



**FPL Energy.**

**Point Beach Nuclear Plant**

April 30, 2008

NRC 2008-0030  
10 CFR 72.44  
TS 5.6.2

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Point Beach Nuclear Plant, Units 1 and 2  
Dockets 50-266, 50-301, and 72-005  
Renewed License Nos. DPR-24 and DPR-27

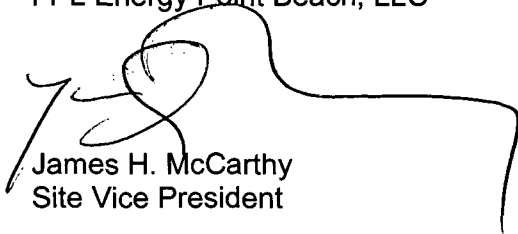
2007 Annual Monitoring Reports

Enclosed are the annual monitoring reports for Point Beach Nuclear Plant (PBNP) Units 1 and 2 covering the period January 1 through December 31, 2007. The report also provides results of radiological monitoring of the PBNP Independent Spent Fuel Storage Installation (ISFSI). Enclosure 1 provides corrections to previously submitted reports, summarizes radioactive waste shipments, provides results of chemical waste releases, and addresses circulating water system operation. Enclosure 2 transmits the Environmental, Inc. report for calendar year 2007. Enclosure 3 transmits Offsite Dose Calculation Manual (ODCM) Revision 18, dated November 7, 2007 as required by PBNP Technical Specification 5.6.2.

This letter contains no new commitments and no revisions to existing commitments.

Very truly yours,

FPL Energy Point Beach, LLC



James H. McCarthy  
Site Vice President

Enclosure

cc: Administrator, Region III, USNRC  
Project Manager, Point Beach Nuclear Plant, USNRC  
Resident Inspector, Point Beach Nuclear Plant, USNRC  
PSCW  
American Nuclear Insurers  
WI Division of Public Health, Radiation Protection Section

IE25  
A009  
NR

**ENCLOSURE 1  
FPL ENERGY POINT BEACH, LLC  
POINT BEACH NUCLEAR PLANT, UNITS 1 AND 2  
  
2007 ANNUAL MONITORING REPORT**

**1.0 RADIOACTIVE AIRBORNE RELEASES**

Corrections to Tables 3-2 and 3-3 (2000 through 2005)

During the years 2000 through 2005, F-18 was reported in Table 3-3 "Isotopic Composition of Airborne Releases," and used to calculate the total particulate curies released in Table 3-2, "Radioactive Airborne Effluent Release Summary." Because particulate F-18 has a short half-life, it should not have been reported in either table during those years. The curies of airborne particulates released have been recalculated. The originally reported values and the corrected particulate values are presented in Table 1.

