Appendix C

Summary of Water Monitoring Data

Collecting a Sample at a WVDP Stream Sampling Location

Table C-2A contains a bolding convention devised to help the reader, when viewing the data, to quickly see the range of detectable measurements within a data series. A data series is a set of chemical or radionuclide measurements (e.g., gross alpha, gross beta, tritium) from a single location or from similar locations. Note that some tables contain data that should not be technically evaluated under this convention.

Key to bolding convention:

Results for each constituent constitute a single data series. If a radiological result is larger than the uncertainty term, the measurement is considered positive. Otherwise, a result is considered non-detectable. Chemical results preceded by"less than" (<) are considered nondetectable.

If all results in a data series are positive, the lowest and highest values are bolded.
If a data series contains some positive results, the highest value is bolded.
If all values in a data series are nondetectable, no values are bolded.

Appendix C-1

Summary of Water Limits, Guidelines, and Standards

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Table C-1A
West Valley Demonstration Project State Pollutant Discharge Elimination System (SPDES) Sampling Program

Outfall	Parameter	Daily Maximum Limit*	Sample Frequency
001 (Process and Storm Wastewater)	Flow	Monitor	2 per discharge
	Aluminum, total	14.0 mg/L	2 per discharge
	Ammonia (NH_3)	Monitor	2 per discharge
	Arsenic, dissolved	0.15 mg/L	2 per discharge
	BOD_5	10.0 mg/L	2 per discharge
	Iron, total	Monitor	2 per discharge
	Zinc, total recoverable	0.48 mg/L	2 per discharge
	Suspended solids	45.0 mg/L	2 per discharge
	Cyanide, amenable to chlorination	0.022 mg/L	2 per discharge
	Settleable solids	0.30 mL/L	2 per discharge
	pH (range)	6.5–8.5	2 per discharge
	Oil and grease	15.0 mg/L	2 per discharge
	Sulfate (as S)	Monitor	2 per discharge
	Sulfide, dissolved	0.4 mg/L	2 per discharge
	Manganese, total	2.0 mg/L	2 per discharge
	Nitrate (as N)	Monitor	2 per discharge
	Nitrite (as N)	0.1 mg/L	2 per discharge
	Chromium, total recoverable	0.3 mg/L	2 per discharge
	Chromium, hexavalent, total recoverable	0.011 mg/L	2 per discharge
	Cadmium, total recoverable	0.002 mg/L	2 per discharge
	Copper, total recoverable	0.030 mg/L	2 per discharge
	Copper, dissolved	Monitor	2 per discharge
	Lead, total recoverable	0.006 mg/L	2 per discharge
	Nickel, total recoverable	0.14 mg/L	2 per discharge
	Dichlorodifluoromethane	0.01 mg/L	annual
	Trichlorofluoromethane	0.01 mg/L	annual
	3,3-dichlorobenzidine	0.01 mg/L	2 per discharge
	Tributyl phosphate	32 mg/L	2 per discharge
	Vanadium, total recoverable	0.014 mg/L	2 per discharge
	Cobalt, total recoverable	0.005 mg/L	2 per discharge
	Selenium, total recoverable	0.004 mg/L	2 per discharge
	Hexachlorobenzene	0.02 mg/L	2 per discharge
	Alpha - BHC	0.00001 mg/L	2 per discharge
	Heptachlor	0.00001 mg/L	2 per discharge
	Surfactants (as LAS)	0.4 mg/L	2 per discharge
	Xylene	0.05 mg/L	2 per discharge
	2-butanone	0.5 mg/L	2 per discharge
	Total dissolved solids	Monitor	2 per discharge
	Mercury, total	0.0002 mg/L	2 per discharge

** Daily average limitations are also identified in the permit but require only monitoring for all parameters except total aluminum (daily average limit - 7.0 mg/L); suspended solids (daily average limit - 30.0 mg/L); BOD_5 for the sum of outfalls 001, 007, and 008 (daily average limit - 5.0 mg/L); and ammonia for the sum of outfalls 001 and 007 (daily average limit - 1.49 mg/L).*

Table C-1A (concluded)
West Valley Demonstration Project State Pollutant Discharge Elimination System (SPDES) Sampling Program

Outfall	Parameter	Daily Maximum Limit*	Sample Frequency
001 ***(concluded)***	Barium	0.5 mg/L	annual
	Antimony	1.0 mg/L	annual
	Chloroform	0.3 mg/L	annual
	Bis(2-ethylhexyl)phthalate	1.6 mg/L	semiannual
	4-Dodecene	0.6 mg/L	semiannual
	Titanium	0.65 mg/L	semiannual
	Bromide	5.0 mg/L	quarterly
	Boron	2.0 mg/L	quarterly
01B (Internal Process Monitoring Point)	Flow	Monitor	weekly
	Mercury, total	10.0 Fg/L	2 per month
007 (Sanitary and Utility Wastewater)	Flow	Monitor	3 per month
	Ammonia (as NH_3)	Monitor	3 per month
	BOD_5	10 mg/L	3 per month
	Iron, total	Monitor	3 per month
	Solids, suspended	45.0 mg/L	3 per month
	Solids, settleable	0.3 mL/L	weekly
	pH (range)	6.5–8.5	weekly
	Nitrite (as N)	0.1 mg/L	3 per month
	Oil and grease	15 mg/L	3 per month
	Chlorine, total residual	0.1 mg/L	weekly
	Chloroform	0.20 mg/L	annual
008 (French Drain Wastewater)	Flow	Monitor	3 per month
	BOD_5	5.0 mg/L	3 per month
	Iron, total	Monitor	3 per month
	pH (range)	6.5–8.5	3 per month
	Cadmium, total recoverable	0.002 mg/L	3 per month
	Lead, total recoverable	0.006 mg/L	3 per month
	Silver, total	0.008 mg/L	annual
	Zinc, total	0.100 mg/L	annual
	Arsenic	0.17 mg/L	annual
	Chromium	0.13 mg/L	annual
Sum of Outfalls 001, 007, and 008	Iron, total	0.30 mg/L	3 per month
	BOD_5	Monitor	3 per month
Sum of Outfalls 001 and 007	Ammonia (as NH_3)	2.1 mg/L	3 per month
Pseudo-monitoring point (116)	Solids, total dissolved	500 mg/L	2 per discharge

** Daily average limitations are also identified in the permit but require only monitoring for all parameters except total aluminum (daily average limit - 7.0 mg/L); suspended solids (daily average limit - 30.0 mg/L); BOD_5 for the sum of outfalls 001, 007, and 008 (daily average limit - 5.0 mg/L); and ammonia for the sum of outfalls 001 and 007 (daily average limit - 1.49 mg/L).*

Table C-1B
New York Water Quality Standards and Guidelines[a]

Parameter	Units	Class A	Class B	Class C	Class D	Class GA
Gross Alpha[b]	pCi/L (µCi/mL)	15 (1.5E-08)	--	--	--	15 (1.5E-08)
Gross Beta[c]	pCi/L (µCi/mL)	1,000 (1.0E-06)	--	--	--	1,000 (1.0E-06)
Tritium (H-3)	pCi/L (µCi/mL)	20,000 (2E-05)	--	--	--	--
Strontium-90	pCi/L (µCi/mL)	8 (8E-09)	--	--	--	--
Cesium-137	pCi/L (µCi/mL)	--	--	--	--	--
Barium, Total	mg/L	1	--	--	--	1
Bicarbonate Alkalinity (as $CaCO_3$)	mg/L	--	--	--	--	--
Calcium, Total	mg/L	--	--	--	--	--
Carbonate Alkalinity (as $CaCO_3$)	mg/L	--	--	--	--	--
Chloride	mg/L	250	--	--	--	250
Conductivity	µmhos/cm@25^{0}C	--	--	--	--	--
Dissolved Solids, Total	mg/L	500	500	500	--	500
Fluoride	mg/L	1.5	[d]	[d]	[d]	1.5
Iron, Total	mg/L	0.3	0.3	0.3	0.3	0.3
Magnesium, Total	mg/L	35	--	--	--	--
Manganese, Total	mg/L	0.3	--	--	--	0.3
Nitrate+Nitrite (as N)	mg/L	10	--	--	--	10
NPOC	mg/L	--	--	--	--	--
pH	SU	6.5–8.5[e]	6.5–8.5[e]	6.5–8.5[e]	6.0–9.5	6.5–8.5[e]
Potassium, Total	mg/L	--	--	--	--	--
Sodium, Total	mg/L	--	--	--	--	20
Sulfate	mg/L	250	--	--	--	250
TOX (total organic halides)	mg/L	--	--	--	--	--

-- No applicable guideline or reference standard available
Note: All water quality and metals standards are presented in mg/L (ppm) to provide consistency in comparisons.
[a] *Sources: 6 NYCRR Part 701–704 and Technical Operation Guidance Series (TOGS) 1.1.1*
[b] *Alpha standard excludes radon and uranium, however WVDP results include these isotopes.*
[c] *Beta standard excludes strontium-90 and alpha emitters, however WVDP results include these isotopes.*
[d] *Calculated from hardness of surface water stream*
[e] *pH shall not be lower than 6.5 or the pH of natural groundwater, whichever is lower, nor shall pH be greater than 8.5 or the pH of the natural groundwater, whichever is greater.*

Table C-1C
New York State Department of Health/U.S. Environmental Protection Agency MCLs, MCLGs, and Raw Water Standards

