



Florida Power
A Progress Energy Company

Crystal River Nuclear Plant
Docket No. 50-302
Operating License No. DPR-72

Ref: CR-3 ITS 5.7.1.1(b)

May 15, 2001
3F0501-03

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Crystal River Unit 3 - 2000 Annual Radiological Environmental Operating Report

Dear Sir:

Florida Power Corporation hereby submits the 2000 Annual Radiological Environmental Operating Report for Crystal River Unit 3 (CR-3) in accordance with the CR-3 Improved Technical Specifications, Section 5.7.1.1(b) and Section 6.6 of the Offsite Dose Calculation Manual (ODCM). The data provided in the attached report is consistent with the objectives outlined in the ODCM. All radiological environmental samples taken during the report period, January 1, 2000 through December 31, 2000, are summarized and tabulated in the format found in the Radiological Assessment Branch Technical Position, Revision 1, November 1979.

If you have any questions regarding this submittal, please contact Mr. Sid Powell, Supervisor, Licensing and Regulatory Programs at (352) 563-4883.

Sincerely,

D.L. Roderick
Plant General Manager

DLR/ff

Attachment

xc: NRR Project Manager
Regional Administrator, Region II
Senior Resident Inspector

JE25
A009

FLORIDA POWER CORPORATION
CRYSTAL RIVER UNIT 3
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
2000

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Approved By: [Signature]
Superintendent Environmental & Chemistry

Date: 5/15/01

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INTRODUCTION

This report is submitted as required by Technical Specification 5.7.1.1(b) to the Crystal River Facility Operating License No. DPR-72, and Section 6.6 of the Offsite Dose Calculation Manual.

The following information is required to be included in this report:

- Data Summaries
- Interpretations
- Unachievable LLDs
- An analysis of trends
- An assessment of any observed impact of plant operation on the environment

NOTE: If harmful effects or evidence of irreversible damage are detected by the monitoring, the report shall provide an analysis of the problem and a planned course of action to correct it.

- Summarized and tabulated results of all radiological environmental samples taken during the report period, in the format of Radiological Assessment Branch Technical Position, Revision 1, November, 1979

NOTE: If some results are not available for inclusion, the report shall note and explain the reason for the missing results. The missing results shall be submitted as soon as possible in a supplementary report.

- A summary description of the Radiological Environmental Monitoring Program
- A map of all sampling locations keyed to a table giving distances and directions from the reactor
- Land-use census results
- Interlaboratory Comparison Program results

I. SUMMARY DESCRIPTION OF THE RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

The analytical results of the Crystal River Unit 3 (CR-3) operational Radiological Environmental Monitoring Program (REMP) for 2000 are contained in this report. The operational program began on January 1, 1977 just prior to initial criticality, which was achieved on January 14, 1977.

Sampling of the facility environs is performed by the Florida Department of Health, Bureau of Radiation Control. The State also performs the required analyses, participates in the Interlaboratory Comparison Program, and performs the annual land-use census. Prior to 1990, the program was split between the Department of Health and the University of Florida. The transition to the State performing all of the programs sampling and analysis in 1990 is evident in several of the trend graphs, most notably oysters and carnivorous fish, and is due to the State using less sensitive measurement techniques for several of the pathways which were formerly evaluated by the University of Florida.

Sample station locations are given in Table I-1 and Figures I-2, -3, and -4. Sample frequency and analysis type may be determined from Table I-2. Figure I-1 illustrates the relevant exposure pathways.

Except for air sample gross beta results and direct radiation measurements, most of the analytical results are below the lower limit of detection (LLD) of the sample. Sample LLDs are generally much lower than the required "a priori" LLD. When measurable results are reported, the values are also usually less than the required "a priori" LLD.

The results of the 2000 REMP have been compared to previous years' results. This comparison, in part illustrated by the trend graphs of Section IV, shows no evidence of consistent long-term increasing trends in any of the sample media. However, radioactive material is routinely quantified in sediment samples which are taken in the discharge canal near the liquid release discharge point. In general, these results verify the effectiveness of in-plant measures for controlling radioactive releases.

Trend graphs illustrate the mean measured concentration of a particular radionuclide for the year. When measurable results are not obtained, the highest sample LLD is plotted. LLD and measured values are plotted on the same line to best illustrate any trend. As shown on each graph's key, shaded boxes indicate LLD values, while open boxes indicate measured values.

Statistical summary pages are provided for each medium or pathway. Measured values are reported in terms of a mean and range. In addition, the number of measured values versus samples obtained is reported. For example, the following entry

15 (249/256)
(4 - 35)

in the "All Indicator Locations" column would be interpreted as indicating a mean measured value of 15, with measured values ranging from 4 to 35. (249/256) means that out of 256 samples 249 were measured values.

TABLE I-1

FLORIDA POWER CORP. - CR3 - 2000

SAMPLE STATION LOCATIONS

SAMPLE MEDIA	STATION ID	DIRECTION	DISTANCE
TLD	C60	N	4400 Ft.
	C61	NNE	4400
	C62	NE	5300
	C63	ENE	4400
	C64	E	4400
	C65	ESE	1740
	C66	SE	1600
	C67	SSE	1480
	C68	S	1500
	C69	SSW	1780
	C41	SW	2100
	C70	WSW	4400
	C71	WNW	3600
	C72	NW	2400
	C73	NNW	2000
	C27	W	3400
	C18	N	5.2 Mi.
	C03	NNE	5.3
	C04	NE	6.3
	C74	ENE	5.5
	C75	E	4.2
	C76	ESE	5.4
	C08	SE	3.5
	C77	SSE	3.2
	C09	S	3.2
	C78	WSW	4.1
	C14G	W	2.8
	C01	NW	4.9
	C79	NNW	5.0
	C47-Control	ESE	80
	C07*	ESE	7.5 Mi.
	C40*	E	3.5 Mi.
	C46*	N	2000 Ft.

*TLDs not required by ODCM. Deployed at air sample locations.

TABLE I-1 (CONT'D)
FLORIDA POWER CORP. - CR3 - 2000
SAMPLE STATION LOCATIONS

SAMPLE MEDIA	STATION ID	DIRECTION	DISTANCE
AIR	C07	ESE	7.5 Mi.
	C18	N	5.2
	C40	E	3.5
	C41	SW	0.4
	C46	N	0.4
	C47-Control	ESE	80
SEAWATER	C14H	NW	0.1
	C14G	W	2.8
	C13-Control	WSW	3.4
GROUND WATER	C40-Control	E	3.5
DRINKING WATER	C07-Control	ESE	7.5
	C10-Control	ESE	5.9
	C18-Control	N	5.2
SHORELINE SEDIMENT	C09-Control	S	3.2
	C14H	NW	0.1
	C14M	W	1.2
	C14G	W	2.8
FISH & OYSTERS	C29	W	2.0
	C30-Control	WSW	3.6
BROAD LEAF VEGETATION	C48A	N	0.8
	C48B	NNE	0.8
	C47-Control	ESE	80
WATERMELON	C04	ENE	6.3
CITRUS	C19	ENE	8.5

TABLE I-2
FLORIDA POWER CORP. - CR3 - 2000
SAMPLING AND ANALYSIS PROGRAM

SAMPLE MEDIA	# OF STATIONS	FREQUENCY	ANALYSIS	LLD ¹
TLD	33*	Quarterly	γ Dose	---
Air Iodine	6	Weekly	I-131	0.07 pCi/m ³
Air Particulate	6	Weekly	Gross β	0.01
		Quarterly	γ Spec : Cs-134	0.05
			Cs-137	0.06
Seawater	3	Monthly	Tritium	3000 pCi/L
		Monthly	γ Spec :	
			Mn-54	15
			Fe-59	30
			Co-58	15
			Co-60	15
			Zn-65	30
			Zr-Nb-95	15
			I-131	1
			Cs-134	15
			Cs-137	18
			Ba-La-140	15
Ground Water	1	Semiannual	Tritium	2000 pCi/L
		Semiannual	γ Spec :	²
Drinking Water	3	Quarterly	Tritium	2000 pCi/L
		Quarterly	γ Spec :	²
Shoreline Sediment	4	Semiannual	γ Spec :	
			Cs-134	150 pCi/kg
			Cs-137	180

*Includes 3 stations which are not required by the ODCM

¹The maximum "a priori" LLD

²Same as Seawater γ Spec

³When available

⁴During harvest

⁵Same as broad leaf vegetation

TABLE I-2 (Cont'd)
FLORIDA POWER CORP. - CR3 - 2000
SAMPLING AND ANALYSIS PROGRAM

SAMPLE MEDIA	# OF STATIONS	FREQUENCY	ANALYSIS	LLD ¹	
Carnivorous Fish and Oysters	2	Quarterly	γ Spec :	Mn-54	130 pCi/kg
				Fe-59	260
				Co-58	130
				Co-60	130
				Zn-65	260
				Cs-134	130
				Cs-137	150
Broad Leaf Vegetation	3	Monthly ³	γ Spec :	I-131	60 pCi/kg
				Cs-134	60
				Cs-137	80
Watermelon	1	Annual ⁴	γ Spec :	5	5
Citrus	1	Annual ⁴	γ Spec :	5	5

