

Appendix C - 1

Summary of Water and Sediment Monitoring Data



Collecting a Sample at a WVDP Stream Sampling Location

Table C - 1.1
Total Radioactivity of Liquid Effluents Released from
Lagoon 3* in 1995 (curies)

Isotope	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Total
<i>Alpha</i>	6.07±1.51E-04	1.43±0.60E-04	2.78±1.09E-04	2.38±1.32E-04	1.27±0.24E-03
<i>Beta</i>	8.71±0.34E-03	2.42±0.11E-03	3.89±0.23E-03	5.24±0.29E-03	2.03±0.05E-02
<i>H-3</i>	3.14±0.07E-01	3.58±0.11E-01	5.34±0.16E-01	2.18±0.07E-01	1.42±0.02E+00
<i>Sr-90</i>	1.89±0.09E-03	6.64±0.45E-04	1.33±0.07E-03	1.66±0.09E-03	5.54±0.15E-03
<i>Cs-137</i>	3.44±0.59E-04	9.44±2.65E-05	1.20±0.31E-04	3.05±0.44E-04	8.63±0.84E-04
<i>Co-60</i>	0.00±6.14E-05	0.00±3.10E-05	0.00±4.35E-05	0.00±4.36E-05	0.00±9.23E-05
<i>K-40</i>	1.24±0.51E-03	0.00±3.76E-04	0.00±5.33E-04	0.00±5.58E-04	1.24±1.00E-03
<i>U-232</i>	4.20±0.29E-04	7.12±0.66E-05	1.06±0.08E-04	1.25±0.08E-04	7.22±0.32E-04
<i>U-233/234</i>	2.43±0.19E-04	2.96±0.39E-05	6.53±0.54E-05	7.82±0.54E-05	4.16±0.21E-04
<i>U-235/236</i>	5.10±1.27E-06	1.85±0.71E-06	2.08±0.62E-06	2.10±0.58E-06	1.11±0.17E-05
<i>U-238</i>	1.32±0.10E-04	2.16±0.33E-05	3.38±0.33E-05	4.47±0.33E-05	2.32±0.12E-04
<i>Pu-238</i>	1.27±0.20E-05	0.94±2.16E-07	9.19±4.96E-07	6.59±1.05E-06	2.03±0.23E-05
<i>Pu-239/240</i>	3.50±1.03E-06	-1.39±9.00E-08	2.98±2.82E-07	3.01±0.63E-06	6.79±1.24E-06
<i>Am-241</i>	3.57±1.08E-06	2.15±3.16E-07	1.67±5.42E-07	2.17±0.71E-06	6.12±1.44E-06
<i>I-129</i>	6.53±2.41E-05	2.90±1.48E-05	5.70±1.80E-05	3.44±1.68E-05	1.86±0.38E-04
<i>C-14</i>	2.06±0.87E-04	2.31±0.40E-04	1.63±0.42E-04	1.41±0.54E-04	7.41±1.18E-04
<i>Tc-99</i>	8.08±1.42E-03	2.58±0.82E-03	5.41±0.89E-03	3.30±1.16E-03	1.94±0.22E-02
<i>Total U (g)</i>	3.92±0.16E+02	7.18±0.11E+01	1.99±0.02E+02	1.45±0.08E+02	8.08±0.18E+02

* Results for samples collected from monitoring location WNSP001.

Table C - 1.2
Comparison of 1995 Lagoon 3* Liquid Effluent Radioactivity
Concentrations with Department of Energy Guidelines

Isotope	Discharge Activity ^a (Ci)	Radioactivity ^a (Bequerels)	Concentration (μ Ci/mL)	DCG (μ Ci/mL)	% of DCG
Alpha	1.27 \pm 0.24E-03	4.68 \pm 0.87E+07	3.26 \pm 0.61E-08	N/A ^b	N/A
Beta	2.03 \pm 0.05E-02	7.50 \pm 0.19E+08	5.22 \pm 0.13E-07	N/A ^b	N/A
H-3	1.42 \pm 0.02E+00	5.27 \pm 0.08E+10	3.67 \pm 0.06E-05	2.00E-03	1.83
Sr-90	5.54 \pm 0.15E-03	2.05 \pm 0.06E+08	1.43 \pm 0.04E-07	1.00E-06	14.28
Cs-137	8.63 \pm 0.84E-04	3.19 \pm 0.31E+07	2.22 \pm 0.22E-08	3.00E-06	0.74
Co-60	0.00 \pm 9.23E-05	0.00 \pm 3.42E+06	0.00 \pm 2.38E-09	5.00E-06	<0.05
K-40	1.24 \pm 1.00E-03	4.59 \pm 3.69E+07	3.19 \pm 2.57E-08	N/A ^b	N/A
U-232 ^c	7.22 \pm 0.32E-04	2.67 \pm 0.12E+07	1.86 \pm 0.08E-08	1.00E-07	18.61
U-233/234 ^c	4.16 \pm 0.21E-04	1.54 \pm 0.08E+07	1.07 \pm 0.05E-08	5.00E-07	2.14
U-235/236 ^c	1.11 \pm 0.17E-05	4.12 \pm 0.62E+05	2.87 \pm 0.43E-10	5.00E-07	0.06
U-238 ^c	2.32 \pm 0.12E-04	8.59 \pm 0.43E+06	5.98 \pm 0.30E-09	6.00E-07	1.00
Pu-238	2.03 \pm 0.23E-05	7.51 \pm 0.86E+05	5.23 \pm 0.60E-10	4.00E-08	1.31
Pu-239/240	6.79 \pm 1.24E-06	2.51 \pm 0.46E+05	1.75 \pm 0.32E-10	3.00E-08	0.58
Am-241	6.12 \pm 1.44E-06	2.27 \pm 0.53E+05	1.58 \pm 0.37E-10	3.00E-08	0.53
I-129	1.86 \pm 0.38E-04	6.87 \pm 1.39E+06	4.78 \pm 0.97E-09	5.00E-07	0.96
C-14	7.41 \pm 1.18E-04	2.74 \pm 0.44E+07	1.91 \pm 0.30E-08	7.00E-05	0.03
Tc-99	1.94 \pm 0.22E-02	7.17 \pm 0.81E+08	4.99 \pm 0.57E-07	1.00E-04	0.50
Total % of DCGs					42.61

^a Total volume released: 3.88E+10 mL.

^b Derived concentration guides (DCGs) are not applicable to gross alpha, gross beta, or potassium-40 activity.

^c Total U (g) = 8.08 \pm 0.18E+02; average U (μ g/mL) = 2.08 \pm 0.05E-02

N/A - Not applicable.

Half-lives are listed in Table B-1.

* Results for samples collected from monitoring location WNSP001.

Table C - 1.3

1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$) and pH in Surface Water at Location WNSP005

Month	Alpha	Beta	H-3	pH (standard units)
<i>January</i>	0.00 \pm 7.85E-09	1.15 \pm 0.17E-07	9.94 \pm 7.74E-08	7.09
<i>February</i>	-1.00 \pm 1.04E-08	1.33 \pm 0.17E-07	0.00 \pm 1.00E-07	7.49
<i>March</i>	1.04 \pm 1.47E-08	2.25 \pm 0.21E-07	8.95 \pm 5.53E-08	7.26
<i>April</i>	-0.54 \pm 1.30E-08	3.33 \pm 0.34E-07	1.10 \pm 0.78E-07	7.05
<i>May</i>	-1.19 \pm 3.06E-09	7.57 \pm 0.83E-08	1.85 \pm 0.80E-07	7.68
<i>June</i>	1.78 \pm 3.41E-09	6.84 \pm 0.77E-08	3.51 \pm 7.69E-08	7.77
<i>July</i>	-0.55 \pm 2.85E-09	5.05 \pm 0.70E-08	2.89 \pm 7.62E-08	7.78
<i>August</i>	1.29 \pm 2.48E-09	9.12 \pm 0.74E-08	7.68 \pm 7.71E-08	7.92
<i>September</i>	0.76 \pm 2.64E-09	7.65 \pm 0.69E-08	9.24 \pm 7.73E-08	7.77
<i>October</i>	0.41 \pm 2.04E-09	1.02 \pm 0.08E-07	1.51 \pm 0.84E-07	7.68
<i>November</i>	2.51 \pm 2.19E-09	1.72 \pm 0.09E-07	1.25 \pm 0.79E-07	7.35
<i>December</i>	2.17 \pm 2.53E-09	4.76 \pm 0.15E-07	7.08 \pm 7.56E-08	7.90

Table C - 1.4

**1995 Radioactivity Concentrations ($\mu\text{Ci/mL}$) in Surface Water
Downstream of the WVDP at Frank's Creek (WNSP006)**