Parameter	Units	NYSDOH or EPA MCL[a]	EPA MCLG[b]	NYSDOH Raw Water Standards[c]
Gross Alpha	pCi/L (µCi/mL)	15 (1.5E-08)[d]	0	--
Gross Beta	pCi/L (µCi/mL)	50 (5E-08)[e]	0	1,000 (1E-06)
Tritium (H-3)	pCi/L (µCi/mL)	20,000 (2E-05)	--	--
Strontium-90	pCi/L (µCi/mL)	8 (8E-09)	--	10 (1E-08)
Antimony, Total	mg/L	0.006	0.006	--
Arsenic, Total	mg/L	0.05	--	0.05
Barium, Total	mg/L	2	2	1
Beryllium, Total	mg/L	0.004	0.004	--
Cadmium, Total	mg/L	0.005	0.005	0.01
Chromium, Total	mg/L	0.1	0.1	--
Conductivity	µmhos/cm@25^{0}C	--	--	--
Cyanide	mg/L	0.2	0.2	<0.1
Dissolved Solids, Total	mg/L	--	--	500
Fluoride	mg/L	2.2	--	1.5
Iron, Total	mg/L	0.3	--	--
Mercury, Total	mg/L	0.002	0.002	0.005
Nickel, Total	mg/L	--	--	--
Nitrate-N	mg/L	10	10	10
pH	SU	--	--	6.5–8.5
Selenium, Total	mg/L	0.050	0.050	0.01
Thallium, Total	mg/L	0.002	0.0005	--

-- No applicable guideline or reference standard available
Note: All water quality and metals standards are presented in mg/L (ppm) to provide consistency in comparisons.
[a] MCL - Listed is NYSDOH or EPA Maximum Contaminant Levels. Sources: 40 CFR 141 and/or 10 NYCRR Part 5, Subpart 5-1, Section 5-1.52, whichever is more stringent.
[b] MCLG - Maximum Contaminant Level Goal (non-enforceable) as listed in 40 CFR Part 141
[c] Source: 10 NYCRR Part 170.4
[d] Alpha guideline includes radium-226 but excludes radon and uranium, however WVDP results include these isotopes
[e] Average annual concentration assumed to produce a total body organ dose of 4 mrem/year

Table C-1D
U.S. Department of Energy Derived Concentration Guides (DCGs)

Radionuclide	Units	Ingested Water, in µCi/mL
Gross Alpha (as Am-241)	µCi/mL	3E-08
Gross Beta (as Sr-90)	µCi/mL	1E-06
Tritium (H-3)	µCi/mL	2E-03
Carbon-14 (C-14)	µCi/mL	7E-05
Potassium-40 (K-40)	µCi/mL	7E-06
Cobalt-60 (Co-60)	µCi/mL	5E-06
Strontium-90 (Sr-90)	µCi/mL	1E-06
Technetium-99 (Tc-99)	µCi/mL	1E-04
Iodine-129 (I-129)	µCi/mL	5E-07
Cesium-137 (Cs-137)	µCi/mL	3E-06
Europium-154 (Eu-154)	µCi/mL	2E-05
Uranium-232 (U-232)	µCi/mL	1E-07
Uranium-233 (U-233)	µCi/mL	5E-07
Uranium-234 (U-234)	µCi/mL	5E-07
Uranium-235 (U-235)	µCi/mL	6E-07
Uranium-236 (U-236)	µCi/mL	5E-07
Uranium-238 (U-238)	µCi/mL	6E-07
Plutonium-238 (Pu-238)	µCi/mL	4E-08
Plutonium-239 (Pu-239)	µCi/mL	3E-08
Plutonium-240 (Pu-240)	µCi/mL	3E-08
Americium-241 (Am-241)	µCi/mL	3E-08

[a] DCGs are screening levels applicable to WVDP process effluents assuming a water ingestion exposure pathway equivalent to a dose limit of 100 mrem/yr. These screening levels, which are conservatively derived, are used in the absence of site-specific concentration-based limits.

Note: For drinking water sources/systems where no isotopic MCL or MCLG (see Table C-1C) exists, the isotopic DCG value is multiplied by 0.04 (i.e., 4%) to obtain the equivalent of the EPA/NYSDOH 4 mrem/yr limit for drinking water.

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Appendix C-2

Process Effluent Data

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Table C-2A
Total Radioactivity (curies) of Liquid Effluents Released From Lagoon 3 (WNSP001) in 2002

Isotope	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Total
Gross Alpha	2.36±0.36E-04	2.11±0.34E-04	**1.03±0.31E-04**	**2.52±0.33E-04**	8.02±0.67E-04
Gross Beta	**1.04±0.02E-02**	6.91±0.14E-03	**2.34±0.09E-03**	4.29±0.10E-03	2.39±0.03E-02
H-3	3.95±0.15E-02	3.07±0.13E-02	**1.30±0.06E-02**	**4.78±0.15E-02**	1.31±0.03E-01
C-14	2.46±0.59E-04	0.87±1.23E-04	1.79±1.07E-04	**3.40±1.40E-04**	8.52±2.23E-04
K-40	-0.62±6.24E-04	0.91±7.30E-04	-2.86±3.16E-04	1.14±4.59E-04	-0.14±1.11E-03
Co-60	-0.66±2.90E-05	-3.88±6.65E-05	0.64±1.85E-05	0.54±2.17E-05	-3.36±7.79E-05
Sr-90	**4.34±0.10E-03**	2.97±0.09E-03	**8.47±0.60E-04**	1.41±0.06E-03	9.57±0.16E-03
Tc-99	4.07±0.40E-04	**2.71±0.34E-04**	4.18±0.40E-04	**6.50±0.34E-04**	1.75±0.07E-03
I-129	**6.98±1.87E-05**	0.00±1.67E-05	1.88±0.77E-05	3.76±1.42E-05	1.26±0.30E-04
Cs-137	**1.99±0.09E-03**	1.14±0.10E-03	**4.53±0.45E-04**	1.60±0.07E-03	5.19±0.16E-03
U-232	1.44±0.12E-04	1.29±0.08E-04	**4.56±0.34E-05**	**1.53±0.12E-04**	4.72±0.19E-04
U-233/234	**8.81±0.65E-05**	7.89±0.50E-05	**2.62±0.17E-05**	8.77±0.64E-05	2.81±0.11E-04
U-235/236	2.94±0.67E-06	**3.19±0.71E-06**	**1.83±0.48E-06**	2.86±0.66E-06	1.08±0.13E-05
U-238	**6.41±0.50E-05**	6.39±0.42E-05	**1.97±0.15E-05**	5.23±0.39E-05	2.00±0.08E-04
Total U (g)	1.68±0.05E+02	**1.92±0.05E+02**	**6.07±0.09E+01**	1.49±0.04E+02	5.70±0.08E+02
Pu-238	1.35±0.46E-06	8.36±3.63E-07	**1.81±1.30E-07**	**3.31±0.89E-06**	5.68±1.07E-06
Pu-239/240	1.32±0.46E-06	5.70±3.61E-07	1.91±2.09E-07	**4.82±0.97E-06**	6.90±1.15E-06
Am-241	1.37±0.41E-06	8.12±3.88E-07	**2.91±1.90E-07**	**3.80±0.76E-06**	6.27±0.96E-06

Note: Bolding convention applied to these data. See page C-2.

Table C-2B
Comparison of 2002 Lagoon 3 (WNSP001) Liquid Effluent Radioactivity Concentrations With U.S. Department of Energy Guidelines

Isotope[a]	Discharge Activity[b] (Ci)	Radioactivity[c] (Becquerels)	Average Concentration (µCi/mL)	DCG (µCi/mL)	% of DCG
Gross Alpha	8.02±0.67E-04	2.97±0.25E+07	1.54±0.13E-08	NA[d]	NA
Gross Beta	2.39±0.03E-02	8.86±0.09E+08	4.61±0.05E-07	NA[d]	NA
H-3	1.31±0.03E-01	4.85±0.09E+09	2.52±0.05E-06	2E-03	0.13
C-14	8.52±2.23E-04	3.15±0.83E+07	1.64±0.43E-08	7E-05	0.02
K-40	-0.14±1.11E-03	-0.53±4.11E+07	-0.28±2.14E-08	NA[e]	NA
Co-60	-3.36±7.79E-05	-1.24±2.88E+06	-0.65±1.50E-09	5E-06	<0.03
Sr-90	9.57±0.16E-03	3.54±0.06E+08	1.84±0.03E-07	1E-06	18.43
Tc-99	1.75±0.07E-03	6.46±0.27E+07	3.36±0.14E-08	1E-04	0.03
I-129	1.26±0.30E-04	4.67±1.11E+06	2.43±0.57E-09	5E-07	0.49
Cs-137	5.19±0.16E-03	1.92±0.06E+08	9.98±0.31E-08	3E-06	3.33
U-232[f]	4.72±0.19E-04	1.75±0.07E+07	9.09±0.37E-09	1E-07	9.09
U-233/234[f]	2.81±0.11E-04	1.04±0.04E+07	5.41±0.20E-09	5E-07	1.08
U-235/236[f]	1.08±0.13E-05	4.00±0.47E+05	2.08±0.24E-10	5E-07[g]	0.04
U-238[f]	2.00±0.08E-04	7.40±0.29E+06	3.85±0.15E-09	6E-07	0.64
Pu-238	5.68±1.07E-06	2.10±0.40E+05	1.09±0.21E-10	4E-08	0.27
Pu-239/240	6.90±1.15E-06	2.55±0.43E+05	1.33±0.22E-10	3E-08	0.44
Am-241	6.27±0.96E-06	2.32±0.36E+05	1.21±0.18E-10	3E-08	0.40
Total % of DCGs					34.42

[a] Half-lives are listed in Table K-1.
[b] Total volume released: 5.20E+10 mL (1.37E+07 gal)
[c] 1 curie (Ci) = 3.7E+10 becquerels (Bq); 1Bq = 2.7E-11 Ci
[d] DOE derived concentration guides (DCGs) do not exist for indicator parameters gross alpha and gross beta.
[e] Potassium-40 activity is not applicable because of its natural origin.
[f] Total U (g) = 5.70±0.08E+02; Average U (µg/mL) = 1.10±0.02E-02
[g] DCG for U-236 is used for this comparison.
Note: Bolding convention not applicable to these data.

