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FILE: Enviro

FROM: Florida Power & Light Miami, Fla R E Uhrig			DATE OF DOC 7-3-75	DATE REC'D 7-8-75	LTR XX	TWX	RPT	OTHER
TO: Mr, A Giambusso			ORIG 3 signed	CC	OTHER	SENT NRC PDR <u>XXXX</u> SENT LOCAL PDR <u>XX</u>		
CLASS	UNCLASS XXX	PROP INFO	INPUT	NO CYS REC'D 40		DOCKET NO: 50-335		

DESCRIPTION: Ltr notarized 7-3-75 trans^t
the following:

ENCLOSURES: Enviro Tech Spec Change: consists
of revision to Section 3.2, Radiological Enviro
Monitoring.....

40 copies encl rec'd

PLANT NAME: St. Lucie #1

FOR ACTION/INFORMATION

wtm 7-8-75

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EXTERNAL DISTRIBUTION

1 - LOCAL PDR <u>ET. PIERCE, FLA.</u>	1 - NATIONAL LABS. <u>PNWL</u>	1 - PDR-SAN/LA/NY
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1 - NSIC (BUCHANAN)	1 - CONSULTANTS	1 - G. ULRIKSON ORNL
1 - ASLB	NEWMARK/BLUME/AGBABIAN	
1 - Newton Anderson		
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THE
FEDERAL
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UNITED STATES DEPARTMENT OF JUSTICE
WASHINGTON, D. C. 20535

RECEIVED
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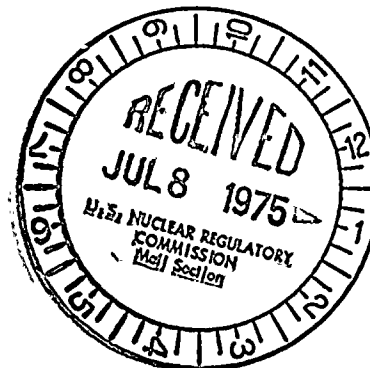
1964

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Regulatory Docket File

July 3, 1975
L-75-235



Mr. Angelo Giambusso, Director
Division of Reactor Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

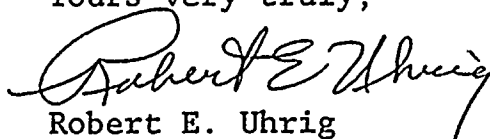
Dear Mr. Giambusso:

Re: St. Lucie Unit No. 1 - Docket No. 50-335
Environmental Technical Specification Change

Florida Power & Light Company hereby submits for your review three signed originals and 40 copies of revision 3 to the proposed St. Lucie 1 Environmental Technical Specifications.

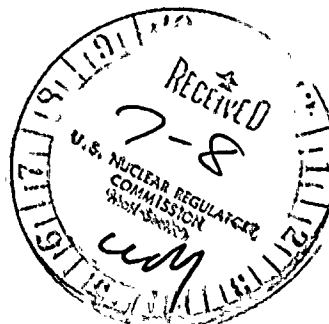
This revision consists of substituting Section 3.2, Radiological Environmental Monitoring, with the attached revised Section 3.2, pages 3-5 to 3-13g, with Rev. 3 7/3/75 appearing on the lower right-hand corner of each page.

Yours very truly,


Robert E. Uhrig
Vice President

REU:nch
Enclosure

cc: Jack R. Newman, Esquire



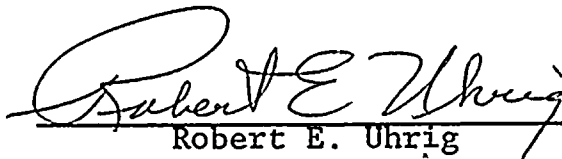
7268

STATE OF FLORIDA)
)
COUNTY OF DADE) SS

ROBERT E. UHRIG, being first duly sworn, deposes and says:


That he is a Vice President of Florida Power & Light Company,
the Applicant herein;

That he has executed the foregoing instrument; that the
statements made in this said instrument are true and correct
to the best of his knowledge, information and belief; and
that he is authorized to execute the instrument on behalf
of said Applicant.

