

FLORIDA POWER & LIGHT COMPANY

St. Lucie Plant Unit No. 1

License No. - DPR-67

Docket No. 50-335

ANNUAL RADIOLOGICAL ENVIRONMENTAL
MONITORING REPORT

for

The Period: 1-01-82 to 12-31-82

Prepared February 1983

Supplemented May 1983

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TABLE 1

NAME OF FACILITY ST. LUCIE PLANT, UNIT 1 DOCKET NO. 50-335LOCATION OF FACILITY ST. LUCIE COUNTY, FLORIDAREPORTING PERIOD January 1, 1982 - December 31, 1982

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^a	Location with Highest Annual Mean		Control Locations ^D Mean (f) ^a (Range) ^a	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean(f) ^a (Range) ^a		
1.1 AIR							
1. Particulate filter (pCi/m ³)	Gross B (467)	.002	.015 (467/467) (.003-.036)	H30: 7609 Indian River Drive (2 miles - 245°)	.017 (52/52) (.008-.029)	.016 (51/51) (.006-.034)	
2. Particulate filter (pCi/m ³)	γ Scan on monthly Composite of filters (12)	--	ND	NA	NA	ND	
3. Particulate filter (pCi/m ³)	Quarterly Composite						
		89Sr (4)	.004	ND	NA	NA	NA
	90Sr (4)	.002	ND	NA	NA	NA	
4. Radioiodine filter (pCi/m ³)	131I (468)	.001	ND	NA	NA	NA	

ND - Not Detectable

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DS - Dissolved Solids

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TABLE 1

NAME OF FACILITY ST. LUCIE PLANT, UNIT 1 DOCKET NO. 50-335LOCATION OF FACILITY ST. LUCIE COUNTY, FLORIDA REPORTING PERIOD January 1, 1982 - December 31, 1982

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^d	Location with Highest Annual Mean		Control Locations ^b Mean (f) ^a (Range) ^d	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean (f) ^a (Range) ^d		
1.2 DIRECT RADIATION 1. TLD (uRem/hr)	Exposure rate (72)	--	6.1 (72/72) (3.4-20.8)	H12: FPL Substation, Stuart, FL (12 miles-180°)	20.1 (8/8) (19.0-20.8)	4.9 (8/8) (4.7-5.0)	
2.1 SURFACE WATER 1. Discharge Canal (pCi/l)	γ emitting ^d isotopes (12)	--	ND	NA	NA	NA	
	tritium (12)	160	ND	NA	NA	NA	
	⁸⁹ Sr (12)	1.0	ND	NA	NA	NA	
	⁹⁰ Sr (12)	0.6	ND	NA	NA	NA	
2. Ocean (pCi/l)	γ emitting ^d isotopes (24)	--	ND	NA	NA	ND	
	tritium (24)	160	ND	NA	NA	ND	
	⁸⁹ Sr (24)	1.0	ND	NA	NA	ND	
	⁹⁰ Sr (24)	0.6	ND	NA	NA	ND	
3. Estuarine (pCi/l)	γ emitting ^d isotopes (4)	--	ND	NA	NA	NA	
	tritium (4)	160	ND	NA	NA	NA	

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^d	Location with Highest Annual Mean		Control Locations ^D Mean (f) ^a (Range) ^d	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean (f) ^a (Range) ^d		
<u>2.2 GROUND WATER WELL</u>							
1. Ground Water (pCi/l)	γ emitting ^d isotopes (4)	--	ND	NA	NA	NA	
	tritium (4)	160	ND	NA	NA	NA	
	Gross B-DS (4)	0.7	1.4 (4/4) (1.0-1.8)	H30: Residence 7601 ^e Indian River Drive (2 miles - 245°)	1.4 (4/4) (1.0-1.8)	NA	
	Gross B-UDS (4)	0.7	ND	NA	NA	NA	
<u>2.3 POTABLE WATER WELL</u>							
1. Drinking Water (pCi/l)	γ emitting ^d isotopes (12)	--	ND	NA	NA	NA	
	tritium (12)	160	ND	NA	NA	NA	
	Gross B-DS (12)	0.7	2.7 (12/12) (1.4-4.6)	H11: City of Ft. Pierce Water System (9 miles -323°)	3.0 (4/4) (2.2-3.7)	NA	
	Gross B-UDS (12)	0.7	ND	NA	NA	NA	