Table C-2C
2002 SPDES Results for Outfall 001 (WNSP001)
Water Quality

	Ammonia (mg/L)		**BOD_5 day** (mg/L)		**Cyanide (amenable to chlorination)** (mg/L)		**Discharge Rate** (MGD)	
Permit limit	Monitor		10.0 mg/L daily maximum		0.022 mg/L daily maximum		Monitor	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.20	0.38	<2.0	<2.0	<0.010	<0.010	0.383	0.513
February	0.022	0.028	<2.0	<2.0	<0.010	<0.010	0.393	0.513
*March**	--	--	--	--	--	--	--	--
April	0.046	0.048	<2.0	<2.0	<0.010	<0.010	0.352	0.606
May	0.029	0.040	<2.0	<2.0	<0.010	<0.010	0.394	0.831
*June**	--	--	--	--	--	--	--	--
July	0.032	0.050	<2.2	2.4	<0.010	<0.010	0.304	0.436
*August**	--	--	--	--	--	--	--	--
*September**	--	--	--	--	--	--	--	--
October	0.11	0.15	<2.0	<2.0	<0.010	<0.010	0.226	0.484
*November**	--	--	--	--	--	--	--	--
December	<0.017	0.024	<3.1	4.1	<0.010	<0.010	0.354	0.688

	Nitrate (as N) (mg/L)		**Nitrite (as N)** (mg/L)		**Oil & Grease** (mg/L)	
Permit limit	Monitor		0.1 mg/L daily maximum		15.0 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	0.46	0.46	<0.05	<0.05	<5.0	<5.0
February	0.88	0.98	<0.05	<0.05	<5.0	<5.0
*March**	--	--	--	--	--	--
April	1.0	1.1	<0.05	<0.05	<5.0	<5.0
May	0.58	0.62	<0.05	<0.05	<5.0	<5.0
*June**	--	--	--	--	--	--
July	<0.06	0.07	<0.05	<0.05	<5.0	<5.0
*August**	--	--	--	--	--	--
*September**	--	--	--	--	--	--
October	<0.05	<0.05	<0.05	<0.05	<5.0	<5.0
*November**	--	--	--	--	--	--
December	0.54	0.55	<0.05	<0.05	<5.0	<5.0

** No discharge this month*

Note: No results exceeded the permit limits.

Table C-2C (concluded)
2002 SPDES Results for Outfall 001 (WNSP001)
Water Quality

	pH (standard units)		**Solids Settleable** (mL/L)		**Solids Total Dissolved** (mg/L)		**Solids Total Suspended** (mg/L)	
Permit limit	6.5 to 8.5		0.30 mL/L daily maximum		Monitor		45.0 mg/L daily maximum; 30.0 daily average	
Month	**Min**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	7.9	8.1	<0.1	<0.1	667	670	<2.0	<2.0
February	7.2	7.8	<0.1	<0.1	602	611	<8.0	14.0
*March**	--	--	--	--	--	--	--	--
April	7.7	8.1	<0.1	<0.1	680	692	<4.0	6.0
May	7.9	8.1	<0.1	<0.1	612	633	<2.0	2.0
*June**	--	--	--	--	--	--	--	--
July	7.4	7.7	<0.1	<0.1	704	710	8.0	11.0
*August**	--	--	--	--	--	--	--	--
*September**	--	--	--	--	--	--	--	--
October	7.7	7.9	<0.1	<0.1	738	767	<2.0	<2.0
*November**	--	--	--	--	--	--	--	--
December	7.4	7.8	<0.1	<0.1	680	704	<2.0	<2.0

	Sulfate (mg/L)		**Sulfide Dissolved** (mg/L)		**Surfactants as LAS** (mg/L)	
Permit limit	Monitor		0.4 mg/L daily maximum		0.4 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	55	58	<0.2	<0.2	<0.1	<0.1
February	39	60	<0.2	<0.2	<0.1	<0.1
*March**	--	--	--	--	--	--
April	35	38	<0.2	<0.2	<0.1	<0.1
May	46	63	<0.2	<0.2	<0.1	<0.1
*June**	--	--	--	--	--	--
July	39	39	<0.2	<0.2	<0.1	<0.1
*August**	--	--	--	--	--	--
*September**	--	--	--	--	--	--
October	45	47	<0.2	<0.2	<0.1	<0.1
*November**	--	--	--	--	--	--
December	64	67	<0.2	<0.2	<0.1	<0.1

** No discharge this month*

Note: No results exceeded the permit limits.

Table C-2D
2002 SPDES Results for Outfall 001 (WNSP001)
Metals

	Aluminum Total (mg/L)		**Arsenic Dissolved** (mg/L)		**Cadmium Total Recoverable** (mg/L)		**Cobalt Total Recoverable** (mg/L)	
Permit limit	14 mg/L daily maximum; 7.0 mg/L daily average		0.15 mg/L daily maximum		0.002 mg/L daily maximum		0.005 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.200	<0.200	<0.004	<0.004	<0.001	<0.001	<0.004	<0.004
February	<0.200	<0.200	<0.001	<0.001	<0.001	<0.001	<0.004	<0.004
*March**	--	--	--	--	--	--	--	--
April	0.315	0.341	<0.002	<0.003	<0.001	<0.001	<0.004	<0.004
May	<0.234	0.269	<0.0039	<0.0039	<0.001	<0.001	<0.004	<0.004
*June**	--	--	--	--	--	--	--	--
July	<0.200	<0.200	0.0023	0.0024	<0.001	<0.001	<0.004	<0.004
*August**	--	--	--	--	--	--	--	--
*September**	--	--	--	--	--	--	--	--
October	<0.274	0.348	0.003	0.0033	<0.001	<0.001	<0.004	<0.004
*November**	--	--	--	--	--	--	--	--
December	<0.200	<0.200	<0.003	<0.003	<0.001	<0.001	<0.004	<0.004

	Chromium Total Recoverable (mg/L)		**Chromium VI Total Recoverable** (mg/L)		**Copper Dissolved** (mg/L)		**Copper Total Recoverable** (mg/L)	
Permit limit	0.3 mg/L daily maximum		0.011 mg/L daily maximum		Monitor		0.030 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
February	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
*March**	--	--	--	--	--	--	--	--
April	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
May	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
*June**	--	--	--	--	--	--	--	--
July	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
*August**	--	--	--	--	--	--	--	--
*September**	--	--	--	--	--	--	--	--
October	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
*November**	--	--	--	--	--	--	--	--
December	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010

** No discharge this month*

Note: No results exceeded the permit limits.

Table C-2D (concluded)
2002 SPDES Results for Outfall 001 (WNSP001)
Metals

	Iron Total (mg/L)		**Lead Total Recoverable** (mg/L)		**Manganese Total** (mg/L)		**Mercury, Total (per EPA Method 245.1)** (mg/L)*		**Mercury, Total (per EPA Method 1631)** (mg/L)*	
Permit limit	Monitor		0.006 mg/L daily maximum		2.0 mg/L daily maximum		0.0002 mg/L daily maximum		Monitor	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	0.178	0.183	<0.003	<0.003	0.0091	0.0099	--	--	--	--
February	0.134	0.178	<0.001	0.002	0.0278	0.034	--	--	--	--
*March***	--	--	--	--	--	--	--	--	--	--
April	0.296	0.308	<0.002	<0.003	0.010	0.010	--	--	--	--
May	0.209	0.279	<0.002	0.003	0.018	0.020	--	--	--	--
*June***	--	--	--	--	--	--	--	--	--	--
July	0.099	0.103	<0.0008	0.001	0.073	0.090	<0.0002	<0.0002	--	--
*August***	--	--	--	--	--	--	--	--	--	--
*September***	--	--	--	--	--	--	--	--	--	--
October	0.354	0.400	<0.0006	0.0006	0.118	0.13	<0.0002	<0.0002	0.00000489	0.00000498
*November***	--	--	--	--	--	--	--	--	--	--
December	0.126	0.128	<0.0005	<0.0005	0.023	0.027	<0.0002	<0.0002	0.00000736	0.0000076

	Nickel Total Recoverable (mg/L)		**Selenium Total Recoverable** (mg/L)		**Vanadium Total Recoverable** (mg/L)		**Zinc Total Recoverable** (mg/L)	
Permit limit	0.14 mg/L daily maximum		0.004 mg/L daily maximum		0.014 mg/L daily maximum		0.48 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.010	<0.010	<0.004	<0.004	<0.010	<0.010	<0.010	<0.010
February	<0.010	<0.010	<0.001	<0.001	<0.010	<0.010	<0.010	<0.010
*March***	--	--	--	--	--	--	--	--
April	<0.010	<0.010	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010
May	<0.010	<0.010	<0.002	<0.002	<0.010	<0.010	<0.010	<0.010
*June***	--	--	--	--	--	--	--	--
July	<0.010	<0.010	0.001	0.001	<0.010	<0.010	<0.010	<0.010
*August***	--	--	--	--	--	--	--	--
*September***	--	--	--	--	--	--	--	--
October	<0.010	<0.010	<0.002	0.002	<0.010	<0.010	<0.010	0.011
*November***	--	--	--	--	--	--	--	--
December	<0.010	<0.010	<0.001	0.001	<0.010	<0.010	<0.012	0.013

** Mercury added to the SPDES Permit revision, July 15, 2002*
*** No discharge this month*
Note: No results exceeded the permit limits.

