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L-2011-160
10 CFR 50.36b

U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555-00001

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
2010 Annual Radiological
Environmental Operating Report

Enclosed is the 2010 Annual Radiological Environmental Operating Report for Turkey Point Units 3 and 4, as required by Technical Specification 6.9.1.3.

Should there be any questions or comments regarding this information, please contact Robert J. Tomonto at (305) 246-7327.

Sincerely,

Michael Kiley
Vice President
Turkey Point Nuclear Plant

SM
Enclosure

cc: Regional Administrator, Region II, USNRC
Senior Resident Inspector, USNRC, Turkey Point Plant

IE25
NRR

2010

ANNUAL

RADIOLOGICAL ENVIRONMENTAL

OPERATING REPORT

TURKEY POINT PLANT

UNITS 3 & 4

LICENSE NOS. DPR-31, DPR-41

DOCKET NOS. 50-250, 50-251

Data Submitted by: Florida DOH

Prepared by: JKOnes for Pete Bailey

Reviewed by: JKOnes 4/25/11

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

TABLE OF CONTENTS

DESCRIPTION	PAGE
Introduction	1
Radiological Environmental Monitoring Program	1
Discussion and Interpretation of Results	4
Environmental Radiological Monitoring Program Annual Summary	TABLE 1
Deviations / Missing Data	TABLE 1A
Analyses with LLDs Above Required Detection Capabilities	TABLE 1B
Land Use Census	TABLE 2
Key to Sample Locations	ATTACHMENT A
Radiological Surveillance of Florida Power and Light Company's Turkey Point Site	ATTACHMENT B
First Quarter, 2010	
Second Quarter, 2010	
Third Quarter, 2010	
Fourth Quarter, 2010	
Results from the Interlaboratory Comparison Program, 2010	ATTACHMENT C
Ground Water Protection, Industry Initiative	ATTACHMENT D

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

EXECUTIVE SUMMARY

The data obtained through the Turkey Point Radiological Environmental Monitoring Program verifies that the levels of radiation and concentrations of radioactive materials in environmental samples are not increasing. These measurements verify that the dose or dose commitment to members of the public, due to operation of Turkey Point Units 3 & 4, during the surveillance year, is well within the limits established by 10 CFR 50, Appendix I. The sampling period was from January 1, 2010 to December 31, 2010.

Additionally, supplemental samples collected by the State of Florida, DOH, do not indicate adverse trends in the radiological environment.

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

I. INTRODUCTION

This report is submitted pursuant to Specification 6.9 of Turkey Point Units 3 & 4 Technical Specifications. The Annual Radiological Environmental Operating Report provides information, summaries and analytical results pertaining to the Radiological Environmental Monitoring Program for the calendar year indicated. This report covers surveillance activities described in the Offsite Dose Calculation Manual (ODCM) meeting the requirements of Unit 3 and Unit 4 Technical Specifications.

II. RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM

A. Purpose

The purpose of the Radiological Environmental Monitoring Program 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 of members of the public resulting from station operation. The Radiological Environmental Monitoring Program also supplements the radiological effluent monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and the modeling of the environmental exposure pathways.

B. Program Description

The Radiological Environmental Monitoring Program (REMP) for the Turkey Point Plant is conducted pursuant to Control 5.1 of Turkey Point Unit 3 & 4 ODCM.

1. Sample Locations, Types and Frequencies:

   a. Direct radiation gamma exposure rate is monitored continuously at 22 locations by thermoluminescent dosimeters (TLDs). TLDs are collected and analyzed quarterly.

   b. Airborne radioiodine and particulate samplers are operated continuously at six locations. Samples are collected and analyzed weekly. Analyses include Iodine-131, gross beta, and gamma isotopic measurements.

   c. Surface water samples are collected from three locations. Samples are collected and analyzed monthly. Analyses include gamma isotopic and tritium measurements.

d. Shoreline sediment samples are collected from three 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 coinciding with two of the locations for surface water samples. 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.

Attachment A provides specific information pertaining to sample locations, types and frequencies.

Note: Ground Water Protection, NEI Initiative: The program and results are described in Attachment D

2. Analytical Responsibility:

Radiological environmental monitoring for the Turkey Point Plant is conducted by the State of Florida, Department of Health (DOH). Samples are collected and analyzed by DOH personnel.

Samples are analyzed at the DOH Environmental Radiation Control Laboratory in Orlando, Florida.

Note: The State is not involved in the (Industry Initiative) ground water monitoring program.

C. Analytical Results

Table 1, Environmental Radiological Monitoring Program Annual Summary provides a summary for all specified samples collected during the referenced surveillance period. Deviations from the sample schedule, missing data and/or samples not meeting the specified "A PRIORI" LLD, if any, are noted and explained in Tables 1A and 1B respectively. Analysis data for all specified samples analyzed during the surveillance period is provided in Attachment B.

D. Land Use Census

A land use census out to a distance of 5 miles radius from the Turkey Point Plant is conducted annually to determine the location of the nearest milk animal, residence, and garden producing broad leaf vegetation, in each of the sixteen meteorological sectors. A summary of the land use census for the surveillance year is provided in Table 2, Land Use Census Summary.

E. Interlaboratory Comparison Program

The intercomparison program consists of participating in the DOE Mixed Analyte Performance Evaluation Program (MAPEP).

This program provides similar testing (matrices, nuclides, and levels) as the former EPA Interlaboratory Comparison Program and is referred to as the Mixed Analyte Performance Evaluation Program (MAPEP).

The samples are analyzed using the methods applicable to the REMP (gamma spectroscopy, Gross Beta, and Tritium for water).

From the MAPEP handbook:
Acceptance criteria were developed from a review of precision and accuracy data compiled by other performance evaluation programs (PEPs), the analytical methods literature, from several MAPEP pilot studies, and from what is considered reasonable, acceptable, and achievable for routine analyses among the more experienced laboratories.

The results for nuclides associated with the REMP are listed in ATTACHMENT C, RESULTS FROM THE INTERLABORATORY COMPARISON PROGRAM.

III. DISCUSSION AND INTERPRETATION OF RESULTS

A. Reporting of Results

The Annual Radiological Environmental Operating Report contains the summaries, interpretations and information required by Control 1.4 of ODCM. Table 1 provides a summary of the measurements made for the nuclides required by ODCM Table 5.1-2, for all samples specified by Table 5.1-1. In addition, summaries are provided for other nuclides identified in the specified samples, including those not related to station operation. These include nuclides such as K-40, Th-232, Ra-226, and Be-7 which are common 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 shows no indication of any trends attributed to effluents from the plant. The measured exposure rates are consistent with exposure rates that were observed during the pre-operational surveillance program. Direct radiation monitoring results are summarized in Table 1.

2. Air Particulates/Radioiodine:

The results for radioactive air particulate and radioiodine monitoring are consistent with past measurements and indicate no trends attributed to plant effluents. All samples for radioiodine yielded no detectable I-131. Gamma isotopic measurements yielded no indication of any nuclides attributed to station operation. The results for air particulate/radioiodine samples are consistent with measurements that were made during the pre-operational surveillance program. Air particulate and radioiodine monitoring results are summarized in Table 1.

3. Waterborne, Surface Water:

The results of radioactivity measurements in surface water samples are consistent with past measurements. Tritium was reported as present in four of 24 indicator location and two of 12 control location surface water samples collected. These results are consistent with the known subsurface interchange that occurs between the closed cooling canal and its surrounding waters, and the pressure gradients caused by the flow of aquifer subsurface waters in South Florida. The highest reported tritium is less than 10% of the required detection level specified by ODCM Table 5.1-3.

4. Waterborne, Sediment:
Gamma isotopic measurements yielded no indication of any nuclides attributed to station operation.

5. Waterborne, Food Products:

The results are consistent with past measurements. Gamma isotopic measurements yielded no indication of any nuclides attributed to station operation.

6. Broad Leaf Vegetation

The results of radioactivity measurements are consistent with past measurements. Cs-137 was detected in samples collected from the indicator locations. The maximum concentration reported was less than 10% of the reporting level specified by ODCM Table 5.1-2. No other fission products were detected.

7. Land Use Census

There were no additions to the land use relative to last year's report.

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 in the radiological environmental monitoring program were identified by the land use census.

8. Interlaboratory Comparison Program

The State laboratory participated in MAPEP 22 and 23.

In MAPEP 22, the results for Water, Air Filter Gross Beta, mixed gamma emitters in Air Filters, Soil and Vegetation matrices for those nuclides associated with nuclear power plant operation and using analytical methods used in the REMP are acceptable. One warning for Mn-54 on air filter, result was high but within acceptance range.

In MAPEP 23, the results for Water, Air Filter Gross Beta, mixed gamma emitters in Air Filters and Vegetation matrices for those nuclides associated with nuclear power plant operation and using analytical methods used in the REMP are acceptable. In the Soil matrix, the reported results for a 'blank' were too high; a "false positive" was reported.

The results are listed in Attachment C.

C. Conclusions

The data obtained through the Turkey Point Plant Radiological Environmental Monitoring Program 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 being increased.

Additionally, supplemental to the ODCM program, sampling of the direct exposure, inhalation, and ingestion pathways, performed by DOH, does not show adverse trends in levels of radiation and radioactive materials in unrestricted areas. The measurements verify that the dose or dose commitment to members of the public, due to operation of Turkey Point Units 3 & 4, during the surveillance year, are well within "as low as reasonably achievable (ALARA)" criteria established by 10 CFR 50, Appendix I.

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4, Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: DIRECT RADIATION
SAMPLES COLLECTED: TLD
UNITS: micro-R/hr

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Exposure Rate,86[d]	---	4.9 (82/82) 3.7. - 7.3	NW-10 10 mi., NW	6.9 (4/4) 6.4 - 7.3	5.5 (4/4) 5.4 - 5.9

Number of Non-routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4, Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: AIRBORNE
SAMPLES COLLECTED: RADIOIODINE AND PARTICULATES
UNITS: pCi/m^3

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
^{131}I, 312	0.024	< MDA	---	---	< MDA
Gross Beta, 312	0.0025	0.016 (260/260) 0.004 - 0.033	T-51 2 mi., NNW	0.016 (52/52) 0.008 - 0.029	0.016 (52/52) 0.006 - 0.029
Composite Gamma Isotopic, 24					
^{7}Be	0.0052	0.1563 (20/20) 0.1147 - 0.2151	T-58 1 mi., NW	0.1667 (4/4) 0.1350 - 0.2110	0.1593 (4/4) 0.1266 - 0.1896
^{40}K	---	< MDA	---	---	< MDA
^{134}Cs	0.00069	< MDA	---	---	< MDA
^{137}Cs	0.00066	< MDA	---	---	< MDA
^{210}Pb	---	0.0188 (6/20) 0.0095 - 0.0287	T-72 < 1 mi, WSW	0.0210 (3/4) 0.0190 – 0.0235	0.0153 (3/4) 0.0150 – 0.0203

Number of Non-routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4 , Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida , Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SURFACE WATER
UNITS: pCi/L

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Tritium, 36	172	132 (4/24) 108 - 185	T-81 6 mi., S	140 (3/12) 116 - 185	152 (2/12) 141 - 162
Gamma Isotopic, 36					
^{40}K	60	294 (24/24) 159 - 480	T-81 6 mi., S	327 (12/12) 196 - 480	75 (12/12) 26 - 195
^{54}Mn	4	< MDA	---	---	< MDA
^{59}Fe	8	< MDA	---	---	< MDA
^{58}Co	4	< MDA	---	---	< MDA
^{60}Co	4	< MDA	---	---	< MDA
^{65}Zn	8	< MDA	---	---	< MDA
^{95}Zr-Nb	7	< MDA	---	---	< MDA
^{131}I	5	< MDA	---	---	< MDA
^{134}Cs	5	< MDA	---	---	< MDA
^{137}Cs	5	< MDA	---	---	< MDA
^{140}Ba-La	11	< MDA	---	---	< MDA