**Table 1**

**Total Particulate Curies Reported in Table 3-2 in Years 2000 - 2005 Corrected for F-18**

	Jan (Ci)	Feb (Ci)	Mar (Ci)	Apr (Ci)	May (Ci)	Jun (Ci)	Annual (Ci)	Jul (Ci)	Aug (Ci)	Sep (Ci)	Oct (Ci)	Nov (Ci)	Dec (Ci)	Total (Ci)
<b>2000</b>														
<b>Total Particulates<sup>2</sup>(Ci)</b>	2.91E-05	4.34E-06	2.06E-06	0.00E+00	0.00E+00	1.10E-08	NR	0.00E+00	0.00E+00	6.35E-11	2.33E-05	8.67E-06	6.38E-11	6.68E-05
2000 Corrected	2.91E-05	4.34E-06	1.01E-06	0.00E+00	0.00E+00	1.10E-08		0.00E+00	0.00E+00	6.35E-11	2.33E-05	8.67E-06	6.38E-11	6.64E-05
<b>2001</b>														
<b>Total Particulates<sup>2</sup>(Ci)</b>	5.66E-11	9.49E-04	0.00E+00	0.00E+00	0.00E+00	5.08E-14	NR	2.85E-09	6.22E-04	1.03E-06	7.58E-08	2.50E-09	0.00E+00	1.57E-03
2001 Corrected	5.66E-11	1.13E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	1.03E-06	0.00E+00	4.07E-10	0.00E+00	1.23E-05
<b>2002</b>														
<b>Total Particulates<sup>2</sup>(Ci)</b>	0.00E+00	0.00E+00	0.00E+00	5.50E-06	4.08E-06	2.09E-10	NR	0.00E+00	0.00E+00	1.25E-07	3.77E-06	3.04E-07	0.00E+00	1.38E-05
2002 Corrected	0.00E+00	0.00E+00	0.00E+00	5.50E-06	1.25E-10	0.00E+00		0.00E+00	0.00E+00	1.25E-07	3.77E-06	3.04E-07	0.00E+00	9.70E-06
<b>2003</b>														
<b>Total Particulates<sup>2</sup>(Ci)</b>	0.00E+00	0.00E+00	0.00E+00	3.12E-05	1.10E-05	3.62E-05	NR	8.57E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.80E-05
2003 Corrected	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		8.56E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.56E-06
<b>2004</b>														
<b>Total Particulates<sup>2</sup>(Ci)</b>	0.00E+00	1.28E-10	1.17E-06	1.84E-08	1.39E-08	8.94E-12	1.20E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-06
2004 Corrected	0.00E+00	0.00E+00	0.00E+00	1.84E-08	1.39E-08	8.94E-12	3.23E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.23E-08
<b>2005</b>														
<b>Total Particulates<sup>2</sup>(Ci)</b>	0.00E+00	1.27E-07	0.00E+00	0.00E+00	8.89E-10	1.13E-05	1.14E-05	6.95E-05	5.00E-01	1.01E-07	2.60E-04	3.95E-08	5.35E-04	5.01E-01
2005 Corrected	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.15E-06	3.15E-06	6.96E-07	8.98E-07	7.86E-08	6.59E-05	3.95E-08	0.00E+00	7.08E-05

<sup>2</sup> Total is the sum of alpha, strontium, and others

NR = not reported in Table 3-2 those years.

## 2.0 RADIOACTIVE SOLID WASTE SHIPMENTS

### 2.1 Types, Volumes, and Activity of Shipped Solid Waste

The following types, volumes, and activity of solid waste were shipped from PBNP for offsite disposal or burial during 2007. No types C or D were shipped. No irradiated fuel was shipped offsite. The volume, activity, and type of waste are listed in Table 2-1.

**Table 2-1**

**Quantities and Types of Waste Shipped from PBNP**

Type of Waste	Quantity	Activity
Spent resins, filter sludge, evaporator bottoms, etc.	4.100 m <sup>3</sup>	30.122 Ci
	145.00 ft <sup>3</sup>	
Dry compressible waste, contaminated equipment, etc	248 m <sup>3</sup>	0.235 Ci
	8752 ft <sup>3</sup>	
Irradiated components, control rods, etc.	0.00 m <sup>3</sup>	N/A Ci
	0.00 ft <sup>3</sup>	
Other	0.00 m <sup>3</sup>	N/A Ci
	0.00 ft <sup>3</sup>	

### 2.2 Major Nuclide Composition (by Type of Waste)

The major radionuclide content of the 2007 solid waste was determined by gamma isotopic analysis and the application of scaling factors for certain indicator radionuclides based on the measured isotopic content of representative waste stream samples. The estimated isotopic content is presented in Table 2-2.