Table C-2E
2002 SPDES Results for Outfall 001 (WNSP001)
Organics

VOLATILES

	2-Butanone (mg/L)		**Dichlorodifluoromethane** (mg/L)*		**Trichlorofluoromethane** (mg/L)*		**Xylene** (mg/L)	
Permit limit	0.5 mg/L daily maximum		0.01 mg/L daily maximum		0.01 mg/L daily maximum		0.05 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
February	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
*March***	--	--	--	--	--	--	--	--
April	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
May	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
*June***	--	--	--	--	--	--	--	--
July	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
*August***	--	--	--	--	--	--	--	--
*September***	--	--	--	--	--	--	--	--
October	<0.01	<0.01	--	--	--	--	<0.005	<0.005
*November***	--	--	--	--	--	--	--	--
December	<0.01	<0.01	--	--	--	--	<0.005	<0.005

SEMIVOLATILES

	Alpha-BHC (mg/L)		**3,3-Dichlorobenzidine** (mg/L)		**Hexachlorobenzene** (mg/L)	
Permit limit	0.00001 mg/L daily maximum		0.01 mg/L daily maximum		0.02 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.000009	<0.000009	<0.009	<0.009	<0.01	<0.01
February	<0.000009	<0.000009	<0.0099	<0.0099	<0.01	<0.01
*March***	--	--	--	--	--	--
April	<0.000009	<0.000009	<0.0099	<0.0099	<0.01	<0.01
May	<0.000009	<0.000009	<0.01	<0.01	<0.01	<0.01
*June***	--	--	--	--	--	--
July	<0.000009	<0.000009	<0.01	<0.01	<0.01	<0.01
*August***	--	--	--	--	--	--
*September***	--	--	--	--	--	--
October	<0.000009	<0.000009	<0.0099	<0.0099	<0.01	<0.01
*November***	--	--	--	--	--	--
December	<0.000009	<0.000009	<0.0099	<0.0099	<0.01	<0.01

** Dichlorodifluoromethane and Trichlorofluoromethane were reduced to annual reporting requirements in the SPDES Permit revision, July 15, 2002.*
*** No discharge this month*
Note: No results exceeded the permit limits.

Table C-2E (concluded)
2002 SPDES Results for Outfall 001 (WNSP001)
Organics

SEMIVOLATILES ***(concluded)***

	Heptachlor (mg/L)		**Tributyl phosphate** (mg/L)	
Permit limit	0.00001 mg/L daily maximum		32 mg/L daily maximum	
Month	**Avg**	**Max**	**Avg**	**Max**
January	<0.000009	<0.000009	<0.01	<0.01
February	<0.000009	<0.000009	<0.01	<0.01
*March**	--	--	--	--
April	<0.000009	<0.000009	<0.01	<0.01
May	<0.000009	<0.000009	<0.01	<0.01
*June**	--	--	--	--
July	<0.000009	<0.000009	<0.01	<0.01
*August**	--	--	--	--
*September**	--	--	--	--
October	<0.000009	<0.000009	<0.01	<0.01
*November**	--	--	--	--
December	<0.000009	<0.000009	<0.01	<0.01

** No discharge this month*

Note: No results exceeded the permit limits.

Table C-2F
2002 SPDES Results for Outfall 007 (WNSP007)
Water Quality and Iron

	Ammonia (as NH_3) (mg/L)		**BOD_5** (mg/L)		**Chlorine Total Residual** (mg/L)		**Discharge Rate** (MGD)		**Iron Total** (mg/L)	
Permit limit	Monitor		10.0 mg/L daily maximum		0.1 mg/L daily maximum		Monitor		Monitor	
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.021	0.028	<2.0	<2.0	0.02	0.02	0.024	0.032	0.0890	0.166
February	0.027	0.038	<2.0	<2.0	0.02	0.03	0.025	0.045	<0.114	0.175
March	<0.021	0.028	<2.4	3.1	0.02	0.02	0.024	0.047	0.111	0.222
April	0.13	0.33	<2.0	<2.0	0.02	0.02	0.025	0.041	0.0624	0.089
May	<0.016	0.029	<2.0	<2.0	0.03	0.05	0.020	0.025	0.081	0.090
June	0.043	0.091	<2.0	<2.0	0.01	0.02	0.013	0.020	<0.059	0.0878
July	0.036	0.073	<3.8	5.4	0.01	0.02	0.011	0.018	0.097	0.184
August	<0.015	0.026	<2.9	4.1	0.01	0.02	0.015	0.029	<0.038	0.0438
September	0.040	0.091	<3.2	4.2	0.01	0.02	0.014	0.014	<0.030	<0.030
October	0.032	0.038	<2.2	2.7	0.01	0.02	0.018	0.027	<0.052	0.0724
November	<0.019	0.025	<2.0	<2.0	0.01	0.02	0.022	0.034	<0.040	0.0583
December	0.08	0.14	<2.5	3.3	0.02	0.02	0.021	0.041	<0.086	0.164

	Nitrite (as N) (mg/L)		**Oil & Grease** (mg/L)		**pH** (standard units)		**Solids Settleable** (mL/L)		**Solids Total Suspended** (mg/L)	
Permit limit	0.1 mg/L daily maximum		15 mg/L daily maximum		6.5 to 8.5		0.30 mL/L daily maximum		45.0 mg/L daily maximum; 30.0 daily average	
Month	**Avg**	**Max**	**Avg**	**Max**	**Min**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.05	<0.05	<5.0	<5.0	7.5	8.3	<0.1	<0.1	<3.0	5.0
February	<0.05	<0.05	<5.0	<5.0	7.7	7.9	<0.1	<0.1	<2.0	<2.0
March	<0.05	<0.05	<5.0	<5.0	7.4	7.9	<0.1	<0.1	<3.0	5.0
April	<0.05	<0.05	<5.0	<5.0	7.5	7.9	<0.1	<0.1	<8.3	21.0
May	<0.05	<0.05	<5.0	<5.0	7.4	7.8	<0.1	<0.1	<2.0	<2.0
June	<0.05	<0.05	<5.0	<5.0	7.3	7.7	<0.2	<0.3	<2.0	<2.0
July	<0.05	<0.05	<5.0	<5.0	7.6	7.9	<0.1	<0.1	>3.0	>4.0
August	<0.05	<0.05	<5.0	<5.0	7.3	7.6	<0.1	<0.1	<2.0	<2.0
September	<0.05	<0.05	<5.0	<5.0	7.4	7.8	<0.1	<0.1	<2.0	<2.0
October	<0.05	<0.05	<5.0	<5.0	7.4	8.5	<0.1	<0.1	<2.0	<2.0
November	<0.05	<0.05	<5.0	<5.0	7.3	8.0	<0.1	<0.1	<2.0	<2.0
December	<0.05	<0.05	<5.0	<5.0	7.5	7.8	<0.1	<0.1	<2.0	<2.0

Note: No results exceeded the permit limits.

Table C-2G
2002 SPDES Results for Outfall 008 (WNSP008)
Water Quality

NO DISCHARGE FROM THE
FRENCH DRAIN (WNSP008) SINCE MAY 2001

Table C-2H
2002 SPDES Results for Sums of Outfalls 001, 007, 008, and 116
Water Quality

2002 Results for Sums of Outfalls 001, 007 and 008

	Ammonia* **Flow Weighted Average** (mg/L)		**BOD_5 day** (mg/L)		**Iron** **Flow Weighted Average** (mg/L)
Permit limit	2.1 daily maximum; 1.49 daily average		5.0 daily average		0.30 daily average
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**
January	<0.130	0.355	<2.0	<2.0	0.00
February	0.021	0.028	<2.0	<2.0	0.00
*March***	<0.021	0.028	<2.4	3.1	0.00
April	0.14	0.33	<2.0	<2.0	0.00
May	<0.028	<0.038	<2.0	<2.0	0.076
*June***	0.043	0.091	<2.0	<2.0	0.00
July	0.029	0.051	<3.3	5.4	0.00
*August***	<0.015	0.026	<2.9	4.1	0.00
*September***	0.040	0.091	<3.2	4.2	0.00
October	0.080	0.14	<2.2	2.7	0.00
*November***	<0.019	0.025	<2.0	<2.0	0.00
December	<0.060	0.14	<2.7	4.0	0.00

2002 Results for Outfall 116

	Total Dissolved Solids (mg/L)	
Permit limit	500 mg/L daily maximum	
Month	**Avg**	**Max**
January	328	340
February	350	407
*March***	--	--
April	349	350
May	282	312
*June***	--	--
July	368	389
*August***	--	--
*September***	--	--
October	358	375
*November***	--	--
December	352	402

** Sum of Outfalls 001 and 007 only*
*** No discharge this month*
Note: No results exceeded the permit limits.

Table C-2I
2002 Quarterly/Semiannual/Annual SPDES Results for Outfall 001 (WNSP001) Water Quality, Metals, and Organics

	Action Level	Monitoring Frequency	Collection Date	Maximum Measured
Boron, Total (mg/L)	2.0 mg/L daily maximum	Quarterly	October 2002 December 2002	0.055 0.053
Bromide, Total (mg/L)	5.0 mg/L daily maximum	Quarterly	October 2002 December 2002	1.2 2.4
Titanium, Total (mg/L)	0.65 mg/L daily maximum	Semiannual	February 2002 October 2002	<0.005 <0.005
Bis(2-ethylhexyl)phthalate (mg/L)	1.6 mg/L daily maximum	Semiannual	February 2002 October 2002	<0.010 <0.010
4-dodecene (mg/L)	0.6 mg/L daily maximum	Semiannual	February 2002 October 2002	<0.06 <0.06
Chloroform (mg/L)	0.3 mg/L daily maximum	Annual	February 2002	<0.005
Antimony, Total (mg/L)	1.0 mg/L daily maximum	Annual	February 2002	<0.02
Barium, Total (mg/L)	0.5 mg/L daily maximum	Annual	February 2002	0.0351