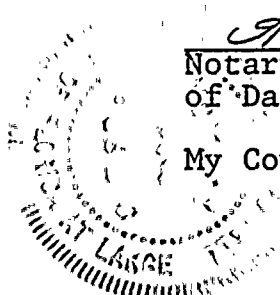

Robert E. Uhrig

subscribed and sworn to before me

this 3rd day of July, 1975


Notary Public in and for the County
of Dade, State of Florida MY COMMISSION EXPIRES APRIL 2, 1976
BONDED THRU MAYNARD BONDING AGENCY

My Commission expires _____





3.2 RADIOLOGICAL ENVIRONMENTAL MONITORING

Objective

The Radiological Environmental Surveillance Program is conducted to measure radiation levels and radioactivity in the environs, and to assist in verifying any projected or anticipated radioactivity release resulting from plant operations which could bring about public exposure to radiation.

Bases

The environmental monitoring program is designed to determine existing radioactivity levels and to detect changes in radiation levels in the air, water and land environment which may be attributed to the operation of the unit. The methods, procedures and techniques developed during the preoperational phase will be utilized to provide background measurements as a basis for distinguishing significant changes in radioactivity in the site environs.

Specifications

- a) Environmental samples shall be collected at designated locations (see Table 3.2-1 and Figures 3.2-1 and 3.2-2).

x/Q values by sector and the annual average x/Q at standard distances for such sampling locations are given in Tables 3.2-2 and 3.2-3, respectively. Figure 3.2-3 relates the annual average wind speed and annual average

x/Q to population density in each sector with respect to sampling location and the site center.

3.2 RADIOLOGICAL ENVIRONMENTAL MONITORING (continued)

Specifications (continued)

- b) The type samples to be collected, the schedule of sample collection and the analyses to be made on each sample shall be done in the manner described in Table 3.2-4.
- c) The analyses required in this environmental surveillance program shall be completed either by (1) gamma spectroscopy, (2) beta analysis by liquid scintillation counting, or (3) by chemical separation prior to radioactivity analysis. Table 3.2-5 shows how these radioanalysis methods will be applied. Table 3.2-6 shows the detection capabilities of these methods and compares them with the recommended limits of Regulatory Guide 4.8.
- d) This schedule is designed to ensure that changes in the environmental radioactivity can be detected. A continuing review and evaluation of the program will verify the suitability and adequacy of the environmental program.
- e) Recognition is given to the fact the results of the Radiological Environmental Surveillance Program will determine if there are impacts of plant operation on the environment. As such, and when applicable, these results will be summarized, evaluated statistically, and assessed in order to interpret those impacts.

TABLE 3.2.1

PLANT ST. LUCIE SITE: LOCATION OF
ENVIRONMENTAL SURVEILLANCE SAMPLING STATIONS
(Bearing from Center Unit One Containment)