Month	Alpha	Beta	H-3	Sr-90	Cs-137
January*	2.30±2.88E-09	4.90±0.48E-08	7.52±0.92E-07	2.10±0.34E-08	0.00±1.50E-08
February	1.38±3.15E-09	2.67±0.37E-08	1.14±0.76E-07	1.23±0.30E-08	0.00±1.02E-08
March*	2.74±3.39E-09	5.42±0.52E-08	1.65±0.13E-06	1.64±0.30E-08	0.00±1.46E-08
April	-0.64±2.35E-09	2.86±0.40E-08	1.68±0.79E-07	1.26±0.30E-08	0.00±1.41E-08
May	0.01±1.40E-09	4.53±0.35E-08	1.69±0.80E-07	2.25±0.30E-08	0.00±1.45E-08
June*	6.66±2.67E-09	1.88±0.07E-07	1.83±0.07E-05	1.38±0.33E-08	0.00±1.37E-08
July	1.22±3.07E-09	8.42±0.71E-08	4.12±0.81E-07	3.78±0.45E-08	0.00±2.01E-08
August*	4.58±2.65E-09	1.98±0.10E-07	1.68±0.07E-05	6.56±0.62E-08	0.00±1.56E-08
September	0.68±2.21E-09	9.67±0.60E-08	4.86±0.76E-07	3.71±0.44E-08	0.00±1.20E-08
October	-0.30±1.37E-09	5.05±0.45E-08	2.03±0.81E-07	2.32±0.43E-08	0.00±1.34E-08
November	0.36±1.04E-09	3.07±0.36E-08	1.43±0.79E-07	1.24±0.28E-08	0.00±1.88E-08
December*	1.65±1.04E-09	6.08±0.44E-08	1.68±0.11E-06	2.68±0.39E-08	0.00±1.75E-08

Quarter	C-14	I-129	U-232	U-233/234	U-235/236
1st Qtr	4.03±5.49E-09	0.58±1.03E-09	8.01±0.74E-10	7.25±1.37E-10	2.51±2.25E-11
2nd Qtr	2.42±7.24E-09	2.14±1.13E-09	0.00±1.16E-10	3.82±1.20E-10	4.42±4.93E-11
3rd Qtr	0.38±5.58E-09	7.11±7.65E-10	1.46±0.17E-09	1.33±0.27E-09	9.87±7.21E-11
4th Qtr	0.76±7.11E-09	-0.52±1.07E-09	3.07±0.24E-10	3.55±0.80E-10	5.06±2.96E-11

	U-238	Total U ($\mu\text{g/mL}$)	Pu-238	Pu-239/240	Am-241	Tc-99
1st Qtr	4.35±1.01E-10	8.85±0.16E-04	1.84±7.26E-11	1.51±2.14E-11	4.96±7.65E-11	1.43±0.18E-08
2nd Qtr	3.86±1.20E-10	1.74±0.02E-03	2.39±4.84E-11	-0.97±1.38E-11	-1.71±4.33E-11	3.11±0.26E-08
3rd Qtr	6.23±1.71E-10	1.61±0.02E-03	-0.69±3.31E-11	2.79±2.12E-11	1.55±3.11E-11	4.61±0.35E-08
4th Qtr	2.14±0.60E-10	8.42±0.46E-04	9.52±3.60E-11	0.76±1.11E-11	1.65±4.39E-11	7.76±1.66E-09

* Month of discharge from WNSP001. See Table C-1.27 for a summary of water quality parameters at WNSP006.

Table C - 1.5

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$) in Surface Water
at Location WNSP007**

Month	Alpha	Beta	H-3	Cs-137
January	3.06 \pm 9.70E-09	1.98 \pm 1.23E-08	0.00 \pm 1.00E-07	
February	-3.80 \pm 7.57E-09	1.26 \pm 0.98E-08	2.39 \pm 8.44E-08	
March	-0.08 \pm 1.10E-08	3.81 \pm 1.31E-08	7.10 \pm 8.70E-08	
1st Qtr				0.00 \pm 4.37E-09
April	-3.14 \pm 8.79E-09	3.54 \pm 1.10E-08	8.40 \pm 8.10E-08	
May	1.70 \pm 2.41E-09	1.92 \pm 0.53E-08	5.37 \pm 8.71E-08	
June	-0.56 \pm 3.65E-09	2.30 \pm 0.58E-08	2.95 \pm 8.59E-08	
2nd Qtr				0.00 \pm 4.50E-09
July	0.69 \pm 3.89E-09	2.49 \pm 0.59E-08	7.64 \pm 7.70E-08	
August	-1.35 \pm 3.27E-09	1.53 \pm 0.71E-08	3.12 \pm 6.52E-08	
September	-0.47 \pm 2.21E-09	2.54 \pm 0.48E-08	5.84 \pm 7.75E-08	
3rd Qtr				0.00 \pm 4.53E-09
October	0.76 \pm 1.93E-09	2.57 \pm 0.47E-08	4.87 \pm 8.89E-08	
November	-0.78 \pm 1.70E-09	2.74 \pm 0.44E-08	4.04 \pm 7.50E-08	
December	0.41 \pm 1.21E-09	2.56 \pm 0.45E-08	9.67 \pm 7.70E-08	
4th Qtr				0.00 \pm 5.23E-09

Table C - 1.6

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$) in Surface Water
at French Drain Location WNSP008**

Month	Alpha	Beta	H-3
January	1.19 \pm 4.04E-09	3.43 \pm 0.83E-08	3.80 \pm 0.16E-06
February	-5.43 \pm 7.53E-09	4.58 \pm 0.89E-08	3.77 \pm 0.17E-06
March	-3.52 \pm 3.64E-09	3.22 \pm 0.54E-08	2.94 \pm 0.14E-06
April	1.37 \pm 8.05E-09	4.48 \pm 0.88E-08	2.94 \pm 0.14E-06
May	0.36 \pm 1.90E-09	4.46 \pm 0.44E-08	3.72 \pm 0.16E-06
June	3.32 \pm 2.62E-09	4.70 \pm 0.44E-08	3.83 \pm 0.17E-06
July	1.48 \pm 1.39E-09	4.67 \pm 0.31E-08	3.65 \pm 0.16E-06
August	-1.84 \pm 1.52E-09	3.22 \pm 0.29E-08	3.02 \pm 0.14E-06
September	1.52 \pm 2.21E-09	4.26 \pm 0.43E-08	3.80 \pm 0.16E-06
October	0.76 \pm 1.43E-09	3.38 \pm 0.27E-08	3.50 \pm 0.16E-06
November	-0.55 \pm 1.34E-09	2.50 \pm 0.37E-08	2.10 \pm 0.12E-06
December	1.26 \pm 1.08E-09	3.65 \pm 0.28E-08	2.28 \pm 0.12E-06

Table C - 1.7

*1995 Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water
at the Northeast Swamp Location (WNSWAMP)*

Month	Alpha	Beta	H-3	Sr-90	Cs-137
<i>January</i>	6.11±5.91E-09	1.50±0.04E-06	3.06±0.83E-07	6.56±0.18E-07	0.00±4.64E-09
<i>February</i>	5.39±7.19E-09	1.82±0.04E-06	2.86±0.80E-07	7.30±0.21E-07	0.00±4.43E-09
<i>March</i>	0.54±4.67E-09	1.76±0.04E-06	2.90±0.79E-07	8.12±0.22E-07	0.00±4.52E-09
<i>April</i>	3.51±8.12E-09	2.38±0.05E-06	3.81±0.81E-07	1.08±0.03E-06	0.00±4.56E-09
<i>May</i>	5.46±2.37E-09	3.07±0.03E-06	3.69±0.80E-07	1.21±0.03E-06	0.00±4.39E-09
<i>June</i>	5.66±2.57E-09	3.66±0.03E-06	4.42±0.81E-07	1.68±0.03E-06	0.00±4.26E-09
<i>July</i>	3.29±2.40E-09	3.96±0.04E-06	4.09±0.82E-07	1.77±0.03E-06	0.00±4.21E-09
<i>August</i>	2.10±2.30E-09	3.01±0.03E-06	3.98±0.82E-07	1.35±0.02E-06	0.00±4.62E-09
<i>September</i>	2.15±2.17E-09	4.55±0.04E-06	4.50±0.81E-07	2.01±0.03E-06	0.00±4.71E-09
<i>October</i>	0.97±1.73E-09	3.87±0.03E-06	3.11±0.79E-07	1.63±0.03E-06	0.00±4.42E-09
<i>November</i>	-0.52±1.25E-09	2.24±0.03E-06	2.46±0.78E-07	1.07±0.02E-06	0.00±1.43E-08
<i>December</i>	0.26±1.06E-09	2.12±0.02E-06	1.92±0.77E-07	9.89±0.21E-07	0.00±1.40E-08

Quarter	C-14	I-129	U-232	U-233/234	U-235/236
<i>1st Qtr</i>	0.59±1.09E-08	-0.18±9.06E-10	8.66±0.83E-11	2.45±0.82E-10	2.72±4.23E-11
<i>2nd Qtr</i>	-1.09±0.70E-08	1.12±1.56E-09	0.00±6.01E-10	2.81±2.57E-10	-5.18±7.34E-11
<i>3rd Qtr</i>	-0.59±9.39E-09	2.67±3.94E-10	3.30±0.41E-11	1.98±0.95E-10	1.05±0.64E-10
<i>4th Qtr</i>	0.13±1.44E-08	2.25±9.84E-10	0.00±2.79E-11	1.52±0.41E-10	0.28±1.13E-11

	U-238	Total U ($\mu\text{g}/\text{mL}$)	Pu-238	Pu-239/240	Am-241
<i>1st Qtr</i>	1.38±0.75E-10	9.82±0.79E-05	1.56±3.47E-11	4.89±9.78E-12	8.66±5.76E-11
<i>2nd Qtr</i>	2.04±2.05E-10	-8.86±0.21E-05	-0.51±2.50E-10	1.65±1.35E-10	1.35±0.67E-10
<i>3rd Qtr</i>	8.95±6.94E-11	-1.12±0.02E-04	4.41±3.43E-11	-0.27±1.38E-11	1.55±3.49E-11
<i>4th Qtr</i>	1.08±0.34E-10	2.88±0.17E-04	6.45±5.44E-11	1.21±2.43E-11	1.48±0.47E-10

See Table C-1.27 for a summary of water quality parameters at WNSWAMP.