Table C-2J
2002 Annual SPDES Results for Outfall 007 (WNSP007) Water Quality

	Action Level	Monitoring Frequency	Collection Date	Maximum Measured
Chloroform (mg/L)	0.20 mg/L daily maximum	Annual	February 2002	<0.005

Table C-2K
2002 Annual SPDES Results for Outfall 008 (WNSP008) Water Quality

NO DISCHARGE FROM THE
FRENCH DRAIN (WNSP008) SINCE MAY 2001

Table C-2L
2002 SPDES Results for Outfall 01B (WNSP01B)
Water Quality

	Discharge Rate (GPD)			Mercury, Total[a] (per EPA Method 245.1) (µg/L)		Mercury, Total[b] (per EPA Method 1631) (µg/L)	
Permit limit	**Report daily max**		**N**	**10.0 µg/L daily maximum**		**No Limit**	
Month	**Avg**	**Max**	**---**	**Avg**	**Max**	**Avg**	**Max**
January	a	a	a	a	a	a	a
February	a	a	a	a	a	a	a
March	a	a	a	a	a	a	a
April	a	a	a	a	a	a	a
May	a	a	a	a	a	a	a
June	a	a	a	a	a	a	a
July	5,108	5,108	3	<0.2	<0.2	0.0222	0.02896
August	4,535	5,754	2	<0.2	<0.2	0.0036	0.0044
September	--	--	--	--	--	--	--
October	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--
December	2,613	2,613	1	<0.2	<0.2	NA	0.0214

N - Number of samples
-- No discharge through the internal monitoring location during this month
[a] WNSP01B sampling and monitoring requirements added to the SPDES Permit revision, July 15, 2002
[b] A study comparison using the relatively new EPA Method 1631 is a requirement of the SPDES Permit.
Note: No results exceeded the permit limits.

Table C-2M
2002 Radioactivity Concentrations in Surface Water
at Sewage Treatment (WNSP007)

Analyte	Units	N	WNSP007 Concentrations			Guideline[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	36	<1.24E-09	0.28±3.07E-09	3.44E-09	3E-08[b]
Gross Beta	µCi/mL	36	5.94E-09	1.74±0.48E-08	4.02E-08	1E-06[c]
Tritium (H-3)	µCi/mL	36	6.13E-08	5.23±8.02E-08	1.51E-07	2E-03
Cs-137	µCi/mL	4	2.91E-09	1.35±2.93E-09	2.91E-09	3E-06

N - Number of samples
[a] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results.
[b] Alpha as Am-241
[c] Beta as Sr-90

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Appendix C-3

Site Surface Drainage, Subsurface Drainage, and Contained Water

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Table C-3A
2002 Radioactivity Concentrations and pH in Surface Water at Facility Yard Drainage (WNSP005)

Analyte	Units	N	WNSP005 Concentrations			Guideline[a] or Standard[b]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	1.67E-09	1.62±2.73E-09	8.80E-09	3E-08[c]
Gross Beta	µCi/mL	12	4.53E-08	1.38±0.08E-07	2.48E-07	1E-06[d]
Tritium (H-3)	µCi/mL	12	<5.79E-08	1.64±7.85E-08	1.10E-07	2E-03
pH	SU	12	6.65	7.11	7.80	6.0–9.5

N - Number of samples
[a] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results.
[b] New York State Water Quality Standards for Class "D" as a comparative reference for nonradiological results
[c] Alpha as Am-241
[d] Beta as Sr-90

Table C-3B
2002 Radioactivity Concentrations in Surface Water at French Drain (WNSP008)

NO DISCHARGE FROM THE FRENCH DRAIN DURING CY 2002

Table C-3C
2002 Radioactivity Concentrations and Chemical Constituents in Surface Water at the North Swamp (WNSW74A) as Compared to Background Location (WFBCBKG)

Analyte	Units	N	WNSW74A Concentrations		N	Reference Values	
			Average	Maximum		Background Range WFBCBKG[a]	Guideline[b] or Standard[c]
Gross Alpha	µCi/mL	52	0.05±2.56E-09	2.67E-09	12	<3.76E-10–1.48E-09	--
Gross Beta	µCi/mL	52	1.22±0.34E-08	1.85E-08	12	<1.17E-09–3.64E-09	--
Tritium (H-3)	µCi/mL	52	2.32±8.12E-08	1.82E-07	12	<7.92E-08–9.75E-08	2E-03
C-14	µCi/mL	4	-0.01±1.91E-08	<2.92E-08	4	<1.12E-08–2.92E-08	7E-05
Sr-90	µCi/mL	12	5.90±1.96E-09	7.83E-09	4	<1.22E-09–4.20E-09	1E-06
I-129	µCi/mL	4	0.96±8.62E-10	<1.14E-09	4	<5.54E-10–1.98E-09	5E-07
Cs-137	µCi/mL	12	1.56±8.99E-09	8.14E-09	4	<2.22E-09–3.24E-09	3E-06
U-232	µCi/mL	4	1.36±4.00E-11	6.22E-11	4	<3.41E-11–5.58E-11	1E-07
U-233/234	µCi/mL	4	1.78±0.65E-10	2.43E-10	4	3.84E-11–1.83E-10	5E-07
U-235/236	µCi/mL	4	1.27±2.59E-11	4.73E-11	4	<1.49E-11–2.53E-11	5E-07[d]
U-238	µCi/mL	4	8.10±4.38E-11	1.19E-10	4	2.13E-11–8.84E-11	6E-07
Total U	µg/mL	4	4.41±0.75E-04	7.59E-04	4	<1.73E-04–3.37E-04	--
Pu-238	µCi/mL	4	0.03±2.34E-11	<3.99E-11	4	<1.03E-11–3.82E-11	4E-08
Pu-239/240	µCi/mL	4	0.39±2.77E-11	<3.53E-11	4	<1.64E-11–3.17E-11	3E-08
Am-241	µCi/mL	4	2.90±4.26E-11	8.63E-11	4	<1.54E-11–5.99E-11	3E-08
Barium,Total	mg/L	2	0.09	0.10	2	0.06-0.11	--
Bicarbonate Alkalinity	mg/L	2	174	187	2	73–126	--
Calcium, Total	mg/L	2	88.3	93.0	2	27.7–47.3	--
Carbonate Alkalinity	mg/L	2	<1	<1	2	<1	--
Chloride	mg/L	2	99	107	2	13–14	--
Conductivity	µmhos/cm@25^{0}C	52	1,176	3,450	52	160–356	--
Fluoride	mg/L	2	0.12	0.13	2	<0.10	--
Iron, Total	mg/L	2	2.63	5.08	2	0.19–0.28	0.3
Magnesium, Total	mg/L	2	11.0	12.1	2	3.8–6.8	--
Manganese, Total	mg/L	2	0.39	0.71	2	0.02–0.03	--
Nitrate+Nitrite	mg/L	2	<0.07	0.08	2	<0.05–0.10	--
NPOC	mg/L	2	5.0	5.4	2	1.8–2.0	--
pH	SU	52	7.03	7.77	52	6.42–7.87	6.0–9.5
Potassium, Total	mg/L	2	<1.60	2.20	2	1.16–1.78	--
Sodium, Total	mg/L	2	55.0	59.8	2	7.4–9.9	--
Sulfate	mg/L	2	56.6	62.8	2	21.7–27.2	--
TOX	mg/L	2	<0.012	0.020	2	<0.006–0.017	--

N - Number of samples
-- No guideline or standard available for these analytes
[a] Background location
[b] DOE ingestion-based DCGs for 100 mrem/yr dose limits are provided as a guideline for radiological results.
[c] New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNSW74A
[d] DCG for U-236 is used for this comparison.

Table C-3D
2002 Radioactivity Concentrations and Chemical Constituents in Surface Water at the Northeast Swamp (WNSWAMP) as Compared to Background Location (WFBCBKG)