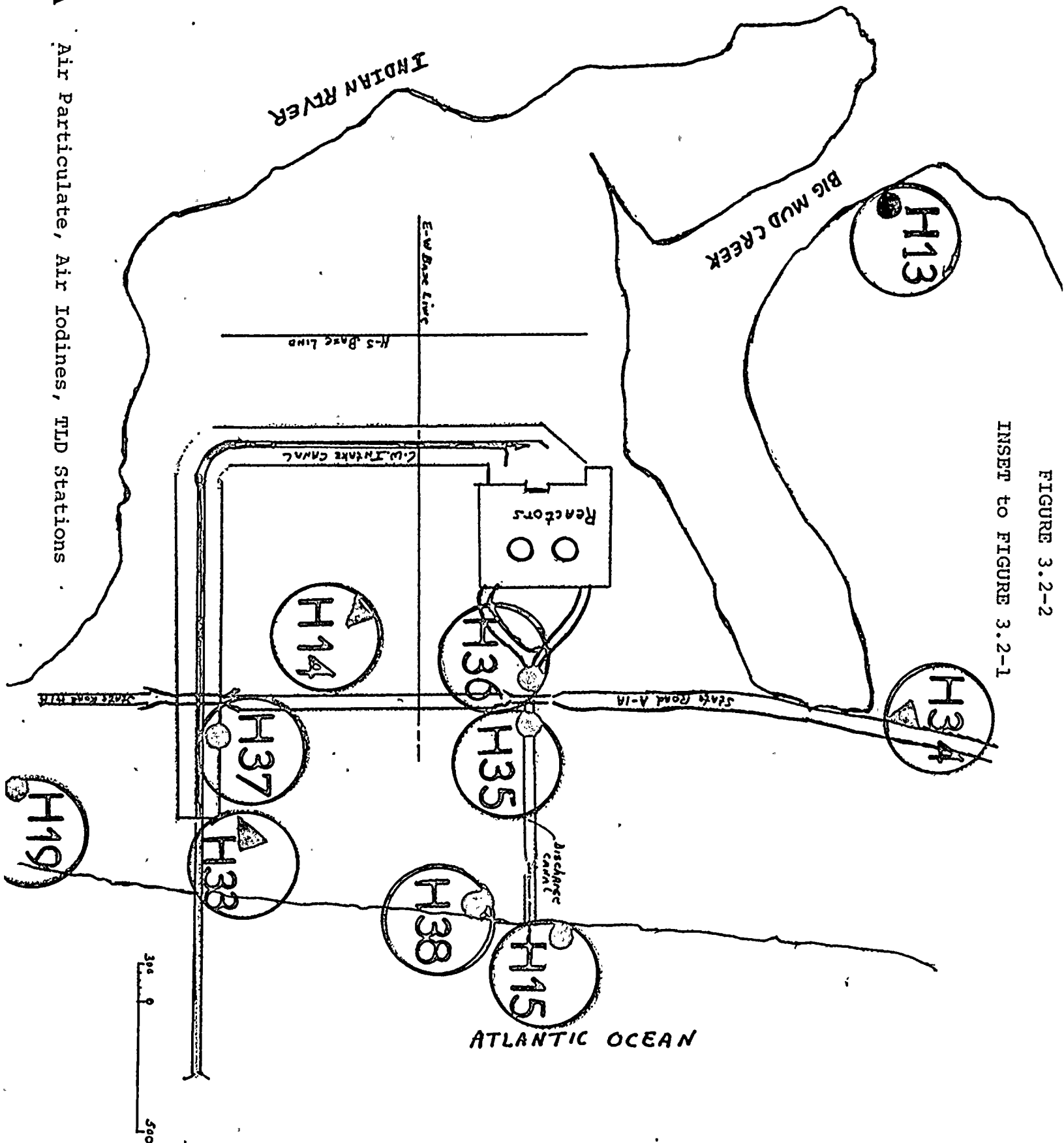
<u>Station No.</u>	<u>Description</u>	<u>Bearing</u>	<u>Distance</u>
H03	Meadowbrook Dairy, Glades Cut-off Road St. Lucie County	260°	22.526 km
H08	Florida Power & Light Company Substation White City, Weatherby Road west of U. S. 1	293°	9.17 km
H09	Florida Power & Light Company Substation West of U. S. 1, just south of St. Lucie County Line	196°	11.745 km
H10	Indian River Field Laboratory, University of Florida, west of SR 713	300°	19.308 km
H11	City of Fort Pierce Water System - Collected at St. Lucie County Health Department, Avenue "C", Ft. Pierce	323°	14.48 km
H12	Florida Power & Light Company Substation SR 76 west of U. S. 1, Stuart, Martin Co.	180°	19.308 km
H13	On Site, Point north of Big Mud Creek at Indian River	312°	1021 m
H14	Employees Parking Lot, Southeast of Containment	160°	503 m
H15	On Site, Beach near Discharge Structure	89°	808 m
H16	Beach (ocean) opposite Blind Creek	31°	1509 m
H19	On Site, Beach south of Intake Canal	161°	1494 m
H22	Lentz Groves, U. S. 1	210°	8.849 km
H23	Montauk Groves, U. S. 1, south of Easy Street	270°	7.562 km
H24	Poster Groves, U. S. 1, north of Tumblin King Road	300°	8.608 km
H25	Childs Groves, Bell Avenue, west of Sunrise Blvd.	297°	11.263 km

SAMPLING STATIONS (continued)