Table C - 1.8

**1995 Radioactivity Concentrations ($\mu\text{Ci/mL}$) in Surface Water
at the North Swamp Location (WNSW74A)**

Month	Alpha	Beta	H-3	Sr-90	Cs-137
January	2.14 \pm 3.66E-09	1.40 \pm 0.37E-08	3.39 \pm 8.21E-08	8.22 \pm 2.59E-09	0.00 \pm 1.36E-08
February	0.42 \pm 5.23E-09	1.31 \pm 0.37E-08	6.12 \pm 8.41E-08	5.34 \pm 2.03E-09	0.00 \pm 1.43E-08
March	-1.35 \pm 4.38E-09	1.26 \pm 0.45E-08	9.46 \pm 8.38E-08	6.23 \pm 2.51E-09	0.00 \pm 1.53E-08
April	-0.57 \pm 4.56E-09	1.32 \pm 0.49E-08	7.28 \pm 7.82E-08	7.08 \pm 2.56E-09	0.00 \pm 1.00E-08
May	0.91 \pm 1.22E-09	1.34 \pm 0.24E-08	7.75 \pm 8.40E-08	9.40 \pm 2.55E-09	0.00 \pm 1.20E-08
June	0.48 \pm 1.46E-09	1.14 \pm 0.24E-08	2.68 \pm 7.40E-08	1.09 \pm 0.32E-08	0.00 \pm 9.38E-09
July	0.61 \pm 1.44E-09	1.44 \pm 0.25E-08	2.62 \pm 7.54E-08	7.73 \pm 2.48E-09	0.00 \pm 1.22E-08
August	-0.24 \pm 1.39E-09	1.42 \pm 0.25E-08	2.05 \pm 8.76E-08	9.27 \pm 2.59E-09	0.00 \pm 1.36E-08
September	0.23 \pm 1.40E-09	1.23 \pm 0.24E-08	3.22 \pm 7.85E-08	1.00 \pm 0.30E-08	0.00 \pm 1.39E-08
October	0.07 \pm 1.01E-09	1.39 \pm 0.23E-08	5.44 \pm 8.54E-08	8.10 \pm 2.76E-09	0.00 \pm 1.37E-08
November	-0.35 \pm 1.02E-09	1.85 \pm 0.26E-08	3.14 \pm 8.11E-08	2.88 \pm 0.41E-08	0.00 \pm 1.12E-08
December	0.35 \pm 1.10E-09	1.94 \pm 0.26E-08	4.96 \pm 7.87E-08	1.98 \pm 0.36E-08	0.00 \pm 1.27E-08

Quarter	C-14	I-129	U-232	U-233/234	U-235/236
1st Qtr	5.26 \pm 5.55E-09	-0.91 \pm 9.23E-10	3.06 \pm 0.29E-11	1.29 \pm 0.57E-10	0.58 \pm 2.35E-11
2nd Qtr	-0.57 \pm 5.75E-09	6.90 \pm 5.74E-10	0.00 \pm 6.76E-11	1.12 \pm 0.61E-10	5.03 \pm 4.62E-11
3rd Qtr	2.57 \pm 5.62E-09	6.36 \pm 7.69E-10	6.27 \pm 5.11E-11	1.09 \pm 0.75E-10	1.55 \pm 3.12E-11
4th Qtr	-0.80 \pm 5.67E-09	0.07 \pm 1.10E-09	0.00 \pm 3.65E-11	8.16 \pm 3.62E-11	1.33 \pm 1.57E-11

	U-238	Total U ($\mu\text{g/mL}$)	Pu-238	Pu-239/240	Am-241
1st Qtr	1.23 \pm 0.54E-10	-2.34 \pm 0.10E-04	4.65 \pm 6.23E-11	1.89 \pm 2.19E-11	0.74 \pm 4.24E-11
2nd Qtr	7.74 \pm 4.94E-11	3.09 \pm 0.05E-04	1.05 \pm 4.56E-11	1.08 \pm 2.83E-11	-4.36 \pm 8.73E-12
3rd Qtr	2.06 \pm 3.88E-11	-1.70 \pm 0.02E-04	9.17 \pm 5.47E-11	0.30 \pm 2.04E-11	1.79 \pm 3.38E-11
4th Qtr	8.92 \pm 3.78E-11	1.90 \pm 0.12E-04	7.29 \pm 3.50E-11	2.58 \pm 8.47E-12	1.17 \pm 4.31E-11

See Table C-1.27 for a summary of water quality parameters at WNSW74A.

Table C - 1.9**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) and pH in Surface Water at Location WNFRC67**

Month	Alpha	Beta	H-3	pH (standard units)
January	1.22±1.46E-09	1.46±1.71E-09	7.71±7.90E-08	7.32
February	-1.66±1.33E-09	2.35±1.70E-09	1.36±7.82E-08	7.03
March	0.00±1.21E-09	1.24±1.45E-09	1.09±0.78E-07	7.74
April	-0.61±1.47E-09	2.67±1.78E-09	5.97±7.77E-08	7.49
May	-1.82±4.69E-10	2.06±0.84E-09	6.61±7.89E-08	7.91
June	1.17±1.13E-09	3.64±0.98E-09	1.21±8.58E-08	7.53
July	0.63±1.17E-09	5.82±1.48E-09	1.92±7.79E-08	7.44
August	0.50±1.28E-09	5.10±1.63E-09	1.37±0.78E-07	7.65
September	2.25±4.25E-10	5.05±1.37E-09	2.11±0.57E-07	7.89
October	0.78±1.02E-09	5.92±2.11E-09	2.10±0.83E-07	7.45
November	-1.70±5.43E-10	2.60±1.90E-09	0.00±1.00E-07	7.54
December	4.87±5.68E-10	4.83±1.82E-09	8.84±7.66E-08	8.16

Table C - 1.10**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) and pH in Surface Water at Location WNERB53**

Month	Alpha	Beta	H-3	pH (standard units)
January	1.21±2.34E-09	2.00±0.39E-08	1.43±0.81E-07	7.67
February	0.11±3.18E-09	2.24±0.42E-08	1.86±0.82E-07	7.45
March	-0.92±2.80E-09	1.87±0.38E-08	1.83±0.74E-07	7.56
April	-0.12±2.79E-09	1.67±0.40E-08	2.26±0.75E-07	7.67
May	0.30±1.50E-09	1.31±0.19E-08	7.72±8.30E-08	7.86
June	-0.02±1.33E-09	1.81±0.21E-08	7.98±7.68E-08	8.06
July	1.04±2.09E-09	2.15±0.29E-08	8.71±7.64E-08	7.99
August	-0.49±2.10E-09	1.69±0.39E-08	5.42±8.22E-08	7.97
September	0.33±1.64E-09	2.43±0.33E-08	4.19±8.44E-08	8.01
October	0.61±1.32E-09	1.89±0.30E-08	9.97±7.58E-08	7.83
November	0.89±8.40E-10	2.26±0.27E-08	1.30±0.78E-07	7.46
December	3.84±8.79E-10	1.66±0.30E-08	9.47±7.19E-08	7.69

Table C - 1.11**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) and pH in Surface Water at Location WNCoolW**

Month	Alpha	Beta	H-3	pH (standard units)
January	0.70±1.72E-09	8.28±3.34E-09	4.27±7.71E-08	8.24
February	-0.72±4.68E-09	9.53±4.62E-09	5.54±5.32E-08	8.02
March	-0.83±4.31E-09	2.12±0.51E-08	1.37±0.79E-07	8.34
April	3.55±4.26E-09	1.74±0.53E-08	9.86±7.85E-08	8.04
May	-0.19±1.51E-09	1.79±0.27E-08	7.06±7.79E-08	8.57
June	0.60±1.82E-09	1.94±0.32E-08	6.62±5.48E-08	8.59
July	2.95±2.32E-09	2.16±0.37E-08	0.00±1.00E-07	8.56
August	1.29±2.48E-09	1.36±0.46E-08	7.17±7.91E-08	8.85
September	-0.76±2.03E-09	3.04±0.51E-08	2.62±7.76E-08	8.88
October	1.28±2.09E-09	1.98±0.46E-08	7.09±8.23E-08	8.80
November	0.28±2.05E-09	1.98±0.47E-08	0.00±7.07E-08	8.93
December	0.45±1.21E-09	1.16±0.38E-08	1.56±0.78E-07	8.66

Table C - 1.12**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water at Location WNSDADR**