¹The maximum "a priori" LLD

²Same as Seawater γ Spec

³When available

⁴During harvest

⁵Same as broad leaf vegetation

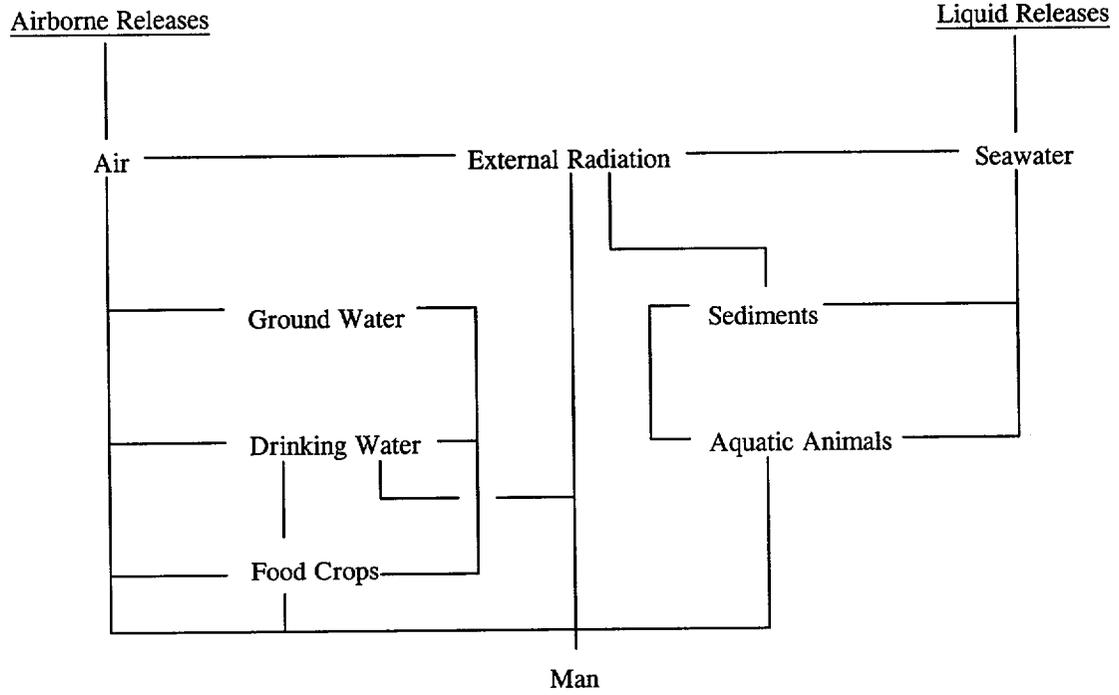


FIGURE I-1: Environmental Media and Exposure Pathways

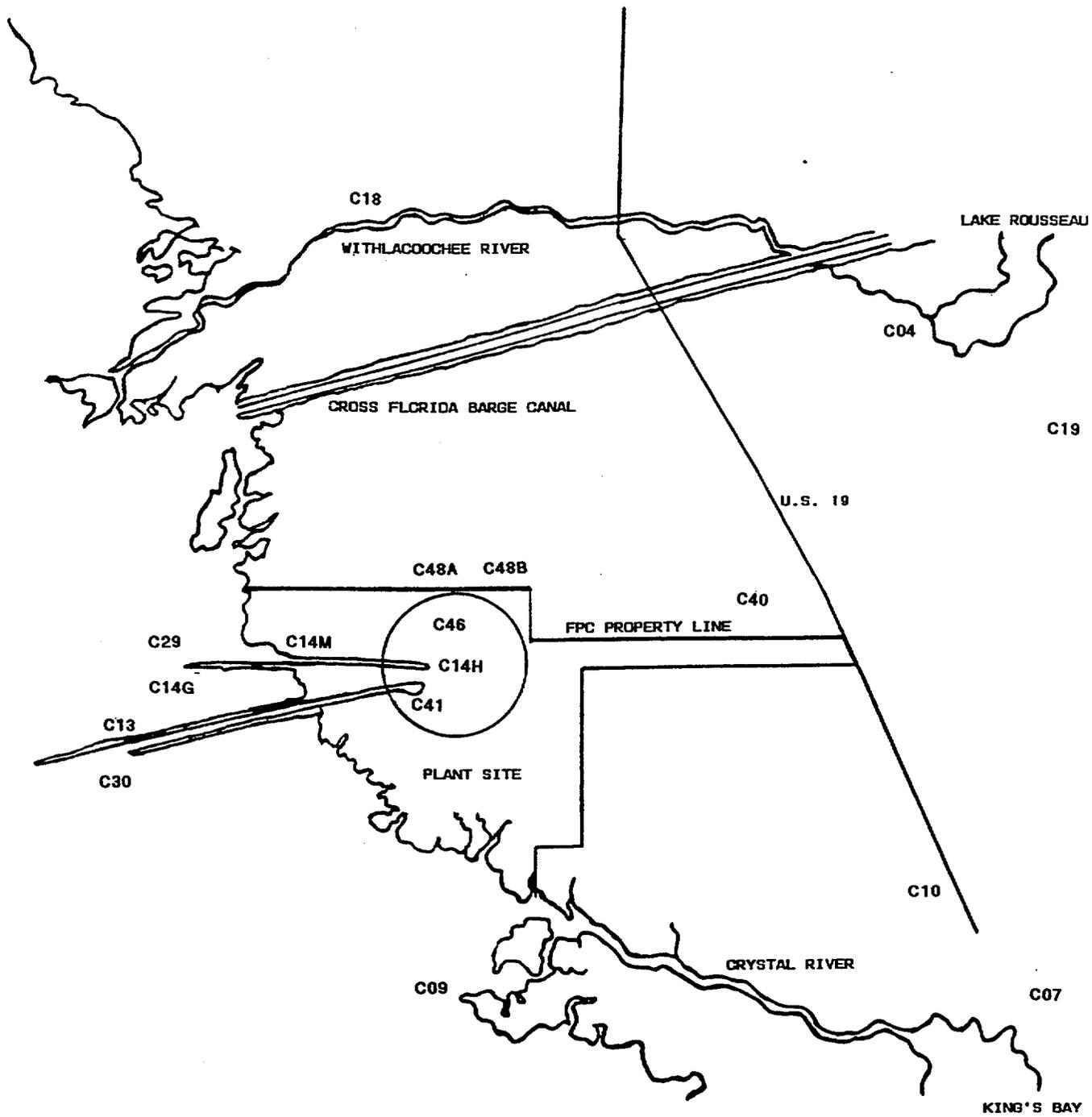
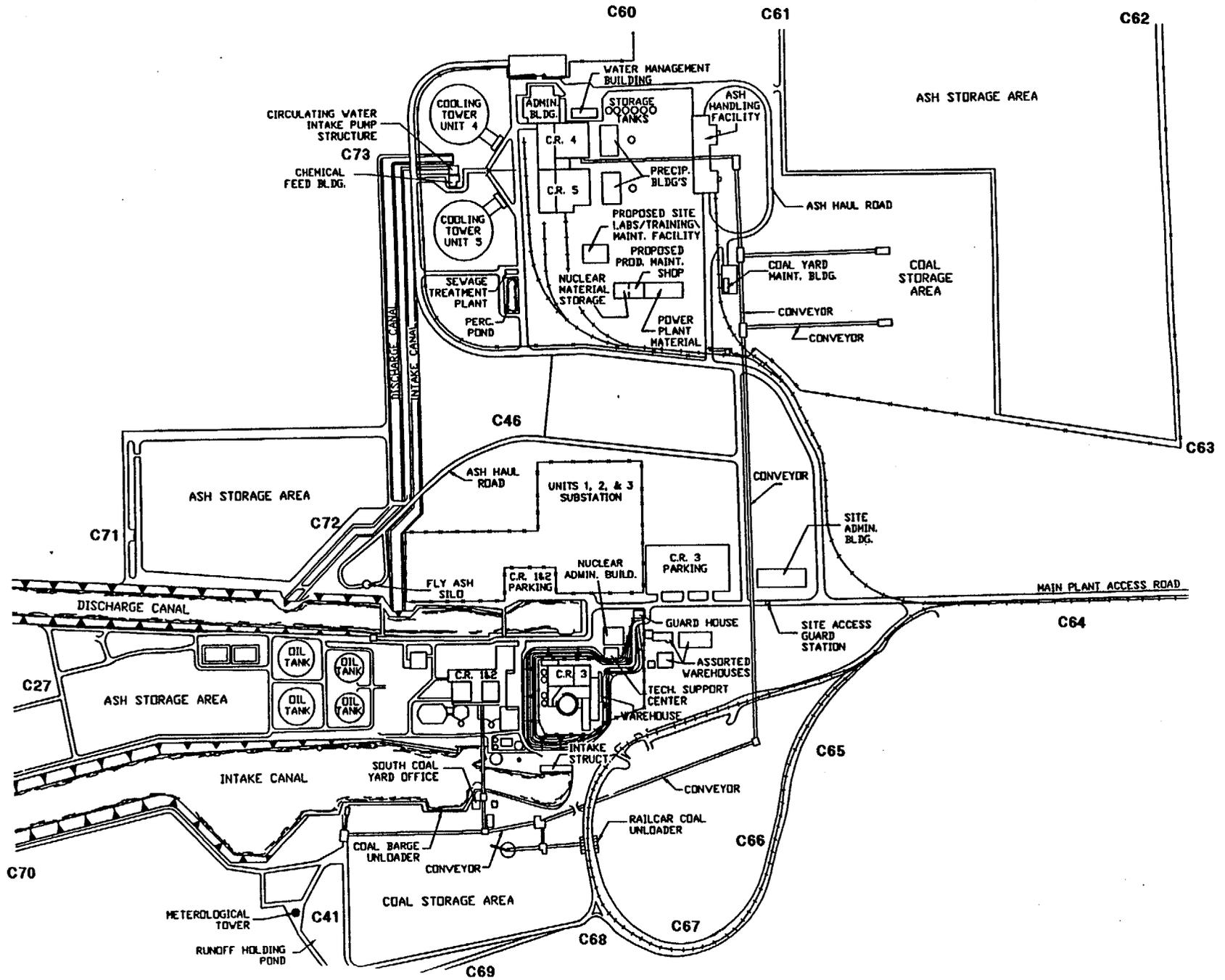


FIGURE I-2: Environmental Monitoring Sample Stations (non-TLDs)

FIGURE I-3: Environmental Monitoring TLD Locations (on site)



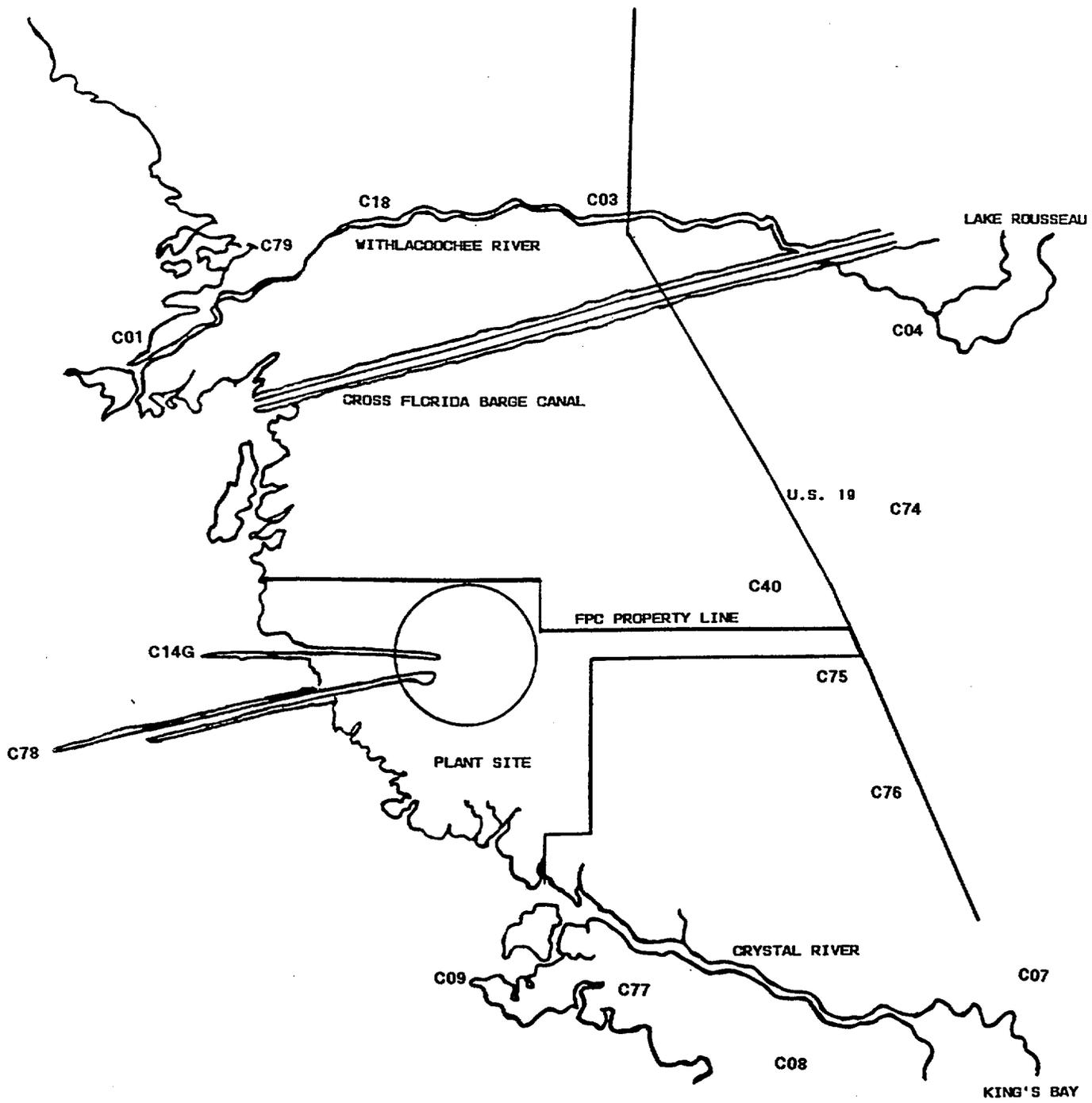


FIGURE I-4: Environmental Monitoring TLD Locations (off site)

II. LAND-USE CENSUS

A land-use census was conducted during August. The purpose of this census is to identify the nearest residences, vegetable gardens, and potential milk-producing animals within a five mile radius of the nuclear plant. The distance in miles and bearing in degrees for each receptor type in each of the sixteen sectors is summarized below.

SECTOR	NEAREST RESIDENCE	NEAREST GARDEN	NEAREST MILK ANIMAL
N	4.5 @ 5°	4.8 @ 8°	*
NNE	4.6 @ 18°	4.8 @ 19°	*
NE	3.8 @ 56°	4.1 @ 50°	*
ENE	3.4 @ 63°	4.2 @ 62°	*
E	2.4 @ 96°	*	*
ESE	4.3 @ 105°	*	*
SE	4.7 @ 136°	*	*
SSE	3.5 @ 152°	*	*
S	*	*	*
SSW	*	*	*
SW	*	*	*
WSW	*	*	*
W	*	*	*
WNW	*	*	*
NW	4.8 @ 323°	*	*
NNW	4.63 @ 341° 4.65 @ 347°	4.6 @ 341°	*

* No suitable sites were located within 5 miles.