<u>Station No.</u>	<u>Description</u>	<u>Bearing</u>	<u>Distance</u>
H26	Wouters Groves, West of SR 713 on Immokola Road	314°	21.72 km
H30	Residence, 7609 Indian River Drive, Ankona	245°	3.218 km
H31	North Port Lucie Water System, Prima Vista Blvd.	250°	10.619 km
H32	Department of Health and Rehabilitative Services Entomology Laboratory, East of U. S. 1, Vero Beach	338°	30.571 km
H33	On Site, between Canals, east of AIA	138°	945 m
H34	On Site, Meteorological Tower	027°	762 m
H36	On Site, Discharge Canal West of AIA	101°	305 m
H35	On Site, Discharge Canal East of AIA	099°	343 m

FIGURE 3.2-2

INSET to FIGURE 3.2-1



▲ Air Particulate, Air Iodines, TLD Stations

TABLE 3.2-2
ST. LUCIE SITE

$\frac{X}{Q}$ BY SECTOR

Sector	Wind Factors		$\frac{X}{Q}$ Average* (s/m ³)
	F, $\bar{\mu}$		
	(mi/hr)		

A. At 5 Miles; $\sigma_z=100m$

SSW - S	0.049,	11.1	9.04 x 10 ⁻⁸
SW - SSW	0.039,	10.1	8.61 E - 8
WSW - SW	0.054,	9.7	7.57 E - 8
W - WSW	0.075,	9.3	7.37 E - 8
WNW - W	0.100,	8.9	8.87 E - 8
NW - WNW	0.092,	8.1	1.06 E - 7
NNW - NW	0.096,	8.6	8.67 E - 8
N - NNW	0.064,	8.4	5.84 E - 8

B. At 0.97 Miles; $\sigma_z=50m$

S - SSE	0.033,	8.8	9.69 E - 7
SSE - SE	0.055,	7.9	1.03 E - 6
SE - ESE	0.035,	7.5	1.17 E - 6
ESE - E	0.027,	6.6	1.09 E - 6
E - ENE	0.040,	7.5	8.06 E - 7
ENE - NE	0.073,	7.9	6.93 E - 7
NE - NNE	0.050,	8.7	6.43 E - 7
NNE - N	0.068,	8.3	5.37 E - 7

* Period of Record: 01/01/73 to 12/31/73

TABLE 3.2-3

ST. LUCIE SITE: SECTOR ANNUAL AVERAGE X/Q at STANDARD DISTANCE
SAMPLING LOCATIONS (a,b)

Station No.	Population Density Code	Average Annual (s/m ³)	Vectors Sampled
H03 (22.526 Km) (W-WSW)	B	7.37 E - 8	Milk-monthly. Control Florida Milk Net
H08 (9.17 m) (W-WNW)	D	8.87 E - 8	Precipitation. Soil, Other Vegetation Air Particulates, Air Iodines, TLD
H09 (11.74) (S-SSW)	C	9.04 E - 8	Soil, Other Vegetation. Air Particulates, Air Iodines, TLD
H10 (19.308) (WNW-NW)	D	1.05 E - 7	Precipitation. Food Crops, Other Vegetation Soil. Air Particulates, Air Iodines, TLD
H11 (14.48 m) (NW-NNW)	D	8.7 E - 8	Drinking Water - Ft. Pierce
H12 (19.308 m) (S-SSE)	D	9.1 E - 8	Drinking Water - Stuart Air Particulates, Air Iodines
H13 (1021 m) (NW-WNW)	A	1.10 E - 7	Indian River Water. Bottom Sediment
H14 (503 m) (S-SSW)	A	9.50 E - 7 (c)	Air Particulates, Air Iodines, TLD
H15 (808 m) (E-ESE)	A	1.09 E - 6 (c)	Ocean Water, Bottom Sediment
H16 (1509 m) (NNE-NE)	A	6.43 E - 7 (c)	Ocean Water. Bottom Sediment. Beach Sand.
H19 (1449 m) (S-SSE)	A	9.69 E - 7 (c)	Ocean Water. Beach Sand