Month	Alpha	Beta	H-3	Cs-137
January	0.31±1.05E-09	-0.15±2.48E-09	1.86±0.78E-07	0.00±1.51E-08
February	-8.46±9.58E-10	4.78±2.59E-09	7.79±5.45E-08	0.00±1.37E-08
March	-6.62±9.17E-10	0.83±2.43E-09	2.70±0.79E-07	0.00±1.40E-08
April	0.00±8.86E-10	0.73±2.28E-09	3.89±0.81E-07	0.00±1.45E-08
May	1.62±2.94E-10	9.24±7.42E-10	1.88±0.78E-07	0.00±1.50E-08
June	4.11±6.80E-10	3.91±0.98E-09	3.02±0.80E-07	0.00±1.47E-08
July	4.01±8.25E-10	2.78±0.86E-09	3.38±0.80E-07	0.00±1.45E-08
August	6.30±4.30E-10	4.66±1.01E-09	4.09±0.82E-07	0.00±1.36E-08
September	5.93±2.62E-10	3.92±0.73E-09	3.48±0.57E-07	0.00±1.03E-08
October	4.98±5.04E-10	1.01±1.24E-09	4.75±0.81E-07	0.00±1.04E-08
November	-1.34±4.96E-10	1.01±1.53E-09	4.40±0.81E-07	0.00±1.04E-08
December	4.59±4.93E-10	3.43±1.71E-09	1.70±0.78E-07	0.00±1.67E-08

Table C - 1.13

1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water at Location WN8D1DR

Month	Alpha	Beta	H-3	Sr-90	Cs-137
January	1.81±4.36E-09	2.76±0.14E-07	2.71±0.80E-07	2.44±0.38E-08	0.00±1.40E-08
February	0.39±1.33E-08	1.59±0.18E-07	1.28±0.82E-07	2.21±0.32E-08	0.00±1.25E-08
March	-0.03±1.17E-08	9.21±1.72E-08	1.19±0.78E-07	4.09±0.36E-08	0.00±1.34E-08
April	-0.20±1.15E-08	1.04±0.16E-07	1.69±0.75E-07	2.56±0.40E-08	0.00±1.36E-08
May	1.15±2.66E-09	1.23±0.10E-07	1.32±0.68E-07	2.36±0.56E-08	0.00±1.34E-08
June	0.15±3.22E-09	1.16±0.09E-07	8.88±7.70E-08	1.86±0.39E-08	0.00±1.30E-08
July	0.99±2.25E-09	6.63±0.15E-07	1.25±0.77E-07	1.81±0.34E-08	0.00±1.31E-08
August	0.60±1.44E-09	3.83±0.12E-07	2.04±0.67E-07	2.33±0.35E-08	0.00±1.32E-08
September	1.25±1.22E-09	5.84±0.10E-07	3.83±0.82E-07	2.30±0.41E-08	0.00±1.41E-08
October	0.59±1.08E-09	2.45±0.08E-07	2.31±0.75E-07	1.79±0.41E-08	0.00±1.36E-08
November	0.12±1.03E-09	9.38±0.46E-08	1.21±0.72E-07	1.81±0.33E-08	0.00±1.36E-08
December	1.22±1.54E-09	6.36±0.40E-08	8.27±7.41E-08	2.80±0.42E-08	0.00±1.36E-08

Table C - 1.14

1995 Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water at Location WNDCELD

Month	Alpha	Beta	H-3	Cs-137	I-129	Sr-90
January	-1.19±3.98E-10	2.50±1.00E-09	0.00±1.00E-07	0.00±1.32E-08		
February	1.09±1.68E-09	2.80±1.59E-09	6.79±7.72E-08	0.00±1.35E-08		
March	1.19±2.01E-09	3.64±1.56E-09	1.17±0.56E-07	0.00±1.31E-08		
1st Qtr					-2.63±7.65E-10	9.27±2.59E-09
April	-3.04±5.95E-10	3.46±1.75E-09	0.00±1.00E-07	0.00±1.56E-08		
May	2.50±6.19E-10	1.22±0.81E-09	1.02±6.30E-08	0.00±1.22E-08		
June	1.81±9.46E-10	3.66±0.96E-09	8.09±7.80E-08	0.00±9.63E-09		
2nd Qtr					6.68±9.15E-10	1.94±2.47E-09
July	6.80±8.96E-10	6.76±1.17E-09	0.00±1.00E-07	0.00±1.44E-08		
August	-1.98±5.93E-10	4.77±1.02E-09	2.28±8.10E-08	0.00±1.39E-08		
September	-4.38±8.19E-10	8.04±1.63E-09	0.69±9.78E-08	0.00±1.38E-08		
3rd Qtr					0.71±1.02E-09	6.75±1.92E-09
October	0.03±3.70E-10	3.57±0.94E-09				
November	3.43±3.10E-10	3.08±0.85E-09				
December	4.23±4.21E-10	1.67±1.12E-09				
4th Qtr			2.85±7.42E-08	0.00±1.36E-08	-2.64±7.71E-10	1.47±1.93E-09

Table C - 1.15

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$), pH, and Conductivity
at Site Potable Water Location WNDNKEL**

Month	Alpha	Beta	H-3	pH (standard units)	Conductivity ($\mu\text{mhos/cm@25}^\circ\text{C}$)
<i>January</i>	0.00 \pm 7.27E-10	0.54 \pm 1.60E-09	2.75 \pm 7.83E-08	8.18	197
<i>February</i>	-1.29 \pm 1.33E-09	1.17 \pm 1.56E-09	3.65 \pm 7.43E-08	8.35	195
<i>March</i>	0.00 \pm 1.51E-09	1.44 \pm 1.50E-09	8.72 \pm 7.84E-08	8.50	195
<i>April</i>	-0.80 \pm 1.17E-09	1.19 \pm 1.62E-09	8.67 \pm 7.65E-08	8.24	182
<i>May</i>	-0.47 \pm 3.64E-10	1.53 \pm 0.79E-09	5.91 \pm 7.69E-08	8.59	198
<i>June</i>	0.26 \pm 4.59E-10	1.48 \pm 0.75E-09	5.93 \pm 7.71E-08	8.41	272
<i>July</i>	5.64 \pm 4.33E-10	2.31 \pm 0.57E-09	0.53 \pm 7.51E-08	8.00	247
<i>August</i>	-4.82 \pm 5.37E-10	6.60 \pm 8.42E-10	1.45 \pm 8.23E-08	8.03	262
<i>September</i>	1.90 \pm 5.09E-10	2.58 \pm 0.85E-09	3.19 \pm 7.57E-08	8.41	276
<i>October</i>	5.77 \pm 5.50E-10	1.73 \pm 0.83E-09	3.52 \pm 8.46E-08	7.95	285
<i>November</i>	2.52 \pm 4.75E-10	2.44 \pm 0.87E-09	3.04 \pm 7.26E-08	8.33	238
<i>December</i>	1.08 \pm 2.91E-10	1.51 \pm 0.73E-09	7.94 \pm 7.60E-08	8.55	725

Table C - 1.16

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$), pH, and Conductivity
at Site Potable Water Location WNDNKMS**

Month	Alpha	Beta	H-3	pH (standard units)	Conductivity ($\mu\text{mhos/cm@25}^\circ\text{C}$)
<i>January</i>	-2.61 \pm 5.11E-10	0.90 \pm 1.64E-09	0.00 \pm 1.00E-07	7.83	199
<i>February</i>	-1.02 \pm 1.42E-09	1.17 \pm 1.56E-09	0.00 \pm 1.00E-07	8.02	202
<i>March</i>	-1.07 \pm 1.05E-09	1.35 \pm 1.49E-09	1.02 \pm 0.78E-07	8.39	200
<i>April</i>	-0.26 \pm 1.35E-09	0.51 \pm 1.54E-09	8.89 \pm 7.66E-08	8.41	182
<i>May</i>	1.95 \pm 4.06E-10	2.14 \pm 0.82E-09	9.21 \pm 7.66E-08	8.45	204
<i>June</i>	-0.38 \pm 4.36E-10	2.04 \pm 0.78E-09	3.96 \pm 7.53E-08	8.19	242
<i>July</i>	2.99 \pm 4.51E-10	1.75 \pm 0.78E-09	1.64 \pm 6.33E-08	7.81	244
<i>August</i>	-1.62 \pm 5.18E-10	5.82 \pm 8.27E-10	0.00 \pm 1.00E-07	7.74	250
<i>September</i>	2.62 \pm 5.55E-10	2.94 \pm 0.86E-09	3.51 \pm 7.58E-08	8.36	269
<i>October</i>	1.70 \pm 4.57E-10	1.90 \pm 0.83E-09	9.50 \pm 8.39E-08	7.93	275
<i>November</i>	-0.15 \pm 4.10E-10	5.14 \pm 0.69E-09	0.00 \pm 1.00E-07	7.85	267
<i>December</i>	3.27 \pm 3.04E-10	2.69 \pm 0.79E-09	7.11 \pm 7.65E-08	9.04	714

Table C - 1.17

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$), pH, and Conductivity
at Site Potable Water Location WNDNKMP**