FLORIDA DEPARTMENT OF HEALTH - INTERLABORATORY COMPARISON PROGRAM DATA

The EPA crosscheck program ceased operation at the end of 1998. To meet the requirements for a crosscheck program, the Florida Department of Health participates in the Department of Energy's Environmental Measurements Laboratory (EML) Quality Assessment Program.

The following units are used for each of the four media:

Air Filters: Bq/filter
 Soil: Bq/kg
 Vegetation: Bq/kg
 Water: Bq/L

$$1 \text{ pCi} = 0.027 \text{ Bq}$$

Analytical performance is based on historical analytical capabilities for individual analyte/matrix pairs. Acceptable performance is designated by an "A" and means that the value is between the 15th and 85th percentile for the cumulative normalized distribution. Warning is designated by a "W" and means that the value is between the 5th and 15th percentiles or between the 85th and 95th percentiles. Performance which is not acceptable is designated by an "N" and means that the value is less than the 5th percentile or greater than 95th percentile.

Results for June 2000:

Media	Nuclide	Reported Value	Reported Error	EML Value	EML Error	Reported/EML	Evaluation
Air	Co-57	6.06	0.06	5.31	0.22	1.141	W
Air	Co-60	5.74	0.07	5.32	0.26	1.079	A
Air	Cs-137	6.8	0.1	6.1	0.3	1.115	A
Air	Gross Beta	2.83	0.08	2.42	0.2	1.169	A
Soil	Cs-137	333.0	5.0	339.0	9.3	0.982	A
Soil	K-40	790.0	20.0	811.0	29.0	0.974	A
Vegetation	Co-60	53.9	0.7	52.8	1.0	1.021	A
Vegetation	Cs-137	1515.0	2.0	1380.0	20.0	1.098	A
Vegetation	K-40	580.0	10.0	521.0	20.0	1.113	A
Water	Co-60	51.5	0.3	48.9	1.8	1.053	A
Water	Cs-137	109.5	0.9	103.0	4.0	1.063	A
Water	H-3	84.0	3.0	79.4	2.5	1.058	A
Water	Ni-63	95.0	1.0	112.0	11.0	0.848	A

Results for December 2000:

Media	Nuclide	Reported Value	Reported Error	EML Value	EML Error	Reported/EML	Evaluation
Air	Co-57	16.490	0.040	14.55	0.460	1.1331	A
Air	Co-60	8.900	0.100	8.430	0.480	1.056	A
Air	Cs-137	8.130	0.060	7.410	0.360	1.097	A
Air	Gross Beta	2.260	0.050	2.350	0.150	0.962	A
Air	Mn-54	46.900	0.300	43.20	1.300	1.086	A
Soil	Cs-137	999.980	2.180	1020.0	51.00	0.980	A
Soil	K-40	663.800	3.400	713.00	38.00	0.931	A
Vegetation	Co-60	31.42	0.280	32.800	1.300	0.958	A
Vegetation	Cs-137	871.480	2.490	867.00	44.00	1.005	A
Vegetation	K-40	626.520	8.550	639.00	34.00	0.98.0	A
Water	Co-60	72.690	0.180	73.700	2.900	0.986	A
Water	Cs-137	67.980	0.460	67.000	3.500	1.015	A
Water	H-3	121.120	3.380	91.300	0.300	1.327	A

IV-A. AIRBORNE PATHWAY

Air samples are taken at five locations in the vicinity of the plant. The control location is 78 miles ESE of the plant, at the State Bureau of Radiation Control in Orlando.

Table IV-A.1 provides a statistical summary of the analytical results for 311 gross beta samples and 311 iodine samples.

Tables IV-A.2 and IV-A.3 provide the results for each weekly air sample.

Of 311 particulate samples analyzed for gross beta activity, 307 had measurable activity. The average indicator concentration was 16 pCi/1000 m³ with a range of 3 to 42 pCi/1000 m³. The average indicator concentration for 1996 through 1999 was 15 pCi/1000 m³. The control location concentration for 2000 averaged 19 pCi/1000 m³, with a range of 6 to 38 pCi/1000 m³.

Three hundred and eleven samples were analyzed for iodine activity, with none having measurable activity.

Quarterly composite data are summarized in Table IV-A.4. Measurable quantities of cesium were not identified. The highest cesium LLD was 1.0 pCi/1000 m³ for cesium 134.

The gross beta LLD of 0.01 pCi/m³ and Iodine 131 LLD of 0.07 pCi/m³ were not attained for air sample station C07 during the period 9/18 through 9/25 due to a power outage.

TABLE IV-A.1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS MEAN RANGE	LOCATION WITH HIGHEST MEAN NAME DISTANCE & BEARING	MEAN RANGE	CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
AIRBORNE IODINE (pCi/m ³)	γ Spec 311 I-131	0.012	<LLD	-	-	<LLD	0
AIRBORNE PARTICULATES (pCi/1000m ³ for Gross β, pCi/1000m ³ for γ Spec)	Gross β 311 γ Spec 24 Cs-134 Cs-137	4.6	16 (255/259) (3 - 42) <LLD <LLD	C46 0.3 @ 4 ⁰ - -	18 (52/52) (7 - 37) - -	19 (52/52) (6 - 38) <LLD <LLD	0 0 0 0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-A.2

FLORIDA POWER CORP. - CR3 - 2000

pCi/m³ IODINE - 131 IN AIR

COLLECTION DATE	C07	C18	C40	C41	C46	C47
01-03	<.03	<.03	<.03	<.03	<.03	<.03
01-10	<.02	<.02	<.02	<.02	<.02	<.02
01-18	<.02	<.02	<.02	<.02	<.02	<.02
01-24	<.03	<.03	<.03	<.02	<.02	<.03
02-01	<.02	<.02	<.02	<.02	<.02	<.02
02-07	<.03	<.03	<.03	<.03	<.03	<.03
02-14	<.03	<.03	<.03	<.03	<.03	<.03
02-21	<.02	<.02	<.02	<.02	<.02	<.02
02-28	<.02	<.02	<.02	<.02	<.02	<.02
03-07	<.02	<.02	<.02	<.02	<.02	<.02
03-13	<.03	<.03	<.03	<.03	<.03	<.03
03-20	<.03	<.03	<.03	<.03	<.03	<.03
03-28	<.02	<.02	<.02	<.02	<.02	<.02
04-03	<.03	<.03	<.03	<.03	<.03	<.03
04-10	<.03	<.04	<.03	<.03	<.03	<.03
04-17	<.03	<.03	<.02	<.03	<.03	<.03
04-24	<.02	<.02	<.02	<.02	<.02	<.02

TABLE IV-A.2 (Cont'd)
FLORIDA POWER CORP. - CR3 - 2000

pCi/m³ IODINE - 131 IN AIR

COLLECTION DATE	C07	C18	C40	C41	C46	C47
05-02	< .03	< .02	< .02	< .03	< .02	< .03
05-08	< .03	< .02	< .02	< .02	< .02	< .02
05-15	< .02	< .02	< .02	< .02	< .02	< .02
05-22	< .06	< .06	< .06	< .06	< .06	< .05
05-29	< .03	< .03	< .03	< .03	< .03	< .03
06-06	< .01	< .01	< .01	< .01	< .01	< .01
06-13	< .03	< .03	< .03	< .03	< .03	< .03
06-20	< .03	< .03	< .03	< .03	< .03	< .03
06-27	< .02	< .02	< .02	< .02	< .02	< .02
07-05	< .01	< .01	< .01	< .01	< .01	< .01
07-11	< .02	< .02	< .02	< .02	< .02	< .02
07-17	< .03	< .03	< .03	< .03	< .03	< .03
07-24	< .02	< .02	< .02	< .02	< .02	< .02
08-01	< .01	< .01	< .01	< .01	< .01	< .01
08-08	< .02	< .02	< .02	< .02	< .02	< .02
08-15	< .01	< .02	< .01	< .01	< .01	< .01
08-21	< .02	< .02	< .02	< .02	< .02	< .02
08-28	< .02	< .02	< .02	< .02	< .02	< .02

TABLE IV-A.2 (Cont'd)

FLORIDA POWER CORP. - CR3 - 2000

pCi/m³ IODINE - 131 IN AIR

COLLECTION DATE	C07	C18	C40	C41	C46	C47
09-05	<.03	<.03	<.03	<.03	<.03	<.03
09-11	<.02	<.02	<.02	<.02	<.02	<.02
09-18	<.03	<.02	<.05	<.02	<.02	<.02
09-25	--	<.03	<.05	<.03	<.03	<.03
10-03	<.03	<.02	<.02	<.02	<.02	<.02
10-09	<.02	<.02	<.02	<.02	<.02	<.02
10-16	<.02	<.02	<.02	<.02	<.02	<.02
10-23	<.02	<.02	<.02	<.02	<.02	<.02
10-30	<.02	<.02	<.02	<.02	<.02	<.02
11-07	<.02	<.02	<.02	<.02	<.02	<.02
11-14	<.02	<.02	<.02	<.02	<.02	<.02
11-20	<.02	<.02	<.02	<.02	<.02	<.02
11-28	<.02	<.02	<.02	<.02	<.02	<.02
12-04	<.03	<.03	<.03	<.03	<.03	<.03
12-11	<.03	<.03	<.03	<.03	<.03	<.03
12-21	<.01	<.01	<.01	<.01	<.01	<.01
12-27	<.02	<.02	<.02	<.02	<.02	<.02

TABLE IV-A.3

FLORIDA POWER CORP. - CR3 - 2000

pCi/1000m³ GROSS β IN AIR

COLLECTION DATE	C07	C18	C40	C41	C46	C47
01-03	17	30	22	21	18	28
01-10	12	20	15	19	17	13
01-18	19	18	22	21	25	17
01-24	16	19	16	20	16	19
02-01	14	14	15	15	20	19
02-07	25	34	38	34	33	38
02-14	25	35	35	36	42	31
02-21	12	18	15	14	19	10
02-28	12	7	10	8	18	13
03-07	16	20	22	17	15	19
03-13	11	17	17	21	17	19
03-20	17	11	14	13	14	16
03-28	15	9	14	14	10	16
04-03	18	13	20	18	19	23
04-10	17	11	13	8	14	14
04-17	7	14	15	12	15	9
04-24	14	19	10	14	16	15

TABLE IV-A.3 (Cont'd)

FLORIDA POWER CORP. - CR3 - 2000

pCi/1000m³ GROSS β IN AIR

COLLECTION DATE	C07	C18	C40	C41	C46	C47
05-02	18	19	16	16	19	18
05-08	12	15	10	17	13	15
05-15	13	16	14	8	12	17
05-22	11	20	14	21	20	16
05-29	12	19	15	18	19	17
06-06	8	10	<5	12	15	12
06-13	14	17	8	15	16	16
06-20	11	10	<5	10	9	10
06-27	8	12	<5	12	14	12
07-05	9	10	3	13	11	11
07-11	14	20	15	24	28	16
07-17	21	15	11	21	20	17
07-24	20	25	11	24	29	22
08-01	12	12	8	10	9	10
08-08	11	8	4	10	9	6
08-15	12	15	10	18	18	16
08-21	20	19	11	19	<6	19
08-28	13	13	4	15	16	15