**Table 2-2**

**2007 Estimated Solid Waste Major Radionuclide Composition**

TYPE A		TYPE B	
	Percent		Percent
Nuclide	Abundance	Nuclide	Abundance
Ni-63	73.7%	Ni-63	23.7%
Co-60	14.5%	Co-58	15.8%
Cs-137	5.9%	Fe-55	15.0%
Fe-55	3.0%	Co-60	13.0%
Ni-59	0.8%	Nb-95	12.7%
Sb-125	0.6%	Ag-110m	5.3%
Co-57	0.5%	Zr-95	4.3%
Cs-134	0.5%	Sb-125	4.2%
Mn-54	0.1%	Cr-51	1.9%
Ag-110m	0.1%	Ru-106	1.8%
Sr-90	0.1%	Mn-54	1.8%
Pu-241	0.1%	H-3	0.2%
Ce-144	0.1%	Cs-137	0.2%
Co-58	0.1%	Tc-99	0.0%
Am-241	0.0%	Zn-65	0.0%
Pu-238	0.0%	Pu-241	0.0%
Cm-243	0.0%	Ce-144	0.0%
H-3	0.0%	Sr-90	0.0%
Cm-244	0.0%	Am-241	0.0%
Tc-99	0.0%	Cm-242	0.0%
Pu-239	0.0%	Cm-243	0.0%
Pu-240	0.0%	Cm-244	0.0%
Sr-89	0.0%	Pu-238	0.0%
I-129	0.0%	Pu-239	0.0%
Cm-242	0.0%	Pu-240	0.0%

### 2.3 Solid Waste Disposition

There were nine solid waste shipments from PBNP during 2007. The dates and destinations are as follows:

01/09/07	Oak Ridge, TN
02/19/07	Erwin, TN
04/10/07	Oak Ridge, TN
04/10/07	Oak Ridge, TN
04/29/07	Oak Ridge, TN
05/03/07	Oak Ridge, TN
05/14/07	Memphis, TN
07/17/07	Oak Ridge, TN
11/28/07	Erwin, TN

## 3.0 **NONRADIOACTIVE CHEMICAL RELEASES**

### 3.1 Scheduled Chemical Waste Releases

Scheduled chemical waste releases to the circulating water system from January 1, 2007, to June 30, 2007, included 5.96E+05 gallons of neutralized wastewater. The wastewater contained 4.06E+00 pounds of suspended solids and 2.86E+02 pounds of dissolved solids.

Scheduled chemical waste releases to the circulating water system from July 1, 2007, to December 31, 2007, included 7.53E+05 gallons of neutralized wastewater. The wastewater contained 1.32E+01 pounds of suspended solids and 2.62E+04 pounds of dissolved solids.

Scheduled chemical waste releases are based on the average analytical results obtained from sampling a representative number of neutralizing tanks.

### 3.2 Miscellaneous Chemical Waste Releases

Miscellaneous chemical waste releases from the wastewater effluent (based on effluent analyses) to the circulating water for January 1, 2007, to June 30, 2007, included 2.36E+07 gallons of clarified wastewater. The wastewater contained 2.34E+03 pounds of suspended solids.

Miscellaneous chemical waste releases from the Wastewater Effluent (based on effluent analyses) to the circulating water for July 1, 2007, to December 31, 2007, included 2.59E+07 gallons of clarified wastewater. The wastewater contained 2.68E+03 pounds of suspended solids.

Miscellaneous chemical waste released directly to the circulating water, based on amount of chemicals used from January 1, 2007, to June 30, 2007, included 2.57E+05 pounds of sodium bisulfite and 2.40E+05 pounds of sodium hypochlorite.

Miscellaneous chemical waste released directly to the circulating water, based on amount of chemicals used from July 1, 2007, to December 31, 2007, included 4.39E+05 pounds of sodium bisulfite and 4.21E+05 pounds of sodium hypochlorite.

#### 4.0 CIRCULATING WATER SYSTEM OPERATION

The circulating water system operation during this reporting period for periods of plant operation is described in Table 4-1.