Number of Non-routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4, Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SHORELINE SEDIMENT
UNITS: pCi/kg, DRY

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)[b] Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 6					
^{7}Be	100	302 (2/2) 223 - 380	T-81 6 mi., S	302 (2/2) 223 - 380	< MDA
^{40}K	140	192 (4/4) 94 - 311	T-81 6 mi., S	286 (2/2) 260 – 311	254 (2/2) 238 - 269
^{58}Co	9	<MDA	---	---	< MDA
^{60}Co	12	<MDA	---	---	< MDA
^{134}Cs	14	<MDA	---	---	< MDA
^{137}Cs	12	<MDA	---	---	< MDA
^{210}Pb	---	646 (1/4)	T-42 < 1 mi, ENE	646 (1/2)	< MDA
^{226}Ra	49	793 (4/4) 359- 1218	T-81 6 mi., S	797 (2/2) 695 - 898	710 (2/2) 697 - 724
^{235}U	---	45 (2/4) 32 - 58	T-81 6 mi., S	58 (1/2)	< MDA
^{238}U	---	575 (4/4) 312 - 832	T-81 6 mi., S	688 (2/2) 545 - 832	440 (1/2)

Number of Non-routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4, Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: INGESTION
SAMPLES COLLECTED: CRUSTACEA
UNITS: pCi/kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 2					
^{40}K	130	1892 (1/2)	T-81 6 mi., S	1892 (1/2)	No Sample
^{226}Ra	20	930 (1/2)	T-81 6 mi., S	930 (1/2)	No Sample
^{54}Mn	9	< MDA	---	---	No Sample
^{59}Fe	16	< MDA	---	---	No Sample
^{58}Co	9	< MDA	---	---	No Sample
^{60}Co	19	< MDA	---	---	No Sample
^{65}Zn	17	< MDA	---	---	No Sample
^{134}Cs	9	< MDA	---	---	No Sample
^{137}Cs	9	< MDA	---	---	No Sample

Number of Non-routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4, Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: INGESTION
SAMPLES COLLECTED: FISH
UNITS: pCi/kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f) Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 5					
^{7}Be	---	<MDA	---	---	<MDA
^{40}K	130	2750 (3/3) 2677- 2859	T-81 6 mi., S	2750 (3/3) 2677- 2859	2956 (2/2) 2875 - 3038
^{54}Mn	9	<MDA	---	---	<MDA
^{59}Fe	16	<MDA	---	---	<MDA
^{58}Co	9	<MDA	---	---	<MDA
^{60}Co	10	<MDA	---	---	<MDA
^{65}Zn	17	<MDA	---	---	<MDA
^{134}Cs	9	<MDA	---	---	<MDA
^{137}Cs	9	<MDA	---	---	<MDA
^{226}Ra	20	1081 (1/5)	T-81 6 mi., S	1081 (1/5)	<MDA
^{238}U	---	<MDA	---	---	<MDA

Number of Non-routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4 , Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida , Reporting Period January 1 - December 31, 2010
(County, State)

PATHWAY: INGESTION
SAMPLES COLLECTED: BROAD LEAF VEGETATION
UNITS: pCi/kg, WET

Type and Total Number of Analyses Performed	Lower Limit of Detection[a] (LLD)	All Indicator Locations Mean (f)Range	Location with Highest Annual Mean: Name[c] Distance & Direction	Location with Highest Annual Mean: Mean (f)[b] Range	Control Locations Mean (f)[b] Range
Gamma Isotopic, 36					
^{7}Be	71	1740 (24/24) 667 - 3208	T-40 3 mi., W	1977 (12/12) 667 - 3208	1286 (12/12) 770 - 2339
^{40}K	100	4988 (24/24) 2088 - 6714	T-41 2 mi., W/NW	6036 (11/12) 4734 - 6714	4412 (12/12) 2833 - 6355
^{58}Co	9	<MDA	---	---	<MDA
^{60}Co	10	<MDA	---	---	<MDA
^{131}I	9	<MDA	---	---	<MDA
^{134}Cs	8	<MDA	---	---	<MDA
^{137}Cs	8	50 (18/24) 12 - 103	T-41 2 mi., W/NW	52 (10/12) 12 - 103	<MDA
^{210}Pb	---	1190 (4/24) 228 – 3208	T-40 3 mi., W	1510 (3/12) 229 - 3208	529 (2/12) 265 - 793
^{226}Ra	---	489 (3/24) 211 - 800	T-41 2 mi., W/NW	535 (4/12) 211 - 800	440 (4/12) 218 - 799

Number of Non routine Reported Measurements = 0

TABLE 1

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY
Name of Facility Turkey Point Units 3 & 4, Docket No(s). 50-250 & 50-251
Location of Facility Miami-Dade, Florida, Reporting Period January 1 - December 31, 2010
(County, State)

NOTES

a. The LLD is an "a priori" lower limit of detection 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 in this column are at time of measurement. The MDAs reported in Attachment B for the individual samples have been corrected to the time of sample collection.

b. Mean and range based upon detectable measurements only. Fraction of detectable measurements at specified locations is indicated in parentheses (f).

c. Specific identifying information for each sample location is provided in Attachment A.

d. Results were based upon the average net response of three elements in a TLD. (Thermoluminescent Dosimeter).

MDA refers to minimum detectable activity.

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

TABLE 1A

(Page 1 of 2)

DEVIATIONS / MISSING DATA

A)	Pathway:	Direct Exposure - TLDs
	Location:	W-5 , 5 miles West
	Dates:	12/09/09 to 03/09/10.
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	TLD missing; discovered at collection attempt
	Corrective action	Replaced TLD
B)	Pathway:	Direct Exposure - TLDs
	Location:	SSE-1 , 1 mile South Southeast
	Dates:	06/16/10 to 09/15/10
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	TLD missing; discovered at collection attempt
	Corrective Action	Replaced TLD
C)	Pathway	Airborne – Particulates and iodines
	Location:	T-51, 2 miles North Northwest
	Dates:	12/30/09 to 01/06/10
	Deviation:	Failure to provide continuous monitoring
	Description of Problem:	Air sample pump failed; sampling run time 158 hours of 191 hours deployment time
	Corrective Action	Replaced pump, verified system as operable.
D)	Pathway	Airborne – Particulates and iodines
	Location:	T-57, 4 miles Northwest
	Dates:	02/10/10 to 02/17/10
	Deviation:	Failure to provide continuous monitoring
	Description of Problem:	Air sample pump failed; sampling run time 97 hours of 169 hours deployment time
	Corrective Action	Replaced pump, verified system as operable.

TABLE 1A

(Page 2 of 2)

DEVIATIONS / MISSING DATA

E)	Pathway:	Airborne – Particulates and iodines
	Location:	T-64 , 22 miles North Northeast
	Dates:	07/07/10 to 07/12/10
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	Air sample pump failed; sampling run time 63 hours of 166 hours deployment time.
	Corrective Action	Replaced pump, verified system as operable.
F)	Pathway:	Airborne – Particulates and iodines
	Location:	T-57, 4 miles Northwest
	Dates:	08/25/10 to 09/01/10
	Deviation:	Failure to provide continuous monitoring.
	Description of Problem:	Air sample pump failed; sampling run time 143 hours of 165 hours deployment time.
	Corrective Action	Replaced pump, verified system as operable
G)	Pathway	Ingestion – Crustacea (semi-annual sample period)
	Locations and dates:	T-81 , 6 miles S First half 2010
		T-67, 13 to 18 miles N, NNE All of year
	Deviation:	Failure to collect sample specified in ODCM
	Description of Problem:	Lack of crustacean sample. Repeated sampling yielded insufficient sample to perform an assay. Crustaceans may be over harvested. Contacted local vendors to supplement the sampling program: They will not affirm the crustacean are from areas 'close' to the ODCM sample locations, and can not provide material at reasonable cost.
	Corrective Action	Continue attempts to collect sufficient sample mass.

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

TABLE 1B

ANALYSIS WITH LLDs ABOVE ODCM TABLE 5.1-3 DETECTION CAPABILITIES
1/1/2010 – 12/31/2010

The values specified in ODCM Table 5.1-3, Detection Capabilities, were achieved for all samples.

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

TABLE 2

LAND USE CENSUS

Distance to Nearest (a, b)

Sector	8/10 Milk (c) Animal	8/10 Residence (g)	8/10 Garden (d)
N	L (e)	2.0 / 354	L
NNE	O (f)	O	O
NE	O	O	O
ENE	O	O	O
E	O	O	O
ESE	O	O	O
SE	O	O	O
SSE	O	O	O
S	L	L	L
SSW	L	L	L
SW	L	L	L
WSW	L	L	L
W	L	L	L
WNW	L	3.7 / 302	4.5 / 303
NW	L	3.7 / 311	L
NNW	L	L	4.6 / 327

TABLE 2

LAND USE CENSUS

NOTES

a. All categories surveyed out to 5 miles radius from the Turkey Point Plant.

b. The following format is used to denote the location:

distance (miles)/bearing (degrees)

For example, a residence located in the north sector at a distance of 2.0 miles bearing 354 degrees is recorded as 2.0 / 354.

c. Potential milk animal locations.

d. Gardens with an estimated growing area of 500 square feet or more.

e. L denotes that the sector area is predominantly a land area unoccupied by the category type.

f. O denotes that the sector area is predominantly an ocean area.

g. Non-residential occupied buildings in these sectors include the following:

Sector	Distance	Description
N	1.9 / 349	24-hour Security Staff Building
NNW	1.9 / 349	Security booth at park entrance
NNW	4.6 / 327	Livable house, does not appear to be occupied.