TABLE IV-A.3 (Cont'd)
FLORIDA POWER CORP. - CR3 - 2000

pCi/1000m³ GROSS β IN AIR

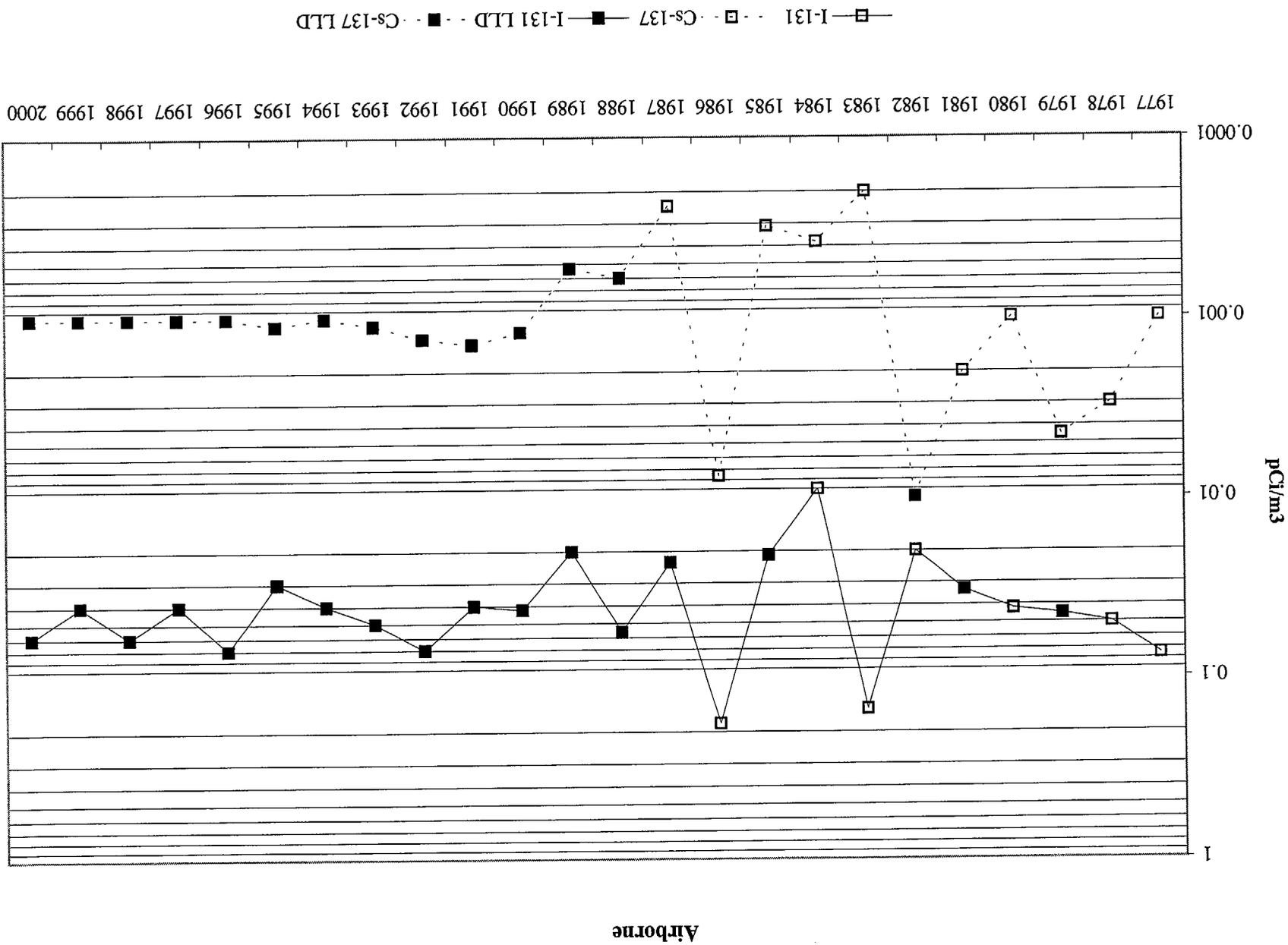
COLLECTION DATE	C07	C18	C40	C41	C46	C47
09-05	14	15	6	10	15	10
09-11	5	7	5	7	3	<6
09-18	11	13	8	11	5	12
09-25	--	10	9	10	7	12
10-03	15	9	9	9	10	10
10-09	8	9	5	11	9	9
10-16	28	26	24	24	32	30
10-23	30	35	34	30	33	36
10-30	25	24	17	23	21	22
11-07	36	37	18	34	32	27
11-14	19	17	15	19	11	19
11-20	16	22	15	19	25	20
11-28	17	22	8	24	15	21
12-04	19	27	12	25	36	32
12-11	17	19	10	20	24	21
12-21	12	22	16	19	18	18
12-27	22	21	5	23	22	31

TABLE IV-A.4

FLORIDA POWER CORP. - CR3 - 2000

pCi/1000m³ γ EMITTERS IN QUARTERLY COMPOSITES OF AIR PARTICULATES

STATION	NUCLIDE	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
C07	Be-7	113	114	107	133
	K-40	<16	<18	<22	<11
	Cs-134	<0.9	<0.8	<0.8	<0.6
	Cs-137	<0.8	<0.9	<0.7	<0.5
C18	Be-7	99	93	94	136
	K-40	<19	<16	<19	<17
	Cs-134	<1.0	<0.7	<0.7	<0.8
	Cs-137	<0.8	<0.8	<0.7	<0.7
C40	Be-7	113	79	69	90
	K-40	<20	<21	<23	<15
	Cs-134	<0.9	<0.9	<0.9	<0.9
	Cs-137	<0.7	<0.8	<0.6	<0.7
C41	Be-7	129	122	109	144
	K-40	<19	<17	<21	<15
	Cs-134	<1.0	<0.7	<1.0	<0.6
	CS-137	<0.6	<0.8	<0.7	<0.6
C46	Be-7	118	114	98	135
	K-40	<17	<19	<16	<14
	Cs-134	<0.9	<0.7	<1.0	<0.8
	Cs-137	<0.7	<0.8	<0.8	<0.8
C47	Be-7	128	123	94	175
	K-40	<15	<8	<16	<13
	Cs-134	<1.0	<0.4	<0.8	<0.7
	Cs-137	<1.0	<0.4	<0.6	<0.7



IV-B. DIRECT RADIATION

Direct radiation measurements (using TLDs) were taken at seventeen locations (stations C60 through C73 and station C27) within one mile of the plant, at fifteen locations ranging from 2.8 to 6.3 miles from the plant, and at one control location 78 miles from the site. One-hundred and thirty-one TLDS were collected during 2000; the third quarter TLD at station C64 was missing at the time of collection.

The highest on-site dose was 125 mrem/yr at station C71 (WNW at 3600 feet). Station C71 was relocated in 1992 due to construction of the helper cooling towers on the former site. The new location has a higher background radiation level due to being closer to the storage pond for Units 4 & 5 fly ash, which produces a higher external radiation component than normal levels of natural background. The second highest on-site dose was 77 mrem/yr at station C65 (ESE at 1740 feet).

The highest off-site dose was 62 mrem/yr at station C40 (east at 3.5 miles). The control station (C47) dose was 51 mrem/yr. The average for all stations was 58 mrem/yr for 2000 and 57 mrem/yr for 1999. Direct radiation results are similar to previous years and show no change of significance.

TABLE IV-B

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD)	<u>ALL INDICATOR LOCATIONS</u> MEAN RANGE	<u>LOCATION WITH HIGHEST MEAN</u> NAME DISTANCE & BEARING	MEAN RANGE	CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
DIRECT RADIATION (mrem/yr)	γ DOSE 131	15	58 (127/128) (40 - 131)	C71 0.5 @ 280°	125 (4/4) (117 - 128)	51 (4/4) (47 - 54)	0

TABLE IV-B.1

FLORIDA POWER CORP. - CR-3 - 2000

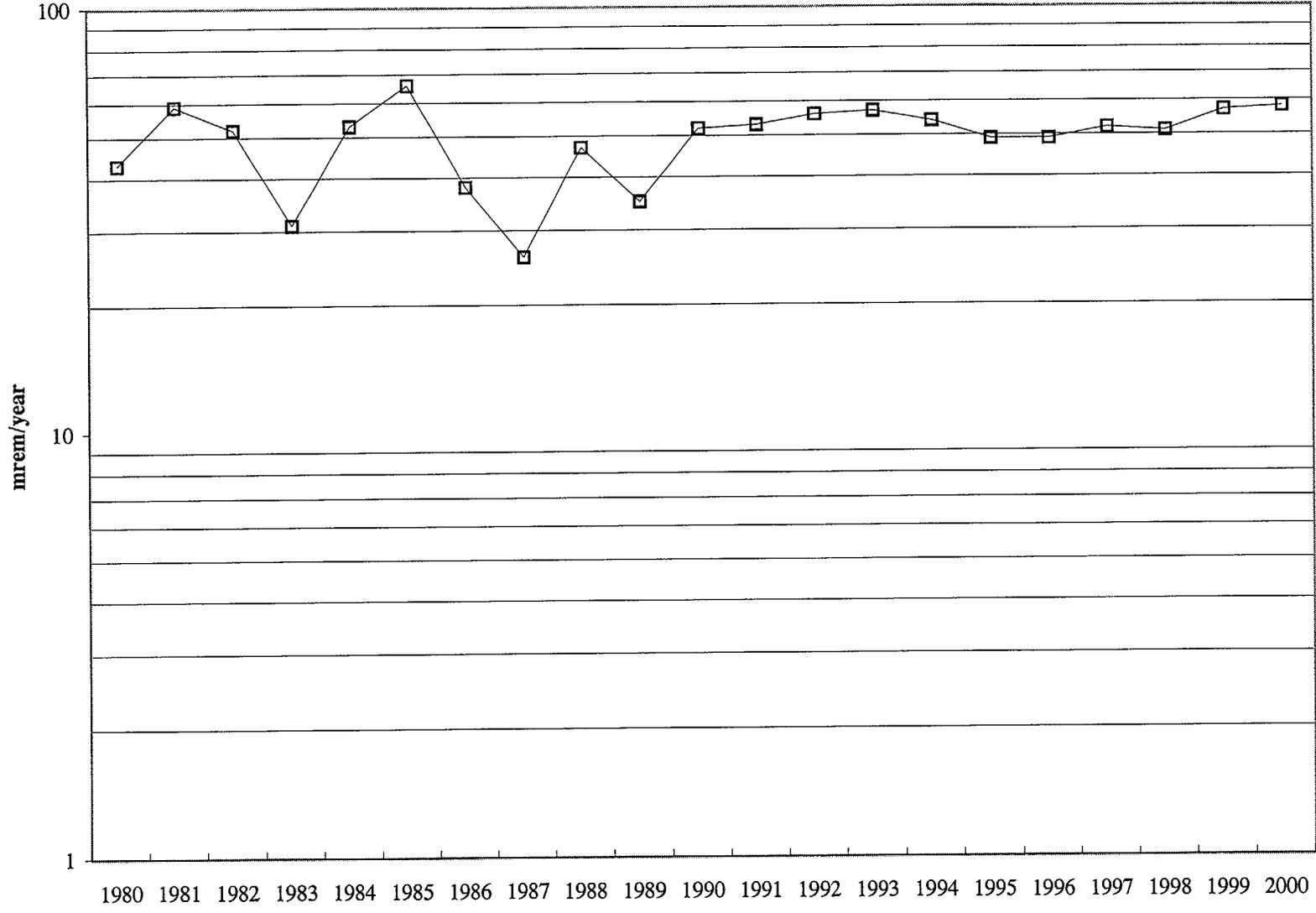
mrem/yr γ Dose

TLD STATION	Quarter	1	2	3	4
CO1		47	45	46	46
CO3		47	45	44	47
CO4		48	42	46	47
CO7*		49	43	44	43
CO8		47	41	42	43
C09		47	42	40	44
C14G		57	55	53	54
C18		53	53	48	50
C27		70	68	67	67
C40*		65	64	60	60
C41		60	60	57	59
C46*		60	60	55	56
C47 (CONTROL)		54	51	47	50
C60		58	57	54	57
C61		64	62	60	62
C62		70	68	67	67
C63		62	60	61	60
C64		61	60	--	57
C65		78	80	76	75
C66		64	63	61	63
C67		60	60	59	61
C68		62	60	61	62
C69		66	61	62	62
C70		71	64	65	67
C71		131	128	117	124
C72		67	67	64	64
C73		58	59	56	59
C74		46	46	45	45
C75		59	56	57	57
C76		53	51	50	52
C77		44	41	40	39
C78		48	47	44	46
C79		53	49	49	49

*TLDs not required by the ODCM.

Quarterly values are multiplied by 4 to obtain an equivalent yearly dose.

Direct Radiation



IV-C. WATERBORNE PATHWAY

To evaluate the waterborne pathway, samples are taken of seawater, ground water, drinking water, and shoreline sediment.