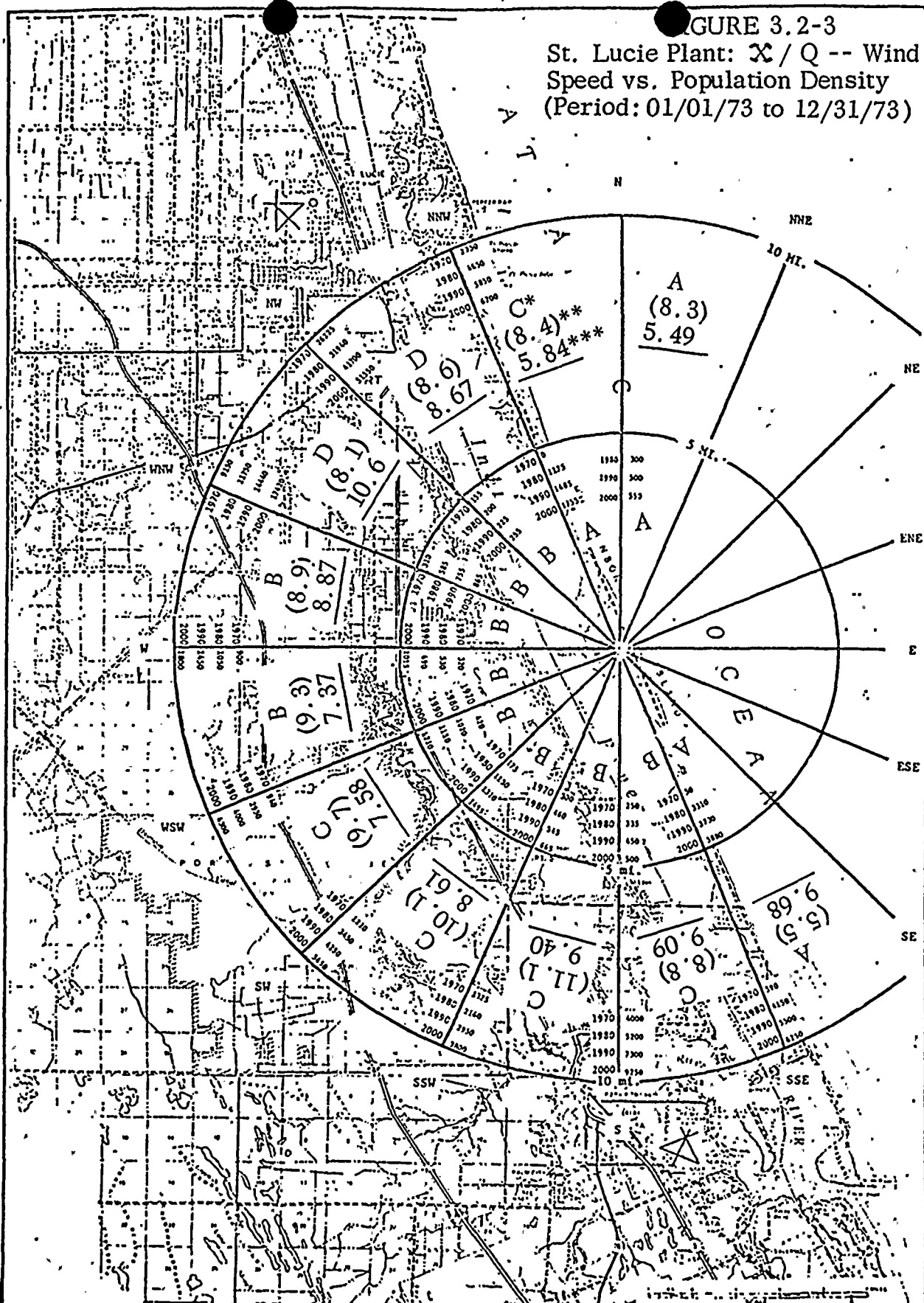
<u>Station No.</u>	<u>Population Density Code</u>	<u>Average Annual (S/M³)</u>	<u>Vectors Sampled</u>
H22 (8.849 Km) (S-SSW)	C	9.04 E - 8	Food Crop
H23 (7.562 Km) (SW-SSW)	B	8.61 E - 8	Food Crop
H24 (8.608 Km) (W-WNW)	D	8.87 E - 8	Food Crop
H25 (11.263 Km) (W-WNW)	D	8.87 E - 8	Food Crop
H26 (21.72 Km) (NW-WNW)	C	1.06 E - 7	Food Crop
H30 (3.218 Km) (SW-SSW)	C	8.61 E - 8	Drinking Water. Air Particulates, Air Iodines, TLD
H31 (10.619 Km) (WSW-SW)	C	7.57 E - 8	Drinking Water (Port St. Lucie)
H32 (30.571 Km) (N-NNW)		5.84 E - 8	CONTROL. Precipitation Air Particulates, Air Iodines, TLD
H33 (945 m) (SE-SSE)	A	9.68 E - 8 (c)	Air Particulates, Air Iodines, TLD
H34 (762 m) (N-NNW)	A	5.84 E - 8 (c)	Precipitation Air Particulates, Air Iodines, TLD
H36 (305 m) (E-ESE)	A	1.02 E - 7 (c)	Discharge Canal water. Bottom Sediment