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

ATTACHMENT A

KEY TO SAMPLE LOCATIONS

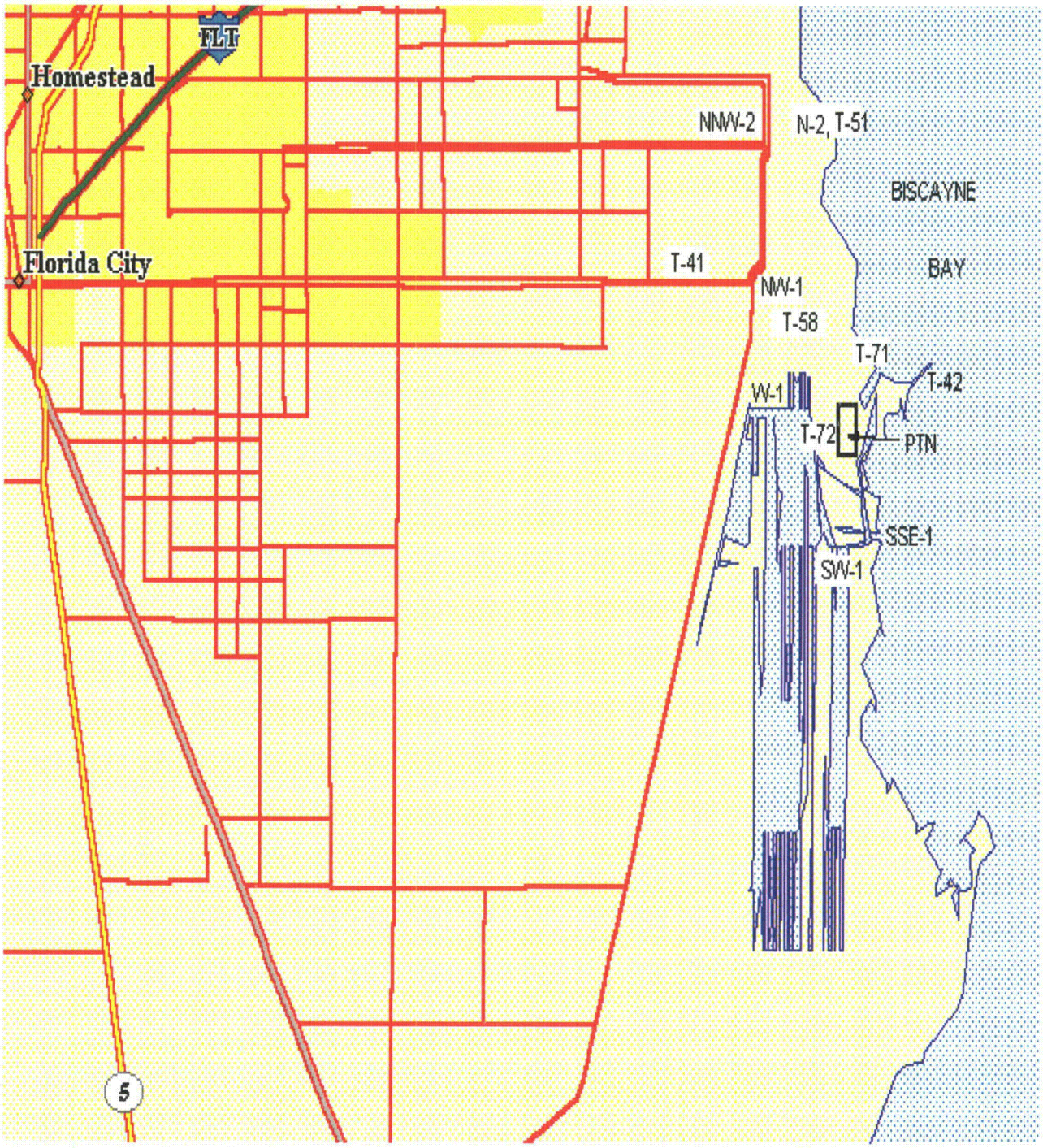
2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

ATTACHMENT A

KEY TO SAMPLE LOCATIONS

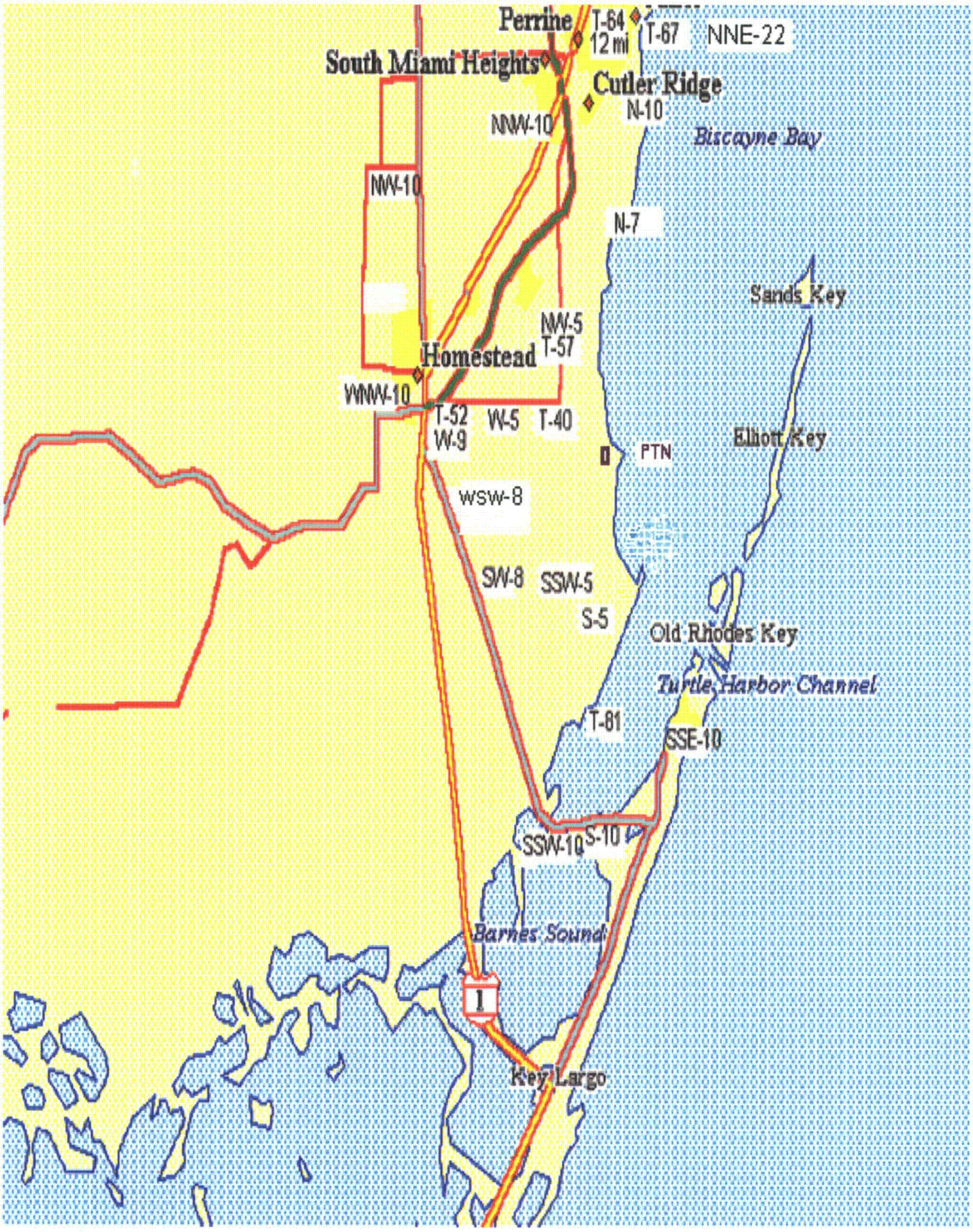
2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

NEAR SITE SAMPLING LOCATIONS



2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

DISTANT REMP SAMPLING LOCATIONS



ATTACHMENT A

PATHWAY: DIRECT RADIATION
SAMPLES COLLECTED: TLD
SAMPLE COLLECTION FREQUENCY: QUARTERLY

Location [a] Name	Description
N-2	Convey Point, Parking Area
N-7	Black Point Marina Parking Lot
N-10	Old Cutler Rd. approx. 196th Street
NNW-2	East End North Canal Road
NNW-10	Bailes Road & U.S. #1
NW-1	Turkey Point Entrance Road
NW-5	Mowry Drive & 117th Avenue
NW-10	Newton Road, North of Coconut Palm Drive
WNW-10	Homestead Middle School
W-1	On-Site, North Side of Discharge Canal
W-5	Palm Drive & Tallahassee Road
W-9	Card Sound Road, 0.6 mile from U.S. #1
WSW-8	Card Sound Road, 3.4 miles from U.S. #1
SW-1	On-Site near Land Utilization Offices
SW-8	Card Sound Road, 5 miles from U.S. #1
SSW-5	On-Site, Southwest Corner of Cooling Canals
SSW-10	Card Sound Road, west side of Toll Plaza
S-5	On-Site, South East Corner of Cooling Canals
S-10	Card Sound Road at Steamboat Creek
SSE-1	Turtle Point
SSE-10	Ocean Reef
Control	
NNE-22	Natoma Substation , 2475 SW 16 Ct.

[a]The location name is the direction sector - approximate distance (miles)

ATTACHMENT A

PATHWAY: AIRBORNE
SAMPLES COLLECTED: RADIOIODINE AND PARTICULATES
SAMPLE COLLECTION FREQUENCY: WEEKLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
T-51	NNW	2	Entrance Area to Biscayne National Park
T-57	NW	4	SW 107th Avenue at Mowry Canal
T-58	NW	1	Turkey Point Entrance Road
T-52	W	9	Supplemental location used to compensate, per ODCM, for temporary loss of T-57.
T-72	WSW	<1	Just before entrance to Land Utilization's access gate.
T-41	WNW	2	Satellite School, cement pole in school yard
Control:			
T-64	NNE	22	Natoma Substation , 2475 SW 16 Ct.

ATTACHMENT A

PATHWAY: WATERBORNE
SAMPLES COLLECTED: SURFACE WATER (OCEAN)
SAMPLE COLLECTION FREQUENCY: MONTHLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
T-42	ENE	<1	Biscayne Bay at Turkey Point
T-81	S	6	Card Sound, near Mouth of Old Discharge Canal
Control:			
T-67	N, NNE	13-18	Near Biscayne Bay, Vicinity of Cutler Plant, North to Matheson Hammock Park

SAMPLES COLLECTED: SHORELINE SEDIMENT
SAMPLE COLLECTION FREQUENCY: SEMI-ANNUALLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
T-42	ENE	<1	Biscayne Bay at Turkey Point
T-81	S	6	Card Sound, near Mouth of Old Discharge Canal
Control:			
T-67	N, NNE	13-18	Near Biscayne Bay, Vicinity of Cutler Plant, North to Matheson Hammock Park

ATTACHMENT A

PATHWAY: INGESTION
SAMPLES COLLECTED: CRUSTACEA AND FISH
SAMPLE COLLECTION FREQUENCY: SEMI-ANNUALLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
T-81	S	6	Card Sound Vicinity of Turkey Point Facility
Control:			
T-67	N, NNE	13-18	Near Biscayne Bay, Vicinity of Cutler Plant, North to Matheson Hammock Park

SAMPLES COLLECTED: BROAD LEAF VEGETATION
SAMPLE COLLECTION FREQUENCY: MONTHLY

Location Name	Direction Sector	Approximate Distance (miles)	Description
T-40	W	3	South of Palm Dr. on S.W. 117th Street Extension
T-41	WNW	2	Palm Dr., West of Old Missile Site near Plant Site Boundary
Control:			
T-67	N, NNE	13-18	Near Biscayne Bay, Vicinity of Cutler Plant, North to Matheson Hammock Park

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

ATTACHMENT B

RADIOLOGICAL SURVEILLANCE OF

FLORIDA POWER AND LIGHT COMPANY'S

TURKEY POINT SITE

2010

First Quarter, 2010

Second Quarter, 2010

Third Quarter, 2010

Fourth Quarter, 2010

2010 Results for Sample Site T-41

TURKEY POINT SITE

Offsite Dose Calculation Manual Sampling

First Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	22	21
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Monthly	3	9
3.b. Shoreline Sediment	Semiannually	3	3
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	0
4.a.2. Fish	Semiannually	2	0
4.b. Broadleaf Vegetation	Monthly	3	9
			Total: 172

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 - TLDs - (μR/hour)

Sample Site	Deployment 09-Dec-09 Collection 09-Mar-10
N-2	5.4 ± 0.5
N-7	4.7 ± 0.6
N-10	5.0 ± 0.5
NNW-2	4.3 ± 0.3
NNW-10	5.1 ± 0.5
NW-1	6.3 ± 0.7
NW-5	4.3 ± 0.4
NW-10	7.3 ± 0.7
WNW-10	6.1 ± 0.7
W-1	6.4 ± 0.7
W-5	(A)
W-9	4.9 ± 0.5

Sample Site	Deployment 09-Dec-09 Collection 09-Mar-10
WSW-8	4.6 ± 0.4(B)
SW-1	4.9 ± 0.4
SW-8	5.4 ± 0.5
SSW-5	4.2 ± 0.4
SSW-10	5.0 ± 0.4
S-5	4.6 ± 0.4
S-10	5.4 ± 0.4
SSE-1	4.5 ± 0.4
SSE-10	5.5 ± 0.5
NNE-22	5.9 ± 0.6

(A) TLD missing.
(B) TLD found on ground, inside cricket cage, intact.