1. Monthly seawater grab samples are taken at two locations in the discharge canal (C14G and C14H) and at one control location (C13) near the mouth of the intake canal. Of twenty-four indicator samples, eight had measurable tritium at an average concentration of 880 pCi/L. The sample with the highest concentration of tritium, 2690 pCi/L, was obtained in July at station C14G near the end of the discharge canal. The seawater tritium activity is consistent with concentration of tritium in the liquid waste stream. One control station sample contained tritium at a concentration of 306 pCi/L.

Gamma spectral analysis was performed on thirty-six samples, none of which showed measurable amounts of the gamma emitters of interest.

2. Semiannual ground water samples are taken at one location, station C40. Gamma spectral and tritium analyses are performed on both samples. All results were less than the detection limits. Since plant startup, all results, except for the results of one 1985 tritium analysis, have been less than LLD. The required sensitivity for measuring tritium in ground water is 2000 pCi/L. Analysis of ground water in the vicinity of CR-3 is done at a sensitivity of approximately 160 pCi/L for tritium and 10 pCi/L for select gamma emitters.
3. Quarterly drinking water samples are drawn from three locations: the Crystal River City Hall (C07), the Days Inn Motel (C10), and the Yankeetown City Well (C18). All samples were collected and analyzed for gamma emitters and tritium. None of the samples yielded measurable activities of tritium or the required gamma emitters. The measurement sensitivity for drinking water samples are the same as those for ground water samples.
4. Semiannual shoreline sediment samples are taken at three indicator locations in the discharge canal (C14H, C14M, C14G) and one control location (C09) at Fort Island Gulf Beach. Of the six indicator samples, five had measurable amounts of cobalt-60 and three had measurable amounts of cesium-137. The average cobalt-60 concentration at the indicator locations was 98 pCi/L for 2000 as compared to 118 pCi/L for 1999 and 389 pCi/L for 1998. The average cesium-137 concentration at the indicator locations was 49 pCi/L for 2000 as compared to 65 pCi/L for 1999 and 50 pCi/L for 1998. None of the samples taken at Fort Island Gulf Beach indicated measurable amounts of cobalt or cesium. These results are similar to previous years' results, although the amount of cobalt-60 is somewhat less. The decline in cobalt-60 is likely due to improved liquid radwaste processing methods which were implemented in September 1999, prior to refueling outage 11.

TABLE IV-C.1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS	LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE	NAME	MEAN RANGE		
SEAWATER (pCi/L)	Tritium 36	155	880 (8/24) (128-2690)	C14G 2.8 @ 270°	1164 (4/12) (128-2690)	306 (1/12)	0
	γ Spec 36						
	Mn-54	3	<LLD	-	-	<LLD	0
	Fe-59	6	<LLD	-	-	<LLD	0
	Co-58	3	<LLD	-	-	<LLD	0
	Co-60	4	<LLD	-	-	<LLD	0
	Zn-65	7	<LLD	-	-	<LLD	0
	Zr-Nb-95	6	<LLD	-	-	<LLD	0
	I-131	4	<LLD	-	-	<LLD	0
	Cs-134	4	<LLD	-	-	<LLD	0
	Cs-137	4	<LLD	-	-	<LLD	0
	Ba-La-140	9	<LLD	-	-	<LLD	0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-C.1.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/L γ EMITTERS AND TRITIUM IN SEAWATER

STATION	MONTH	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-Nb-95	I-131	Cs-134	Cs-137	Ba-La-140
C13	JAN	<123	326 \pm 32	<4	<4	<9	<4	<8	<8	<6	<4	<4	<4
	FEB	<119	329 \pm 30	<4	<4	<6	<4	<10	<6	<6	<4	<4	<5
	MAR	<129	275 \pm 30	<2	<4	<7	<4	<8	<6	<4	<3	<4	<8
	APR	<135	267 \pm 32	<4	<3	<5	<3	<7	<5	<5	<4	<4	<6
	MAY	<124	354 \pm 35	<3	<3	<8	<3	<8	<7	<7	<4	<4	<6
	JUN	<123	293 \pm 32	<3	<3	<7	<4	<7	<5	<5	<4	<3	<6
	JUL	<122	301 \pm 30	<4	<3	<8	<4	<7	<6	<6	<5	<4	<5
	AUG	<120	221 \pm 31	<4	<4	<9	<4	<9	<7	<7	<4	<4	<5
	SEP	<121	229 \pm 30	<4	<3	<7	<4	<8	<7	<6	<4	<4	<5
	OCT	<120	293 \pm 36	<4	<4	<9	<5	<8	<7	<4	<4	<4	<5
	NOV	<119	292 \pm 15	<2	<2	<3	<2	<4	<3	<3	<2	<2	<3
	DEC	306 \pm 20	315 \pm 30	<4	<3	<7	<4	<7	<7	<7	<5	<4	<4
C14G	JAN	<123	265 \pm 30	<3	<4	<8	<5	<9	<7	<6	<4	<4	<7
	FEB	128 \pm 39	278 \pm 33	<4	<5	<7	<5	<7	<5	<8	<4	<4	<5
	MAR	<129	330 \pm 33	<4	<4	<7	<4	<8	<6	<7	<5	<5	<4
	APR	<135	241 \pm 31	<4	<4	<7	<5	<8	<6	<5	<4	<4	<6
	MAY	1537 \pm 38	310 \pm 15	<2	<2	<3	<2	<4	<3	<3	<2	<2	<2
	JUN	<123	247 \pm 31	<4	<4	<9	<5	<7	<7	<7	<4	<4	<4
	JUL	2690 \pm 46	353 \pm 32	<4	<4	<7	<4	<7	<7	<6	<4	<4	<5
	AUG	<120	255 \pm 32	<3	<4	<8	<4	<8	<8	<12	<5	<4	<5
	SEP	<121	291 \pm 16	<2	<2	<3	<2	<4	<3	<3	<2	<2	<2
	OCT	<120	279 \pm 33	<3	<3	<6	<4	<7	<5	<4	<4	<4	<6
	NOV	<119	287 \pm 29	<4	<3	<8	<4	<6	<7	<7	<4	<5	<5
	DEC	302 \pm 43	337 \pm 33	<4	<4	<8	<4	<9	<7	<7	<5	<4	<4

TABLE IV-C.1a (CONT'D)

FLORIDA POWER CORP. - CR3 - 2000

pCi/L γ EMITTERS AND TRITIUM IN SEAWATER

STATION	MONTH	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zr-Nb-95	I-131	Cs-134	Cs-137	Ba-La-140
C14H	JAN	<123	283 \pm 34	<3	<3	<6	<5	<8	<7	<7	<4	<4	<6
	FEB	<119	317 \pm 33	<4	<4	<8	<4	<10	<7	<8	<4	<4	<6
	MAR	<129	290 \pm 32	<3	<4	<8	<3	<8	<6	<5	<4	<4	<4
	APR	<135	287 \pm 30	<4	<3	<7	<5	<7	<7	<5	<4	<4	<6
	MAY	221 \pm 25	277 \pm 33	<3	<3	<6	<4	<7	<6	<6	<3	<4	<5
	JUN	<123	215 \pm 30	<3	<3	<7	<3	<6	<7	<6	<4	<4	<5
	JUL	<122	297 \pm 31	<4	<3	<7	<4	<9	<6	<6	<4	<4	<4
	AUG	<120	176 \pm 31	<3	<5	<9	<4	<9	<8	<12	<4	<4	<5
	SEP	318 \pm 26	321 \pm 29	<3	<3	<6	<4	<8	<6	<7	<4	<4	<5
	OCT	<120	296 \pm 30	<3	<4	<7	<5	<6	<7	<6	<4	<4	<3
	NOV	132 \pm 22	347 \pm 32	<3	<3	<8	<4	<9	<6	<6	<3	<3	<5
	DEC	1710 \pm 67	299 \pm 30	<3	<3	<7	<4	<7	<8	<4	<4	<4	<7

Seawater

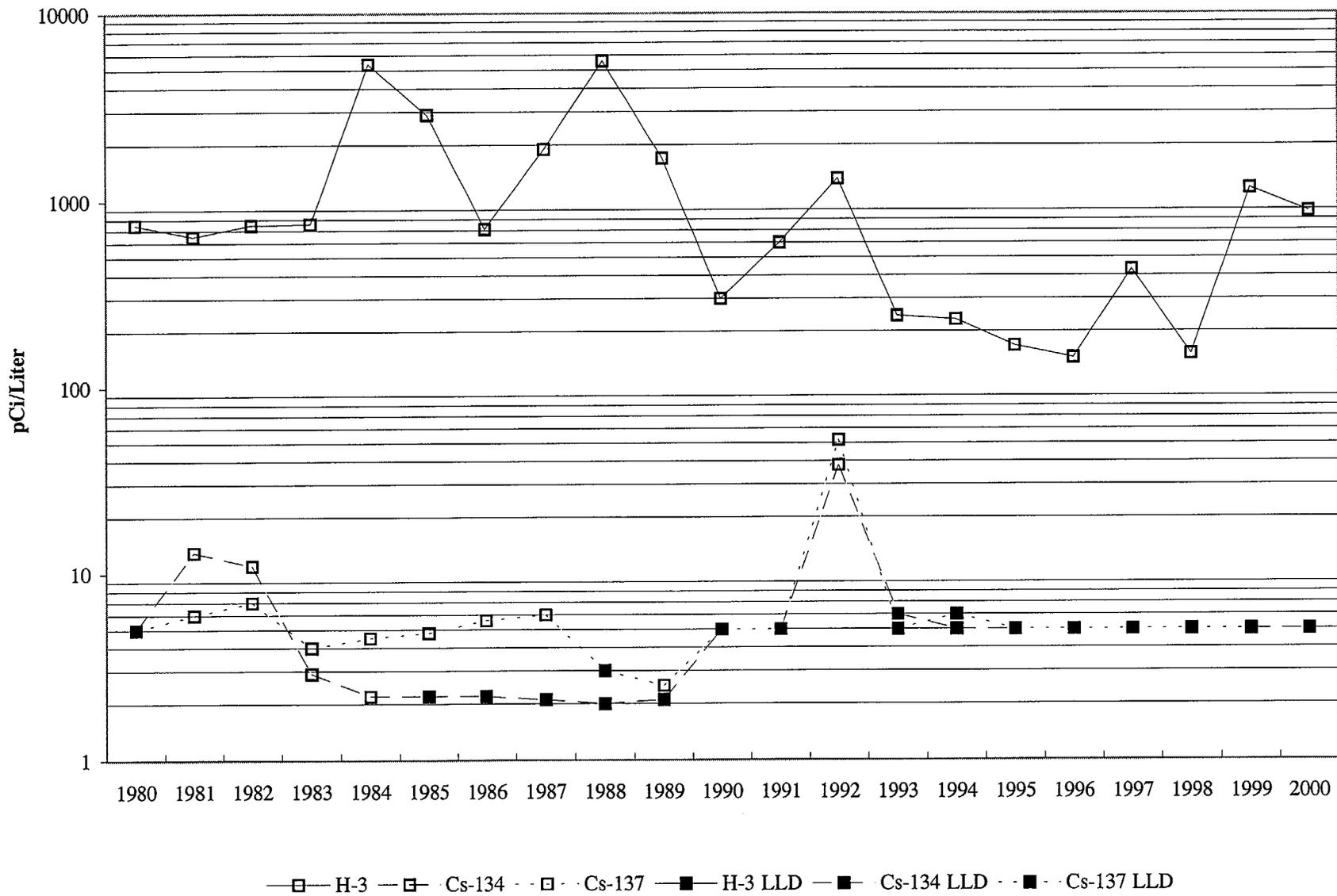


TABLE IV-C.2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS	LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE	NAME DISTANCE & BEARING	MEAN RANGE		
GROUND	Tritium 2	155	None	-	-	<LLD	0
WATER (pCi/L)	γ Spec 2						
	Mn-54	3	None	-	-	<LLD	0
	Fe-59	6	None	-	-	<LLD	0
	Co-58	3	None	-	-	<LLD	0
	Co-60	4	None	-	-	<LLD	0
	Zn-65	7	None	-	-	<LLD	0
	Zr-Nb-95	6	None	-	-	<LLD	0
	I-131	4	None	-	-	<LLD	0
	Cs-134	4	None	-	-	<LLD	0
	Cs-137	4	None	-	-	<LLD	0
	Ba-La-140	9	None	-	-	<LLD	0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-C.2.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/L γ EMITTERS AND TRITIUM IN GROUND WATER