a) Period of Record: 01/01/73 to 12/31/73

b) Sampling locations specified by State of Florida, Department of Health and Rehabilitative Services

c) At 0.97 miles; all others at 5 miles

FIGURE 3.2-3
St. Lucie Plant: X / Q -- Wind
Speed vs. Population Density
(Period: 01/01/73 to 12/31/73)



*Population Density:

A= 0-100

C= 1,000-10,000

** Annual Average Wind Speed

B= 100-1,000

D= > 10,000

*** Annual Average X / Q



TABLE 3.2-4 SHEET 1

PLANT ST. LUCIE: OPERATIONAL ENVIRONMENTAL RADIOLOGICAL SURVEILLANCE PROGRAM

<u>EXPOSURE PATHWAY AND/OR SAMPLE</u>	<u>CRITERIA AND SAMPLING LOCATIONS (1)</u>	<u>COLLECTION FREQUENCY (2)</u>	<u>TYPE AND FREQUENCY OF ANALYSIS</u>
1. <u>AIR</u>			
1.1 Particulate and Iodine	Comparison on-site versus off-site & reference locations: 3 locations on- site, north, east, & southeast of the plant H 34, H 14, H 33 6 locations off-site within radius of 10 miles of plant H 08, H 09, H 10, H 12, H 30, H 32	Weekly	Gross Beta (Weekly) Gamma spectral analysis of monthly composite Radioactive Iodine (Weekly) SR 89, 90 (Quarterly Composite)
1.2 Direct Radiation	Comparison of on-site versus off-site & reference locations: 3 locations on- site, north, east, & southeast of the plant H 34, H 14, H 33 6 locations off-site within a radius of 10 miles of plant H 08, H 09, H 10, H 12, H 30, H 32	Quarterly	Determine direct radia- tion exposure by TLD readout (mean of 2 TLDs) (3)
2. <u>WATER</u>			
2.1 Surface Water			
2.1.1 Discharge Canal	1 location, west of Ala, H 36	Monthly	Gamma spectral analysis Tritium (Quarterly Composite) Sr-89, 90 (Quarterly Composite)
2.1.2 Ocean	2 locations, H 15, & H 32 (control)	Monthly	Gamma spectral analysis Tritium (Quarterly Composite) Sr-89, 90 (Quarterly Composite)

