ATTACHMENT I

SEMIANNUAL REPORT OF RADIOACTIVE EFFLUENT RELEASES, PTP UNITS 3 & 4. 1/79 - 6/79

Introduction

All liquid and airborne discharges to the environment during this reporting period were analyzed in accordance with Technical Specification requirements. The minimum frequency of analysis as required by Safety Guide 21 has been met or exceeded.

Liquid Releases

Aliquots of representative pre-release samples were either isotopically analyzed for gamma emitting isotopes on a multichannel analyzer, or evaporated and analyzed for gross beta-gamma activity in a 2π gas flow proportional counter. The efficiency of the gas flow proportional counter is adjusted so that the activity determined by gross beta-gamma analysis approximates the isotopic activities determined by gamma spectrum analysis and selected beta determinations, exclusive of tritium and dissolved gases.

The above procedure was followed for all releases from the waste disposal system and for secondary system batch releases. Frequent periodic sampling and analysis were used to conservatively estimate the quantity of radioactivity released via the steam generator blowdown system.

The following comments will aid in the interpretation and evaluation of the liquid release data presented in Table I, pages 1 through 5:

1. The reported values in Table I, page 1, include in their computation the quantity of radioactivity released from both the waste disposal system and the secondary system. The secondary system releases occurred when contaminated water was blown down from the steam generators during primary to secondary leakage conditions, or when the generators were drained for repair or refueling, or during lancing of the generators.

2. The reported values in Table I, page 2 are the total quantities of radioactivity for individual nuclides released from the waste disposal system and the secondary system together. The values in Table I, page 3 are for the waste disposal system only and page 4 is for the secondary system only.

3. During primary to secondary leakage, release of several short-lived nuclides from the secondary system occurs. These short-lived nuclides are not generally detected in batch releases from the waste disposal system due to the long hold-up time of processed water. Only those isotopes that were detected in the secondary system releases were reported. All non-detectable isotopes are listed as (--).

4. Weekly and monthly composite samples for the waste disposal system were prepared to give proportional weight to each liquid release made during the designated period of accumulation. The composites were analyzed for gamma emitting isotopes on a multichannel analyzer attached to a high resolution Ge(Li) detector, and for Sr-89 and Sr-90, using a chemical separation and subsequent beta determination with a 2π gas flow proportional counter. Tritium was determined by use of liquid scintillation techniques and gross alpha radioactivity was determined by use of a 2π gas flow proportional counter. All concentrations for radioactivity determined from analysis of a composite were multiplied by the total represented volume of the liquid waste released to determine the total quantity of each isotope and of gross alpha activity released during the compositing period.

5. At least one representative batch of liquid effluent from the waste disposal system was analyzed monthly for dissolved fission and activation gases by use of gamma spectrum analysis. The resulting isotope concentrations were multiplied by the total volume released for the month in order to estimate the total dissolved gases released. If more than one batch of effluent was analyzed, the concentrations were weighted in an appropriate manner. The results are totaled on a monthly basis in Table I, page 5. Dissolved gases, if any, from

secondary system releases were determined from the samples of the individual releases. Isotopic concentrations were multiplied by the volume released to determine the quantity of radiogas nuclides released.

6. Representative samples of secondary system batch releases were analyzed individually for gamma emitting isotopes. Analysis of a representative composite for tritium, gross alpha and selected beta emitters was made for releases which occurred due to primary to secondary leakage.

7. The applicable limit for release of radioactive material in liquid waste is five curies per quarter excluding tritium and dissolved gases.

8. The following notes have been added to help explain some of the results in Table I:

   On pages 2 and 4, an entry entitled "Unidentified" is made in the isotope listing. This activity is the result of an analysis of blowdown water yielding a low gross beta-gamma activity value and being multiplied by a large volume of water. The low activity of the blowdown water often makes isotopic analysis of the water unreasonable and therefore a gross beta-gamma counter efficiency is chosen so that the total activity determined by gross beta-gamma analysis will approximate the total activity which would be determined using an isotopic analysis.

   On page 3, in the June column, the I-132 activity value has been superscripted with a lower case "a" to call attention to it. Normally, because of its short half-life, I-132 is not present in the waste disposal system releases. However, in June, the I-132 was present as a decay product of Te-132.