Table 4-1

Circulating Water System Operation for 2007

	UNIT	JAN	FEB	MAR	APR*	MAY	JUN
Average Volume Cooling	1	282.2	282.2	350.9	156.2	425.6	390.5
Water Discharge [million gal/day]**	2	282.2	282.2	336.5	494.4	468.3	490.4
Average Cooling Water Intake Temperature [°F]	1	37.0	37.6	38.4	42.8	48.0	48.3
Average Cooling Water Discharge Temperature [°F]	2	37.0	37.6	38.2	41.1	47.5	48.9
Average Cooling Water Intake Temperature [°F]	1	69.3	70.0	67.0	43.7	63.5	60.1
Average Cooling Water Discharge Temperature [°F]	2	70.1	70.7	66.7	60.3	67.0	68.1
Average Ambient Lake Temperature [°F]		35.0	36.5	36.9	40.6	46.1	46.1

\* Unit 1 outage 4/2 - 5/5.

\*\* For days with cooling water discharge flow.

	UNIT	JUL	AUG	SEP	OCT	NOV	DEC
Average Volume Cooling	1	489.6	489.6	489.6	485.9	456.0	281.9
Water Discharge [million gal/day]**	2	489.6	489.6	489.6	479.4	490.5	286.8
Average Cooling Water Intake Temperature [°F]	1	55.1	65.3	52.8	53.5	43.1	36.9
Average Cooling Water Discharge Temperature [°F]	2	55.7	65.9	53.2	53.9	43.1	37.3
Average Cooling Water Intake Temperature [°F]	1	73.9	84.4	71.7	72.8	63.8	69.0
Average Cooling Water Discharge Temperature [°F]	2	74.6	85.4	72.3	73.6	62.3	70.6
Average Ambient Lake Temperature [°F]		52.4	60.7	48.6	50.8	40.2	34.0

\*\* For days with cooling water discharge flow.

#### 5.0 ADDITIONAL REPORTING REQUIREMENTS

##### 5.1 Revisions to the PBNP Effluent and Environmental Programs

The ODCM was revised in 2007 to include the modification (ALPS - Advanced Liquid Processing System) to the liquid waste treatment system. The wastewater treatment system that serves the radiologically controlled area of the plant has been modified by replacing the evaporator system with an ion exchange system.

## 5.2 Interlaboratory Comparison Program

Environmental, Inc, Midwest Laboratory, the analytical laboratory contracted to perform the radioanalyses of the PBNP environmental samples, participated in the Department of Energy's Mixed Analyte Performance Evaluation Program (MAPEP) as well as in the interlaboratory comparison studies administered by Environmental Resources Associates (ERA) during 2007. The ERA environmental crosscheck program replaces the Environmental Measurements Laboratory (EML) Quality Assessment Program which was discontinued. The results of these comparisons can be found in Appendix A of the AMR.

## 5.3 Special Circumstances

No special circumstances report regarding operation of the explosive gas monitor for the waste gas holdup system was needed during 2007.

# 6.0 RADIOACTIVE LIQUID RELEASES

The radioactive liquid release path to the environment is via the circulating water discharge. A liquid waste treatment system in conjunction with administrative controls is used to minimize the impact on the environment and maintain doses to the public ALARA from the liquid releases.

## 6.1 2007 Circulating Water Radionuclide Release Summary

Radioactive liquid releases via the circulating water discharge are summarized by individual source and total curies released on a monthly basis and presented in Table 6-1. These releases are composed of processed waste, wastewater effluent, and blowdown from Units 1 and 2. The wastewater effluent consists of liquid from turbine hall sumps, plant well house backwashes, sewage treatment plant effluent, water treatment plant backwashes, and the Unit 1 and 2 facade sumps.

## 6.2 2007 Isotopic Composition of Circulating Water Discharges

The isotopic composition of circulating water discharges during the current reporting period is presented in Table 6-2. The noble gases released in liquids are reported with the airborne releases in Table 7-1. The isotopic distribution shows little change from 2006, with tritium down slightly from 2006 and close to 2005 value. Tritium continues to be the major radionuclide released via liquid discharges.