Month	Alpha	Beta	H-3	pH (standard units)	Conductivity ($\mu\text{mhos/cm@25}^\circ\text{C}$)
<i>January</i>	0.76 \pm 1.11E-09	-0.27 \pm 1.50E-09	7.30 \pm 7.76E-08	7.96	203
<i>February</i>	-0.90 \pm 1.04E-09	0.49 \pm 1.05E-09	0.00 \pm 1.00E-07	7.96	193
<i>March</i>	0.27 \pm 1.58E-09	2.07 \pm 1.57E-09	5.76 \pm 7.49E-08	8.15	201
<i>April</i>	-6.67 \pm 8.65E-10	0.55 \pm 1.09E-09	8.29 \pm 7.59E-08	7.79	180
<i>May</i>	-1.08 \pm 3.60E-10	8.79 \pm 7.56E-10	1.28 \pm 0.77E-07	8.43	201
<i>June</i>	-0.07 \pm 5.04E-10	1.36 \pm 0.74E-09	1.80 \pm 0.78E-07	8.30	239
<i>July</i>	1.90 \pm 4.34E-10	2.84 \pm 0.84E-09	3.44 \pm 7.54E-08	7.81	252
<i>August</i>	2.54 \pm 6.44E-10	1.27 \pm 0.87E-09	6.99 \pm 7.71E-08	7.76	265
<i>September</i>	1.93 \pm 5.78E-10	1.83 \pm 0.81E-09	9.07 \pm 7.68E-08	8.23	284
<i>October</i>	5.44 \pm 5.55E-10	1.51 \pm 0.82E-09	1.21 \pm 0.59E-07	8.02	282
<i>November</i>	0.21 \pm 4.30E-10	1.24 \pm 0.81E-09	0.00 \pm 1.00E-07	8.11	273
<i>December</i>	1.65 \pm 3.04E-10	2.54 \pm 0.79E-09	3.11 \pm 7.55E-08	8.52	719

Table C - 1.18

1995 Monthly Radioactivity Concentrations ($\mu\text{Ci/mL}$), pH, Conductivity, Nitrate-Nitrogen, and Metals Concentrations at Site Potable Water Location WNDNKUR

Month	Alpha	Beta	H-3	pH (standard units)	Conductivity ($\mu\text{mhos/cm@25}^{\circ}\text{C}$)
January	2.56 \pm 8.68E-10	0.45 \pm 1.58E-09	1.26 \pm 0.78E-07	8.10	204
February	-0.52 \pm 1.60E-09	0.72 \pm 1.52E-09	2.48 \pm 7.84E-08	8.33	201
March	-0.82 \pm 1.20E-09	1.99 \pm 1.56E-09	3.46 \pm 7.58E-08	8.78	193
April	-1.11 \pm 1.09E-09	1.11 \pm 1.61E-09	9.16 \pm 7.71E-08	8.05	183
May	-1.81 \pm 2.44E-10	6.85 \pm 5.25E-10	1.17 \pm 0.55E-07	8.62	204
June	-4.26 \pm 4.30E-10	1.28 \pm 0.73E-09	1.12 \pm 0.77E-07	8.35	236
July	3.65 \pm 4.74E-10	2.52 \pm 1.02E-09	0.00 \pm 1.00E-07	8.04	247
August	-5.82 \pm 5.37E-10	1.02 \pm 0.86E-09	4.22 \pm 7.62E-08	7.99	263
September	5.75 \pm 6.27E-10	1.67 \pm 0.80E-09	0.97 \pm 7.64E-08	8.42	274
October	-3.00 \pm 2.99E-10	2.11 \pm 0.60E-09	1.03 \pm 0.59E-07	8.03	285
November	-1.62 \pm 3.97E-10	1.37 \pm 0.82E-09	2.94 \pm 7.52E-08	8.33	275
December	2.97 \pm 3.19E-10	1.73 \pm 0.75E-09	4.52 \pm 7.55E-08	8.78	705

Date	Nitrate-N (mg/L)	Arsenic Total ($\mu\text{g/L}$)	Cadmium Total ($\mu\text{g/L}$)	Chromium Total ($\mu\text{g/L}$)	Mercury Total ($\mu\text{g/L}$)	Selenium Total ($\mu\text{g/L}$)	Fluoride (mg/L)
03/15	3.8	<25.0	<2.0	<10.0	<0.19	<2.00	<0.10

Table C - 1.19

**1995 Radioactivity Concentrations ($\mu\text{Ci/mL}$), NPOC, TOX, and pH
in Surface Water at Location WNDADR**

Month	Alpha	Beta	H-3	Cs-137	I-129	Sr-90
<i>January</i>	0.89 \pm 3.03E-09	2.14 \pm 0.14E-07	4.18 \pm 0.18E-06	0.00 \pm 1.29E-08		
<i>February</i>	0.00 \pm 5.00E-09	1.87 \pm 0.13E-07	3.84 \pm 0.17E-06	0.00 \pm 1.38E-08		
<i>March</i>	0.02 \pm 2.79E-09	1.57 \pm 0.08E-07	3.59 \pm 0.16E-06	0.00 \pm 1.52E-08		
1st Qtr					-6.25 \pm 7.11E-10	8.07 \pm 0.63E-08
<i>April</i>	-2.05 \pm 4.91E-09	2.41 \pm 0.15E-07	5.46 \pm 0.21E-06	0.00 \pm 1.40E-08		
<i>May</i>	1.11 \pm 1.84E-09	2.59 \pm 0.08E-07	6.94 \pm 0.25E-06	0.00 \pm 1.12E-08		
<i>June</i>	2.86 \pm 1.75E-09	2.66 \pm 0.06E-07	5.34 \pm 0.21E-06	0.00 \pm 1.44E-08		
2nd Qtr					9.23 \pm 9.45E-10	1.10 \pm 0.08E-07
<i>July</i>	0.38 \pm 1.13E-09	2.06 \pm 0.07E-07	3.38 \pm 0.15E-06	0.00 \pm 1.43E-08		
<i>August</i>	-0.01 \pm 2.17E-09	2.97 \pm 0.09E-07	2.70 \pm 0.14E-06	0.00 \pm 1.64E-08		
<i>September</i>	0.39 \pm 1.67E-09	2.19 \pm 0.08E-07	2.12 \pm 0.12E-06	0.00 \pm 1.25E-08		
3rd Qtr					1.37 \pm 0.97E-09	1.11 \pm 0.07E-07
<i>October</i>	0.07 \pm 1.40E-09	2.33 \pm 0.09E-07	2.78 \pm 0.14E-06	0.00 \pm 1.15E-08		
<i>November</i>	2.23 \pm 1.43E-09	1.76 \pm 0.06E-07	1.85 \pm 0.12E-06	0.00 \pm 1.72E-08		
<i>December</i>	5.69 \pm 6.41E-10	1.42 \pm 0.04E-07	9.78 \pm 0.90E-07	0.58 \pm 1.08E-08		
4th Qtr					8.03 \pm 6.81E-10	7.51 \pm 0.63E-08
	NPOC (mg/L)	TOX ($\mu\text{g/L}$)	pH (standard units)			
<i>January</i>	7.10	21.8	7.7			
<i>February</i>	7.40	128	7.5			
<i>March</i>	4.98	39.9	7.7			
<i>April</i>	6.88	25.0	7.6			
<i>May</i>	8.35	25.8	7.4			
<i>June</i>	11.15	42.6	7.8			
<i>July</i>	10.88	47.2	7.2			
<i>August</i>	12.14	37.2	7.3			
<i>September</i>	8.60	38.3	7.4			
<i>October</i>	7.32	24.5	7.4			
<i>November</i>	5.34	15.0	7.6			
<i>December</i>	5.22	16.1	7.6			