Airborne Releases

Airborne releases to the atmosphere occurred from: release of gas decay tanks, the instrument bleedline, containment purges, and the secondary system during conditions of primary to secondary leakage. The techniques employed in

determining the radioactivity in airborne releases are:

a) Gamma spectrum analysis for fission and activation gases.

b) Removal of particulate material by filtration and subsequent gamma-spectrum analysis, Sr-89-90 determination, gross alpha analysis, and gross beta-gamma analysis.

c) Absorption of halogen radionuclides on a charcoal filter and subsequent gamma-spectrum analysis, and

d) Condensation of water vapor in a gas sample followed by analysis for tritium using liquid scintillation techniques.

All sporadic gas releases from the plant which were not accounted for by the above methods were conservatively estimated by curies of Xe-133 equivalent by use of the plant vent process monitor recorder chart.

The maximum rated capacity for the hogging jets and the maximum measured flow-rate for the condenser air ejectors, and an estimate of the rate of exhaust from the atmospheric dumps were used to conservatively estimate the airborne releases from the secondary system whenever applicable.

The following comments will aid in the interpretation and evaluation of the airborne release data presented in Table II.

1. Calculation of total radioactivity of noble gases, I-131, and particulates is based upon detectable radionuclides only.

2. The applicable limit for release of total radioactive materials in gaseous waste is 0.012 Ci/sec when averaged over the calendar quarter.

   The percent of the applicable limit for total gaseous release was computed as follows:

$$\% \text{ of Limit} = \frac{\text{Total curies released in gaseous waste during quarter} \times 100\%}{(.012 \text{ Ci/sec})(\text{seconds in quarter})}$$

3. The applicable limit for the release of I-131 and particulate radionuclides with half-lives greater than eight days in airborne waste is:

$\Sigma \frac{Q_i}{MPC_i} \leq 10{,}000 \frac{m^3}{sec}$, where Q_i = release rate of i^{th} nuclide, Ci/sec

and MPC_i = maximum permissible concentration of the i^{th} nuclide, Ci/m^3

The release rate, Q_i, was determined by dividing the total activity released in Ci, for the i^{th} nuclide ($t_{\frac{1}{2}} > 8d$), during the calendar quarter by the seconds in the quarter.

MPC_i values were obtained from 10CFR20, Appendix B, Table II, Column 1. The MPC chosen was the most conservative value of either the soluble or insoluble MPC for each isotope.

The percent of applicable limit was determined as follows:

$$\% \text{ of Limit} = \frac{\Sigma \frac{Q_i}{MPC_i} \times 100\%}{10{,}000 \ m^3/sec}$$

4. The maximum gaseous release rate for each month is listed in Table II, page 1, under Section A, Line 3. The applicable limit for maximum allowable release rate is 6.7 E+04 µCi/sec.

5. All values reported in Table II, pages 2 and 3, include the particulate, gaseous, and/or halogen activity released from the containments during purging, auxiliary building (leakage from pumps, valves, etc), the gas waste disposal system and the secondary system during conditions of primary to secondary system leakage. If a minimum detectable activity value was not calculated for an isotope, it will be listed as (--).