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^d	Location with Highest Annual Mean		Control Locations ^D Mean (f) ^a (Range) ^d	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean (f) ^a (Range) ^d		
3.0 BOTTOM SEDIMENTS							
1. Discharge Canal (pCi/kg)	γ emitting ^d isotopes (3)						
	1. ⁵⁸ Co	24	1340 (2/3) (1310-1370)	H36: Discharge Canal (0.2 miles - 101°)	1340 (2/3) (1310-1370)	NA	
	2. ⁶⁰ Co	11	5740 (2/3) (5230-6240)	H36: Discharge Canal (0.2 miles - 101°)	5740 (2/3) 5230-6240	NA	
	3. ¹³⁷ Cs	10.8	100 (2/3) (90-100)	H36: Discharge Canal (0.2 miles - 101°)	100 (2/3) (90-100)	NA	
	4. ¹⁴⁴ Ce	76	590 (3/3) 500-700	H36: Discharge Canal (0.2 miles - 101°)	590 (3/3) (500-700)	NA	
	5. Others	--	ND	NA	NA	NA	
	⁸⁹ Sr (3)	--	ND	NA	NA	NA	
	⁹⁰ Sr (3)	6.0	ND	NA	NA	NA	
2. Ocean (pCi/kg)	γ emitting ^d isotopes (8)	--	ND	NA	NA	ND	
	⁸⁹ Sr (8)	--	ND	NA	NA	ND	
	⁹⁰ Sr (8)	6.0	ND	NA	NA	ND	

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TABLE 1

NAME OF FACILITY ST. LUCIE PLANT, UNIT 1DOCKET NO. 50-335LOCATION OF FACILITY ST. LUCIE COUNTY, FLORIDAREPORTING PERIOD January 1, 1982 - December 31, 1982

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^a	Location with Highest Annual Mean		Control Locations ^D Mean (f) ^a (Range) ^a	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean(f) ^a (Range) ^a		
3. Beach Sand (pCi/kg)	γ emitting ^d isotopes (6)	--	ND	NA	NA	ND	
	⁸⁹ Sr (6)	--	ND	NA	NA	ND	
	⁹⁰ Sr (6)	6.0	ND	NA	NA	ND	
4. Estuarine (pCi/kg)	γ emitting ^d isotopes (2)	--	ND	NA	NA	NA	
4.0 AQUATIC BIOTA							
1. Crustacea (pCi/kg)	γ emitting ^d isotopes (4)	--	ND	NA	NA	ND	
	⁸⁹ Sr (1)	4	ND	NA	NA	ND	
	⁹⁰ Sr (1)	2.4	ND	NA	NA	ND	

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^d	Location with Highest Annual Mean		Control Locations ^D Mean (f) ^a (Range) ^d	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean (f) ^a (Range) ^d		
2. Fish, Carnivore (pCi/kg) (Jack, Trout)	γ emitting ^d isotopes (4) 1. ¹⁴⁴ Ce	--	370 (1/4) (NA)	H32: Vero Beach (19 miles - 338°)	370 (1/2) (NA)	370 (1/2) (NA)	
	2. Others ⁸⁹ Sr (4)	-- 4	ND ND	NA NA	NA NA	ND ND	
	⁹⁰ Sr (4)	2.4	ND	NA	NA	ND	
3. Fish, Herbivore (pCi/kg) (Mullet, Drum)	γ emitting ^d isotopes (4)	--	ND	NA	NA	ND	
	⁸⁹ Sr (4)	4	ND	NA	NA	ND	
	⁹⁰ Sr (4)	2.4	ND	NA	NA	ND	

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TABLE 1

NAME OF FACILITY ST. LUCIE PLANT, UNIT 1 BUCKET NO. SU-335LOCATION OF FACILITY ST. LUCIE COUNTY, FLORIDA REPORTING PERIOD January 1, 1982 - December 31, 1982

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^a	Location with Highest Annual Mean		Control Locations ^d Mean (f) ^a (Range) ^a	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean(f) ^a (Range) ^a		
5.0 TERRESTRIAL							
1. Milk - (pCi/l)	γ emitting ^d isotopes (39)						
	1. ¹³⁷ Cs	4.0	27 (30/39) (10-125)	H40: Dan Smith Dairy, West Palm Beach (53 miles-174°)	40 (14/14) (19-125)	40 (14/14) (19-125)	
	2. Others	--	ND	NA	NA	NA	
	⁸⁹ Sr (36) ^c	1.0	ND	NA	NA	NA	
	⁹⁰ Sr (36) ^c	0.6	1.9 (36/36) (1.0-3.4)	H40: Dan Smith Dairy, West Palm Beach (53 miles - 174°)	2.2 (13/13) (1.7-3.4)	2.2 (13/13) (1.7-3.4)	
	¹³¹ I (36)	0.5	0.5 (1/36) (NA)	H03: Meadow Brook Dairy (14 miles - 260°)	0.5 (1/24) (NA)	ND	
2. Food Crop (pCi/kg) (Citrus)	γ emitting isotopes (7)	--	ND	NA	NA	ND	
	⁸⁹ Sr (7)	3	ND	NA	NA	ND	
	⁹⁰ Sr (7)	2	18.9 (7/7) (5.1 - 45.7)	H24 Poster Groves (5.4 miles - 300°)	45.7 (1/1) (NA)	14.2 (1/1) (NA)	