Analyte	Units	N	WNSWAMP Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Guideline[b] or Standard[c]
Gross Alpha	µCi/mL	52	0.33±2.05E-09	1.62E-09	12	<3.76E-10–1.48E-09	--
Gross Beta	µCi/mL	52	3.49±0.03E-06	6.99E-06	12	<1.17E-09–3.64E-09	--
Tritium (H-3)	µCi/mL	52	9.87±7.83E-08	2.35E-07	12	<7.92E-08–9.75E-08	2E-03
C-14	µCi/mL	4	-1.00±1.77E-08	<2.63E-08	4	<1.12E-08–2.92E-08	7E-05
Sr-90	µCi/mL	12	1.77±0.04E-06	3.16E-06	4	<1.22E-09–4.20E-09	1E-06
I-129	µCi/mL	4	4.53±7.79E-10	<9.63E-10	4	<5.54E-10–1.98E-09	5E-07
Cs-137	µCi/mL	12	0.53±4.02E-09	<5.56E-09	4	<2.22E-09–3.24E-09	3E-06
U-232	µCi/mL	4	0.98±8.46E-11	5.50E-11	4	<3.41E-11–5.58E-11	1E-07
U-233/234	µCi/mL	4	2.18±1.05E-10	3.17E-10	4	3.84E-11–1.83E-10	5E-07
U-235/236	µCi/mL	4	2.26±4.31E-11	5.09E-11	4	<1.49E-11–2.53E-11	5E-07[d]
U-238	µCi/mL	4	9.72±7.19E-11	1.54E-10	4	2.13E-11–8.84E-11	6E-07
Total U	µg/mL	4	4.90±0.49E-04	6.90E-04	4	<1.73E-04–3.37E-04	--
Pu-238	µCi/mL	4	-0.02±2.59E-11	<3.38E-11	4	<1.03E-11–3.82E-11	4E-08
Pu-239/240	µCi/mL	4	1.77±4.66E-11	9.50E-11	4	<1.64E-11–3.17E-11	3E-08
Am-241	µCi/mL	4	3.88±3.96E-11	9.08E-11	4	<1.54E-11–5.99E-11	3E-08
Barium,Total	mg/L	2	0.10	0.10	4	0.06–0.11	--
Bicarbonate Alkalinity	mg/L	2	181	187	4	73–126	--
Calcium, Total	mg/L	2	102.5	104.0	4	27.7–47.3	--
Carbonate Alkalinity	mg/L	2	<2	<2	4	<1	--
Chloride	mg/L	1	186	[e]	4	13–14	--
Conductivity	µmhos/cm@25^{0}C	52	962	1,257	52	160–356	--
Fluoride	mg/L	2	<0.10	<0.10	4	<0.10	--
Iron, Total	mg/L	2	0.05	0.07	4	0.19–0.28	0.3
Magnesium, Total	mg/L	2	13.5	13.8	4	3.8–6.8	--
Manganese, Total	mg/L	2	0.14	0.21	4	0.02–0.03	--
Nitrate+Nitrite	mg/L	2	0.06	0.08	4	<0.05–0.10	--
NPOC	mg/L	2	4.6	4.7	4	1.8–2.0	--
pH	SU	52	6.95	7.65	52	6.42–7.87	6.0–9.5
Potassium, Total	mg/L	2	1.36	1.70	4	1.16–1.78	--
Sodium, Total	mg/L	2	64.9	70.3	4	7.4–9.9	--
Sulfate	mg/L	2	33.4	34.0	4	21.7–27.2	--
TOX	mg/L	2	0.019	0.023	4	<0.006–0.017	--

N - Number of samples
-- No guideline or standard available for these analytes
[a] Background location
[b] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results.
[c] New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNSWAMP.
[d] DCG for U-236 is used for this comparison
[e] Only a single analysis is available for reporting.

Table C-3E
2002 Radioactivity Concentrations and Water Quality Parameters
Storage and Disposal Area Drainage (WNNDADR)

Analyte	Units	N	WNNDADR Concentrations			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<9.89E-10	0.73±1.36E-09	2.60E-09	--
Gross Beta	µCi/mL	12	1.41E-07	1.73±0.07E-07	1.99E-07	--
Tritium (H-3)	µCi/mL	12	4.43E-07	9.18±0.89E-07	1.82E-06	--
Sr-90	µCi/mL	4	7.48E-08	8.56±0.59E-08	9.73E-08	--
I-129	µCi/mL	4	<3.23E-10	1.84±5.94E-10	7.20E-10	--
Cs-137	µCi/mL	12	<4.97E-09	1.82±7.52E-09	1.86E-08	--
NPOC	mg/L	52	3.7	6.3	9.6	--
pH	SU	52	6.35	7.02	8.11	6.0–9.5
TOX	mg/L	52	<0.005	<0.037	0.752[b]	--

N - Number of samples
-- No applicable reference standard available
[a] New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNNDADR
[b] This elevated result was attributed to insecticide used for sample technician protection near the collection location.

Table C-3F
2002 Radioactivity Concentrations, NPOC, and TOX
in Subsurface Water at the NDA Interceptor Trench (WNNDATR)

Analyte	Units	N	WNNDATR Concentrations		
			Minimum	Average	Maximum
Gross Alpha	µCi/mL	12	<1.24E-09	2.11±2.03E-09	5.04E-09
Gross Beta	µCi/mL	12	1.01E-07	1.20±0.06E-07	1.38E-07
Tritium (H-3)	µCi/mL	12	1.20E-06	3.35±0.16E-06	6.78E-06
I-129	µCi/mL	4	<7.35E-10	6.74±7.93E-10	9.80E-10
Cs-137	µCi/mL	12	<6.30E-09	-1.49±8.71E-09	7.22E-09
NPOC	mg/L	12	3.6	5.0	6.4
TOX	mg/L	12	0.010	0.019	0.032

N - Number of samples
Note: No standards applicable for this location, these waters are pumped and treated at the LLWTF prior to discharge at outfall WNSP001.

Table C-3G
2002 Radioactivity Concentrations and pH in Surface Water at SDA Drainage (WNSDADR)

Analyte	Units	N	WNSDADR Concentrations			Guideline or Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	3.61E-10	6.62±4.27E-10	1.50E-09	--
Gross Beta	µCi/mL	12	1.01E-09	3.40±0.84E-09	7.88E-09	--
Tritium (H-3)	µCi/mL	12	<8.40E-08	2.52±0.82E-07	5.18E-07	--
Cs-137	µCi/mL	12	<5.77E-09	0.49±8.49E-09	<1.18E-08	--
pH	SU	12	6.34	6.99	7.90	6.5–8.5

N - Number of samples
-- No applicable reference standard available
[a] New York State Water Quality Standards, Class "C" as a comparative reference for nonradiological results at WNSDADR

Table C-3H
2002 Radioactivity Concentrations and pH in Surface Water at Cooling Tower Basin (WNCOOLW)

Analyte	Units	N	WNCOOLW Concentrations		
			Minimum	Average	Maximum
Gross Alpha	µCi/mL	12	<1.22E-09	0.76±2.08E-09	4.28E-09
Gross Beta	µCi/mL	12	4.14E-09	7.47±3.55E-09	1.27E-08
Tritium (H-3)	µCi/mL	12	<7.90E-08	2.76±7.88E-08	1.15E-07
Cs-137	µCi/mL	4	<6.33E-09	1.75±7.46E-09	<8.38E-09
pH	SU	12	6.92	7.62	8.66

N - Number of samples
Note: No standards are applicable for this location, these waters are pumped and treated at the LLWTF prior to discharge at outfall WNSP001.

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Appendix C-4

Ambient Surface Water Data

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Table C-4A
2002 Radioactivity Concentrations and pH in Surface Water Downstream of the WVDP in Cattaraugus Creek at Felton Bridge (WFFELBR) as Compared to Surface Water Upstream of the WVDP in Cattaraugus Creek at Bigelow Bridge (WFBIGBR)

Analyte	Units	N	WFFELBR Concentrations			N	WFBIGBR Background Range	Guideline[a] or Standard[b]
			Minimum	Average	Maximum			
Gross Alpha	µCi/mL	12	<9.11E-10	2.47±1.34E-09	1.15E-08	12	<7.56E-10–1.62E-09	3E-08[c]
Gross Beta	µCi/mL	12	2.56E-09	4.69±1.61E-09	9.14E-09	12	9.89E-10–5.19E-09	1E-06[d]
Tritium (H-3)	µCi/mL	12	<5.89E-08	-1.19±8.04E-08	1.08E-07	12	<7.72E-08–1.69E-07	2E-03
Sr-90	µCi/mL	12	1.15E-09	2.86±1.75E-09	7.02E-09	12	<1.14E-09–4.79E-09	1E-06
Cs-137	µCi/mL	12	<2.22E-09	0.41±3.26E-09	2.49E-09	12	<2.10E-09–6.98E-09	3E-06
pH	SU	52	6.36	7.06	8.18	12	6.02–7.47	6.5–8.5

N - Number of samples
[a] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results.
[b] New York State Water Quality Standards, Class "B" as a comparative reference for nonradiological results
[c] Alpha as Am-241
[d] Beta as Sr-90

Table C-4B
2002 Radioactivity Concentrations and Water Quality Parameters in Surface Water Downstream of the WVDP in Buttermilk Creek at Thomas Corners Bridge (WFBCTCB) as Compared to Surface Water Upstream of the WVDP in Buttermilk Creek at Fox Valley (WFBCBKG)

Analyte	Units	N	WFBCTCB Concentrations			N	WFBCBKG Background Range	Guideline[a] or Standard[b]
			Minimum	Average	Maximum			
Gross Alpha	µCi/mL	12	<6.85E-10	5.25±8.19E-10	1.59E-09	12	<3.76E-10–1.48E-09	3E-08[c]
Gross Beta	µCi/mL	12	4.62E-09	8.14±1.53E-09	1.06E-08	12	<1.17E-09–3.64E-09	1E-06[d]
Tritium (H-3)	µCi/mL	12	<7.89E-08	2.51±8.21E-08	<8.67E-08	12	<7.92E-08–9.75E-08	2E-03
Sr-90	µCi/mL	4	3.54E-09	5.49±2.15E-09	8.89E-09	4	<1.22E-09–4.20E-09	1E-06
Cs-137	µCi/mL	4	<2.48E-09	0.01±2.91E-09	<3.48E-09	4	<2.22E-09–3.24E-09	3E-06
Conductivity	µmhos/cm@25^{0}C	52	180	309	426	52	160–356	--
pH	SU	52	6.12	6.81	7.95	52	6.42–7.87	6.5–8.5

N - Number of samples
-- No reference standard available for this analyte
[a] DOE ingestion-based DCGs for 100 mrem/yr are provided as a guideline for radiological results in the absence of water quality standards.
[b] New York State Water Quality Standards, Class "C" as a comparative reference for nonradiological results
[c] Alpha as Am-241
[d] Beta as Sr-90