Liquid Releases	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
A. Gross Radioactivity (β-γ)						
1. Total Release (mCi)	3.91 E+01	1.24 E+01	2.86 E+01	2.54 E+01	2.76 E+01	2.26 E+01
2. Avg Concentration During Releases (μCi/ml)	2.2 E-10	3.7 E-10	2.0 E-10	2.2 E-10	2.8 E-10	1.2 E-10
3. Avg Concentration for Month (μCi/ml)	2.2 E-10	7.0 E-11	1.2 E-10	1.8 E-10	1.7 E-10	1.0 E-10
4. Max Concentration Released (μCi/ml)	1.4 E-08	3.6 E-09	3.3 E-09	9.8 E-09	3.3 E-09	4.3 E-09
5. Percent of Technical Specification Limit for Total Activity Released (%)		1.6 E+00			1.5 E+00	
B. Tritium						
1. Total Release (Ci)	1.76 E+01	5.06 E+01	7.96 E+01	4.44 E+01	1.81 E+01	8.68 E+01
2. Avg Concentration During Releases (μCi/ml)	9.9 E-08	1.5 E-06	5.7 E-07	3.8 E-07	1.9 E-07	4.6 E-07
3. Avg Concentration for Month (μCi/ml)	9.9 E-08	2.9 E-07	3.4 E-07	3.2 E-07	1.1 E-07	4.0 E-07
C. Dissolved Noble Gas						
1. Total Release (mCi)	2.37 E+01	4.14 E+01	(<5.1 E-06)	1.12 E+02	1.11 E+00	4.82 E+00
2. Avg Concentration During Releases (μCi/ml)	1.3 E-10	1.2 E-09	(<3.6 E-17)	9.7 E-10	1.1 E-11	2.6 E-11
3. Avg Concentration for Month (μCi/ml)	1.3 E-10	2.3 E-10	(<2.2 E-17)	8.0 E-10	6.8 E-12	2.2 E-11
D. Gross Alpha Radioactivity						
1. Total Release (mCi)	(<7.7 E-09)	3.1 E-02	(<9.6 E-09)	(<9.6 E-09)	(<7.7 E-09)	(<1.2 E-08)
2. Avg Concentration During Releases (μCi/ml)	(<4.3 E-20)	9.2 E-13	(<6.9 E-20)	(<8.3 E-20)	(<7.9 E-20)	(<6.4 E-20)
3. Avg Concentration for Month (μCi/ml)	(<4.3 E-20)	1.8 E-13	(<4.1 E-20)	(<6.9 E-20)	(<4.7 E-20)	(<5.5 E-20)
E. Volumes						
1. Vol of Liquid Waste to Discharge (Liters)	1.43 E+07	2.15 E+06	1.08 E+07	1.37 E+07	1.04 E+07	1.76 E+07
2. Vol of Dilution Water During Rel (Liters)	1.78 E+11	3.37 E+10	1.40 E+11	1.16 E+11	9.73 E+10	1.88 E+11
3. Vol of Dilution Water for Month (Liters)	1.78 E+11	1.77 E+11	2.33 E+11	1.40 E+11	1.63 E+11	2.19 E+11

NOTE: Numbers in parentheses represent maximum sensitivity in μCi/ml.

1979	Table I . Report of Radioactive Effluents: Liquid - Total					Page 2
Isotope	Unit	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Ag-110m	mCi	2.87 E-01	7.54 E-01	4.57 E-01	1.28 E-01	3.51 E-02	(<3.8 E-08)
Ba-140	mCi	(<1.5 E-07)	(<8.4 E-08)	(<8.6 E-08)	(<9.1 E-08)	(<9.0 E-08)	(<7.7 E-08)
Co-58	mCi	1.15 E+01	2.61 E+00	3.82 E+00	9.08 E+00	3.35 E+00	3.56 E+00
Co-60	mCi	1.46 E+01	3.83 E+00	7.53 E+00	6.97 E+00	4.10 E+00	9.89 E+00
Cr-51	mCi	(<2.8 E-07)	2.65 E-01	(<2.1 E-07)	1.09 E+00	(<2.3 E-07)	(<1.6 E-07)
Cs-134	mCi	3.87 E+00	3.81 E-01	1.09 E+00	1.64 E+00	4.40 E+00	1.82 E+00
Cs-136	mCi	(<3.0 E-08)	(<2.4 E-08)	(<2.1 E-08)	(<1.8 E-08)	(<2.1 E-08)	(<2.2 E-08)
Cs-137	mCi	5.98 E+00	1.12 E+00	2.37 E+00	3.01 E+00	7.01 E+00	2.98 E+00
Fe-59	mCi	(<6.5 E-08)	(<4.7 E-08)	(<4.9 E-08)	1.7 E-01	(<4.2 E-08)	(<4.8 E-08)
I-131	mCi	5.7 E-01	1.32 E-01	4.58 E-01	1.97 E-01	6.0 E-01	(<1.8 E-08)
I-132	mCi	--	--	--	--	--	5.8 E-01
I-133	mCi	(<3.8 E-08)	(<2.3 E-08)	1.5 E-01	2.38 E-01	1.59 E+00	1.67 E-01
La-140	mCi	6.7 E-02	(<1.0 E-08)	(<1.3 E-08)	1.57 E-01	(<1.6 E-08)	(<1.1 E-08)
Mn-54	mCi	3.8 E-01	(<2.5 E-08)	7.92 E-02	(<2.4 E-08)	5.3 E-02	(<3.0 E-08)
Mo-99/Tc-99m	mCi	(<2.2 E-07)	(<1.3 E-07)	(<1.4 E-07)	1.19 E-01	(<1.4 E-07)	(<1.4 E-07)
Sb-124	mCi	8.03 E-01	1.01 E+00	3.70 E+00	1.17 E+00	3.72 E+00	1.11 E+00
Sb-125	mCi	8.8 E-01	1.20 E+00	3.79 E+00	1.36 E+00	2.69 E+00	1.59 E+00
Sr-89	mCi	(<2.8 E-09)	9.0 E-02	5.13 E+00	7.78 E-02	4.64 E-02	3.44 E-01
Sr-90	mCi	(<2.8 E-09)	3.6 E-02	(<3.4 E-09)	1.18 E-02	(<3.3 E-09)	(<3.0 E-09)
Te-132	mCi	2.13 E-01	(<1.8 E-08)	(<1.9 E-08)	(<1.8 E-08)	(<2.2 E-08)	5.82 E-01
Unidentified	mCi	--	1.01 E+00	--	--	--	--
Total	mCi	3.91 E+01	1.24 E+01	2.86 E+01	2.54 E+01	2.76 E+01	2.26 E+01