STATION	NUCLIDE	FIRST HALF	SECOND HALF
C40	H-3	<118	<120
	Mn-54	<4	<4
	Fe-59	<8	<8
	Co-58	<4	<3
	Co-60	<4	<3
	Zn-65	<9	<7
	Zr-Nb-95	<7	<7
	I-131	<5	<8
	Cs-134	<4	<4
	Cs-137	<4	<4
	Ba-La-140	<10	<6
	K-40	<68	<49

Ground Water

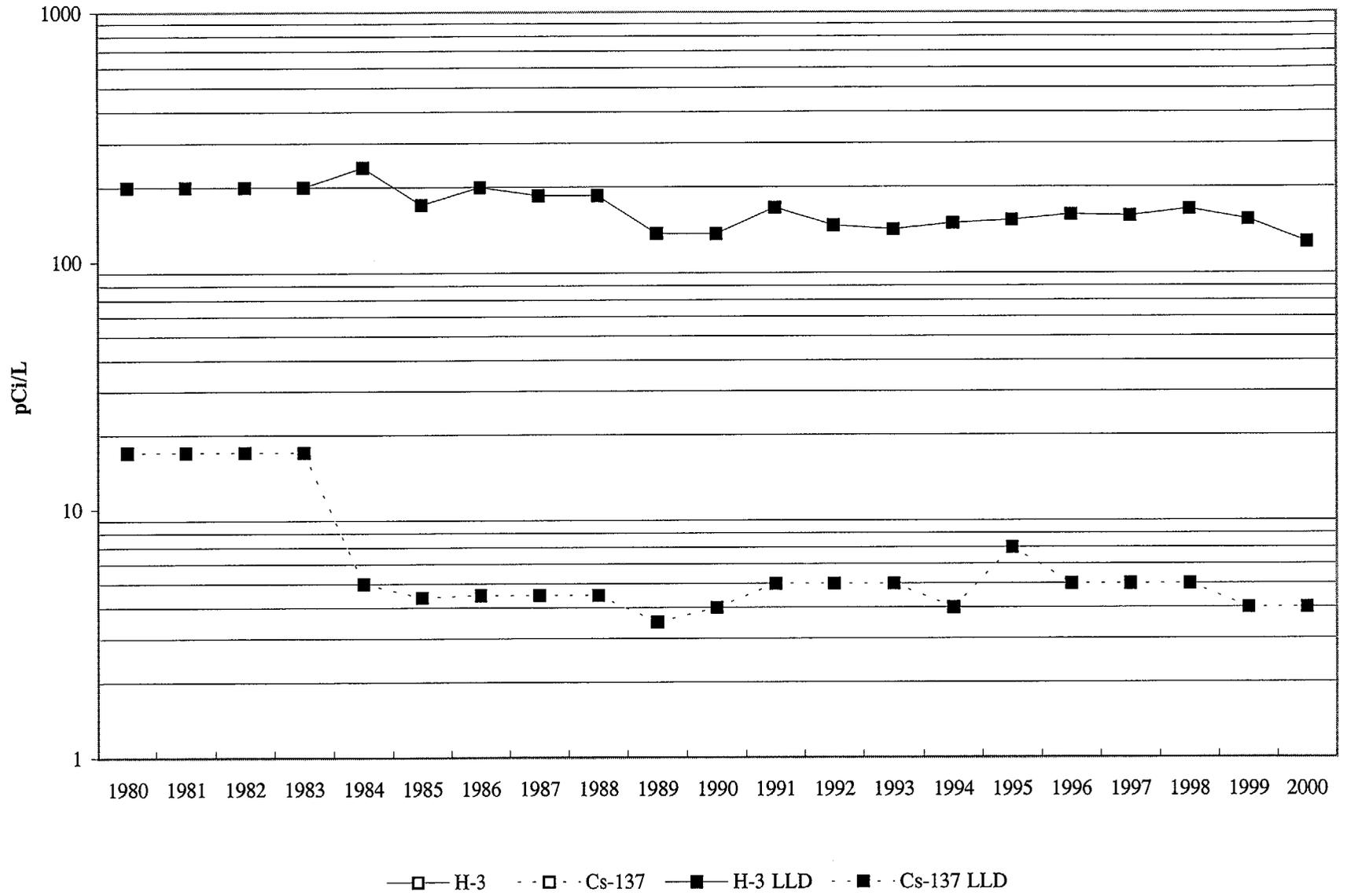


TABLE IV-C.3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS	LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE	NAME DISTANCE & BEARING	MEAN RANGE		
DRINKING WATER (pCi/L)	Tritium 12	155	None	-	-	<LLD	0
	γ Spec 12						
	Mn-54	3	None	-	-	<LLD	0
	Fe-59	6	None	-	-	<LLD	0
	Co-58	3	None	-	-	<LLD	0
	Co-60	4	None	-	-	<LLD	0
	Zn-65	7	None	-	-	<LLD	0
	Zr-Nb-95	6	None	-	-	<LLD	0
	I-131	4	None	-	-	<LLD	0
	Cs-134	4	None	-	-	<LLD	0
	Cs-137	4	None	-	-	<LLD	0
Ba-La-140	9	None	-	-	<LLD	0	

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-C.3.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/L γ EMITTERS AND TRITIUM IN DRINKING WATER

STATION	DATE	H-3	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Zn-Nb-95	I-131	Cs-134	Cs-137	Ba-La-140
C07	01-04	<123	<54	<3	<4	<6	<4	<8	<7	<6	<3	<4	<6
	04-17	<134	<53	<4	<3	<7	<4	<9	<6	<5	<4	<4	<6
	07-05	<122	<53	<4	<3	<7	<3	<6	<7	<6	<4	<4	<4
	10-03	<120	<60	<3	<4	<7	<4	<6	<6	<7	<4	<4	<6
C10	01-04	<123	<71	<4	<4	<8	<4	<8	<7	<6	<4	<4	<6
	04-17	<134	<54	<4	<3	<6	<4	<8	<7	<5	<4	<4	<7
	07-05	<122	<59	<3	<3	<6	<3	<7	<7	<6	<4	<5	<5
	10-03	<120	<58	<4	<4	<5	<4	<7	<8	<7	<4	<3	<6
C18	01-04	<123	<63	<3	<3	<5	<4	<6	<7	<7	<4	<4	<6
	04-17	<134	<25	<2	<2	<3	<2	<3	<2	<2	<2	<2	<3
	07-05	<122	<25	<2	<1	<3	<1	<3	<3	<3	<2	<2	<2
	10-03	<120	<58	<3	<3	<6	<3	<8	<6	<6	<3	<4	<5

Drinking Water

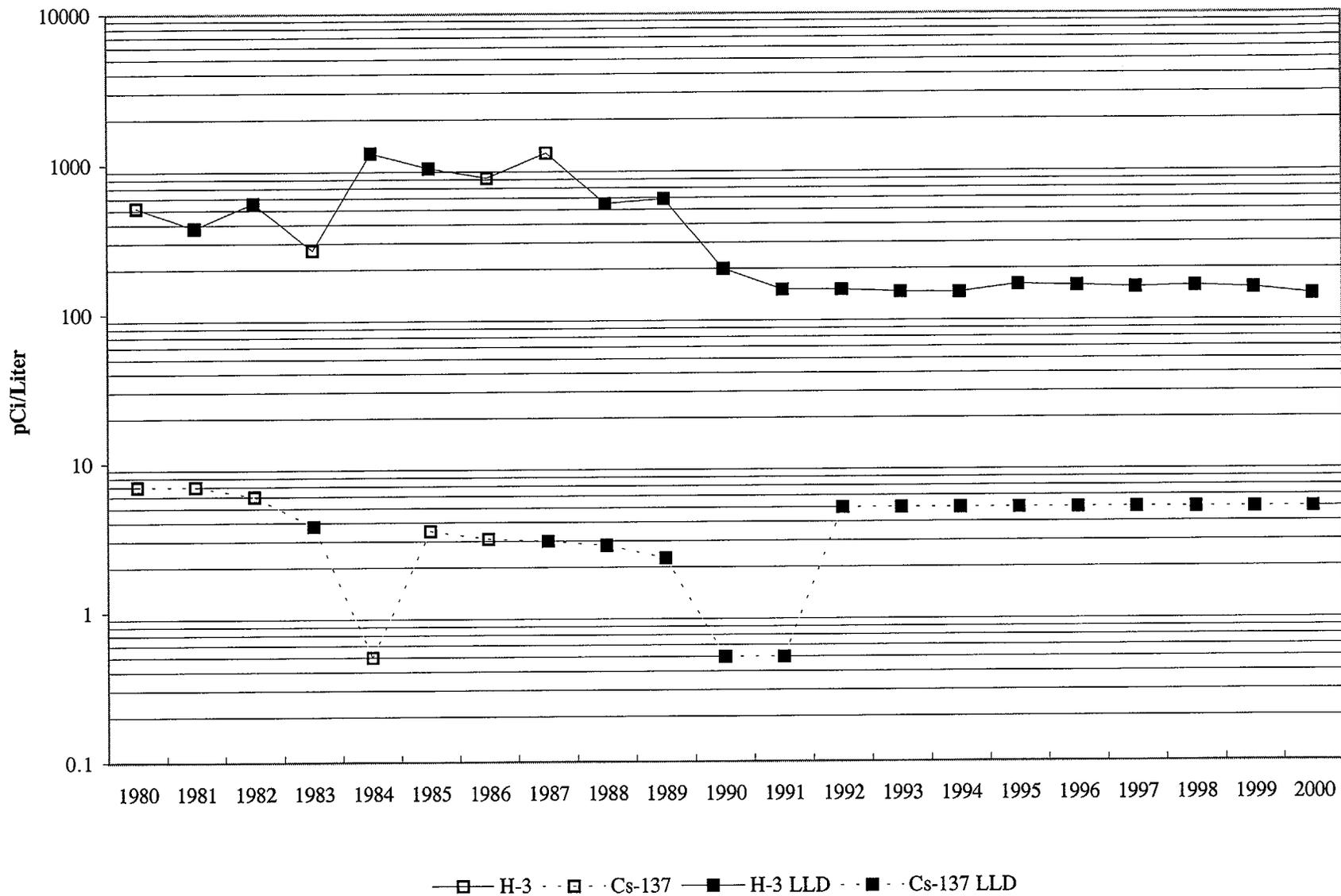


TABLE IV-C.4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE	NAME DISTANCE & BEARING	MEAN RANGE			
SHORELINE SEDIMENT (pCi/kg)	γ Spec 8							
	Cs-134	7	<LLD	—	—	<LLD	0	
	Cs-137	7	49 (3/6) (29 - 67)	C14H 0.1 @ 315°	60 (2/2) (52 - 67)	<LLD	0	