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TABLE 1

NAME OF FACILITY ST. LUCIE PLANT, UNIT 1 DOCKET NO: 50-335LOCATION OF FACILITY ST. LUCIE COUNTY, FLORIDA REPORTING PERIOD January 1, 1982 - December 31, 1982

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Medium or Pathway Sampled (Unit of Measurement)	Type and Total Number of Analyses Performed	Lower Limit of Detection (LLD)	All Indicator Locations Mean (f) ^a (Range) ^a	Location with Highest Annual Mean		Control Locations ^b Mean (f) ^a (Range) ^a	Number of Nonroutine Reported Measurements
				Name Distance and Direction	Mean (f) ^a (Range) ^a		
3. Food Crop (pCi/kg) (Vegetation, garden greens)	γ emitting ^d isotopes (1)						
	1. ¹³⁷ Cs	5	166 (1/1) (NA)	H41:Residence 8407 Indian River Drive (2 miles - 245°)	166 (1/1) (NA)	NA	
	2. ¹³¹ I	4.7	ND	NA	NA	NA	
	3. Others	--	ND	NA	NA	NA	

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TABLE 1
Notes

Note a. - Mean and range based upon detectable measurements only. Fraction of detectable measurements at specific locations is indicated in parenthesis (f)

Note b. - Control locations for the St. Lucie Plant Radiological Environmental Surveillance Program are as follows:

H32 - Vero Beach, Florida - 19 miles, 338°

1. Air Particulate and Radioiodine
2. Direct Radiation
3. Surface Water - Ocean
4. Bottom Sediment - Ocean
5. Beach Sand
6. Crustacea
7. Fish, Carnivore
8. Fish Herbivore

H39 - Vero Beach, Florida - 20 miles, 338°

1. Terrestrial Biota - Citrus Crop.

H40 - Palm Beach County, Florida - 53 miles, 174°

1. Milk

Note c. - The following is a list of missing data.

<u>Medium or Pathway Sampled</u>	<u>Analysis For</u>	<u>Location/Date</u>	<u>Reason Missing</u>
Milk	⁸⁹ Sr, ⁹⁰ Sr	H03/06-1-82	Sample spilled in laboratory accident
Particulates in Air	Gross B	H32/12-7-82	Sample line was found disconnected at time of collection

Corrections to the
Annual Radiological Environmental
Monitoring Report for the St. Lucie Plant Unit No. 1
1-01-82 to 12-31-82

1. Table 1 page 7 of 10, 5.0 Terrestrial, Milk - ^{137}Cs

Under the heading Location with Highest Annual Mean: it should have read as follows:

Name
Distance and Direction

H40: Dan Smith Dairy,
West Palm Beach
(53 miles - 174°)

2. Table 1 page 7 of 10, 5.0 Terrestrial, Milk - ^{90}Sr

Under the heading Location with Highest Annual Mean: it should have read as follows:

Name Distance and Direction	Mean (f) ^a (Range) ^a
H40: Dan Smith Dairy, West Palm Beach (53 miles - 174°)	2.2 (13/13) (1.7 - 3.4)

The column labeled Control Locations^b should have read as follows:

2.2 (13/13)
1.7 - 3.4

3. Table 1 page 9 of 10 Note c

The incomplete sample results for ^{89}Sr , ^{90}Sr in milk should have read as follows:

Milk	^{89}Sr , ^{90}Sr	H03/10-19-82
Milk	^{89}Sr , ^{90}Sr	H03/12-7-82
Milk	^{89}Sr , ^{90}Sr	H03/12-21-82

The following missing analysis should have been included:

Medium or Pathway Sampled	Analysis For	Location/Date	Reason Missing
Milk	^{89}Sr , ^{90}Sr	H03/6-01-82	Sample spilled in laboratory accident

4. Table 1 pages 1 through 8

NA - Not Applicable