NOTE: Numbers in parentheses represent maximum sensitivity in μCi/ml.

1979 Table I Report of Radioactive Effluents: Liquid - Waste Disposal System

Isotope	Unit	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Ag-110m	mCi	2.87 E-01	7.54 E-01	4.57 E-01	1.28 E-01	3.51 E-02	(<3.8 E-08)
Ba-140	mCi	(<1.5 E-07)	(<8.4 E-08)	(<8.6 E-08)	(<9.1 E-08)	(<9.0 E-08)	(<7.7 E-08)
Co-58	mCi	8.3 E+00	2.4 E+00	3.52 E+00	5.76 E+00	2.29 E+00	2.29 E+00
Co-60	mCi	3.57 E+00	2.4 E+00	3.81 E+00	2.98 E+00	2.65 E+00	4.87 E+00
Cr-51	mCi	(<2.8 E-07)	2.65 E-01	(<2.1 E-07)	1.09 E+00	(<2.3 E-07)	(<1.6 E-07)
Cs-134	mCi	1.52 E+00	3.81 E-01	6.47 E-01	3.68 E-01	3.88 E-01	1.04 E+00
Cs-136	mCi	(<3.0 E-08)	(<2.4 E-08)	(<2.1 E-08)	(<1.8 E-08)	(<2.1 E-08)	(<2.2 E-08)
Cs-137	mCi	2.2 E+00	7.74 E-01	1.32 E+00	8.18 E-01	6.33 E-01	1.51 E+00
Fe-59	mCi	(<6.5 E-08)	(<4.7 E-08)	(<4.9 E-08)	1.70 E-01	(<4.2 E-08)	(<4.8 E-08)
I-131	mCi	4.35 E-01	1.32 E-01	1.68 E-01	1.97 E-01	(<2.4 E-08)	(<1.8 E-08)
I-132	mCi	--	--	--	--	--	5.8 E-01[a]
La-140	mCi	6.7 E-02	(<1.0 E-08)	(<1.3 E-08)	1.57 E-01	(<1.6 E-08)	(<1.1 E-08)
Mn-54	mCi	1.12 E-01	(<2.5 E-08)	7.92 E-02	(<2.4 E-08)	5.3 E-02	(<3.0 E-08)
Mo-99/Tc-99m	mCi	(<2.2 E-07)	(<1.3 E-07)	(<1.4 E-07)	1.19 E-01	(<1.4 E-07)	(<1.4 E-07)
Sb-124	mCi	8.03 E-01	1.01 E+00	3.70 E+00	1.17 E+00	3.72 E+00	1.11 E+00
Sb-125	mCi	8.21 E-01	1.20 E+00	3.79 E+00	1.36 E+00	2.69 E+00	1.59 E+00
Sr-89	mCi	(<2.8 E-09)	9.0 E-02	5.13 E+00	3.67 E-02	4.1 E-02	3.44 E-01
Sr-90	mCi	(<2.8 E-09)	3.6 E-02	(<3.4 E-09)	1.18 E-02	(<3.0 E-09)	(<3.0 E-09)
Te-132	mCi	2.13 E-01	(<1.8 E-08)	(<1.9 E-08)	(<1.8 E-08)	(<2.2 E-08)	5.82 E-01
Total	mCi	1.83 E+01	9.44 E+00	2.26 E+01	1.44 E+01	1.25 E+01	1.39 E+01

NOTE: Numbers in parentheses represent maximum sensitivity in μCi/ml.