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
06-Jan-10	<0.03(A)	<0.02	<0.03	<0.02	<0.02
11-Jan-10	<0.04	<0.04	<0.04	<0.04	<0.04
20-Jan-10	<0.01	<0.01	<0.01	<0.01	<0.01
28-Jan-10	<0.01	<0.01	<0.01	<0.01	<0.01
03-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
10-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
17-Feb-10	<0.01	<0.02(B)	<0.01	<0.01	<0.01
24-Feb-10	<0.02	<0.02	<0.02	<0.02	<0.02
03-Mar-10	<0.03	<0.03	<0.03	<0.03	<0.03
09-Mar-10	<0.03	<0.03	<0.03	<0.02	<0.03
17-Mar-10	<0.01	<0.02	<0.01	<0.02	<0.01
24-Mar-10	<0.02	<0.02	<0.02	<0.02	<0.02
31-Mar-10	<0.02	<0.02	<0.02	<0.02	<0.02

(A) Vacuum pump failed and was replaced. Estimated run time 155.7 out of 190.7 hours.
(B) Vacuum pump failed and was replaced. Estimated run time 97.3 out of 169.4 hours

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
06-Jan-10	0.020 ± 0.002(A)	0.021 ± 0.002	0.028 ± 0.003	0.025 ± 0.002	0.024 ± 0.002
11-Jan-10	0.029 ± 0.003	0.025 ± 0.003	0.022 ± 0.003	0.022 ± 0.003	0.024 ± 0.003
20-Jan-10	0.010 ± 0.002	0.015 ± 0.002	0.014 ± 0.002	0.014 ± 0.002	0.016 ± 0.002
28-Jan-10	0.016 ± 0.002	0.019 ± 0.002	0.012 ± 0.002	0.016 ± 0.002	0.018 ± 0.002
03-Feb-10	0.015 ± 0.002	0.011 ± 0.002	0.013 ± 0.002	0.015 ± 0.002	0.010 ± 0.002
10-Feb-10	0.013 ± 0.002	0.015 ± 0.002	0.011 ± 0.002	0.017 ± 0.002	0.011 ± 0.002
17-Feb-10	0.020 ± 0.002	0.031 ± 0.004(B)	0.022 ± 0.002	0.016 ± 0.002	0.022 ± 0.002
24-Feb-10	0.015 ± 0.002	0.010 ± 0.002	0.012 ± 0.002	0.012 ± 0.002	0.015 ± 0.002
03-Mar-10	0.023 ± 0.002	0.022 ± 0.002	0.023 ± 0.002	0.028 ± 0.003	0.021 ± 0.002
09-Mar-10	0.014 ± 0.002	0.019 ± 0.002	0.018 ± 0.003	0.017 ± 0.002	0.016 ± 0.002
17-Mar-10	0.016 ± 0.002	0.019 ± 0.002	0.015 ± 0.002	0.016 ± 0.002	0.017 ± 0.002
24-Mar-10	0.008 ± 0.002	0.007 ± 0.002	0.009 ± 0.002	0.008 ± 0.002	0.008 ± 0.002
31-Mar-10	0.017 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.016 ± 0.002	0.015 ± 0.002
Average:	0.016 ± 0.001	0.018 ± 0.001	0.016 ± 0.001	0.017 ± 0.001	0.017 ± 0.001

(A) Vacuum pump failed and was replaced. Estimated run time 155.7 out of 190.7 hours.
(B) Vacuum pump failed and was replaced. Estimated run time 97.3 out of 169.4 hours.

2.b.2. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
T51	0.1600 ± 0.0130	<0.0284	<0.0017	<0.0011	<0.0486
T57	0.1461 ± 0.0146	<0.0242	<0.0018	<0.0011	<0.0488
T58	0.1661 ± 0.0134	<0.0282	<0.0015	<0.0012	<0.0514
T64	0.1690 ± 0.0158	<0.0197	<0.0012	<0.0013	<0.0448
T72	0.1404 ± 0.0137	<0.0276	<0.0032	<0.0025	0.0190 ± 0.0044

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)
T42	14-Jan-10	<142	273 ± 19	<2	<2	<5	<3	<5	<4	<2	<3	<2	<5
	17-Feb-10	<150	262 ± 29	<3	<3	<7	<3	<10	<7	<4	<5	<3	<7
	10-Mar-10	<148	219 ± 64	<4	<3	<7	<4	<9	<6	<4	<4	<3	<7
T67	12-Jan-10	<142	175 ± 16	<3	<3	<7	<4	<9	<5	<4	<4	<3	<6
	17-Feb-10	141 ± 49	99 ± 23	<4	<3	<8	<4	<8	<7	<5	<4	<4	<8
	10-Mar-10	<148	195 ± 29	<3	<3	<7	<3	<8	<6	<4	<4	<4	<12
T81	11-Jan-10	185 ± 48	365 ± 34	<4	<3	<7	<3	<8	<6	<5	<4	<3	<5
	17-Feb-10	<150	314 ± 31	<5	<4	<10	<5	<7	<7	<5	<5	<5	<11
	09-Mar-10	<148	365 ± 31	<4	<3	<8	<4	<9	<6	<5	<5	<4	<10

(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. 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
T42	14-Jan-10	<52	94 ± 40	<5	<6	<6	<6	<1019	1218 ± 81	<29	<42	609 ± 114
T67	12-Jan-10	<94	269 ± 70	<9	<9	<12	<14	<361	697 ± 108	<43	<79	<258
T81	11-Jan-10	380 ± 49	311 ± 100	<12	<15	<14	<11	<2462	898 ± 137	<74	<97	545 ± 234

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	This sample to be collected.										
T81	This sample to be collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	This sample to be collected.										
T81	This sample to be collected.										

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

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Pb-210	Ra-226	Ra-228
T40	12-Jan-10	3050 ± 124	3999 ± 190	<17	<17	53 ± 7	<1529	<321	<56
	18-Feb-10	2416 ± 115	4111 ± 209	<16	<17	<22	<1929	443 ± 141	<66
	09-Mar-10	2298 ± 113	4307 ± 194	<14	<16	40 ± 7	<1662	270 ± 114	<63
T41	13-Jan-10	1951 ± 105	5823 ± 224	<16	<16	103 ± 11	<1684	211 ± 99	<80
	18-Feb-10	2091 ± 106	6714 ± 248	<15	<18	67 ± 9	<1791	432 ± 127	<65
	09-Mar-10	2196 ± 110	5706 ± 231	<16	<15	74 ± 12	<1624	800 ± 115	<78
T67	12-Jan-10	1413 ± 98	3634 ± 192	<13	<18	<16	<1567	451 ± 112	<64
	17-Feb-10	1131 ± 39	2833 ± 186	<10	<10	<9	265 ± 96	<206	<33
	10-Mar-10	1195 ± 88	3801 ± 211	<15	<17	<15	<1697	<311	<68

TURKEY POINT SITE

Offsite Dose Calculation Manual Sampling

Second Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	22	22
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Monthly	3	9
3.b. Shoreline Sediment	Semiannually	3	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: 172

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 and with greater than a 50% error term 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 - TLDs - (μR/hour)

Sample Site	Deployment 09-Mar-10 Collection 16-June-10
N-2	4.7 ± 0.5
N-7	4.1 ± 0.5
N-10	4.8 ± 0.4
NNW-2	3.8 ± 0.4
NNW-10	4.8 ± 0.4
NW-1	5.7 ± 0.6
NW-5	4.1 ± 0.5
NW-10	6.9 ± 0.8
WNW-10	5.9 ± 0.6
W-1	5.9 ± 0.6
W-5	5.1 ± 0.5
W-9	4.8 ± 0.6

Sample Site	Deployment 09-Mar-10 Collection 16-June-10
WSW-8	4.6 ± 0.5
SW-1	4.5 ± 0.4
SW-8	5.1 ± 0.4
SSW-5	4.4 ± 0.5
SSW-10	4.6 ± 0.4
S-5	4.3 ± 0.4
S-10	4.9 ± 0.5
SSE-1	4.2 ± 0.5
SSE-10	5.3 ± 0.5
NNE-22	5.4 ± 0.5

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
06-Apr-10	<0.03	<0.03	<0.03	<0.03	<0.03
13-Apr-10	<0.03	<0.03	<0.03	<0.04	<0.03
19-Apr-10	<0.03	<0.03	<0.03	<0.02	<0.03
28-Apr-10	<0.02	<0.02	<0.02	<0.02	<0.02
04-May-10	<0.03	<0.03	<0.03	<0.03	<0.03
10-May-10	<0.03	<0.03	<0.03	<0.02	<0.03
18-May-10	<0.02	<0.02	<0.02	<0.03	<0.02
26-May-10	<0.01	<0.01	<0.01	<0.01	<0.01
02-Jun-10	<0.01	<0.01	<0.01	<0.01	<0.01
08-Jun-10	<0.03	<0.03	<0.03	<0.03	<0.03
16-Jun-10	<0.03	<0.03	<0.03	<0.03	<0.02
23-Jun-10	<0.01	<0.01	<0.02	<0.02	<0.02
30-Jun-10	<0.02	<0.02	<0.02	<0.03	<0.02

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
06-Apr-10	0.022 ± 0.003	0.017 ± 0.002	0.017 ± 0.002	0.016 ± 0.002	0.014 ± 0.002
13-Apr-10	0.019 ± 0.002	0.016 ± 0.002	0.018 ± 0.002	0.017 ± 0.002	0.017 ± 0.002
19-Apr-10	0.017 ± 0.002	0.013 ± 0.002	0.017 ± 0.002	0.016 ± 0.002	0.011 ± 0.002
28-Apr-10	0.020 ± 0.002	0.017 ± 0.002	0.019 ± 0.002	0.023 ± 0.002	0.022 ± 0.002
04-May-10	0.024 ± 0.003	0.022 ± 0.003	0.023 ± 0.003	0.025 ± 0.003	0.024 ± 0.003
10-May-10	0.020 ± 0.003	0.024 ± 0.003	0.020 ± 0.002	0.020 ± 0.002	0.019 ± 0.002
18-May-10	0.014 ± 0.002	0.017 ± 0.002	0.017 ± 0.002	0.011 ± 0.002	0.015 ± 0.002
26-May-10	0.009 ± 0.002	0.008 ± 0.002	0.007 ± 0.001	0.008 ± 0.002	0.010 ± 0.002
02-Jun-10	0.015 ± 0.002	0.013 ± 0.002	0.014 ± 0.002	0.006 ± 0.002	0.016 ± 0.002
08-Jun-10	0.018 ± 0.002	0.014 ± 0.002	0.012 ± 0.002	0.015 ± 0.002	0.014 ± 0.002
16-Jun-10	0.016 ± 0.002	0.010 ± 0.002	0.017 ± 0.002	0.022 ± 0.006	0.015 ± 0.002
23-Jun-10	0.008 ± 0.002	0.012 ± 0.002	0.010 ± 0.002	0.011 ± 0.002	0.010 ± 0.002
30-Jun-10	0.011 ± 0.002	0.012 ± 0.002	0.012 ± 0.002	0.011 ± 0.002	0.015 ± 0.002
Average:	0.016 ± 0.001	0.015 ± 0.001	0.016 ± 0.001	0.015 ± 0.001	0.015 ± 0.001

2.b. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
T51	0.1611 ± 0.0136	<0.0311	<0.0016	<0.0012	<0.0433
T57	0.1197 ± 0.0172	<0.0224	<0.0021	<0.0012	<0.0397
T58	0.1580 ± 0.0151	<0.0231	<0.0017	<0.0011	<0.0503
T64	0.1519 ± 0.0108	<0.0195	<0.0019	<0.0015	0.0150 ± 0.0024
T72	0.1928 ± 0.0152	<0.0194	<0.0014	<0.0006	<0.0471

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)
T42	14-Apr-10	108 ± 46	249 ± 20	<2	<2	<5	<3	<5	<4	<3	<3	<3	<5
	11-May-10	<154	343 ± 23	<2	<2	<6	<3	<6	<4	<3	<3	<3	<4
	16-Jun-10	<145	269 ± 11	<1	<1	<3	<2	<3	<2	<2	<1	<1	<3
T67	14-Apr-10	<143	41 ± 6	<2	<2	<5	<2	<5	<4	<3	<2	<2	<4
	10-May-10	<154	26 ± 8	<3	<3	<6	<3	<9	<5	<4	<4	<3	<6
	14-Jun-10	<145	28 ± 9	<3	<3	<7	<4	<11	<7	<5	<4	<4	<7
T81	13-Apr-10	116 ± 46	358 ± 40	<4	<4	<9	<5	<9	<8	<5	<5	<4	<9
	10-May-10	118 ± 50	257 ± 20	<3	<3	<7	<4	<8	<5	<4	<4	<3	<7
	14-Jun-10	<145	300 ± 12	<1	<1	<3	<2	<3	<2	<2	<1	<1	<2

(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. 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
T42	This sample was previously collected.									
T67	This sample was previously collected.									
T81	This sample was previously collected.									