TABLE 3.2-4 SHEET 2

PLANT ST. LUCIE: OPERATIONAL ENVIRONMENTAL RADIOLOGICAL SURVEILLANCE PROGRAM

<u>EXPOSURE PATHWAY AND/OR SAMPLE</u>	<u>CRITERIA AND SAMPLING LOCATIONS (1)</u>	<u>COLLECTION FREQUENCY (2)</u>	<u>TYPE OF FREQUENCY OF ANALYSIS</u>
2.1.3 Estuarine	1 location, Big Mud Creek, H 13	Quarterly	Gamma spectral analysis Tritium
2.2 Ground Water (wells)	1 location, Residence, 7609 Indian River Drive, H 30	Semi-annually	Gamma spectral analysis Gross Beta Tritium
2.3 Potable Water (wells)	1 location, City of Ft. Pierce, drinking water supply, H 11 1 location, City of Stuart, drinking water supply, H 12 1 location, Port St. Lucie, drinking water supply, H 31	Quarterly	Gamma spectral analysis Gross Beta Tritium
3. <u>BOTTOM SEDIMENT</u>			
3.1 Discharge Canal	1 location, west of A1A, H 36	Semi--annually	Gamma spectral analysis Sr-90
3.2 Ocean	1 location, beach west of discharge structure, H 15 1 location, offshore, 1 mile north of discharge, H 16 1 location, offshore, 1 mile south of discharge, H 19 1 location, offshore, Vero Beach, H 32 (control)	Semi-annually	Gamma spectral analysis Sr-90
3.3 Beach (sand)	1 location, east of Blind Creek, 1 mile north of discharge, H 16 1 location, near intake, 1 mile south of discharge, H 19 1 location, Vero Beach, H 32 (control)	Semi-annually	Gamma spectral analysis Sr-90

TABLE 3.2-4 SHEET 3

PLANT ST. LUCIE: OPERATIONAL ENVIRONMENTAL RADIOLOGICAL SURVEILLANCE PROGRAM

<u>EXPOSURE PATHWAY AND/OR SAMPLE</u>	<u>CRITERIA AND SAMPLING LOCATIONS (1)</u>	<u>COLLECTION FREQUENCY (2)</u>	<u>TYPE OF FREQUENCY OF ANALYSIS</u>
3.4 Estuarine	1 location, Big Mud Creek, H 13	Semi-annually	Gamma spectral analysis
4. <u>AQUATIC BIOTA</u>			
4.1 Crustacea Lobster or crab or shrimp	1 location, vicinity of discharge structure, H 15 1 location, Vero Beach, H 32 (control)	Semi-annually	Gamma spectral analysis
4.2 Fish			
4.2.1 Carnivores	1 location, vicinity of discharge structure, H 15 1 location, Vero Beach, H 32 (control)	Semi-annually	Gamma spectral analysis Sr-89, 90
4.2.2 Herbivores	1 location, vicinity of discharge structure, H 15 1 location, Vero Beach, H 32 (control)	Semi-annually	Gamma spectral analysis Sr-89, 90
5. <u>TERRESTRIAL</u>			
5.1 Milk	1 location within 15 mile radius of plant and in the prevailing wind direction from the plant, H 03 1 location, Florida (state) Milk Shed (4) Dairy herd census (5)	Monthly Semi-annually	Gamma spectral analysis Sr-89, 90 I-131
5.2 Biota			
5.2.1 Food Crop (Citrus)	6 locations, H 10, H 22, H 23, H 24, H 25, H 26 1 location, Vero Beach, H	Harvest time	Gamma spectral analysis Sr 89, 90
5.2.2 Food Crop (Edible Leafy Vegetation)	1 location as determined by garden census (6)	Harvest time	Gamma spectral analysis I-131

TABLE 3.2-4 SHEET 4

PLANT ST. LUCIE: OPERATIONAL ENVIRONMENTAL RADIOLOGICAL SURVEILLANCE PROGRAM

<u>EXPOSURE PATHWAY AND/OR SAMPLE</u>	<u>CRITERIA AND SAMPLING LOCATIONS (1)</u>	<u>COLLECTION FREQUENCY (2)</u>	<u>TYPE OF FREQUENCY OF ANALYSIS</u>
5.3 Soil	5 locations within a 15 mile radius of plant, H 03, H 30, H 08, H 09, H 10 1 location, Vero Beach, H 32 (control)	Once per 3-year period	Gamma spectral analysis Sr-90

(1) Samples will be taken whenever biologically available.

(2) Frequency definitions follow:

Weekly - Not less than 48 times per annum - interval may vary by 3 days.
 Monthly - Not less than 12 times per annum - interval may vary by 15 days.
 Quarterly - Not less than 4 times per annum - interval may vary by 30 days.
 Semi-annually - Not less than 2 times per annum - interval may vary by 60 days.

(3) "Fading" in TLD's minimized by annealing before analysis.

(4) Random samplings made by either state and/or county health groups.

(5) Semi-annual Census; location and number of dairy herds within 5-mile radius of plant, as determined by County Agricultural Agent.