1979 Table I - Report of Radioactive Effluents: Liquid - Secondary System Page 4

Isotope	Unit	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Co-58	mCi	3.18 E+00	2.1 E-01	2.99 E-01	3.32 E+00	1.06 E+00	1.27 E+00
Co-60	mCi	1.10 E+01	1.43 E+00	3.72 E+00	3.99 E+00	1.45 E+00	5.02 E+00
Cs-134	mCi	2.35 E+00	--	4.38 E-01	1.27 E+00	4.01 E+00	7.79 E-01
Cs-137	mCi	3.78 E+00	3.43 E-01	1.05 E+00	2.20 E+00	6.38 E+00	1.47 E+00
I-131	mCi	1.3 E-01	--	2.9 E-01	--	6.0 E-01	--
I-133	mCi	--	--	1.5 E-01	2.38 E-01	1.59 E+00	1.67 E-01
Mn-54	mCi	2.7 E-01	--	--	--	--	--
Sb-125	mCi	6.0 E-02	--	--	--	--	--
Sr-89	mCi	(<2.8 E-09)	--	--	4.11 E-02	5.4 E-03	--
Sr-90	mCi	(<2.8 E-09)	--	--	(<3.5 E-09)	(<3.3 E-09)	--
Unidentified	mCi	--	1.01 E+00	--	--	--	--
Total	mCi	2.08 E+01	2.99 E+00	5.95 E+00	1.11 E+01	1.51 E+01	8.71 E+00

NOTE: Numbers in parentheses represent maximum sensitivity in µCi/ml.

Total		JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Kr-85	mCi	1.41 E+01	1.96 E+01	(<5.1 E-06)	(<4.2 E-06)	(<6.0 E-06)	(<5.3 E-06)
Xe-131m	mCi	(<9.2 E-07)	(<1.3 E-06)	(<5.5 E-07)	1.83 E+01	(<9.7 E-07)	(<8.7 E-07)
Xe-133	mCi	9.6 E+00	1.63 E+01	(<3.5 E-08)	9.31 E+01	6.6 E-01	4.82 E+00
Xe-133m	mCi	(<2.1 E-07)	(<3.0 E-07)	(<1.3 E-07)	(<1.5 E-07)	(<1.7 E-07)	(<1.7 E-07)
Xe-135	mCi	(<2.5 E-08)	5.54 E+00	(<1.4 E-08)	5.08 E-01	4.46 E-01	(<1.8 E-08)
Total	mCi	2.37 E+01	4.14 E+01	(<5.1 E-06)	1.12 E+02	1.11 E+00	4.82 E+00

Waste Disposal System							
Kr-85	mCi	1.41 E+01	1.96 E+01	(<5.1 E-06)	(<4.2 E-06)	(<6.0 E-06)	(<5.3 E-06)
Xe-131m	mCi	(<9.2 E-07)	(<1.3 E-06)	(<5.5 E-07)	1.83 E+01	(<9.7 E-07)	(<8.7 E-07)
Xe-133	mCi	9.6 E+00	1.63 E+01	(<3.5 E-08)	9.31 E+01	6.6 E-01	4.82 E+00
Xe-133m	mCi	(<2.1 E-07)	(<3.0 E-07)	(<1.3 E-07)	(<1.5 E-07)	(<1.7 E-07)	(<1.7 E-07)
Xe-135	mCi	(<2.5 E-08)	5.54 E+00	(<1.4 E-08)	5.08 E-01	4.46 E-01	(<1.8 E-08)

Secondary System							
Kr-85	mCi	--	--	--	--	--	--
Xe-131m	mCi	--	--	--	--	--	--
Xe-133	mCi	--	--	--	--	--	--
Xe-133m	mCi	--	--	--	--	--	--
Xe-135	mCi	--	--	--	--	--	--

NOTE: Numbers in parentheses represent maximum sensitivity in μCi/ml.

