.130 ± 0.008	<0.0007	<0.0010
H14	0.094 ± 0.007	<0.0009	<0.0011
H30	0.106 ± 0.008	<0.0007	<0.0009
H34	0.117 ± 0.008	<0.0009	<0.0011

3.a SURFACE WATER (pCi/l)

Sampling Location	Collection Date	H-3	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95		Cs-134	Cs-137	Ba-140	
									Nb-95	I-131			La-140	La-140
									(A)				(B)	
H15	1-02-85	<210	280 ± 60	<4	<11	<5	<6	<12	<9	<10	<6	<5	<6	<6
	1-08-85	<210	330 ± 50	<5	<10	<6	<5	<9	<8	<5	<6	<5	<4	<4
	1-15-85	<210	350 ± 60	<4	<11	<4	<5	<11	<6	<7	<5	<5	<6	<6
	1-22-85	<210	260 ± 50	<4	<10	<4	<5	<10	<7	<5	<5	<4	<4	<4
	1-29-85	140±70	400 ± 50	<5	<9	<5	<5	<10	<7	<5	<5	<5	<4	<4
	2-05-85	<220	300 ± 50	<3	<12	<5	<5	<9	<8	<5	<4	<4	<5	<5
	2-12-85	<220	330 ± 50	<5	<12	<5	<4	<10	<6	<7	<5	<4	<7	<7
	2-19-85	<220	400 ± 40	<5	<10	<5	<5	<10	<8	<6	<7	<5	<5	<5
	2-26-85	<220	380 ± 50	<4	<8	<5	<6	<9	<8	<5	<6	<5	<9	<9
	3-05-85	<220	390 ± 60	<4	<7	<5	<5	<10	<7	<4	<5	<4	<8	<8
	3-12-85	<220	350 ± 50	<3	<11	<4	<5	<8	<8	<4	<4	<4	<7	<7
	3-19-85	<220	350 ± 60	<5	<10	<4	<6	<9	<7	<6	<5	<5	<6	<6
	3-26-85	<220	340 ± 50	<4	<7	<5	<4	<8	<8	<4	<6	<5	<12	<12
H59	1-03-85	<210	310 ± 50	<4	<10	<5	<6	<11	<8	<9	<5	<5	<7	<7
	2-06-85	<220	330 ± 40	<5	<10	<4	<5	<10	<9	<7	<5	<3	<7	<7
	3-06-85	<220	360 ± 60	<5	<10	<5	<6	<12	<8	<7	<5	<5	<5	<5

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

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

3.b SEDIMENT (pCi/kg, dry)

Sampling Location	Collection Date	Be-7	K-40	Co-58	Co-60	Cs-134	Cs-137	Ra-226	Th-232	U-238
H15*	2-06-85	<78	360 ± 60	<8	<9	<11	<9	185 ± 9	51 ± 2	270 ± 60
H59	2-06-85	<68	200 ± 50	<8	<6	<8	<8	172 ± 7	<31	<320

\* DOE split sample

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

Sampling Location	Collection Date	K-40	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Th-232
H15	2-13-85	2100 ± 200	<18	<48	<20	<18	<29	<23	<13	110 ± 20	70 ± 20
H59	3-20-85	2300 ± 100	<12	<27	<12	<14	<26	<13	<14	86 ± 6	101 ± 8

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

H15(A)	2-07-85	2300 ± 100	<11	<30	<13	<14	<28	<10	<12	<23	<38
H15(B)	2-13-85	3300 ± 200	<11	<33	<14	<14	<31	<13	<13	<22	<40
H59	2-18-85	3000 ± 100	<12	<33	<9	<17	<30	<13	<13	<23	<33

(A) - This sample was collected from the beach area, as required for Technical Specifications.

(B) - This sample was collected from the plant intake screens as a backup in case of unavailability of samples from the designated sampling point (A).

4.b.1 BROAD LEAF VEGETATION - Mangrove (pCi/kg, wet)

Sampling Location	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Pb-210
H51	1-03-85	680 ± 60	3100 ± 100	<23	<9	<8	ND
	2-06-85	570 ± 60	2600 ± 100	<12	<8	<8	ND
	3-06-85	420 ± 30	1700 ± 100	<6	<8	<7	500 ± 200
H52	1-03-85	630 ± 60	2400 ± 100	<26	<10	<8	<600
	2-06-85	380 ± 40	2200 ± 100	<10	<8	<8	ND
	3-06-85	310 ± 40	2600 ± 100	<7	<9	<9	<500
H59	1-03-85	460 ± 60	2600 ± 100	<23	<10	<10	<500
	2-06-85	290 ± 40	1700 ± 100	<11	<7	<9	ND
	3-06-85	480 ± 50	2400 ± 100	<9	<10	<11	<600

ND - Non-detectable sample results. A specific LLD could not be calculated for this sample.