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	There was no sample available during the quarter.										
T81	There was no sample available during the quarter.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	10-May-10	3038 ± 256	<33	<26	<61	<32	<64	<29	<35	<534	<153
T81	11-May-10	2677 ± 244	<25	<26	<60	<33	<63	<35	<28	1081 ± 251	<143

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

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Pb-210	Pb-212	Ra-226	Ra-228
T40	14-Apr-10	3208 ± 144	4819 ± 235	<23	<17	<22	<1962	<85	521 ± 151	<74
	11-May-10	1037 ± 82	4183 ± 203	<15	<16	67 ± 7	<1710	<86	<325	<74
	14-Jun-10	667 ± 67	5012 ± 187	<16	<16	38 ± 8	<1425	<76	535 ± 126	<60
T41	14-Apr-10	1876 ± 113	5834 ± 266	<26	<21	43 ± 7	<2073	<100	698 ± 167	<94
	11-May-10	925 ± 75	6586 ± 249	<15	<19	51 ± 9	<1671	<82	<335	<70
	14-Jun-10	805 ± 48	6023 ± 144	<11	<12	47 ± 5	<1049	<50	<189	<42
T67	14-Apr-10	2339 ± 120	4834 ± 236	<25	<16	<19	<1849	<84	<325	<80
	10-May-10	770 ± 85	5696 ± 237	<16	<17	<15	<1516	<81	293 ± 103	<64
	14-Jun-10	1089 ± 57	4105 ± 129	<13	<11	<9	793 ± 378	<48	218 ± 90	<39

TURKEY POINT SITE

Offsite Dose Calculation Manual Sampling

Third Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	22	21
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Monthly	3	9
3.b. Shoreline Sediment	Semiannually	3	3
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	0
4.a.2. Fish	Semiannually	2	0
4.b. Broadleaf Vegetation	Monthly	3	9
			Total: 172

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 - TLDs - (μR/hour)

Sample Site	Deployment 16-June-10 Collection 15-Sep-10	Sample Site	Deployment 16-June-10 Collection 15-Sep-10
N-2	4.6 ± 0.5	WSW-8	4.2 ± 0.5
N-7	3.7 ± 0.3		
N-10	4.7 ± 0.4	SW-1	4.4 ± 0.4
		SW-8	5.5 ± 0.6
NNW-2	3.8 ± 0.3		
NNW-10	4.8 ± 0.4	SSW-5	4.3 ± 0.3
		SSW-10	4.5 ± 0.5
NW-1	6.3 ± 0.6		
NW-5	4.4 ± 0.4	S-5	4.1 ± 0.4
NW-10	6.9 ± 0.7	S-10	5.0 ± 0.5
WNW-10	5.6 ± 0.5	SSE-1	(A)
		SSE-10	5.1 ± 0.4
W-1	5.9 ± 0.6		
W-5	4.8 ± 0.5	NNE-22	5.4 ± 0.6
W-9	4.3 ± 0.4		

(A) TLD lost when the tree it was attached too was cut down along with other trees in the immediate area. TLD relocated to a nearby wooden pole near the waters edge.

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
07-Jul-10	<0.02	<0.02	<0.02	<0.03	<0.02
12-Jul-10	<0.02	<0.02	<0.02	<0.03(A)	<0.02
19-Jul-10	<0.02	<0.02	<0.02	<0.02	<0.02
28-Jul-10	<0.01	<0.01	<0.01	<0.02	<0.01
02-Aug-10	<0.03	<0.03	<0.03	<0.03	<0.03
10-Aug-10	<0.02	<0.02	<0.02	<0.02	<0.02
19-Aug-10	<0.02	<0.02	<0.02	<0.02	<0.02
25-Aug-10	<0.02	<0.02	<0.02	<0.02	<0.02
01-Sep-10	<0.03	<0.03(B)	<0.03	<0.03	<0.03
08-Sep-10	<0.01	<0.02	<0.01	<0.01	<0.02
15-Sep-10	<0.03	<0.03	<0.03	<0.03	<0.03
21-Sep-10	<0.02	<0.02	<0.02	<0.02	<0.02
29-Sep-10	<0.02	<0.02	<0.02	<0.02	<0.02

(A) Pump changed out due to consecutive low flow readings. Based upon average flow rate, the estimated run time is 63.2 out of 166.25 hours.

(B) No power. Estimated run time 143.1 out of 164.75 hours.

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
07-Jul-10	0.010 ± 0.002	0.009 ± 0.002	0.009 ± 0.002	0.011 ± 0.002	0.013 ± 0.002
12-Jul-10	0.014 ± 0.002	0.012 ± 0.002	0.015 ± 0.003	0.013 ± 0.004(A)	0.015 ± 0.002
19-Jul-10	0.019 ± 0.002	0.014 ± 0.002	0.015 ± 0.002	0.015 ± 0.002	0.018 ± 0.002
28-Jul-10	0.016 ± 0.002	0.016 ± 0.002	0.015 ± 0.002	0.012 ± 0.002	0.015 ± 0.002
02-Aug-10	0.017 ± 0.003	0.014 ± 0.003	0.012 ± 0.002	0.019 ± 0.003	0.015 ± 0.003
10-Aug-10	0.011 ± 0.002	0.008 ± 0.002	0.008 ± 0.002	0.007 ± 0.002	0.008 ± 0.002
19-Aug-10	0.008 ± 0.001	0.009 ± 0.002	0.007 ± 0.001	0.008 ± 0.001	0.005 ± 0.001
25-Aug-10	0.008 ± 0.002	0.011 ± 0.002	0.008 ± 0.002	0.007 ± 0.002	0.013 ± 0.002
01-Sep-10	0.011 ± 0.002	0.013 ± 0.002(B)	0.012 ± 0.002	0.012 ± 0.002	0.010 ± 0.002
08-Sep-10	0.012 ± 0.002	0.009 ± 0.002	0.011 ± 0.002	0.015 ± 0.002	0.013 ± 0.002
15-Sep-10	0.014 ± 0.002	0.009 ± 0.002	0.014 ± 0.002	0.012 ± 0.002	0.016 ± 0.002
21-Sep-10	0.026 ± 0.003	0.019 ± 0.002	0.023 ± 0.003	0.024 ± 0.002	0.016 ± 0.002
29-Sep-10	0.012 ± 0.002	0.012 ± 0.002	0.009 ± 0.002	0.012 ± 0.002	0.011 ± 0.002
Average:	0.014 ± 0.001	0.012 ± 0.001	0.012 ± 0.001	0.013 ± 0.001	0.013 ± 0.001

(A) Pump changed out due to consecutive low flow readings. Based upon average flow rate, the estimated run time is 63.2 out of 166.25 hours.

(B) No power. Estimated run time 143.1 out of 164.75 hours.

2.b. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
T51	0.1147 ± 0.0129	<0.0222	<0.0013	<0.0010	<0.0094
T57	0.1322 ± 0.0147	<0.0253	<0.0017	<0.0012	<0.0525
T58	0.1356 ± 0.0159	<0.0269	<0.0017	<0.0012	<0.0436
T64	0.1266 ± 0.0038	0.0038 ± 0.0008	<0.0006	<0.0004	0.0106 ± 0.0007
T72	0.1590 ± 0.0113	<0.0182	<0.0010	<0.0006	0.0205 ± 0.0037

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)
T42	21-Jul-10	<145	344 ± 37	<4	<4	<9	<6	<9	<7	<5	<5	<5	<8
	10-Aug-10	<142	337 ± 26	<3	<3	<7	<4	<7	<6	<4	<4	<3	<5
	16-Sep-10	<145	169 ± 9	<1	<1	<3	<2	<3	<2	<1	<1	<1	<5
T67	19-Jul-10	<145	28 ± 8	<3	<4	<7	<3	<10	<5	<4	<3	<4	<6
	11-Aug-10	<142	46 ± 10	<3	<3	<7	<4	<9	<5	<4	<4	<4	<10
	15-Sep-10	<145	38 ± 10	<4	<4	<9	<4	<10	<6	<5	<4	<4	<11
T81	19-Jul-10	<145	480 ± 46	<6	<5	<9	<6	<14	<10	<7	<6	<6	<11
	10-Aug-10	<142	369 ± 34	<4	<3	<8	<4	<9	<6	<5	<5	<4	<8
	15-Sep-10	<145	226 ± 19	<3	<3	<7	<4	<8	<6	<4	<4	<3	<9

(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. 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
T42	21-Jul-10	<77	101 ± 19	<10	<9	<9	<10	646 ± 50	359 ± 81	15 ± 4	32 ± 4	312 ± 24
T67	19-Jul-10	<135	238 ± 88	<12	<9	<14	<18	<2206	724 ± 129	66 ± 23	<82	440 ± 190
T81	19-Jul-10	223 ± 86	260 ± 76	<12	<11	<14	<12	<2440	695 ± 141	<61	58 ± 9	832 ± 233

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	This sample not yet collected.										
T81	This sample not yet collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	This sample not yet collected.										
T81	This sample not yet collected.										