**Table 6-1**  
**Summary of Circulating Water Discharge**  
 January 1, 2007, through December 31, 2007

	Jan	Feb	Mar	Apr	May	Jun	Total Jan-Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Total
<b>Total Activity Released (Ci)</b>														
Gamma Scan (+Fe-55)	5.55E-03	3.82E-04	2.17E-02	1.83E-02	7.33E-03	1.17E-02	6.50E-02	2.72E-03	2.25E-04	1.32E-03	2.15E-04	3.38E-03	7.68E-03	8.05E-02
Gross Alpha	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-06	3.51E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-06
Tritium	8.03E+01	6.44E+00	1.09E+02	2.60E+01	3.84E+01	3.44E+01	2.94E+02	2.71E+01	1.56E+01	8.58E+01	9.78E+00	5.82E+01	9.65E+01	5.88E+02
Strontium (89/90/92)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.36E-05	0.00E+00	9.36E-05
<b>Total Vol Released (gal)</b>														
Processed Waste	5.63E+04	1.72E+04	1.06E+05	1.06E+05	1.06E+05	4.42E+04	4.36E+05	6.39E+04	2.61E+04	4.24E+04	8.23E+03	3.16E+04	4.17E+04	6.50E+05
Waste Water Effluent*	4.55E+06	3.46E+06	4.71E+06	3.61E+06	3.66E+06	2.75E+06	2.27E+07	2.96E+06	3.79E+06	3.99E+06	4.67E+06	5.01E+06	5.23E+06	4.84E+07
U1 SG Blowdown	1.57E+06	1.54E+06	1.70E+06	8.80E+03	2.39E+06	1.88E+06	9.09E+06	2.68E+06	2.66E+06	2.33E+06	2.68E+06	2.46E+06	2.66E+06	2.46E+07
U2 SG Blowdown	2.62E+06	2.40E+06	2.14E+06	1.58E+06	2.63E+06	2.07E+06	1.34E+07	2.12E+06	2.58E+06	2.08E+06	2.49E+06	2.46E+06	2.61E+06	2.78E+07
Total Gallons	8.80E+06	7.42E+06	8.66E+06	5.31E+06	8.78E+06	6.74E+06	4.57E+07	7.83E+06	9.07E+06	8.45E+06	9.85E+06	9.97E+06	1.05E+07	1.01E+08
Total cc	3.33E+10	2.81E+10	3.28E+10	2.01E+10	3.32E+10	2.55E+10	1.73E+11	2.96E+10	3.43E+10	3.20E+10	3.73E+10	3.77E+10	3.97E+10	3.84E+11
<b>Vol of dilution water (cc)**</b>														
	6.62E+13	5.98E+13	8.06E+13	5.74E+13	1.04E+14	1.00E+14	4.68E+14	1.15E+14	1.15E+14	1.11E+14	1.13E+14	1.08E+14	6.68E+13	1.10E+15
<b>Avg diluted discharge conc (µCi/cc)</b>														
Gamma Scan (+Fe-55)	8.38E-11	6.39E-12	2.69E-10	3.19E-10	7.05E-11	1.17E-10		2.37E-11	1.96E-12	1.19E-11	1.90E-12	3.13E-11	1.15E-10	
Gross Alpha	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.51E-14		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
Tritium	1.21E-06	1.08E-07	1.35E-06	4.53E-07	3.69E-07	3.44E-07		2.36E-07	1.36E-07	7.73E-07	8.65E-08	5.39E-07	1.44E-06	
Strontium (89/90/92)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-13	0.00E+00	
<b>Max Batch Discharge Conc (µCi/cc)</b>														
Tritium	4.62E-05	8.45E-06	3.66E-05	1.22E-05	1.78E-05	1.46E-05		1.02E-05	9.98E-06	1.54E-05	7.90E-06	1.27E-05	2.00E-05	
Gamma Scan	5.57E-09	2.32E-10	8.32E-09	1.01E-08	4.18E-09	1.64E-08		3.23E-09	2.04E-10	2.16E-10	6.46E-12	8.98E-10	1.97E-09	

\* The Retention Pond was taken out of service in September 2002 and replaced with the waste water effluent filter system.