Table C - 1.20

**1995 Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$), NPOC, and TOX
in Groundwater at Location WNNDATR**

Month	Alpha	Beta	H-3	Cs-137	I-129
<i>January</i>	4.35 \pm 4.10E-09	8.72 \pm 0.68E-08	1.90 \pm 0.06E-05	0.00 \pm 1.35E-08	
<i>February</i>	6.69 \pm 8.70E-09	6.84 \pm 0.87E-08	1.78 \pm 0.06E-05	0.00 \pm 1.50E-08	
<i>March</i>	0.00 \pm 5.48E-09	9.95 \pm 1.01E-08	1.44 \pm 0.05E-05	0.00 \pm 1.49E-08	
1st Qtr					0.28 \pm 6.51E-10
<i>April</i>	2.76 \pm 5.41E-09	1.05 \pm 0.11E-07	2.57 \pm 0.08E-05	0.00 \pm 1.24E-08	
<i>May</i>	1.90 \pm 2.39E-09	9.10 \pm 0.52E-08	2.67 \pm 0.08E-05	0.00 \pm 1.33E-08	
<i>June</i>	1.47 \pm 1.17E-09	4.49 \pm 0.26E-08	1.10 \pm 0.04E-05	0.00 \pm 1.40E-08	
2nd Qtr					0.68 \pm 1.50E-09
<i>July</i>	2.56 \pm 1.87E-09	5.79 \pm 0.40E-08	1.24 \pm 0.04E-05	0.00 \pm 1.04E-08	
<i>August</i>	1.44 \pm 1.61E-09	6.77 \pm 0.31E-08	9.81 \pm 0.34E-06	0.00 \pm 9.68E-09	
<i>September</i>	0.18 \pm 1.97E-09	7.22 \pm 0.45E-08	1.79 \pm 0.06E-05	0.00 \pm 1.60E-08	
3rd Qtr					0.92 \pm 1.09E-09
<i>October</i>	1.54 \pm 1.11E-09	4.39 \pm 0.35E-08	1.97 \pm 0.08E-05	0.00 \pm 1.51E-08	
<i>November</i>	2.82 \pm 1.68E-09	6.47 \pm 0.43E-08	5.67 \pm 0.16E-06	0.00 \pm 1.58E-08	
<i>December</i>	1.77 \pm 1.38E-09	7.16 \pm 0.43E-08	5.74 \pm 0.22E-06	0.00 \pm 1.53E-08	
4th Qtr					0.98 \pm 1.05E-09
	NPOC	TOX			
	(mg/L)	($\mu\text{g}/\text{L}$)			
<i>January</i>	5.80	30.0			
<i>February</i>	3.10	20.0			
<i>March</i>	5.40	138			
<i>April</i>	6.20	31.0			
<i>May</i>	3.70	27.0			
<i>June</i>	5.20	26.0			
<i>July</i>	4.40	28.0			
<i>August</i>	5.50	15.0			
<i>September</i>	3.60	13.0			
<i>October</i>	4.40	12.6			
<i>November</i>	7.40	20.0			
<i>December</i>	3.70	23.0			

Table C - 1.21

**1995 Radioactivity Concentrations ($\mu\text{Ci/mL}$) and Water Quality Parameters
in Surface Water at WNSTAW Series Sampling Locations**

Location	Alpha	Beta	H-3	pH	Conductivity ($\mu\text{mhos/cm@25}^\circ\text{C}$)
WNSTAW4	1.46 \pm 3.46E-10	3.50 \pm 1.36E-09	1.24 \pm 0.82E-07	7.44	110
WNSTAW5	0.99 \pm 4.58E-10	1.07 \pm 1.79E-09	2.27 \pm 0.84E-07	6.56	66
WNSTAW6	-2.24 \pm 6.40E-10	5.57 \pm 1.83E-09	1.47 \pm 0.78E-07	7.55	246
WNSTAW9	-0.22 \pm 5.86E-10	0.54 \pm 1.79E-09	1.41 \pm 0.83E-07	7.67	245
WNSTAWB*	3.62 \pm 9.27E-10	5.00 \pm 1.83E-09	0.00 \pm 1.00E-07	8.05	382

	Date	Chloride (mg/L)	Iron Total ($\mu\text{g/L}$)	Manganese Total ($\mu\text{g/L}$)	Sodium Total ($\mu\text{g/L}$)	Nitrate+ Nitrite (mg/L)	Sulfate (mg/L)
WNSTAW4	11/06	6.5	300	41	5540	0.06	35.3
WNSTAW5	11/06	< 1.0	325	21	2140	< 0.05	9.60
WNSTAW6	11/13	< 1.0	284	14	13400	< 0.05	19.4
WNSTAW9	11/06	6.1	450	134	6890	0.07	20.9
WNSTAWB*	11/14	20.2	< 100	41	1670	0.10	14.4

* Background location.

Table C - 1.22

**1995 Radioactivity Concentrations ($\mu\text{Ci/mL}$) in Surface Water
Upstream of the WVDP at Fox Valley (WFBCBKG)**

Month	Alpha	Beta	H-3	Sr-90	Cs-137					
January	1.15±1.38E-09	3.30±1.74E-09	1.81±8.68E-08							
February	-0.75±1.46E-09	3.63±1.72E-09	0.00±1.00E-07							
March	-0.25±1.28E-09	2.78±1.44E-09	5.02±7.63E-08							
1st Qtr				3.29±1.92E-09	0.00±4.45E-09					
April	1.16±1.40E-09	1.27±1.51E-09	4.51±8.04E-08							
May	2.18±5.39E-10	1.04±0.79E-09	7.28±7.68E-08							
June	7.34±7.99E-10	2.29±0.85E-09	1.01±7.54E-08							
2nd Qtr				3.69±2.07E-09	0.00±4.16E-09					
July	6.35±7.69E-10	1.34±0.88E-09	0.00±1.00E-07							
August	6.05±8.74E-10	2.42±0.86E-09	0.00±1.00E-07							
September	0.48±6.47E-10	2.07±1.03E-09	5.39±7.70E-08							
3rd Qtr				5.06±2.03E-09	0.00±4.41E-09					
October	2.13±5.66E-10	2.67±0.97E-09	3.66±7.60E-08							
November	6.31±5.22E-10	5.27±1.08E-09	6.72±7.75E-08							
December	6.84±4.28E-10	2.96±0.95E-09	9.54±7.68E-08							
4th Qtr				4.43±1.78E-09	0.00±4.92E-09					
	C-14	I-129	U-232	U-233/234	U-235/236					
1st Qtr	2.70±5.46E-09	1.47±8.44E-10	8.86±0.85E-11	7.95±4.15E-11	0.68±4.04E-11					
2nd Qtr	-0.92±5.73E-09	0.58±1.02E-09	0.00±2.91E-11	8.23±5.94E-11	0.48±2.18E-11					
3rd Qtr	-0.21±1.40E-08	1.29±4.62E-10	0.36±4.46E-11	8.38±6.54E-11	1.01±2.81E-11					
4th Qtr	-2.63±7.12E-09	0.93±7.89E-10	0.00±3.68E-11	1.05±0.42E-10	1.92±1.96E-11					
	U-238	Total U ($\mu\text{g/mL}$)	Pu-238	Pu-239/240	Am-241	Tc-99				
1st Qtr	7.54±5.39E-11	-3.63±0.09E-04	1.17±4.22E-11	0.04±1.98E-11	4.19±5.21E-11	-3.89±1.37E-09				
2nd Qtr	8.72±5.87E-11	-2.93±0.08E-04	1.40±2.80E-11	2.10±2.43E-11	2.06±5.98E-11	-6.71±1.31E-09				
3rd Qtr	4.43±4.54E-11	-1.83±0.03E-04	-0.86±3.64E-11	-2.73±5.46E-12	1.92±1.73E-11	0.30±1.76E-09				
4th Qtr	7.84±3.56E-11	2.50±0.15E-04	4.56±2.36E-11	1.07±1.07E-11	-0.95±2.83E-11	-0.45±1.36E-09				

See Table C-1.27 for a summary of water quality parameters at WFBCBKG.

Table C - 1.23

**1995 Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water
Downstream of the WVDP at Thomas Corners (WFBCTCB)**

Month	Alpha	Beta	H-3	Sr-90	Cs-137
January*	1.37 \pm 1.64E-09	6.89 \pm 2.20E-09	2.09 \pm 8.60E-08		
February	0.00 \pm 1.66E-09	4.97 \pm 2.15E-09	5.58 \pm 7.60E-08		
March*	0.26 \pm 1.52E-09	5.12 \pm 1.70E-09	7.79 \pm 7.71E-08		
1st Qtr				3.57 \pm 1.90E-09	0.00 \pm 4.10E-09
April	0.00 \pm 9.06E-10	5.36 \pm 1.95E-09	1.03 \pm 0.78E-07		
May	4.64 \pm 6.33E-10	5.90 \pm 1.04E-09	5.25 \pm 7.66E-08		
June*	1.41 \pm 0.96E-09	8.22 \pm 1.15E-09	6.16 \pm 7.67E-08		
2nd Qtr				7.13 \pm 2.48E-09	0.00 \pm 4.29E-09
July	5.50 \pm 8.80E-10	9.38 \pm 1.27E-09	8.83 \pm 7.70E-08		
August*	8.39 \pm 9.12E-10	1.73 \pm 0.14E-08	8.71 \pm 0.88E-07		
September	4.09 \pm 7.78E-10	1.25 \pm 0.15E-08	2.41 \pm 0.80E-07		
3rd Qtr				6.52 \pm 2.22E-09	0.00 \pm 4.28E-09
October	3.95 \pm 6.54E-10	1.20 \pm 0.14E-08	7.02 \pm 7.78E-08		
November	3.10 \pm 5.13E-10	1.17 \pm 0.14E-08	6.53 \pm 7.53E-08		
December*	7.89 \pm 4.45E-10	5.90 \pm 1.10E-09	1.20 \pm 0.78E-07		
4th Qtr				7.13 \pm 2.14E-09	0.00 \pm 4.63E-09

* Month of discharge from WNSP001.