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
A. Fission and Activation Gases						
1. Total Release (Ci)	1.19 E+03	1.29 E+03	1.87 E+03	2.28 E+03	1.74 E+03	8.35 E+02
2. Avg Rel Rate for Period (μCi/sec)	4.4 E+02	5.4 E+02	6.9 E+02	8.8 E+02	6.4 E+02	3.2 E+02
*3. Max Rel Rate for Period (μCi/sec)	2.8 E+03	1.1 E+04	6.9 E+03	2.3 E+04	3.0 E+03	6.8 E+02
B. Iodine - 131						
1. Total Iodine - 131 (Ci)	6.2 E-03	7.5 E-04	3.5 E-03	1.8 E-03	3.3 E-03	1.7 E-03
2. Avg Rel Rate for Period (μCi/sec)	2.3 E-03	3.1 E-04	1.3 E-03	6.9 E-04	1.2 E-03	6.5 E-04
C. Particulates						
1. Particulates with t1/2>8d (Ci)	1.13 E-02	4.72 E-03	2.56 E-04	1.84 E-02	1.99 E-03	4.36 E-04
2. Avg Rel Rate for Period (μCi/sec)	4.2 E-03	2.0 E-03	9.5 E-05	7.1 E-03	7.4 E-04	1.7 E-04
3. Gross Alpha Radioactivity (Ci)	8.6 E-08	5.3 E-07	5.5 E-09	9.5 E-08	1.5 E-08	7.3 E-09
D. Tritium						
1. Total Release (Ci)	1.7 E-02	1.5 E-02	6.4 E-02	2.6 E-02	9.3 E-02	3.7 E-02
2. Avg Rel Rate for Period (μCi/sec)	6.3 E-03	6.3 E-03	2.4 E-02	1.0 E-02	3.4 E-02	1.4 E-02

*Maximum airborne release rate averaged over one hour for each month. Technical Specification limit is 6.7 E+04 μCi/sec averaged over one hour.

E. Percent of Applicable Limit	QUARTER I	QUARTER II
1. Fission and Activation Gases (%)	4.7 E+00	5.1 E+00
2. I-131 and Part (t1/2>8d) (%)	1.7 E-01	1.1 E-01

NOTE: Numbers in parentheses represent maximum sensitivity in μCi/cc.

Isotope	Unit	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Ba-140	Ci	(<1.7 E-12)	(<1.1 E-12)	(<1.1 E-13)	(<2.3 E-12)	3.6 E-05	(<1.3 E-13)
Ce-141	Ci	8.9 E-05	1.7 E-05	(<2.1 E-14)	(<3.6 E-13)	(<6.4 E-14)	(<2.2 E-14)
Ce-144	Ci	7.3 E-05	(<8.3 E-13)	(<9.3 E-14)	(<1.6 E-12)	(<3.0 E-13)	(<9.9 E-14)
Co-57	Ci	2.0 E-05	7.4 E-06	(<1.2 E-14)	2.7 E-05	7.3 E-07	(<1.3 E-14)
Co-58	Ci	4.2 E-03	2.0 E-03	8.0 E-05	1.3 E-02	1.1 E-03	2.5 E-04
Co-60	Ci	5.5 E-03	2.2 E-03	9.9 E-05	2.2 E-03	3.7 E-04	1.1 E-04
Cr-51	Ci	5.4 E-04	2.4 E-04	(<2.4 E-13)	2.3 E-03	1.2 E-04	(<2.7 E-13)
Cs-134	Ci	4.3 E-05	(<4.2 E-13)	2.4 E-05	3.5 E-05	8.3 E-05	1.8 E-05
Cs-136	Ci	(<5.5 E-13)	(<3.6 E-13)	(<3.4 E-14)	(<3.9 E-13)	(<8.7 E-14)	(<2.6 E-14)
Cs-137	Ci	8.3 E-05	3.1 E-06	3.7 E-05	4.8 E-05	1.2 E-04	2.8 E-05
Fe-59	Ci	(<1.4 E-12)	(<8.6 E-13)	(<5.7 E-14)	1.5 E-04	1.7 E-05	(<6.2 E-14)
I-131	Ci	1.3 E-05	(<2.4 E-13)	7.2 E-06	6.1 E-06	1.2 E-05	2.7 E-06
La-140	Ci	(<3.2 E-13)	(<1.6 E-13)	(<3.9 E-14)	(<1.5 E-13)	4.6 E-05	4.4 E-06
Mn-54	Ci	1.7 E-04	5.7 E-05	(<4.7 E-14)	2.9 E-04	4.1 E-05	1.2 E-05
Nb-95	Ci	5.1 E-05	1.1 E-04	(<3.3 E-14)	1.5 E-04	1.4 E-05	(<3.7 E-14)
Ru-103	Ci	3.3 E-04	6.0 E-05	(<2.6 E-14)	(<5.7 E-13)	(<9.0 E-14)	(<3.1 E-14)
Sb-124	Ci	1.5 E-05	2.2 E-05	(<3.5 E-14)	1.2 E-04	(<1.1 E-13)	(<4.5 E-14)
Sb-125	Ci	1.5 E-05	(<7.3 E-13)	(<7.2 E-14)	(<1.3 E-12)	(<2.3 E-13)	(<8.2 E-14)
Sr-89	Ci	2.9 E-06	6.4 E-06	6.3 E-06	2.4 E-06	2.7 E-05	1.0 E-05
Sr-90	Ci	3.9 E-07	1.1 E-06	2.8 E-06	5.3 E-06	3.7 E-07	1.2 E-06
Zn-65	Ci	1.5 E-04	(<9.9 E-13)	(<6.9 E-14)	(<1.0 E-12)	(<1.9 E-13)	(<5.9 E-14)
Zr-95	Ci	2.8 E-05	(<6.9 E-13)	(<4.5 E-14)	8.0 E-05	(<1.6 E-13)	(<5.0 E-14)
Total	Ci	1.13 E-02	4.72 E-03	2.56 E-04	1.84 E-02	1.99 E-03	4.36 E-04