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

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Pb-210	Pb-212	Ra-226	Ra-228
T40	20-Jul-10	1546 ± 104	5137 ± 231	<20	<18	85 ± 11	3208 ± 1049	<82	<346	<74
	10-Aug-10	1776 ± 59	2088 ± 98	<11	<10	13 ± 2	229 ± 35	<18	<200	<36
	16-Sep-10	2096 ± 119	2660 ± 165	<14	<13	36 ± 7	<2284	<90	<329	<60
T41	20-Jul-10	1386 ± 98	6702 ± 260	<19	<20	44 ± 7	<2494	<91	<344	<78
	10-Aug-10	1225 ± 94	5427 ± 235	<19	<20	<22	<865	<197	<612	<70
	15-Sep-10	1004 ± 78	6673 ± 206	<13	<16	<20	<959	<97	<260	<49
T67	19-Jul-10	904 ± 93	6355 ± 269	<20	<21	<19	<2417	31 ± 11	<324	<61
	11-Aug-10	920 ± 89	4319 ± 215	<17	<19	<16	<2102	<80	<300	<62
	15-Sep-10	1776 ± 105	5299 ± 230	<15	<17	<17	<2385	<92	799 ± 134	<67

TURKEY POINT SITE

Offsite Dose Calculation Manual Sampling

Fourth Quarter, 2010

Sample Type	Collection Frequency	Locations Sampled	Number of Samples
1. Direct Radiation	Quarterly	22	22
2. Airborne			
2.a. Air Iodines	Weekly	5	65
2.b. Air Particulates	Weekly	5	65
3. Waterborne			
3.a. Surface Water	Monthly	3	9
3.b. Shoreline Sediment	Semiannually	3	0
4. Ingestion			
4.a. Fish and Invertebrates			
4.a.1. Crustacea	Semiannually	2	1
4.a.2. Fish	Semiannually	2	3
4.b. Broadleaf Vegetation	Monthly	3	9
			Total: 174

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 - TLDs - (μR/hour)

Sample Site	Deployment 15-Sep-10 Collection 14-Dec-10
N-2	4.4 ± 0.4
N-7	4.0 ± 0.4
N-10	4.6 ± 0.5
NNW-2	3.8 ± 0.4
NNW-10	4.8 ± 0.5
NW-1	5.5 ± 0.6
NW-5	4.1 ± 0.4
NW-10	6.4 ± 0.7
WNW-10	5.8 ± 0.5
W-1	6.0 ± 0.7
W-5	5.1 ± 0.5
W-9	4.5 ± 0.3

Sample Site	Deployment 15-Sep-10 Collection 14-Dec-10
WSW-8	4.4 ± 0.4
SW-1	4.4 ± 0.4
SW-8	4.3 ± 0.4
SSW-5	4.4 ± 0.4
SSW-10	4.4 ± 0.5
S-5	4.1 ± 0.4
S-10	4.9 ± 0.5
SSE-1	4.1 ± 0.4
SSE-10	5.0 ± 0.4
NNE-22	5.4 ± 0.5

2.a. IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
06-Oct-10	<0.02	<0.03	<0.02	<0.03	<0.03
11-Oct-10	<0.03	<0.04	<0.03	<0.04	<0.04
20-Oct-10	<0.02	<0.02	<0.02	<0.02	<0.02
25-Oct-10	<0.03	<0.03	<0.03	<0.03	<0.03
02-Nov-10	<0.02	<0.02	<0.02	<0.03	<0.02
09-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
15-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
23-Nov-10	<0.01	<0.01	<0.01	<0.01	<0.01
30-Nov-10	<0.02	<0.02	<0.02	<0.02	<0.02
06-Dec-10	<0.03	<0.03	<0.04	<0.03	<0.03
13-Dec-10	<0.03	<0.03	<0.03	<0.03	<0.03
20-Dec-10	<0.02	<0.02	<0.02	<0.02	<0.02
29-Dec-10	<0.01	<0.01	<0.01	<0.01	<0.01

2.b.1. AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	T51	T57	T58	T64	T72
06-Oct-10	0.019 ± 0.002	0.018 ± 0.002	0.020 ± 0.002	0.027 ± 0.003	0.020 ± 0.002
11-Oct-10	0.028 ± 0.003	0.028 ± 0.003	0.032 ± 0.003	0.029 ± 0.003	0.029 ± 0.003
20-Oct-10	0.023 ± 0.002	0.025 ± 0.002	0.023 ± 0.002	0.024 ± 0.002	0.022 ± 0.002
25-Oct-10	0.022 ± 0.003	0.020 ± 0.003	0.022 ± 0.003	0.021 ± 0.003	0.025 ± 0.003
02-Nov-10	0.010 ± 0.002	0.009 ± 0.002	0.014 ± 0.002	0.010 ± 0.002	0.011 ± 0.002
09-Nov-10	0.016 ± 0.002	0.016 ± 0.002	0.012 ± 0.002	0.014 ± 0.002	0.018 ± 0.002
15-Nov-10	0.024 ± 0.003	0.022 ± 0.003	0.020 ± 0.003	0.020 ± 0.002	0.022 ± 0.003
23-Nov-10	0.016 ± 0.002	0.018 ± 0.002	0.020 ± 0.002	0.019 ± 0.002	0.017 ± 0.002
30-Nov-10	0.010 ± 0.002	0.008 ± 0.002	0.009 ± 0.002	0.010 ± 0.002	0.008 ± 0.002
06-Dec-10	0.025 ± 0.003	0.023 ± 0.003	0.024 ± 0.003	0.023 ± 0.003	0.029 ± 0.003
13-Dec-10	0.013 ± 0.002	0.014 ± 0.002	0.020 ± 0.002	0.013 ± 0.002	0.016 ± 0.002
20-Dec-10	0.016 ± 0.002	0.016 ± 0.002	0.014 ± 0.002	0.015 ± 0.002	0.014 ± 0.002
29-Dec-10	0.022 ± 0.002	0.021 ± 0.002	0.021 ± 0.002	0.015 ± 0.002	0.019 ± 0.002
Average:	0.019 ± 0.001	0.018 ± 0.001	0.019 ± 0.001	0.019 ± 0.001	0.019 ± 0.001

2.b. AIR PARTICULATES - GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

Sample Site	Be-7	K-40	Cs-134	Cs-137	Pb-210
T51	0.1632 ± 0.0162	<0.0224	<0.0017	<0.0014	<0.0583
T57	0.1711 ± 0.0152	<0.0227	<0.0016	<0.0013	<0.0562
T58	0.2110 ± 0.0165	<0.0295	<0.0026	<0.0014	<0.0572
T64	0.1896 ± 0.0121	<0.0211	<0.0012	<0.0010	0.0203 ± 0.0040
T72	0.1639 ± 0.0060	<0.0078	<0.0005	<0.0004	0.0235 ± 0.0017

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)
T42	13-Oct-10	<140	159 ± 17	<3	<3	<8	<4	<7	<7	<4	<4	<4	<9
	17-Nov-10	<160	256 ± 21	<2	<2	<5	<2	<5	<4	<4	<2	<3	<4
	14-Dec-10	<134	258 ± 24	<4	<4	<10	<5	<12	<8	<5	<5	<5	<10
T67	13-Oct-10	162 ± 31	35 ± 10	<4	<4	<8	<4	<13	<7	<5	<5	<5	<9
	16-Nov-10	<160	94 ± 24	<3	<3	<6	<3	<7	<5	<5	<4	<3	<5
	13-Dec-10	<134	94 ± 21	<3	<3	<8	<4	<7	<6	<4	<4	<4	<6
T81	11-Oct-10	<141	196 ± 17	<3	<3	<7	<4	<8	<5	<4	<4	<3	<6
	15-Nov-10	<160	305 ± 29	<3	<3	<7	<4	<6	<5	<5	<4	<3	<5
	14-Dec-10	<134	386 ± 43	<4	<3	<11	<5	<10	<7	<6	<6	<5	<9

(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. 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	Others:
T42	This sample was previously collected.										
T67	This sample was previously collected.										
T81	This sample was previously collected.										

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	There was no sample available this quarter.										
T81	06-Nov-10	1892 ± 185	<26	<28	<59	<28	<56	<31	<27	930 ± 211	<116

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

Sample Site	Collection Date	K-40	Mn-54	Co-58	Fe-59	Co-60	Zn-65	Cs-134	Cs-137	Ra-226	Ra-228
T67	16-Nov-10	2875 ± 206	<20	<19	<40	<24	<49	<27	<22	<386	<93
T81	06-Nov-10	2859 ± 120	<15	<15	<36	<16	<34	<17	<15	<276	<54
T81(A)	14-Dec-10	2714 ± 185	<27	<23	<60	<30	<57	<29	<25	<467	<112

(A) This sample was recollected to meet sample collection quality control guidelines

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

Sample Site	Collection Date	Be-7	K-40	I-131	Cs-134	Cs-137	Pb-210	Pb-212	Ra-226	Ra-228
T40	13-Oct-10	1585 ± 99	4110 ± 222	<25	<15	57 ± 9	<2029	<79	<294	<55
	17-Nov-10	1676 ± 116	3797 ± 200	<22	<17	<18	<2081	<83	<318	<78
	14-Dec-10	2368 ± 89	4098 ± 160	<14	<14	35 ± 5	1094 ± 471	<101	<287	<42
T41	13-Oct-10	1399 ± 95	<973	<22	<18	31 ± 7	<2404	<80	<300	<71
	17-Nov-10	1920 ± 67	4734 ± 177	<18	<14	12 ± 2	228 ± 36	<24	<270	<52
	14-Dec-10	1256 ± 90	6173 ± 248	<16	<21	<21	<2152	<96	<329	<77
T67	13-Oct-10	848 ± 63	3512 ± 129	<15	<10	<10	<674	<79	<217	<30
	16-Nov-10	1787 ± 127	3656 ± 233	<29	<19	<19	<2433	<93	<335	<83
	13-Dec-10	1260 ± 78	4902 ± 216	<16	<16	<16	<2136	<86	<276	<57

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

Preface:

In addition the REMP Air Sample Program in the Turkey Point environs, the State has a few additional air monitoring stations; they are referred to as the 'Supplemental Program'. One of these stations, T-41, is on site at a day-school facility.

During 2010, it was decided that this air sample station would be incorporated into the ODCM REMP Program.

The State's report structure lists the results in the Supplemental results ; the values are presented below. They are also reflected in the Table 1 summary.

The State ODCM reporting document has been revised to include T-41 in the ODCM Results.

T-41 IODINE-131 IN WEEKLY AIR CARTRIDGES - (pCi/m³)

Collection Date	Result	Collection Date	Result
06-Jan-10	<0.02	06-Apr-10	<0.03
11-Jan-10	<0.04	13-Apr-10	<0.03
20-Jan-10	<0.01	19-Apr-10	<0.03
28-Jan-10	<0.01	28-Apr-10	<0.02
03-Feb-10	<0.02	04-May-10	<0.03
10-Feb-10	<0.02	10-May-10	<0.03
17-Feb-10	<0.01	18-May-10	<0.02
24-Feb-10	<0.02	26-May-10	<0.01
03-Mar-10	<0.03	02-Jun-10	<0.01
09-Mar-10	<0.03	08-Jun-10	<0.03
17-Mar-10	<0.01	16-Jun-10	<0.03
24-Mar-10	<0.02	23-Jun-10	<0.02
31-Mar-10	<0.02	30-Jun-10	<0.02

Collection Date	Result	Collection Date	Result
07-Jul-10	<0.02	06-Oct-10	<0.03
12-Jul-10	<0.02	11-Oct-10	<0.04
19-Jul-10	<0.03	20-Oct-10	<0.02
28-Jul-10	<0.01	25-Oct-10	<0.03
02-Aug-10	<0.03	02-Nov-10	<0.02
10-Aug-10	<0.02	09-Nov-10	<0.02
19-Aug-10	<0.02	15-Nov-10	<0.02
25-Aug-10	<0.02	23-Nov-10	<0.01
01-Sep-10	<0.03	30-Nov-10	<0.02
08-Sep-10	<0.02	06-Dec-10	<0.03
15-Sep-10	<0.03	13-Dec-10	<0.03
21-Sep-10	<0.02	20-Dec-10	<0.02
29-Sep-10	<0.02	29-Dec-10	<0.01

T-41 AIR PARTICULATES - GROSS BETA - (pCi/m³)