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-C.4.a

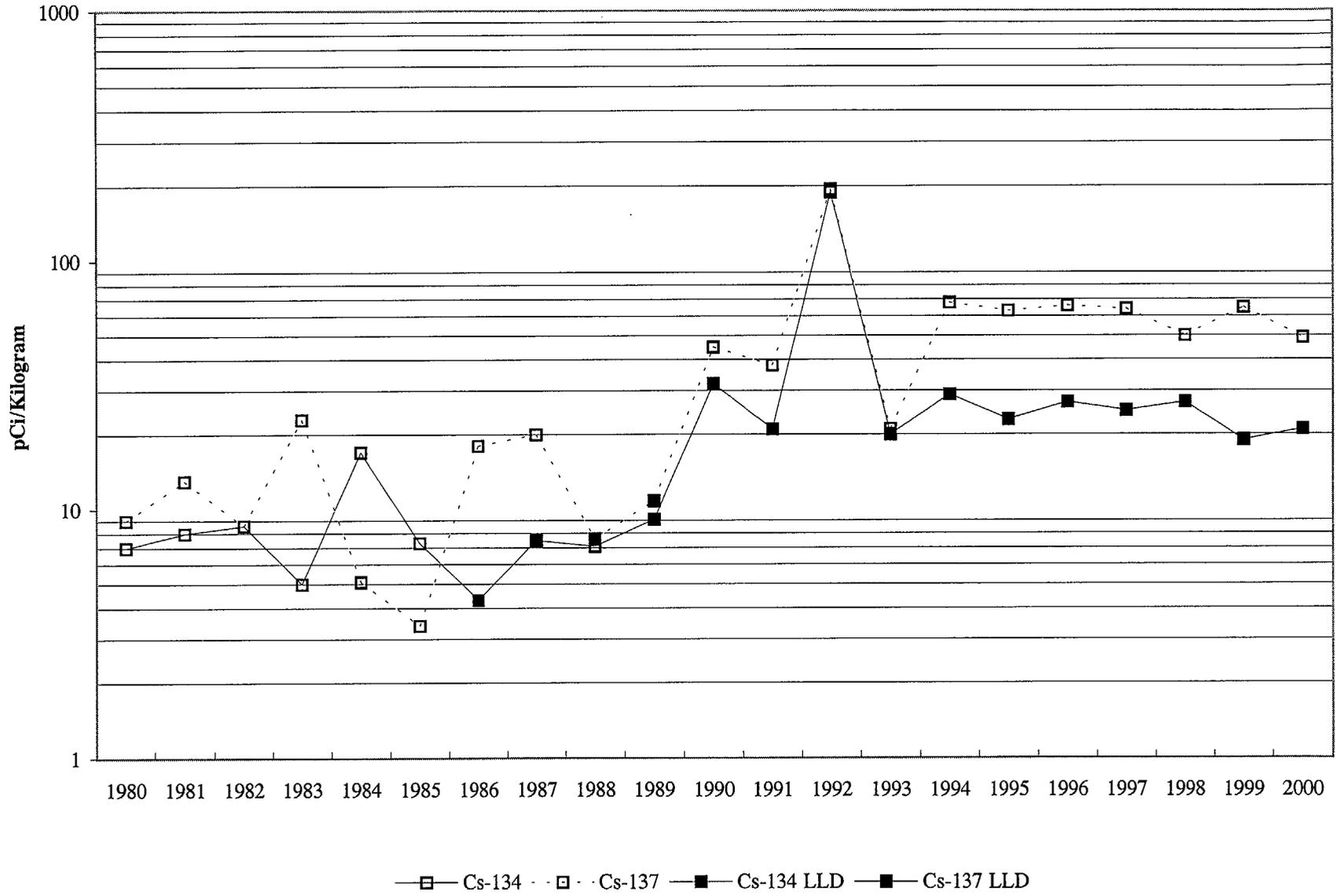
FLORIDA POWER CORP. - CR3 - 2000

pCi/kg γ EMITTERS IN SHORELINE SEDIMENT

STATION	PERIOD	Cs-134	Cs-137	Co-58	Co-60	K-40	Ra-226
C09	First Half	<13	<10	<9	<10	596 \pm 59	658 \pm 15
	Second Half	<9	<8	<8	<6	394 \pm 52	326 \pm 21
C14H	First Half	<21	52 \pm 9	125 \pm 9	132 \pm 9	1409 \pm 117	<38
	Second Half	<18	67 \pm 8	<15	128 \pm 8	1883 \pm 114	1193 \pm 48
C14M	First Half	<15	<17	<16	111 \pm 6	712 \pm 72	1079 \pm 21
	Second Half	<11	<11	<9	<16	279 \pm 42	496 \pm 28
C14G	First Half	<13	<14	<12	37 \pm 4	387 \pm 54	1033 \pm 19
	Second Half	<7	29 \pm 3	<6	84 \pm 3	780 \pm 39	1337 \pm 27

C09 is the control station at Ft. Island Beach. C14H, C14M, & C14G are discharge canal stations.

Shoreline Sediment



IV-D. INGESTION PATHWAY

To evaluate the ingestion pathway, samples are taken of fish, oysters, broad leaf vegetation, citrus, and watermelon.

1. Quarterly carnivorous fish samples were taken at two locations: C29 at the end of the discharge canal, and C30, the control location near the mouth of the intake canal. None of the required radionuclides were found in measurable quantities. The highest cesium-137 LLD for station C29 was 29 pCi/kg. Naturally occurring potassium-40 was quantified in all eight samples at concentrations approaching 3000 pCi/kg.
2. Quarterly oyster samples were taken at the same locations as fish samples, C29 and C30. Of the isotopes required to be evaluated, none indicated measurable amounts of radioactivity. However, silver-110m was quantified in three of the four indicator samples, with activity ranging from 193 pCi/kg to 254 pCi/kg, and in one control station sample at a concentration of 205 pCi/kg.
3. Monthly broad leaf vegetation samples were taken at two indicator locations, C48a and C48b, and one control location, C47. Seven of twenty-four indicator samples had measurable amounts of cesium-137 with an average concentration of 66 pCi/kg and a range of 18 to 180 pCi/kg. Four of the twelve control station samples had measurable amounts of cesium-137 with an average of 40 pCi/kg and a range of 22 to 60 pCi/kg.
4. Citrus samples are taken at station C19 and watermelon samples were obtained at station C04. Cesium-137 was quantified at 8 pCi/kg in watermelon, which is similar to previous years results.

TABLE IV-D.1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS	LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE	NAME DISTANCE & BEARING	MEAN RANGE		
CARNIVOROUS FISH (pCi/kg)	γ Spec 8						
	Mn-54	16	<LLD	-	-	<LLD	0
	Fe-59	28	<LLD	-	-	<LLD	0
	Co-58	15	<LLD	-	-	<LLD	0
	Co-60	16	<LLD	-	-	<LLD	0
	Zn-65	32	<LLD	-	-	<LLD	0
	Cs-134	16	<LLD	-	-	<LLD	0
	Cs-137	18	<LLD	-	-	<LLD	0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-D.1.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/kg γ EMITTERS IN CARNIVOROUS FISH

STATION	QUARTER	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	K-40
C29	1	<19	<19	<45	<26	<43	<20	<20	2506 \pm 216
	2	<17	<16	<37	<25	<33	<17	<19	2793 \pm 211
	3	<18	<21	<41	<25	<47	<20	<23	2723 \pm 202
	4	<19	<21	<29	<23	<33	<19	<18	2877 \pm 208
C30	1	<17	<19	<36	<23	<41	<22	<21	2778 \pm 207
	2	<20	<18	<45	<19	<44	<18	<18	2493 \pm 202
	3	<22	<21	<41	<23	<43	<21	<16	2081 \pm 193
	4	<18	<19	<33	<24	<44	<20	<22	2703 \pm 215

Carnivorous Fish

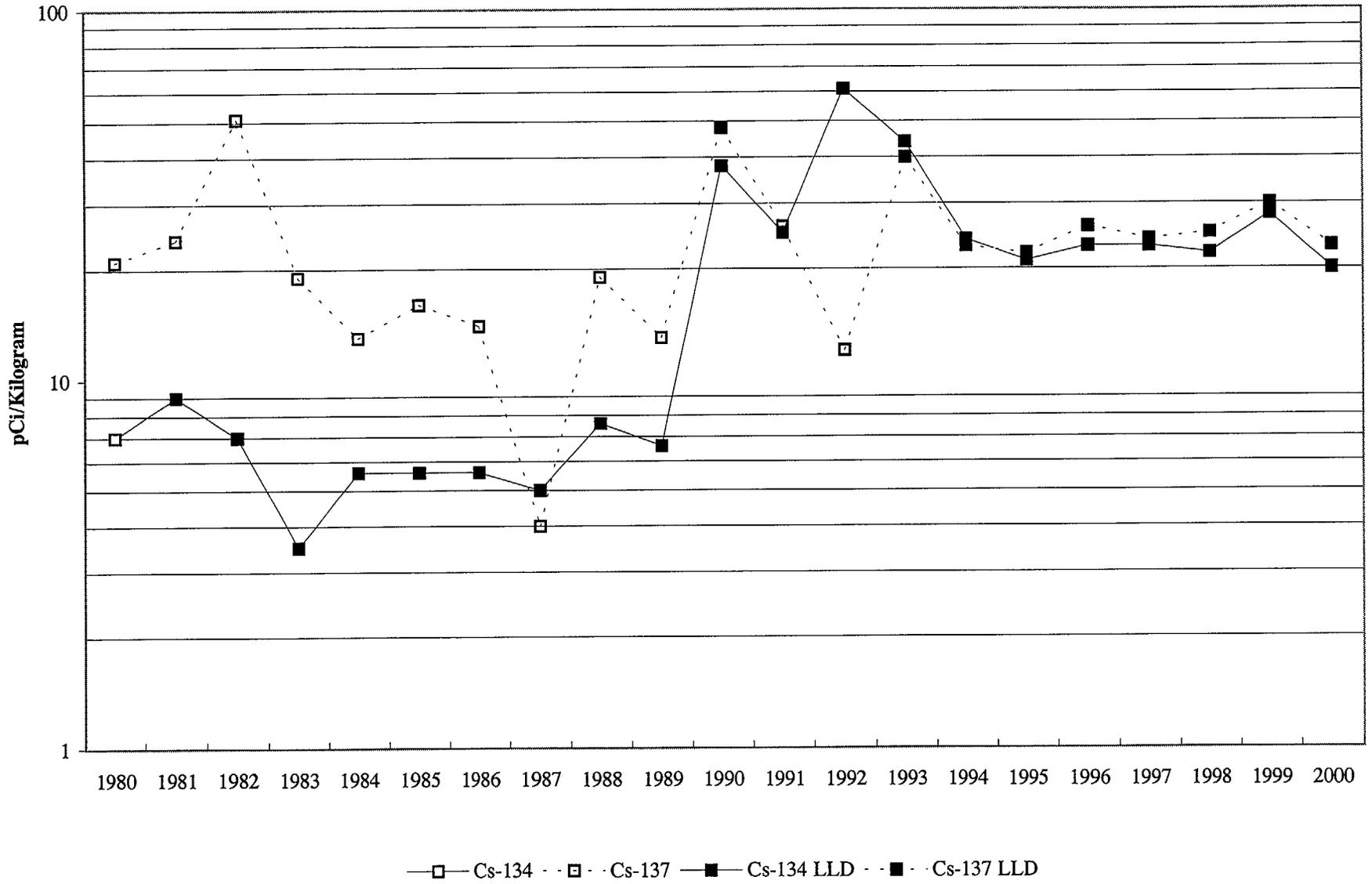


TABLE IV-D.2

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS MEAN RANGE	LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
				NAME DISTANCE & BEARING	MEAN RANGE		
OYSTERS (pCi/kg)	γ Spec 8						
	Mn-54	16	<LLD	-	-	<LLD	0
	Fe-59	28	<LLD	-	-	<LLD	0
	Co-58	15	<LLD	-	-	<LLD	0
	Co-60	16	<LLD	-	-	<LLD	0
	Zn-65	32	<LLD	-	-	<LLD	0
	Cs-134	16	<LLD	-	-	<LLD	0
	Cs-137	18	<LLD	-	-	<LLD	0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-D.2.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/kg γ EMITTERS IN OYSTERS

STATION	QUARTER	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	K-40
C29	1	<18	<18	<30	<20	<40	<20	<19	1089 \pm 133
	2	<12	<12	<26	<17	<31	<15	<15	1169 \pm 102
	3	<10	<10	<19	<12	<21	<11	<10	1097 \pm 96
	4	<32	<30	<66	<44	<88	<39	<44	1171 \pm 243
C30	1	<17	<18	<37	<23	<45	<20	<19	1397 \pm 158
	2	<9	<9	<17	<10	<18	<11	<10	1170 \pm 92
	3	<19	<24	<43	<26	<45	<27	<22	880 \pm 163
	4	<16	<19	<33	<20	<35	<21	<19	1338 \pm 146

Ag-110m was quantified in three samples taken at station C29. The concentrations were 254 pCi/kg, 211 pCi/kg, and 193 pCi/kg, for the first, second, and fourth quarters respectively.

Ag-110m was quantified in one sample taken at station C30 at a concentration of 205 pCi/kg.