(6) If Semi-annual Census in (5) above reveals no dairy herds within 5-mile radius of plant, an annual census will be made of gardens 500 ft.², or greater, within a 5-mile radius of the plant, by contacting the County Agricultural Agent. If existing, the closest such garden will be sampled.

TABLE 3.2-5

PLANT ST. LUCIE: OPERATIONAL ENVIRONMENTAL
RADIOLOGICAL SURVEILLANCE PROGRAM

TYPE OF ANALYSIS

1. Gamma Spectroscopy

Ce-144	Ba-140
I-131	K-40
Ru-106	Ra-226
Cs-134	Th-232
Cs-137	Co-58
Zr-95	Co-60
Mn-54	Cr-51
Zn-65	

2. Beta Liquid Scintillation Spectroscopy

H-3
C-14
P-32

3. Chemical Separation and Analysis

Sr-89
Sr-90



THE
FEDERAL BUREAU OF INVESTIGATION
UNITED STATES DEPARTMENT OF JUSTICE
WASHINGTON, D. C. 20535

MEMORANDUM FOR THE DIRECTOR
FROM THE CHIEF OF BUREAU
SUBJECT: [Illegible]

1. [Illegible]

2. [Illegible]

3. [Illegible]

4. [Illegible]

5. [Illegible]

6. [Illegible]

TABLE 3.2-6

COMPARISON OF STATE OF FLORIDA DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES
DETECTION CAPABILITIES WITH THOSE RECOMMENDED IN PROPOSED REGULATORY GUIDE 4.8 *

Analysis	Water (pCi/l)			Airborne Particulate (pCi/m ³)			Fish, Meat, Poultry (pCi/kg wet)		
	Detection			Detection			Detection		
	Cap. RG 4.8	LLD**	PRL**	Cap. RG 4.8*	LLD	PRL	Cap. RG 4.8	LLD	PRL
Gross Beta	2.0	1.0	1.0	0.003	0.003	0.003			
Tritium	300.0	256.0	200.0						
Mn-54	15.0	8.0	14.0				130.0	22.0	36.0
Fe-59	30.0	-	-				260.0	6.0	2.0
Co-58	15.0	9.0	17.0				130.0	24.0	72.0
Co-60	15.0	9.0	17.0				130.0	26.0	72.0
Zn-65	30.0	18.0	31.0				260.0	50.0	84.0
Sr-89	10.0	2.0	5.0	0.005	0.007	0.017	40.0	10.0	14.0
Sr-90	2.0	1.0	1.0	0.001	0.003	0.003	8.0	5.0	6.0
Zr-Nb-95	10.0	9.0	14.0						
I-131	0.4	9.8	17.0	0.07	0.01	0.03			
Cs-134	15.0	8.0	17.0	0.01	0.01	0.03	130.0	23.0	72.0
Cs-137	15.0	9.0	17.0	0.01	0.01	0.03	130.0	23.0	48.0
Ba-La-140	15.0	10.0	17.0		0.01	0.03			

Counting

Geometry ***

3.5 liter

3.5 liter

1.0 liter

Analysis	Milk (pCi/l)			Vegetation (pCi/kg wet)			Soil (pCi/kg dry)		
	Detection			Detection			Detection		
	Cap. RG 4.8	LLD	PRL	Cap. RG 4.8	LLD	PRL	Cap. RG 4.8	LLD	PRL
Sr-89	10.0	2.0	5.0						
Sr-90	2.0	1.0	1.0				150.0	13.0	90.0
I-131	0.4	9.8	10.0	80.0	21.0	36.0			
Cs-134	15.0	8.0	10.0	80.0	8.0	10.0	150.0	34.0	105.0
Cs-137	15.0	9.0	10.0	80.0	9.0	10.0	150.0	34.0	70.0

Counting

Geometry ***

3.5 liter

3.5 liter

1.0 liter

* The nominal LLD as defined in HASL 300 (rev. 8/74), pp. 08-01, 02, 03 at the 95% confidence level.
The LLD's are decay corrected to the end of the total sampling period.

** LLD = Lowest Limits of Detection; PRL = Practical Reporting Limits.

*** Counting system calibrated for Marinelli breakers of the sizes shown.