Collection Date	Results	Collection Date	Results
06-Jan-10	0.025 ± 0.002	06-Apr-10	0.017 ± 0.002
11-Jan-10	0.032 ± 0.003	13-Apr-10	0.018 ± 0.002
20-Jan-10	0.011 ± 0.002	19-Apr-10	0.009 ± 0.002
28-Jan-10	0.014 ± 0.002	28-Apr-10	0.020 ± 0.002
03-Feb-10	0.013 ± 0.002	04-May-10	0.021 ± 0.003
10-Feb-10	0.015 ± 0.002	10-May-10	0.024 ± 0.003
17-Feb-10	0.026 ± 0.003	18-May-10	0.010 ± 0.002
24-Feb-10	0.013 ± 0.002	26-May-10	0.010 ± 0.002
03-Mar-10	0.026 ± 0.003	02-Jun-10	0.016 ± 0.002
09-Mar-10	0.015 ± 0.002	08-Jun-10	0.013 ± 0.002
17-Mar-10	0.013 ± 0.002	16-Jun-10	0.018 ± 0.002
24-Mar-10	0.010 ± 0.002	23-Jun-10	0.012 ± 0.002
31-Mar-10	0.014 ± 0.002	30-Jun-10	0.012 ± 0.002
Average:	0.018 ± 0.001	Average:	0.015 ± 0.001

Collection Date	Results	Collection Date	Results
07-Jul-10	0.013 ± 0.002	06-Oct-10	0.021 ± 0.002
12-Jul-10	0.011 ± 0.002	11-Oct-10	0.033 ± 0.003
19-Jul-10	0.018 ± 0.002	20-Oct-10	0.024 ± 0.002
28-Jul-10	0.013 ± 0.002	25-Oct-10	0.018 ± 0.003
02-Aug-10	0.013 ± 0.003	02-Nov-10	0.011 ± 0.002
10-Aug-10	0.008 ± 0.002	09-Nov-10	0.015 ± 0.002
19-Aug-10	0.004 ± 0.001	15-Nov-10	0.024 ± 0.003
25-Aug-10	0.011 ± 0.002	23-Nov-10	0.020 ± 0.002
01-Sep-10	0.010 ± 0.002	30-Nov-10	0.009 ± 0.002
08-Sep-10	0.015 ± 0.002	06-Dec-10	0.026 ± 0.003
15-Sep-10	0.014 ± 0.002	13-Dec-10	0.015 ± 0.002
21-Sep-10	0.020 ± 0.002	20-Dec-10	0.014 ± 0.002
29-Sep-10	0.013 ± 0.002	29-Dec-10	0.023 ± 0.002
Average:	0.013 ± 0.001	Average:	0.019 ± 0.001

T-41 AIR PARTICULATES GAMMA ANALYSIS OF QUARTERLY COMPOSITES - (pCi/m³)

	Be-7	K-40	Cs-134	Cs-137	Pb-210
1st Qtr	0.1454 ± 0.0137	<0.0235	<0.0018	<0.0012	<0.0481
2nd Qtr	0.1522 ± 0.0101	<0.0187	<0.0017	<0.0015	0.0095 ± 0.0019
3rd Qtr	0.1255 ± 0.0043	<0.0067	<0.0004	<0.0003	0.0114 ± 0.0013
4th Qtr	0.2115 ± 0.0144	<0.0203	<0.0013	<0.0009	0.0287 ± 0.0037

ATTACHMENT C

RESULTS FROM THE 2010

INTERLABORATORY COMPARISON PROGRAM

CONDUCTED BY

DEPARTMENT OF ENERGY

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

DOE-MAPEP 22 RESULTS

Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
Matrix: RdF Air Filter Bq/filter				
MN54	3.75	3.02	W	2.11 - 3.93
CO57	0.003		A	Blank (no activity)
CO60	2.62	2.473	A	1.731 - 3.215
ZN65	- 0.001		A	Blank (no activity)
CS134	2.33	2.13	A	1.49 - 2.77
CS137	1.74	1.53	A	107 - 1.99
Matrix: GrF Air Filter Bq/filter				
Gross Beta	1.45	1.29	A	0.65 - 1.94
Matrix: MaS Soil Bq/kg				
K40	602.69	559	A	391 - 727
MN54	915.25	849	A	594 - 1104
CO57	560.22	522	A	365 - 679
CO60	647.25	622	A	435 - 809
ZN65	2.27		A	Blank (no activity)
CS134	704.01	733	A	513 - 953
CS137	816.78	779	A	545 - 1013
Matrix: MaW Water Bq/L				
H3	94.61	90.8	A	63.6 - 118.0
MN54	28.38	26.9	A	18.8 - 35.0
CO57	27.1	28.3	A	19.8 - 36.8
CO60	0.07		A	Blank (no activity)
NI63	62.40	59.9	A	41.9 - 77.9
ZN65	44.83	40.7	A	28.5 - 52.9
CS134	0.11		A	Blank (no activity)
CS137	61.69	60.6	A	42.4 - 78.8
Matrix: RdV Vegetation, Bq/sample :				
MN54	- 0.06		A	Blank (no activity)
CO57	0.08		A	Blank (no activity)
CO60	3.01	3.27	A	2.29 - 4.25
ZN65	6.88	7.1	A	4.97 - 9.23
CS134	3.93	4.39	A	3.07 - 5.71
CS137	2.78	3.06	A	2.14 - 3.98

Evaluation : A = Acceptable, W = Acceptable with Warning, N = Not Acceptable

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

DOE-MAPEP 23 RESULTS

Radionuclide	Result	Ref. Value	Flag (Evaluation)	Acceptance Range
Matrix: RdF Air Filter Bq/filter				
MN54	3.56	3.18	A	2.23 – 4.13
CO57	3.78	4.08	A	2.86 – 5.30
CO60	2.86	2.92	A	2.04 – 3.80
ZN65	0.06			Blank (no activity)
CS134	2.85	2.98	A	2.09 – 3.87
CS137	- 0.01		A	Blank (no activity)
Matrix: GrF Air Filter Bq/filter				
Gross Beta	0.498	0.50	A	0.25 – 0.75
Matrix: MaS Soil Bq/kg				
K40	716.80	699	A	489 - 909
MN54	874.59	820	A	574 - 1066
CO57	1.20		N	Blank (no activity)
CO60	345.8	343	A	240 - 446
ZN65	290.23	265	A	186 - 345
CS134	952.61	940	A	658 - 1222
CS137	694.27	670	A	469 - 871
Matrix: MaW Water Bq/L				
H3	471.58	453.0	A	317.4 – 589.4
MN54	- 0.14		A	Blank (no activity)
CO57	36.04	36.0	A	25.2 – 46.8
CO60	27.15	28.3	A	19.8 – 36.8
ZN65	3.264	31.0	A	21.7 – 40.3
SR90	7.66	8.3	A	5.8 – 10.8
CS134	30.98	31.4	A	22.0 – 40.8
CS137	44.26	44.2	A	30.9 – 57.5
Matrix: RdV Vegetation, Bq/sample :				
MN54	5.76	6.287	A	4.401 – 8.173
CO57	7.41	8.27	A	5.79 – 10.75
CO60	0.08		A	Blank (no activity)
ZN65	5.14	5.39	A	3.77 – 7.01
CS134	4.56	4.79	A	3.35- 6.23
CS137	5.32	5.88	A	4.12 – 7.64

Evaluation : A = Acceptable, W = Acceptable with Warning, N = Not Acceptable

ATTACHMENT D

Industry Initiative

Ground Water Protection Program

Tritium in Ground Water Monitoring

2010

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

A. Description of Program:

The Ground Water Protection Program, Industry Initiative, is described in the FPL EV-AA-100 series of procedures; site wells and sampling is described in site procedures 0-NCAP-103 and 0-NCSP-004.

The sampling frequency is quarterly; more often if conditions warrant.

Sample assay is performed by a private contractor. This contractor provides other radiological assay for the effluents & rad-waste program; this affords QA for the Industry Initiative monitoring program.

B. Discussion

The Turkey Point Nuclear site is surrounded on three sides by the closed cooling canal system. This canal system, in addition to being the source of tertiary cooling, is the body of water receiving permitted liquid radiological waste; the canal system tritium level averages about 4,000 pCi/L. This supports the expectation to see tritium in subsurface water collected either on-site or off-site close to the (within the Owner Controlled Area) cooling canal system.

33 wells in 22 locations were involved in the 2010 monitoring program; some locations have multiple (two or three) depths.

Samples are analyzed for Tritium & Gamma emitters. As conditions warrant, analysis included Fe-55, Ni-63, Sr-89/90 and alpha (all were < LLD).

128 'routine' samples were collected; 21 non-routine samples were collected.

12 of the 21 non-routine samples were in response to Unit 3 RWST manway leakage, the other nine were in response to a suspected condensate recovery tank leakage.

C. Results

Tritium was detected in those locations reasonably affected by the cooling canal.
Maximum result: 5230 pCi/L ; the cooling canal tritium values typically vary from 4,000 to 5,000 pCi/L.

Tabular results follow:

C. Results, continued

Turkey Point 2010 Well Sampling Results, pCi/L

Note: -- denotes less than detectable, Typical MDAs K-40: 90 pCi/L Cs-137: 7 pCi/L

Well number	First Quarter 2010			Second Quarter 2010			Third Quarter 2010			Fourth Quarter 2010		
	H-3	K-40	Cs-137	H-3	K-40	Cs-137	H-3	K-40	Cs-137	H-3	K-40	Cs-137
PTPED-1	770	--	15.1	411	--	--	415	--	--	619	--	17.9
Resample 10-31							663		15.6			
Resample 11-05										662		13.86
Resample 12-09										668		17.56
CD-1	854	--	--	852	--	--	459	--	--	486	--	--
Resample 10-31							676					
P-94-2	1182	216	--	916	151		758	186	--	894	161	--
Resample 11-05										790		11.27
Resample 12-09										699		14.07
P-94-4	903	--	13.8	923			1020	--	11.3	1520	--	9.66
STP-1	385	--	--	308	--	--	<255	--	--	<236	--	--
L-3 top	<250	--	--	<230	--	--	<202	--	--	<236	--	--
L-3 bottom	3790	532	--	4440	571	--	3760	599	--	3710	573	--
L-5 top	<250	--	--	670	--	--	<202	--	--	<236	--	--
Resample 6-10				<240								
L-5 bottom	2773	424	--	3563	484	--	3430	493	--	3360	407	--
G-21 top	<250	--	--	257	--	--	<199	--	--	<236	--	--
G-21 bottom	<250	--	--	591	242	--	<200	--	--	<234	--	--
G-28 top	<250	--	--	<230	--	--	<200	--	--	<226	--	--
G-28 bottom	<250	178	--	<230	--	--	380	165	--	550	150	--
G-35 Top	<250	--	--	259	--	--	<198	62.8	--	<228	--	--
Resample 6-10				<240								
G-35 Bottom	<250	74	--	<230	--	--	<201	80.2	--	<227	86	--
PTN-MW-1s	<250	--	--				<247	--	--			
PTN-MW-1i	329	306	--				<264	284	--			
PTN-MW-1d	1980	410	--				2080	571	--			
PTN-MW-2s	<250	--	--	<230	--	--	<253	--	--	<237	--	--
PTN-MW-3s	<250						<255	--	--			

C. Results (continued)

Turkey Point 2010 Well Sampling Results, pCi/L

Note: -- denotes less than detectable, Typical MDAs K-40: 90 pCi/L Cs-137: 7 pCi/L