Table C-4C
2002 Radioactivity Concentrations and Chemical Constituents in Surface Water Downstream of the WVDP at Frank's Creek (WNSP006) as Compared to Background Location (WFBCBKG)

Analyte	Units	N	WNSP006 Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG Background Range	Guideline[a] or Standard[b]
Gross Alpha	µCi/mL	52	0.69±1.44E-09	3.02E-09	12	<3.76E-10–1.48E-09	--
Gross Beta	µCi/mL	52	4.52±0.37E-08	1.83E-07	12	<1.17E-09–3.64E-09	--
Tritium (H-3)	µCi/mL	52	1.15±0.80E-07	7.77E-07	12	<7.92E-08–9.75E-08	2E-03
C-14	µCi/mL	4	-0.83±1.89E-08	<2.93E-08	4	<1.12E-08–2.92E-08	7E-05
Sr-90	µCi/mL	12	2.11±0.34E-08	3.31E-08	4	<1.22E-09–4.20E-09	1E-06
Tc-99	µCi/mL	4	1.13±0.20E-08	5.24E-08	4	<1.13E-09-1.86E-09	1E-04
I-129	µCi/mL	4	4.14±7.15E-10	<8.70E-10	4	<5.54E-10–1.98E-09	5E-07
Cs-137	µCi/mL	12	6.38±9.87E-09	1.10E-08	4	<2.22E-09–3.24E-09	3E-06
U-232	µCi/mL	4	1.77±1.19E-10	2.67E-10	4	<3.41E-11–5.58E-11	1E-07
U-233/234	µCi/mL	4	3.35±0.79E-10	4.09E-10	4	3.84E-11–1.83E-10	5E-07
U-235/236	µCi/mL	4	3.49±3.20E-11	7.20E-11	4	<1.49E-11–2.53E-11	5E-07[c]
U-238	µCi/mL	4	2.28±0.68E-10	2.81E-10	4	2.13E-11–8.84E-11	6E-07
Total U	µg/mL	4	6.03±0.42E-04	8.07E-04	4	<1.73E-04–3.37E-04	--
Pu-238	µCi/mL	4	0.71±2.61E-11	<4.54E-11	4	<1.03E-11–3.82E-11	4E-08
Pu-239/240	µCi/mL	4	0.77±2.92E-11	<3.79E-11	4	<1.64E-11–3.17E-11	3E-08
Am-241	µCi/mL	4	2.15±2.20E-11	3.84E-11	4	<1.54E-11–5.99E-11	3E-08
Barium,Total	mg/L	2	0.06	0.07	4	0.06–0.11	--
Bicarbonate Alkalinity	mg/L	2	138	191	4	73–126	--
Calcium, Total	mg/L	2	56.8	70.8	4	27.7–47.3	--
Carbonate Alkalinity	mg/L	2	<1	<1	4	<1	--
Chloride	mg/L	2	100	126	4	13–14	--
Conductivity	µmhos/cm@25^{0}C	78	628	2,320	52	160–356	--
Dissolved Solids, Total	mg/L	35	325	768	0	NA	500
Fluoride	mg/L	2	<0.10	<0.10	4	<0.10	--
Iron, Total	mg/L	2	0.40	0.43	4	0.19–0.28	0.3
Magnesium, Total	mg/L	2	8.9	10.8	4	3.8–6.8	--
Manganese, Total	mg/L	2	0.03	0.03	4	0.02–0.03	--
Nitrate+Nitrite	mg/L	2	7.0	13.9	4	<0.05–0.10	--
NPOC	mg/L	2	2.7	2.7	4	1.8–2.0	--
pH	SU	52	6.99	8.37	52	6.42–7.87	6.5-8.5
Potassium, Total	mg/L	2	4.25	7.07	4	1.16–1.78	--
Sodium, Total	mg/L	2	88.0	140.0	4	7.4–9.9	--
Sulfate	mg/L	2	39.1	56.5	4	21.7–27.2	--
TOX	mg/L	2	0.020	0.021	4	<0.006–0.017	--

N - Number of samples
NA - No data available
-- No guideline or standard available for these analytes
[a] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results.
[b] New York State Water Quality Standards, Class "C" for surface waters as a comparative reference for non-radiological results.
[c] DCG for U-236 is used for this comparison.

Table C-4D
2002 Results From Outfall WNSP116

Month	Units	N	Total Dissolved Solids		Daily Maximum[a] Limit
			Average	Maximum	
January	mg/L	2	328	340	500
February	mg/L	2	350	407	500
March[b]	mg/L	0	--	--	500
April	mg/L	2	349	350	500
May	mg/L	2	282	312	500
June[b]	mg/L	0	--	--	500
July	mg/L	2	368	389	500
August[b]	mg/L	0	--	--	500
September[b]	mg/L	0	--	--	500
October	mg/L	2	358	375	500
November[b]	mg/L	0	--	--	500
December	mg/L	2	352	402	500

N - Number of samples
[a] SPDES Permit limit; 500 mg/L daily maximum
[b] No discharge this month

Table C-4E
2002 Radioactivity Concentrations and pH in Surface Water at Erdman Brook (WNERB53)

Analyte	Units	N	WNERB53 Concentrations			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	52	7.30E-10	0.23±1.53E-09	1.99E-09	--
Gross Beta	µCi/mL	52	5.86E-09	1.81±0.26E-08	3.24E-08	--
Tritium (H-3)	µCi/mL	52	<4.82E-08	4.92±7.99E-08	1.92E-07	--
pH	SU	52	6.15	6.94	8.39	6.0–9.5

N - Number of samples
-- No guideline or standard available for these analytes
[a] New York State Water Quality Standards, Class "D" for surface waters as a standard for nonradiological results

Table C-4F
2002 Radioactivity Concentrations and pH in Surface Water at Frank's Creek East of the SDA (WNFRC67)

Analyte	Units	N	WNFRC67 Concentrations			Guideline[a] or Standard[b]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<4.18E-10	0.61±7.92E-10	6.77E-10	3E-08[c]
Gross Beta	µCi/mL	12	<1.09E-09	2.42±1.24E-09	4.42E-09	1E-06[d]
Tritium (H-3)	µCi/mL	12	<7.91E-08	7.33±8.02E-08	1.90E-07	2E-03
pH	SU	12	6.35	6.75	7.65	6.5–8.5

N - Number of samples
[a] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results in the absence of water quality standards.
[b] New York State Water Quality Standards for Class "C" surface waters as a comparative reference for nonradiological results.
[c] Alpha as Am-241
[d] Beta as Sr-90

Table C-4G
2002 Radioactivity Concentrations and pH in Surface Water at Drum Cell Drainage (WNDCELD)

Analyte	Units	N	WNDCELD Concentrations			Guideline[a] or Standard[b]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<3.64E-10	1.18±7.21E-10	<1.28E-09	3E-08[c]
Gross Beta	µCi/mL	12	<1.24E-09	2.30±1.18E-09	4.91E-09	1E-06[d]
Tritium (H-3)	µCi/mL	4	<8.28E-08	5.45±8.40E-08	9.93E-08	2E-03
Sr-90	µCi/mL	4	1.69E-09	1.88±1.54E-09	2.19E-09	1E-06
I-129	µCi/mL	4	<2.78E-10	4.29±7.57E-10	8.72E-10	5E-07
Cs-137	µCi/mL	4	<6.52E-09	-2.24±6.93E-09	<7.27E-09	3E-06
pH	SU	12	6.15	6.55	7.48	6.5-8.5

N - Number of samples
[a] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results in the absence of water quality standards.
[b] New York State Water Quality Standards for Class "C" surface waters as a comparative reference for nonradiological results.
[c] Alpha as Am-241
[d] Beta as Sr-90

Table C-4H
2002 Radioactivity Concentrations and Water Quality Parameters in Surface Water at the Standing Water (WNSTAW-Series) Sampling Locations as Compared to Background Locations

Analyte	Units	N	WNSTAW4	WNSTAW5	Background Location[a] WNSTAWB	Guideline[b] or Standard[c]
Gross Alpha	µCi/mL	1	1.37±2.82E-10	2.58±3.02E-10	1.02±0.85E-09	3E-08[e]
Gross Beta	µCi/mL	1	4.71±0.96E-09	5.58±1.14E-09	1.93±1.04E-09	1E-06[f]
Tritium (H-3)	µCi/mL	1	6.40±8.18E-08	2.08±0.83E-07	1.97±0.83E-07	2E-03
Chloride	mg/L	1	12	1	33	--
Conductivity	µmhos/cm@25^{0}C	1	110	54	402	--
Iron, Total	mg/L	1	0.28	1.16	0.27	0.3
Manganese, Total	mg/L	1	0.04	0.12	0.05	--
Nitrate+Nitrite	mg/L	1	0.10	<0.05	0.08	--
pH	SU	1	7.53	7.11	7.80	6.0–9.5
Sodium, Total	mg/L	1	6.59	1.07	19.40	--
Sulfate	mg/L	1	6.8	4.6	16.0	--

Analyte	Units	N	WNSTAW6	Background Location[a] WNSTAWB	Guideline[b] or Standard[c]
Gross Alpha	µCi/mL	1	9.29±5.94E-10	1.02±0.85E-09	3E-08[e]
Gross Beta	µCi/mL	1	4.88±1.14E-09	1.93±1.04E-09	1E-06[f]
Tritium (H-3)	µCi/mL	1	1.80±0.83E-07	1.97±0.83E-07	2E-03
Chloride	mg/L	1	2	33	--
Conductivity	µmhos/cm@25^{0}C	1	223	402	--
Iron, Total	mg/L	1	<0.10	0.27	0.3
Manganese, Total	mg/L	1	<0.02	0.05	--
Nitrate+Nitrite	mg/L	1	<0.05	0.08	--
pH	SU	1	7.41	7.80	6.0–9.5
Sodium, Total	mg/L	1	1.17	19.40	--
Sulfate	mg/L	1	14.8	16.0	--