\*\* Circulating water discharge from both units.

Note: Dissolved noble gases detected in liquid effluents (e.g., Xe-133, Xe-135, etc.) are added to the atmospheric release summaries.

**Table 6-2**  
**Isotopic Composition of Circulating Water Discharges (Ci)**  
 January, 2007 through December 31, 2007

Nuclide	Jan	Feb	Mar	Apr	May	Jun	Total Jan-Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Jan-Dec
H-3	8.03E+01	6.44+00	1.09E+02	2.60E+01	3.84E+01	3.44E+01	2.94E+02	2.71E+01	1.56E+01	8.58E+01	9.78E+00	5.82E+01	9.65E+01	5.88E+02
F-18	1.53E-04	2.12E-04	3.11E-04	1.71E-04	3.11E-04	1.45E-04	1.30E-03	5.53E-04	4.62E-05	1.16E-04	2.07E-04	0.00E+00	2.29E-04	2.45E-03
Cr-51	4.11E-04	0.00E+00	7.19E-04	6.67E-04	4.43E-04	5.33E-04	2.77E-03	9.02E-05	0.00E+00	0.00E+00	0.00E+00	9.62E-05	1.46E-04	3.10E-03
Mn-54	3.34E-05	0.00E+00	2.36E-05	7.65E-06	7.90E-06	8.90E-05	8.14E-05	2.87E-05	0.00E+00	0.00E+00	0.00E+00	3.09E-06	1.11E-05	1.24E-04
Fe-55	0.00E+00	0.00E+00	4.43E-04	0.00E+00	3.06E-04	5.02E-03	5.77E-03	1.96E-04	0.00E+00	2.57E-04	0.00E+00	0.00E+00	0.00E+00	6.22E-03
Fe-59	0.00E+00	0.00E+00	0.00E+00	9.57E-05	2.29E-05	7.42E-05	1.93E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-04
Co-57	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-58	2.21E-04	4.14E-05	7.51E-04	8.29E-04	3.12E-03	9.23E-04	5.88E-03	1.91E-04	8.37E-06	5.30E-05	0.00E+00	2.71E-05	9.99E-05	6.26E-03
Co-60	6.53E-04	8.20E-05	7.03E-04	8.39E-04	4.05E-04	1.18E-03	3.86E-03	5.92E-04	1.10E-04	1.38E-04	6.39E-06	2.01E-04	5.40E-04	5.45E-03
Zn-65	0.00E+00	0.00E+00	4.62E-06	0.00E+00	0.00E+00	0.00E+00	4.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.62E-06
As-76	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-05	0.00E+00	1.99E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.99E-05
Sr-89	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sr-90	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.36E-05	0.00E+00	9.36E-05
Nb-95	8.04E-05	0.00E+00	3.00E-05	3.06E-05	8.79E-05	2.34E-05	2.52E-04	0.00E+00	0.00E+00	3.71E-08	0.00E+00	0.00E+00	1.86E-05	2.71E-04
Nb-97	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.83E-06
Zr-95	3.30E-05	0.00E+00	0.00E+00	3.12E-06	9.21E-06	0.00E+00	4.53E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.53E-05
Ag-110m	1.52E-04	3.21E-05	2.15E-04	1.75E-04	1.63E-04	2.68E-03	3.42E-03	1.00E-03	6.05E-05	9.92E-05	1.60E-06	8.23E-05	7.89E-05	4.74E-03
Sn-113	1.21E-05	0.00E+00	6.76E-06	1.01E-05	3.36E-05	5.32E-05	1.16E-04	0.00E+00	0.00E+00	1.16E-06	0.00E+00	0.00E+00	0.00E+00	1.17E-04
Sn-117m	1.46E-04	0.00E+00	5.20E-05	1.19E-04	1.49E-03	2.90E-04	2.10E-03	1.41E-04	0.00E+00	2.35E-05	0.00E+00	1.23E-06	6.53E-06	2.27E-03
Sb-122	0.00E+00	0.00E+00	0.00E+00	1.27E-06	0.00E+00	0.00E+00	1.27E-06	1.20E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.33E-05
Sb-124	0.00E+00	0.00E+00	1.36E-04	0.00E+00	3.19E-06	1.16E-04	2.55E-04	3.48E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-04
Sb-125	3.63E-03	4.42E-06	1.83E-02	1.53E-02	9.00E-04	5.82E-04	3.87E-02	1.29E-04	0.00E+00	6.12E-04	0.00E+00	2.86E-03	6.54E-03	4.88E-02
I-131	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	0.00E+00	1.40E-05	0.00E+00	0.00E+00	2.34E-05	0.00E+00	0.00E+00	0.00E+00	3.74E-05
I-133	2.06E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.06E-05
Te-132	0.00E+00	0.00E+00	1.05E-05	3.66E-06	0.00E+00	0.00E+00	1.42E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.04E-06	2.32E-05
Cs-137	1.11E-05	1.00E-05	4.39E-06	4.66E-05	8.99E-06	1.94E-05	1.00E-04	3.83E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.81E-07	1.04E-04
Ru-103	0.00E+00	0.00E+00	0.00E+00	2.68E-06	0.00E+00	0.00E+00	2.68E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.68E-06
Ru-106	0.00E-00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-04
Ba-140	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-05	0.00E+00	1.79E-05
W-187	0.00E-00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Te-131	0.00E-00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Note: The dissolved noble gases detected in liquid effluents (e.g., Xe-133, Xe-135, etc.) are added to the atmospheric release summaries