Well number	First Quarter 2010			Second Quarter 2010			Third Quarter 2010			Fourth Quarter 2010		
	H-3	K-40	Cs-137	H-3	K-40	Cs-137	H-3	K-40	Cs-137	H-3	K-40	Cs-137
PTN-MW-4s	<250	--	--				<252	--	--			
PTN-MW-4i	3470	509	--				3220	542	--			
PTN-MW-4d	3930	503	--				3860	603	--			
PTN-MW-5s	<250	340	--	332	--	--	<261	--	--	<237	387	--
PTN-MW-5i	2219	495	--	2113	545	--	<261	347	--	5230	372	--
PTN-MW-5d	3353	477	--	3156	423	--	2980	489	--	3670	572	--
PTN-MW-6s	<250	--	--				<262	147	--			
PTN-MW-6d	984	297	--				1220	393	--			
PTN-MW-7s	1440	--	--	1212	--	--	384	--	--	341	--	--
Resample 10-31							661			459		
Resample 11-05										190		
Resample 12-09												
PTN-MW-7i	772	331	--	411	261	--	449	--	--	575	368	--
Resample 10-31							664	300				
Resample 11-05										738	366	
Resample 12-09										524		
PTN-MW-7d	2718	425	--	2133	494	--	1730	363	--	2290	532	--
Resample 10-31							2103	495				
Resample 11-05										2840	570	
Resample 12-09										1910		
PTN-MW-8s	1031	--	--	1003	--	--	960	--	10.7	1830	--	--
Resample 11-05										2270		1452
Resample 12-09										1280		18.82
PTN-MW-9s	437			207	--		--	276	--	--	646	--
Resample 11-05										468		7.7
Resample 12-09										563		

C. Results (continued)

Turkey Point 2010 Well Sampling Results, pCi/L

Note: -- denotes less than detectable, Typical MDAs K-40: 90 pCi/L Cs-137: 7 pCi/L

Well number	First Quarter 2010			Second Quarter 2010			Third Quarter 2010			Fourth Quarter 2010		
	H-3	K-40	Cs-137	H-3	K-40	Cs-137	H-3	K-40	Cs-137	H-3	K-40	Cs-137
PTN-MW-10s	<250	--	--				<141	--	--			
PTN-MW-10i	1711	293	--				1580	328	--			
PTN-MW-10d	4150	517	--				2590	566	--			
PTN-MW-11s	<250	--	--	403	--	--	870	--	--	536	--	--
Resample 11-05										254		
Resample 12-09										514		
PTN-MW-12s	1313	--	--	1234	--	--	954	222	--	486	--	--

Description of Well locations follows:

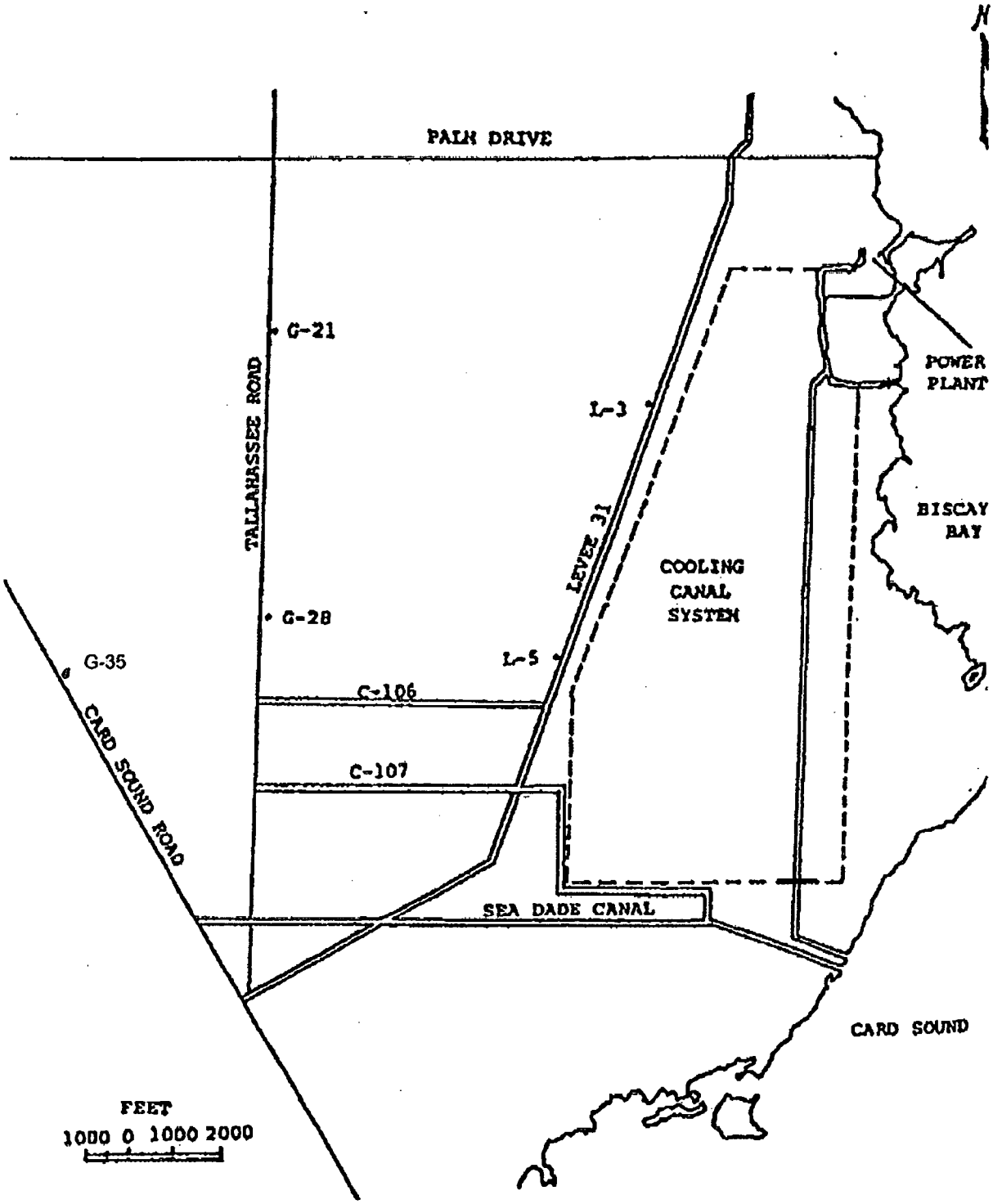
D. List of wells and their locations

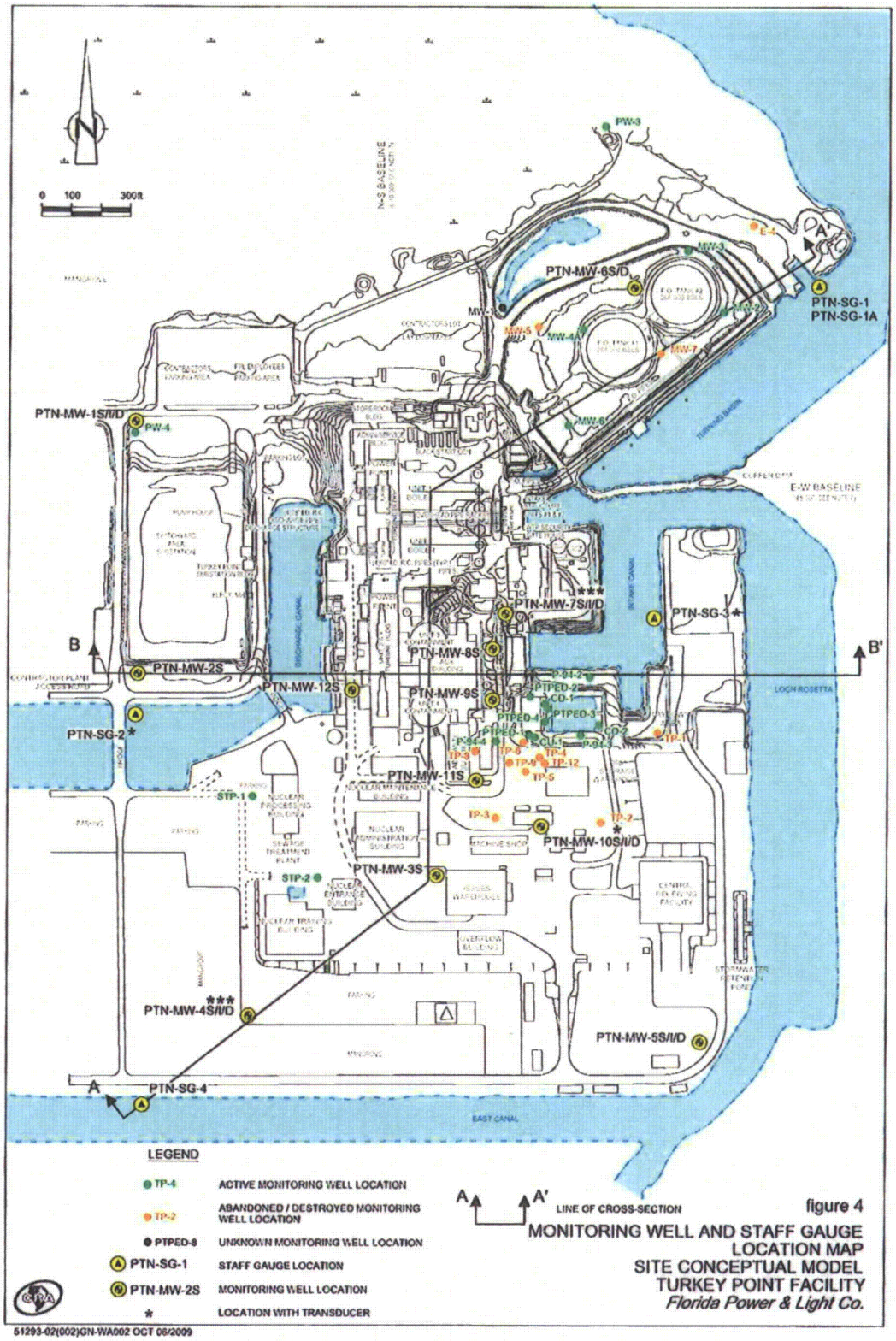
Well Name	**Location**
PTN-MW-1s PTN-MW-1i PTN-MW-1d	Northeast of Switch Yard, South of entrance road to Fossil Plant
PTN-MW-2s	South Switch Yard by parking lot
PTN-MW-3s	Northeast of new Issues Warehouse
PTN-MW-4s PTN-MW-4i PTN-MW-4d	SW corner of parking lot South of Training Bldg
PTN-MW-5s PTN-MW-5i PTN-MW-5d	SW of CRF, by canal
PTN-MW-6s PTN-MW-6d	NE of site in the berm for fossil oil tanks
PTN-MW-7s PTN-MW-7i PTN-MW-7d	NE of RCA, by Neutralization Tank
PTN-MW-8s	Near U3 RWST
PTN-MW-9s	Near U4 RWST
PTN-MW-10s PTN-MW-10i PTN-MW-10d	SE of Radwaste Bldg by S/G Bldg
PTN-MW-11s	South of truck entrance to Rad Waste Bldg
PTN-MW-12s	West of Condenser Polisher road
STP-1	West of Maintenance Bldg on corner or road into parking lot
P-94-4	East of Dressout Building, under delay fence
P-94-2	By Neutralization Basin, East of the RCA
CD-1	By Neutralization Basin, East of the RCA
PTPED-1	By Neutralization Basin, East of the RCA
L-3 (1)	On Levee 31 dike
L-5 (1)	On Levee 31 dike
G-21 (1)	On 137th Avenue
G-28 (1)	On 137th Avenue
G-35 (1)	Card Sound Road

Note: s, i and d refer to well depth: shallow - 20 ft., intermediate - 40 ft. and deep - 60 ft
(1): Sampled at 18 and 58 foot levels.
Maps depicting the well locations follow.

2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

Offsite H3 Monitoring Wells



2010
ANNUAL RADIOLOGICAL ENVIRONMENTAL OPERATING REPORT
TURKEY POINT PLANT – UNITS 3 & 4

Onsite H3 Monitoring Wells