Oysters

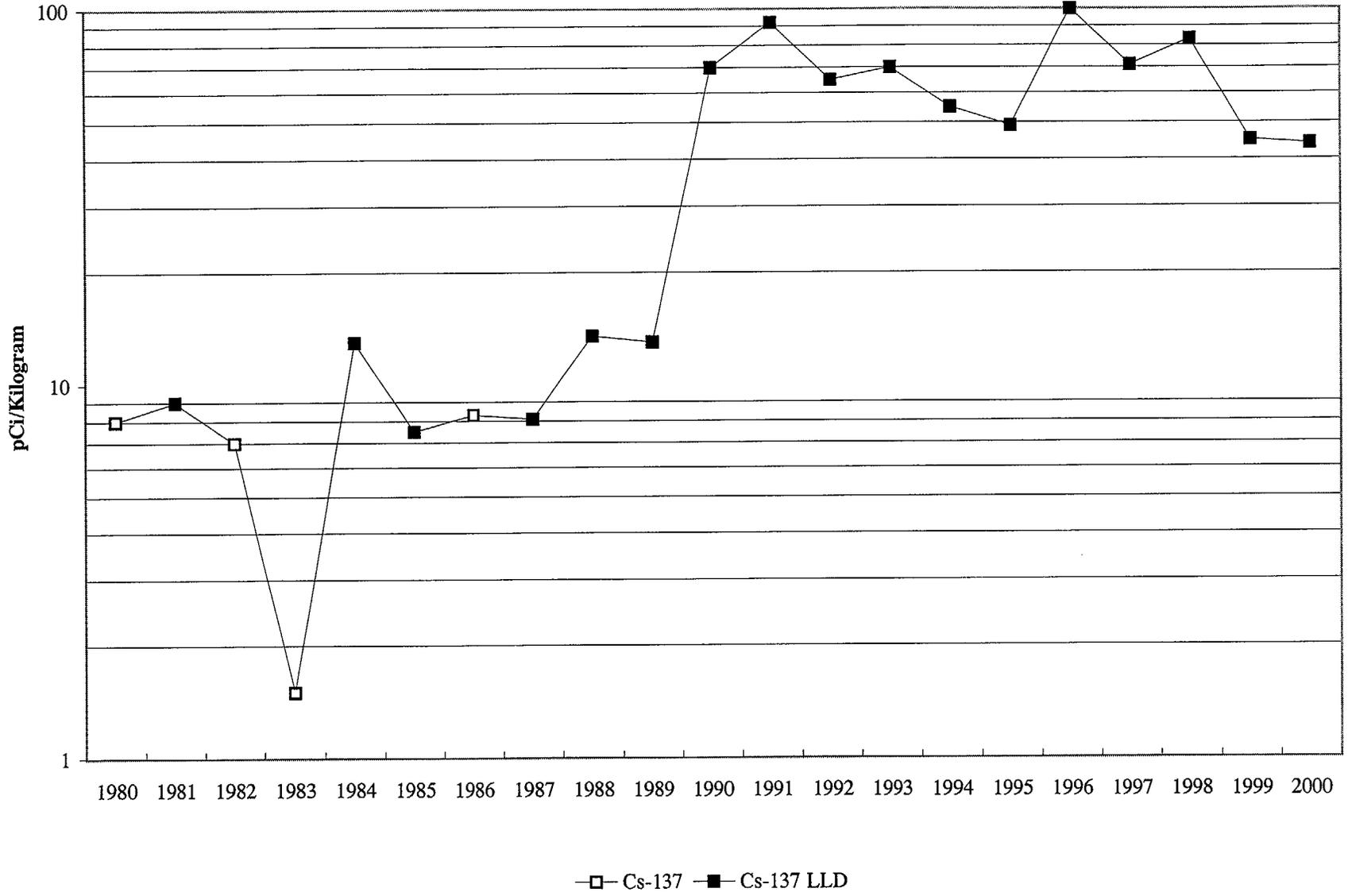


TABLE IV-D.3

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS		LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE		NAME DISTANCE & BEARING	MEAN RANGE		
BROAD LEAF VEGETATION (pCi/kg)	γ Spec 36							
	I-131	8	<LLD		-	-	<LLD	0
	Cs-134	8	<LLD		-	-	<LLD	0
	Cs-137	8	66 (7/24) (18-180)		C48A 0.8 @ 30°	74 (6/12) (27-180)	40 (4/12) (22 - 60)	0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-D.3.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/kg OF γ EMITTERS IN BROAD LEAF VEGETATION

STATION	MONTH	I-131	Cs-134	Cs-137	K-40
C47	JAN	<17	<10	22 ± 5	4863 ± 167
	FEB	<24	<15	<13	5067 ± 188
	MAR	<13	<11	<15	3020 ± 140
	APR	<23	<14	<14	5855 ± 193
	MAY	<12	<14	38 ± 5	4194 ± 168
	JUN	<15	<10	<11	3454 ± 133
	JUL	<41	<18	<20	4226 ± 198
	AUG	<22	<13	<12	4959 ± 165
	SEP	<21	<11	40 ± 6	4129 ± 148
	OCT	<18	<11	<12	4821 ± 164
	NOV	<16	<10	<12	3403 ± 138
	DEC	<22	<14	60 ± 9	3522 ± 159
C48A	JAN	<8	<4	<5	935 ± 42
	FEB	<29	<18	78 ± 9	2632 ± 150
	MAR	<14	<11	27 ± 5	2651 ± 139
	APR	<17	<10	<14	4044 ± 152
	MAY	<16	<11	<13	3416 ± 158
	JUN	<20	<13	47 ± 9	4631 ± 172
	JUL	<26	<12	<11	4351 ± 147
	AUG	<21	<10	180 ± 9	2386 ± 115
	SEP	<31	<15	<12	3724 ± 169
	OCT	<16	<11	58 ± 7	3237 ± 151
	NOV	<11	<10	<14	1935 ± 120
	DEC	<27	<14	53 ± 7	2603 ± 142

TABLE IV-D.3.a (CONT'D)

FLORIDA POWER CORP. - CR3 - 2000

pCi/kg OF γ EMITTERS IN BROAD LEAF VEGETATION

STATION	MONTH	I-131	Cs-134	Cs-137	K-40
C48B	JAN	<27	<15	<16	5355 \pm 200
	FEB	<31	<21	<22	6422 \pm 258
	MAR	<18	<14	<10	7297 \pm 202
	APR	<24	<14	<15	8110 \pm 232
	MAY	<5	<5	18 \pm 3	5820 \pm 75
	JUN	<7	<5	<5	3238 \pm 67
	JUL	<32	<14	<13	6469 \pm 197
	AUG	<10	<6	<6	6590 \pm 92
	SEP	<23	<13	<12	4385 \pm 160
	OCT	<8	<6	<6	3498 \pm 68
	NOV	<15	<13	<11	3240 \pm 138
	DEC	<11	<5	<6	3327 \pm 68

Broad Leaf Vegetation

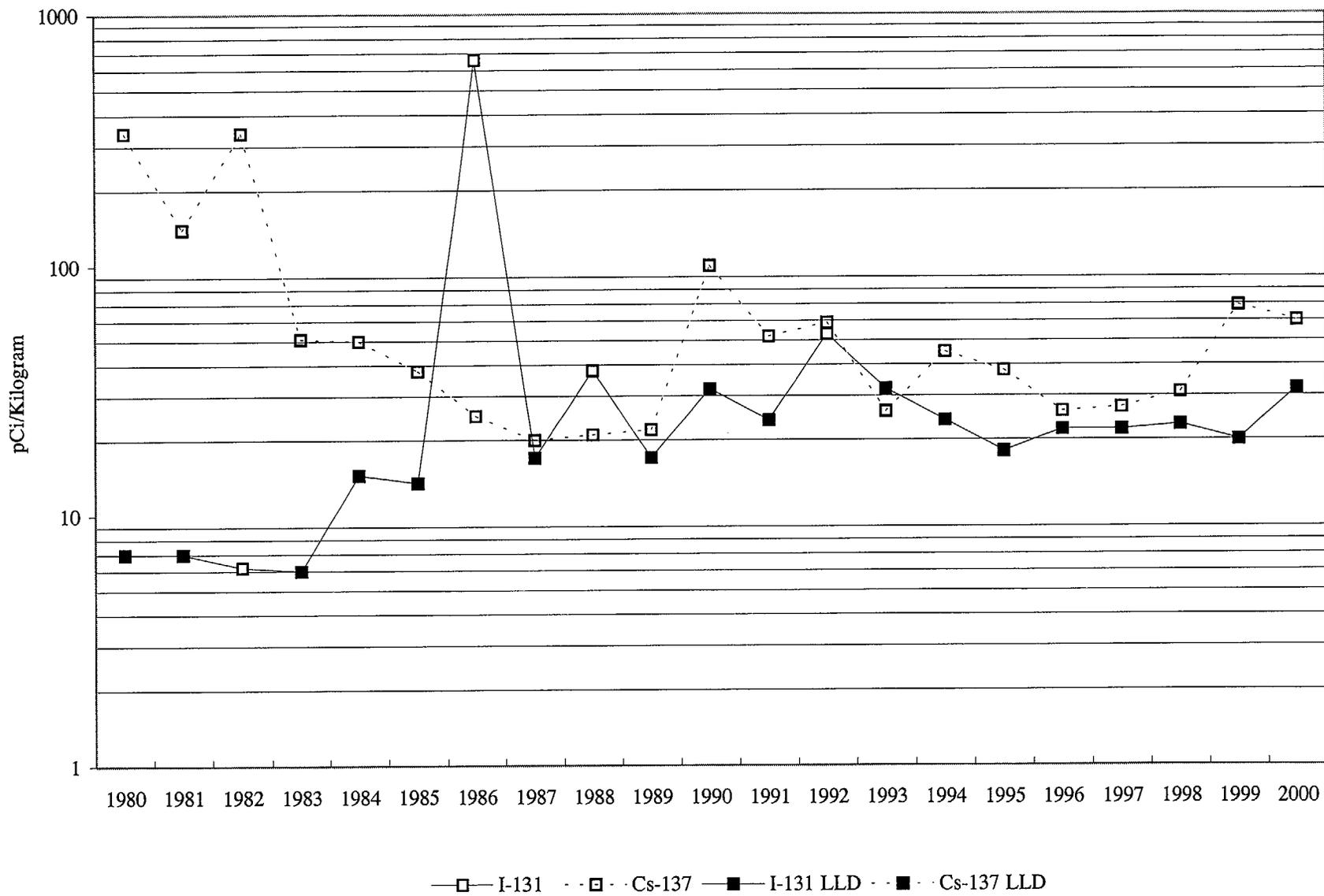


TABLE IV-D.4

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

CRYSTAL RIVER UNIT 3

DOCKET NO. 50-302

CITRUS COUNTY, FLORIDA

JANUARY 1 TO DECEMBER 31, 2000

MEDIUM OR PATHWAY SAMPLED (UNITS)	ANALYSIS AND TOTAL NUMBER OF ANALYSES PERFORMED	LOWER LIMIT OF DETECTION (LLD) ¹	ALL INDICATOR LOCATIONS	LOCATION WITH HIGHEST MEAN		CONTROL LOCATION MEAN RANGE	NUMBER OF NONROUTINE REPORTED MEASUREMENTS
			MEAN RANGE	NAME DISTANCE & BEARING	MEAN RANGE		
WATERMELON (pCi/kg)	γ Spec 1						
	I-131	8	<LLD	-	-	None	0
	Cs-134	8	<LLD	-	-	None	0
	Cs-137	8	8(1/1)	-	-	None	0
CITRUS (pCi/kg)	γ Spec 1						
	I-131	8	<LLD	-	-	None	0
	Cs-134	8	<LLD	-	-	None	0
	Cs-137	8	<LLD	-	-	None	0

¹The "a priori" LLD which meets or exceeds the requirements of Table 2-9 of the CR-3 ODCM.

TABLE IV-D.4.a

FLORIDA POWER CORP. - CR3 - 2000

pCi/kg OF γ EMITTERS IN WATERMELON AND CITRUS

STATION	MONTH	I-131	Cs-134	Cs-137	K-40
C04 - Watermelon	June	<6	<5	8 \pm 2	1431 \pm 62
C19 - Citrus	January	<8	<4	<6	2180 \pm 65