## 7.0 RADIOACTIVE AIRBORNE RELEASES

The release paths to the environment contributing to radioactive airborne release totals during this reporting period were the Auxiliary Building Vent Stack, the Drumming Area Vent Stack, the Letdown Gas Stripper, the Unit 1 Containment Purge Stack, and the Unit 2 Containment Purge Stack. A gaseous radioactive effluent treatment system in conjunction with administrative controls is used to minimize the impact on the environment from the airborne releases and maintain doses to the public ALARA.

### 7.1 Radioactive Airborne Release Summary

Radioactivity released in airborne effluents for 2007 are summarized in Table 7-1.

### 7.2 Isotopic Airborne Releases

The monthly isotopic airborne releases for 2007, from which the airborne doses were calculated, are presented in Table 7-2. When both the equipment hatch and the Elevation 66' hatch are open during an outage, there is a measurable, convective flow out the upper hatch. Because this air is not filtered, whatever is measured in containment air is assumed to be carried out the hatch, through the façade, and into the environment thereby contributing to the particulate effluent and the calculated dose.

**Table 7-1**  
**Radioactive Airborne Effluent Release Summary**  
 January 1, 2007, through December 31, 2007

	Jan	Feb	Mar	Apr	May	Jun	Total J-Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<b>Total NG from Liq (Ci)</b>	5.38E-05	0.00E+00	2.04E-03	1.33E-03	2.56E-03	1.89E-03	7.87E-03	2.07E-04	0.00E+00	3.48E-04	0.00E+00	2.30E-04	3.89E-04	9.05E-03
<b>Total Noble Gas (Ci)<sup>1</sup></b>	4.15E-02	5.00E-02	5.15E-02	4.17E-02	5.36E-02	6.60E-02	3.04E-01	5.80E-02	4.12E-02	4.37E-02	5.72E-02	8.66E-02	6.53E-02	6.56E-01
<b>Total Radioiodines (Ci)</b>	1.08E-05	0.00E+00	0.00E+00	5.16E-06	0.00E+00	0.00E+00	1.60E-05	0.00E+00	0.00E+00	1.44E-05	0.00E+00	0.00E+00	0.00E+00	3.04E-05
<b>Total Particulate (Ci)<sup>2</sup></b>	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-10	0.00E+00	1.65E-10
Alpha (Ci)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Strontium(Ci)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
All other beta + gamma (Ci)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-10	0.00E+00	1.65E-10
<b>Total Tritium (Ci)</b>	1.01E+01	6.05E+00	6.87E+00	9.36E+00	6.41E+00	4.56E+00	4.34E+01	4.73E+00	5.59E+00	6.43E+00	9.18E+00	8.60E+00	8.29E+00	8.62E+01
<b>Max NG H'rly Rel.(Ci/sec)</b>	4.08E-08	4.14E-08	4.07E-08	3.67E-08	7.12E-10	7.65E-08		6.63E-08	3.76E-08	3.95E-08	5.87E-08	2.85E-07	5.07E-08	

<sup>1</sup> Total noble gas (airborne + liquid releases).