Table C - 1.24

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water
Downstream of the WVDP in Cattaraugus Creek at Felton Bridge (WFFELBR)**

Month	Alpha	Beta	H-3	Sr-90	Cs-137
January*	1.11 \pm 1.50E-09	5.59 \pm 2.04E-09	5.86 \pm 7.62E-08	-0.04 \pm 1.59E-09	0.00 \pm 4.62E-09
February	1.08 \pm 1.77E-09	4.01 \pm 1.36E-09	6.12 \pm 7.62E-08	3.58 \pm 1.86E-09	0.00 \pm 4.38E-09
March*	0.50 \pm 2.19E-09	4.23 \pm 2.03E-09	6.74 \pm 7.85E-08	3.73 \pm 2.08E-09	0.00 \pm 4.72E-09
April	-1.04 \pm 2.48E-09	2.98 \pm 1.74E-09	1.36 \pm 0.77E-07	2.00 \pm 1.89E-09	0.00 \pm 4.58E-09
May	3.39 \pm 8.39E-10	2.35 \pm 1.06E-09	4.68 \pm 7.43E-08	2.11 \pm 1.72E-09	0.00 \pm 4.67E-09
June*	0.77 \pm 1.15E-09	3.12 \pm 1.02E-09	1.02 \pm 0.77E-07	4.56 \pm 2.16E-09	0.00 \pm 4.47E-09
July	1.06 \pm 1.12E-09	2.98 \pm 1.28E-09	1.34 \pm 7.61E-08	6.25 \pm 2.03E-09	0.00 \pm 4.51E-09
August*	1.14 \pm 1.03E-09	6.46 \pm 1.28E-09	5.15 \pm 7.75E-08	3.85 \pm 1.90E-09	0.00 \pm 4.41E-09
September	-2.76 \pm 7.90E-10	2.67 \pm 1.36E-09	4.16 \pm 7.42E-08	5.11 \pm 2.06E-09	0.00 \pm 4.33E-09
October	4.62 \pm 7.65E-10	4.40 \pm 1.40E-09	7.66 \pm 7.63E-08	3.99 \pm 2.13E-09	0.00 \pm 4.64E-09
November	1.38 \pm 5.95E-10	4.70 \pm 1.23E-09	4.14 \pm 7.43E-08	5.32 \pm 1.55E-09	0.00 \pm 4.55E-09
December*	2.09 \pm 0.89E-09	5.30 \pm 1.37E-09	4.81 \pm 7.68E-08	5.35 \pm 1.93E-09	0.00 \pm 4.42E-09

* Month of discharge from WNSP001.

Table C - 1.25

**1995 Monthly Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$) in Surface Water
Upstream of the WVDP in Cattaraugus Creek at Bigelow Bridge (WFBIGBR)***

Month	Alpha	Beta	H-3	Sr-90	Cs-137
January	0.47±1.58E-09	3.01±2.31E-09	0.00±1.00E-07	2.16±1.85E-09	0.00±4.69E-09
February	0.00±2.24E-09	3.94±2.30E-09	0.00±1.00E-07	3.86±2.01E-09	0.00±4.51E-09
March	-1.05±1.37E-09	3.57±1.43E-09	1.38±0.77E-07	2.80±2.01E-09	0.00±4.61E-09
April	0.00±3.18E-09	3.35±2.15E-09	0.00±1.00E-07	2.98±2.07E-09	0.00±4.64E-09
May	2.53±6.00E-10	9.60±7.80E-10	8.75±7.63E-08	3.05±1.89E-09	0.00±4.34E-09
June	4.20±6.82E-10	3.01±0.75E-09	0.00±1.00E-07	3.54±1.49E-09	0.00±4.58E-09
July	5.57±8.91E-10	1.49±1.09E-09	1.18±8.37E-08	6.10±2.01E-09	0.00±4.31E-09
August	-4.10±8.71E-10	2.03±1.03E-09	0.00±1.00E-07	3.01±1.80E-09	0.00±4.33E-09
September	6.57±8.97E-10	1.10±1.00E-09	0.00±1.00E-07	1.99±1.66E-09	0.00±4.24E-09
October	-1.71±5.53E-10	4.14±1.36E-09	3.87±7.93E-08	9.78±1.91E-09	0.00±4.30E-09
November	3.06±5.81E-10	3.99±0.96E-09	2.73±0.79E-07	2.70±1.34E-09	0.00±3.04E-09
December	2.45±5.36E-10	4.75±1.08E-09	7.36±7.59E-08	3.46±1.65E-09	0.00±3.05E-09

* Background location.

Table C - 1.26

**1995 Radioactivity Concentrations ($\mu\text{Ci}/\text{mL}$), pH, and Conductivity
in Potable Well Water around the WVDP**

Well	pH (standard units)	Conductivity ($\mu\text{mhos}/\text{cm}@25^\circ\text{C}$)	Alpha	Beta	H-3	Cs-137
WFWEL01	7.41	414	-0.91±5.23E-10	4.67±1.20E-09	0.00±1.00E-07	0.00±1.80E-08
WFWEL02	6.65	665	-6.73±6.44E-10	4.11±1.65E-09	8.21±7.65E-08	0.00±1.33E-08
WFWEL03	6.73	775	0.18±1.14E-09	5.67±1.80E-09	4.59±7.66E-08	0.00±1.36E-08
WFWEL04	8.18	1705	0.49±1.95E-09	1.86±1.77E-09	0.63±7.49E-08	0.00±1.51E-08
WFWEL05	6.59	290	2.63±6.88E-10	4.67±1.68E-09	8.63±7.56E-08	0.00±1.36E-08
WFWEL06*	7.89	271	-3.14±7.26E-10	1.42±1.59E-09	7.06±5.42E-08	0.00±1.13E-08
WFWEL07	7.66	374	2.37±7.71E-10	2.74±1.56E-09	5.16±7.57E-08	0.00±9.69E-09
WFWEL08	7.52	474	-0.78±8.75E-10	6.67±1.83E-09	0.00±1.00E-07	0.00±1.46E-08
WFWEL09	8.02	667	0.84±1.06E-09	3.92±1.67E-09	0.00±1.00E-07	0.00±1.47E-08
WFWEL10	7.37	586	-1.61±9.28E-10	3.36±1.64E-09	5.33±7.66E-08	0.00±2.00E-08

* Background location.

Table C - 1.27
1995 Surface Water Quality at Locations WFBCBKG*, WNSP006,
WNSWAMP, and WNSW74A

Location	Date	pH (standard units)	Conductivity ($\mu\text{mhos/cm@25}^\circ\text{C}$)	NPOC (mg/L)	TOX ($\mu\text{g/L}$)	Chloride (mg/L)	Sulfate (mg/L)	Nitrate/ Nitrite (mg/L)	Fluoride (mg/L)	Bicarbonate Alkalinity (CaCO_3) (mg/L)	Carbonate Alkalinity (CaCO_3) (mg/L)
WFBCBKG*	06/23	7.86	222	1.0	11.0	9.6	21.9	0.120	<0.10	114.0	<1.0
WFBCBKG*	10/19	7.82	293	1.5	11.8	11.7	31.2	<0.050	<0.10	116.0	<5.0
WNSP006	06/23	7.71	786	4.6	70.0	201.0	156	22.600	0.11	82.2	<1.0
WNSP006	10/19	7.63	1158	3.9	101	92.7	52.0	12.700	0.12	398.0	<25.0
WNSWAMP	06/29	7.39	935	3.0	30.0	230.0	28.0	2.000	0.90	180.0	<5.0
WNSWAMP	10/19	7.54	984	3.0	20.0	120.0	50.0	1.300	0.80	170.0	<1.0
WNSW74A	06/23	7.27	872	6.3	49.0	110.0	65.2	0.150	0.13	140.0	<1.0
WNSW74A	10/19	7.20	772	3.0	23.9	83.6	78.8	0.077	<0.10	145.0	<25.0

		Calcium Total ($\mu\text{g/L}$)	Magnesium Total ($\mu\text{g/L}$)	Sodium Total ($\mu\text{g/L}$)	Potassium Total ($\mu\text{g/L}$)	Barium Total ($\mu\text{g/L}$)	Manganese Total ($\mu\text{g/L}$)	Iron Total ($\mu\text{g/L}$)
WFBCBKG*	06/23	46,400	6,700	9,000	1,700	<200	85	660
WFBCBKG*	10/19	50,000	7,140	11,700	1,890	<200	63	553
WNSP006	06/23	59,400	9,600	178,000	10,300	<200	96	150
WNSP006	10/19	70,000	9,450	78,200	7,580	<200	46	476
WNSWAMP	06/29	120,000	15,000	64,000	1,500	140	140	67
WNSWAMP	10/19	110,000	14,000	55,000	1,800	130	75	66
WNSW74A	06/23	79,100	10,200	53,900	3,400	<200	280	680
WNSW74A	10/19	87,800	10,500	39,100	1,220	<200	26	77

* Background location.