NOTE: Numbers in parentheses represent maximum sensitivity in µCi/cc.

Fission and Activation Gases							
Isotope	Unit	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
Ar-41	Ci	1.32 E+01	1.93 E-01	6.17 E+00	4.41 E+00	1.73 E+00	8.12 E+00
Kr-85	Ci	1.3 E-01	(<3.1 E-05)	1.26 E-01	5.83 E-02	(<6.5 E-05)	1.37 E-01
Kr-85m	Ci	9.3 E-03	5.1 E-03	4.4 E-01	5.52 E-01	1.1 E-01	1.97 E-02
Kr-87	Ci	(<1.2 E-06)	(<1.9 E-07)	9.0 E-03	1.72 E-01	(<4.0 E-07)	(<6.8 E-06)
Kr-88	Ci	(<2.9 E-06)	(<2.0 E-07)	2.0 E-01	5.52 E-01	(<4.9 E-07)	5.7 E-03
Xe-131m	Ci	3.1 E-02	(<3.2 E-06)	1.05 E-01	1.91 E-02	(<8.7 E-06)	4.93 E-02
Xe-133	Ci	1.18 E+03	1.29 E+03	1.85 E+03	2.26 E+03	1.74 E+03	8.25 E+02
Xe-133m	Ci	1.02 E-01	5.3 E-02	1.49 E+00	2.26 E+00	(<2.0 E-06)	2.55 E-01
Xe-135	Ci	9.34 E-01	1.93 E-01	7.7 E+00	9.48 E+00	2.3 E+00	1.78 E+00
Xe-135m	Ci	(<5.4 E-06)	(<1.3 E-07)	(<1.1 E-06)	(<7.6 E-07)	(<3.1 E-07)	(<2.9 E-06)
Xe-138	Ci	(<1.8 E-05)	(<2.0 E-07)	(<5.7 E-06)	(<1.4 E-06)	(<5.5 E-07)	(<1.7 E-05)
Total	Ci	1.19 E+03	1.29 E+03	1.87 E+03	2.28 E+03	1.74 E+03	8.35 E+02

Halogens (Gaseous)							
Isotope	Unit	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
I-131	Ci	6.2 E-03	7.5 E-04	3.5 E-03	1.8 E-03	3.3 E-03	1.7 E-03
I-133	Ci	2.6 E-03	4.5 E-04	9.4 E-04	4.2 E-04	1.5 E-03	1.1 E-03
I-135	Ci	(<2.6 E-13)	(<1.2 E-13)	(<1.0 E-13)	(<3.6 E-13)	(<1.4 E-13)	(<8.8 E-14)
Br-82	Ci	--	--	3.0 E-04	6.9 E-05	--	--
Total	Ci	8.8 E-03	1.20 E-03	4.7 E-03	2.3 E-03	4.8 E-03	2.8 E-03

NOTE: Numbers in parentheses represent maximum sensitivity in μCi/cc.