<sup>2</sup> Total Particulate is the sum of alpha, strontium, and others. It does not include radioiodines or F-18. F-18 and other airborne particulates with half-lives <8 days do not to be considered for dose calculations. Airborne radioiodines only include I-131 and I-133.

**Table 7-2**  
**Isotopic Composition of Airborne Releases**  
 January 1, 2007 through December 31, 2007

Nuclide	Jan (Ci)	Feb (Ci)	Mar (Ci)	Apr (Ci)	May (Ci)	Jun (Ci)	Semi- Annual	Jul (Ci)	Aug (Ci)	Sep (Ci)	Oct (Ci)	Nov (Ci)	Dec (Ci)	Total (Ci)
H-3	1.01E+01	6.05E+00	6.87E+00	9.36E+00	6.41E+00	4.56E+00	4.34E+01	4.73E+00	5.59E+00	6.43E+00	9.18E+00	8.60E+00	8.29E+00	8.62E+01
Ar-41	4.14E-02	4.92E-02	4.72E-02	3.83E-02	4.24E-02	4.31E-02	2.62E-01	4.60E-02	4.03E-02	4.05E-02	5.04E-02	5.21E-02	5.50E-02	5.46E-01
Kr-85	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Kr-85m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.07E-04	2.07E-04
Kr-87	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.64E-04	4.64E-04
Kr-88	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.02E-03	2.02E-03
Xe-133	1.73E-04	8.28E-04	3.55E-03	3.38E-03	1.02E-02	2.27E-02	4.08E-02	1.20E-02	8.14E-04	2.75E-03	6.71E-03	2.65E-02	9.90E-03	9.95E-02
Xe-133m	0.00E+00	0.00E+00	2.86E-05	0.00E+00	3.47E-05	0.00E+00	6.33E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.11E-04	3.74E-04
Xe-135	0.00E+00	0.00E+00	6.45E-04	1.46E-05	9.52E-04	1.79E-04	1.79E-03	2.43E-05	1.07E-04	4.23E-04	1.19E-04	1.95E-03	3.79E-04	4.79E-03
Xe-135m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.20E-05	0.00E+00	9.01E-04	0.00E+00	9.53E-04
Xe-138	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.17E-03	2.17E-03
Cr-51	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Mn-54	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-57	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-58	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Co-60	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Nb-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Zr-95	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ag-110m	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sn-113	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-124	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sb-125	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
I-131	7.08E-07	0.00E+00	0.00E+00	5.16E-06	0.00E+00	0.00E+00	5.87E-06	0.00E+00	0.00E+00	1.55E-06	0.00E+00	0.00E+00	0.00E+00	7.42E-06
I-133	1.01E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.01E-05	0.00E+00	0.00E+00	1.29E-05	0.00E+00	0.00E+00	0.00E+00	2.30E-05
Cs-137	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-10	1.65E-10

Note: The Noble Gases listed above include the liquid contribution.