Table C - 1.28

**1995 Radioactivity Concentrations ($\mu\text{Ci/g}$ dry weight from upper 5 cm)
in On-site Soils/Sediments**

Location	Alpha	Beta	K-40	Co-60	Sr-90	Cs-137
SNSP006	1.28±0.12E-05	3.66±0.12E-05	2.11±0.06E-05	2.52±1.72E-08	5.83±2.44E-07	2.65±0.01E-05
SNSW74A	1.99±0.16E-05	3.47±0.12E-05	1.96±0.06E-05	8.46±2.65E-08	5.30±0.50E-07	8.82±0.09E-06
SNSWAMP	2.14±0.15E-05	8.98±0.18E-05	1.95±0.05E-05	1.31±1.19E-08	2.80±0.10E-05	3.83±0.06E-06
	U-232	U-233/234	U-235/236	U-238	Total U ($\mu\text{g/g}$)	Pu-239/240
SNSP006	1.09±0.07E-08	1.02±0.11E-06	3.05±2.21E-08	9.15±0.99E-07	3.04±0.04E-00	3.06±1.17E-08
SNSW74A	4.23±0.36E-08	1.06±0.15E-06	6.65±3.66E-08	1.35±0.18E-06	3.54±0.05E-00	1.92±0.32E-07
SNSWAMP	3.61±0.23E-09	8.90±0.93E-07	0.91±1.59E-08	9.25±0.96E-07	3.69±0.04E-00	8.16±2.02E-08
	Am-241					
SNSP006	4.16±2.01E-08					
SNSW74A	2.19±0.34E-07					
SNSWAMP	9.52±2.28E-08					

Table C - 1.29

1995 Metals Concentrations (mg/kg dry) in On-site Soils/Sediments

Location	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium
SNSP006	8,300	< 8.3	10.0	54.0	0.40	0.18
SNSW74A	14,000	< 18.0	16.0	190.0	0.55	0.52
SNSWAMP	18,000	< 13.0	10.0	140.0	0.71	0.22
	Calcium	Chromium	Cobalt	Copper	Iron	Lead
SNSP006	19,000	11.0	10.0	15.0	19,000	15.0
SNSW74A	5,200	17.0	11.0	28.0	30,000	27.0
SNSWAMP	10,000	21.0	9.8	29.0	27,000	27.0
	Magnesium	Manganese	Mercury	Nickel	Potassium	Selenium
SNSP006	6,600	730	0.06	19.0	1,400	1.30
SNSW74A	4,000	5,500	0.16	25.0	1,900	3.30
SNSWAMP	6,200	2,100	0.15	24.0	2,900	2.70
	Silver	Sodium	Thallium	Vanadium	Zinc	
SNSP006	< 1.4	110.0	0.61	17.0	66.0	
SNSW74A	< 3.0	230.0	1.6	23.0	330.0	
SNSWAMP	< 2.2	210.0	1.1	27.0	130.0	

Table C - 1.30

**1995 Radioactivity Concentrations in Surface Soil Collected at
Air Sampling Stations around the WVDP ($\mu\text{Ci/g}$ dry weight from upper 5 cm)**

Location	Alpha	Beta	K-40	Cs-137	Sr-90	Co-60
SFBLKST	9.13 \pm 3.74E-06	2.40 \pm 0.41E-05	1.92 \pm 0.26E-05	3.05 \pm 0.56E-07	5.59 \pm 3.73E-08	2.43 \pm 2.17E-08
SFBOEHN	9.58 \pm 3.73E-06	2.02 \pm 0.42E-05	1.49 \pm 0.21E-05	3.08 \pm 0.66E-07	8.79 \pm 4.24E-08	-0.68 \pm 2.72E-08
SFFXVRD	1.11 \pm 0.39E-05	1.57 \pm 0.34E-05	1.14 \pm 0.09E-05	3.43 \pm 0.54E-07	1.16 \pm 0.42E-07	2.93 \pm 2.27E-08
SFGRVAL*	9.11 \pm 3.83E-06	1.74 \pm 0.39E-05	1.28 \pm 0.08E-05	3.86 \pm 0.38E-07	2.89 \pm 0.63E-07	-0.19 \pm 1.67E-08
SFNASHV*	8.38 \pm 3.44E-06	2.28 \pm 0.42E-05	1.61 \pm 0.10E-05	1.37 \pm 0.39E-07	-1.20 \pm 0.30E-07	0.09 \pm 2.33E-08
SFRSPRD	7.24 \pm 3.56E-06	2.30 \pm 0.44E-05	1.29 \pm 0.10E-05	1.48 \pm 0.08E-06	9.08 \pm 4.28E-08	0.22 \pm 2.45E-08
SFRT240	1.21 \pm 0.41E-05	1.98 \pm 0.37E-05	1.27 \pm 0.08E-05	7.56 \pm 0.43E-07	1.54 \pm 3.67E-08	-1.06 \pm 1.79E-08
SFSPRVL	1.14 \pm 0.39E-05	2.06 \pm 0.39E-05	1.49 \pm 0.10E-05	3.43 \pm 0.54E-07	1.12 \pm 0.44E-07	-0.18 \pm 2.45E-08
SFTCORD	1.48 \pm 0.44E-05	2.57 \pm 0.40E-05	2.13 \pm 0.12E-05	6.77 \pm 4.30E-08	-0.89 \pm 3.31E-08	2.10 \pm 2.39E-08
SFWEVAL	1.47 \pm 0.51E-05	2.10 \pm 0.57E-05	1.16 \pm 0.09E-05	8.36 \pm 0.77E-07	1.26 \pm 0.51E-07	-0.22 \pm 2.65E-08
	U-233/234	U-235/236	U-238	Pu-239/240	Am-241	
SFBLKST				8.24 \pm 8.43E-09	-0.59 \pm 9.49E-09	
SFBOEHN	8.26 \pm 0.96E-07	3.76 \pm 1.87E-08	7.82 \pm 0.93E-07	1.38 \pm 1.01E-08	1.11 \pm 2.21E-08	
SFFXVRD				2.11 \pm 1.23E-08	4.98 \pm 8.46E-09	
SFGRVAL*	8.62 \pm 1.01E-07	2.82 \pm 1.57E-08	9.31 \pm 1.06E-07	1.43 \pm 1.00E-08	0.61 \pm 1.23E-08	
SFNASHV*				1.05 \pm 0.91E-08	-1.06 \pm 9.63E-09	
SFRSPRD	7.87 \pm 0.91E-07	2.72 \pm 1.56E-08	8.66 \pm 0.97E-07	2.45 \pm 1.42E-08	1.25 \pm 1.10E-08	
SFRT240				2.23 \pm 1.39E-08	1.62 \pm 1.08E-08	
SFSPRVL				1.82 \pm 1.24E-08	1.43 \pm 0.94E-08	
SFTCORD				2.77 \pm 8.63E-09	5.74 \pm 8.45E-09	
SFWEVAL				1.61 \pm 1.10E-08	1.24 \pm 1.23E-08	
	U-232	Total U ($\mu\text{g/g}$)				
SFBOEHN	0.00 \pm 2.52E-08	2.96 \pm 0.05E-00				
SFGRVAL*	0.00 \pm 2.30E-08	1.78 \pm 0.03E-00				
SFRSPRD	0.00 \pm 3.37E-08	1.06 \pm 0.03E-00				

* Background location.

Table C - 1.31

*1995 Radioactivity Concentrations in Stream Sediments around the WVDP
($\mu\text{Ci/g}$ dry weight from upper 15 cm)*

Location	Alpha	Beta	K-40	Cs-137	Sr-90	Co-60
SFBCSED*	1.73±0.38E-05	2.71±0.29E-05	1.42±0.05E-05	1.92±1.16E-08	-1.37±2.34E-08	0.65±1.08E-08
SFBISED*	1.28±0.32E-05	2.29±0.28E-05	1.36±0.03E-05	4.85±1.05E-08	-1.52±2.28E-08	-0.09±6.72E-09
SFCCSED	8.20±2.66E-06	1.93±0.26E-05	1.38±0.04E-05	2.58±0.23E-07	-0.80±2.66E-08	-2.64±9.49E-09
SFSDSED	1.02±0.29E-05	2.39±0.28E-05	1.30±0.05E-05	2.64±0.32E-07	1.25±2.52E-08	0.84±1.64E-08
SFTCSSED	1.59±0.35E-05	2.55±0.28E-05	1.67±0.05E-05	3.20±0.05E-06	3.81±2.78E-08	3.62±9.44E-09
	U-233/234	U-235/236	U-238	Pu-238	Pu-239/240	Am-241
SFBCSED*	6.97±1.35E-07	5.84±3.83E-08	8.60±1.52E-07	1.52±1.18E-08	4.77±5.52E-09	0.05±1.13E-08
SFBISED*	8.58±1.68E-07	2.78±0.92E-07	7.32±1.52E-07	0.26±1.28E-08	2.78±5.02E-09	-2.19±8.60E-09
SFCCSED	5.74±1.17E-07	3.90±2.77E-08	6.75±1.28E-07	1.61±1.47E-08	1.57±1.13E-08	1.75±1.09E-08
SFSDSED	5.20±1.06E-07	2.16±2.89E-08	6.60±1.19E-07	5.62±2.18E-08	1.41±1.11E-08	5.02±8.98E-09
SFTCSSED	6.63±1.15E-07	4.48±2.73E-08	8.61±1.35E-07	1.81±2.26E-08	0.16±1.06E-08	0.95±1.08E-08
	U-232	Total U ($\mu\text{g/g}$)				
SFBCSED*	0.00±6.97E-08	2.92±0.04E-00				
SFBISED*	0.00±4.99E-08	2.57±0.03E-00				
SFCCSED	0.00±8.46E-08	1.95±0.02E-00				
SFSDSED	1.20±0.12E-08	2.22±0.03E-00				
SFTCSSED	8.96±0.80E-09	2.19±0.03E-00				

* Background location.