Analyte	Units	N	WNSTAW9	Background Location[a] WNSTAWB	Guideline[b] or Standard[d]
Gross Alpha	µCi/mL	1	-1.29±4.03E-10	1.02±0.85E-09	3E-08[e]
Gross Beta	µCi/mL	1	1.71±0.97E-09	1.93±1.04E-09	1E-06[f]
Tritium (H-3)	µCi/mL	1	1.24±0.58E-07	1.97±0.83E-07	2E-03
Chloride	mg/L	1	11	33	--
Conductivity	µmhos/cm@25^{0}C	1	233	402	--
Iron, Total	mg/L	1	0.30	0.27	0.3
Manganese, Total	mg/L	1	0.22	0.05	--
Nitrate+Nitrite	mg/L	1	<0.05	0.08	--
pH	SU	1	7.63	7.80	6.5–8.5
Sodium, Total	mg/L	1	6.59	19.40	--
Sulfate	mg/L	1	20.4	16.0	--

N - Number of samples
-- No guideline or standard available for these analytes
[a] Background location
[b] DOE ingestion-based DCGs for 100 mrem/yr dose limit are provided as a guideline for radiological results.
[c] New York State Water Quality Standards Class "D" surface waters as a comparative standard for nonradiological results
[d] New York State Water Quality Standards Class "C" surface waters as a comparative standard for nonradiological results at WNSTAW9
[e] Alpha as Am-241
[f] Beta as Sr-90

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Appendix C-5

Potable Water (Drinking Water) Data

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Table C-5A
2002 Radioactivity Concentrations, pH, and Conductivity in Potable Well Water Around the WVDP

Analyte	Units	N	Annual Concentrations at Potable Wells			Reference Values	
			WFWEL01	WFWEL02	WFWEL03	Background[a] WFWEL06	Standard[b,c]
Gross Alpha	µCi/mL	1	8.31±9.00E-10	1.14±1.07E-09	6.34±7.34E-10	4.56±8.24E-10	1.5E-08[d]
Gross Beta	µCi/mL	1	3.03±1.38E-09	2.17±1.59E-09	2.36±1.04E-09	2.78±1.46E-09	1E-06[e]
Tritium (H-3)	µCi/mL	1	-7.35±8.35E-08	-9.72±8.33E-08	-7.77±8.18E-08	-1.76±5.86E-08	--
Cs-137	µCi/mL	1	0.30±6.17E-09	0.55±8.72E-09	-0.26±1.06E-08	-0.48±1.10E-08	--
Conductivity	µmhos/cm@25^{0}C	1	445	451	455	290	--
pH	SU	1	7.76	6.98	7.82	7.69	6.5–8.5

Analyte	Units	N	Annual Concentrations at Potable Wells			Reference Values	
			WFWEL04	WFWEL05	WFWEL07	Background[a] WFWEL06	Standard[b,c]
Gross Alpha	µCi/mL	1	3.02±2.84E-09	1.66±4.17E-10	4.26±6.85E-10	4.56±8.24E-10	1.5E-08[d]
Gross Beta	µCi/mL	1	-0.34±3.65E-09	2.35±0.74E-09	2.85±9.39E-10	2.78±1.46E-09	1E-06[e]
Tritium (H-3)	µCi/mL	1	-5.93±5.90E-08	1.60±8.47E-08	-8.27±8.29E-08	-1.76±5.86E-08	--
Cs-137	µCi/mL	1	3.11±6.85E-09	-0.86±9.34E-09	-1.52±8.34E-09	-0.48±1.10E-08	--
Conductivity	µmhos/cm@25^{0}C	1	1,626	332	331	290	--
pH	SU	1	8.16	6.79	7.68	7.69	6.5–8.5

Analyte	Units	N	Annual Concentrations at Potable Wells			Reference Values	
			WFWEL08	WFWEL09	WFWEL10	Background[a] WFWEL06	Standard[b,c]
Gross Alpha	µCi/mL	1	0.91±9.29E-10	0.08±1.21E-09	1.14±1.37E-09	4.56±8.24E-10	1.5E-08[d]
Gross Beta	µCi/mL	1	0.64±1.51E-09	2.78±1.53E-09	0.33±1.42E-09	2.78±1.46E-09	1E-06[e]
Tritium (H-3)	µCi/mL	1	-9.51±8.35E-08	-1.03±0.81E-07	6.92±8.07E-08	-1.76±5.86E-08	--
Cs-137	µCi/mL	1	2.21±4.10E-09	0.29±4.79E-09	2.02±5.74E-09	-0.48±1.10E-08	--
Conductivity	µmhos/cm@25^{0}C	1	468	601	605	290	--
pH	SU	1	7.43	6.98	6.69	7.69	6.5–8.5

N - Number of samples
-- No guideline or standard available for these analytes
[a] Background location
[b] New York State Water Quality Standard for Class "GA" for fresh groundwater
[c] NYSDOH raw water supply standards (10 NYCRR Part 170.4)
[d] Alpha standard excludes radon and uranium, however, the WVDP results include these isotopes.
[e] Beta standard excludes strontium and alpha emitters, however, the WVDP results include these isotopes.

Table C-5B
2002 Radioactivity Concentrations, pH, and Conductivity in Main Plant Potable Water (WNDNKMP)

Analyte	Units	N	Annual Concentration			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<3.19E-10	-0.49±4.95E-10	<6.98E-10	1.5E-08
Gross Beta	µCi/mL	12	1.04E-09	1.63±0.76E-09	2.48E-09	5E-08
Tritium (H-3)	µCi/mL	12	<7.76E-08	2.47±7.71E-08	1.40E-07	2E-05
Conductivity	µmhos/cm@25^{0}C	12	174	228	279	--
pH	SU	12	6.52	7.18	8.09	--

2002 Radioactivity Concentrations, pH, and Conductivity in Environmental Laboratory Potable Water (WNDNKEL)

Analyte	Units	N	Annual Concentration			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<3.15E-10	-0.22±5.02E-10	<7.51E-10	1.5E-08
Gross Beta	µCi/mL	12	<7.72E-10	1.65±0.76E-09	2.64E-09	5E-08
Tritium (H-3)	µCi/mL	12	<5.81E-08	0.92±7.68E-08	<8.16E-08	2E-05
Conductivity	µmhos/cm@25^{0}C	12	170	216	276	--
pH	SU	12	6.74	7.18	8.19	--

2002 Radioactivity Concentrations, pH, and Conductivity in Maintenance Shop Potable Water (WNDNKMS)

Analyte	Units	N	Annual Concentration			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<2.68E-10	0.31±5.17E-10	7.03E-10	1.5E-08
Gross Beta	µCi/mL	12	1.03E-09	1.73±0.76E-09	2.51E-09	5E-08
Tritium (H-3)	µCi/mL	12	<5.74E-08	3.49±7.76E-08	1.11E-07	2E-05
Conductivity	µmhos/cm@25^{0}C	13	165	281	645	--
pH	SU	12	6.28	6.92	8.04	--

N - Number of samples
-- No guideline or standard available for these analytes
[a] New York State Department of Health MCLs for drinking water used as a comparative reference

Table C-5C
2002 Radioactivity Concentrations and Water Quality Parameters in Utility Room Potable Water (WNDNKUR)

Analyte	Units	N	WNDNKUR Concentrations			Standard or Guideline[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<3.03E-10	0.86±5.22E-10	9.84E-10	0
Gross Beta	µCi/mL	12	7.58E-10	1.88±0.77E-09	2.88E-09	0
Tritium (H-3)	µCi/mL	12	<4.18E-08	0.97±7.49E-08	8.59E-08	2.0E-05
Antimony, Total	mg/L	1	NA	NA	<0.001	0.006
Arsenic, Total	mg/L	1	NA	NA	<0.001	0.05
Barium, Total	mg/L	1	NA	NA	<0.20	2
Beryllium, Total	mg/L	1	NA	NA	<0.0003	0.004
Cadmium, Total	mg/L	1	NA	NA	<0.002	0.005
Chromium, Total	mg/L	1	NA	NA	<0.010	0.1
Conductivity	µmhos/cm@25^{0}C	12	160	217	282	--
Cyanide	mg/L	1	NA	NA	<0.01	0.2
Fluoride	mg/L	1	NA	NA	<0.20	2.2
Mercury, Total	mg/L	1	NA	NA	<0.0004	0.002
Nickel, Total	mg/L	1	NA	NA	<0.005	--
pH	SU	12	6.44	7.08	8.21	--
Selenium, Total	mg/L	1	NA	NA	<0.002	0.050
Thallium, Total	mg/L	1	NA	NA	<0.001	0.0005

Table C-5D
2002 Total Iron and Total Dissolved Solids in Utility Room Raw (Untreated) Water (WNURRAW)

Analyte	Units	N	WNURRAW Concentrations			Standard or Guideline[a]
			Minimum	Average	Maximum	
Dissolved Solids, Total	mg/L	21	77	114	194	--
Iron Total	mg/L	52	0.07	0.56	6.84	--

Table C-5E
Tap Water Sample Results From WVDP Conference Room - Rest Room (Analyzed by Cattaraugus County Department of Health)

Analyte	Units	N	Date Collected	Annual Concentration	Standard[a]
Nitrate-N	mg/L	1	03/13/2002	0.852	10

N - Number of samples
NA - Not available, constituents sampled annually
-- No guideline or standard available for these analytes
[a] New York State Department of Health MCLs for drinking water or EPA MCLGs, whichever is more stringent

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