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[a]	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
	Solids, total suspended	45 mg/L	2 per discharge
	Cyanide, amenable to chlorination	0.022 mg/L	2 per discharge
	Settleable solids	0.3 mL/L	2 per discharge
	pH (range)	6.5–8.5 S.U.	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	annual
	Tributyl phosphate	32 mg/L	annual
	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	annual
	Alpha - BHC	0.00001 mg/L	annual
	Heptachlor	0.00001 mg/L	semiannual
	Surfactants (as LAS)	0.4 mg/L	2 per discharge
	Xylene	0.05 mg/L	annual
	2-butanone	0.5 mg/L	annual
	Total dissolved solids	Monitor	2 per discharge
	Mercury, total	0.0002 mg/L	2 per discharge

[a] *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); total 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[a]	Sample Frequency
001 ***(concluded)***	Barium	0.5 mg/L	annual
	Antimony	1.0 mg/L	annual
	Chloroform	0.3 mg/L	annual
	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 µg/L	2 per month
007 (Sanitary and Utility Wastewater)	Flow	Monitor	3 per month
	Ammonia (as NH_3)	Monitor	3 per month
	BOD_5	10.0 mg/L	3 per month
	Iron, total	Monitor	3 per month
	Solids, total suspended	45 mg/L	3 per month
	Solids, settleable	0.3 mL/L	weekly
	pH (range)	6.5–8.5 S.U.	weekly
	Nitrite (as N)	0.1 mg/L	3 per month
	Oil and grease	15.0 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 S.U.	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

[a] *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); total 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 State 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 (1E-06)	--	--	--	1,000 (1E-06)
Tritium (H-3)	pCi/L (µCi/mL)	20,000 (2E-05)	--	--	--	--
Strontium-90	pCi/L (µCi/mL)	8 (8E-09)	--	--	--	--
Alpha BHC	mg/L	0.000002	0.000002	0.000002	0.000002	0.00001
Aluminum, Dissolved	mg/L	0.10	0.10	0.10	--	--
Aluminum, Total	mg/L	--	--	--	--	--
Ammonia, Total as N	mg/L	0.09–2.1	0.09–2.1	0.09–2.1	0.67–29	2.0
Antimony, Total	mg/L	0.003	--	--	--	0.003
Arsenic, Dissolved	mg/L	0.050	0.150	0.150	0.340	--
Arsenic, Total	mg/L	0.050	--	--	--	0.025
Barium, Total	mg/L	1.00	--	--	--	1.00
Beryllium, Total	mg/L	0.003	[d]	[d]	--	0.003
Boron, Total	mg/L	10.0	10.0	10.0	--	1.00
Bromide	mg/L	2.00	--	--	--	2.00
Cadmium, Dissolved[e]	mg/L	--	--	--	--	--
Cadmium, Total	mg/L	0.005	--	--	--	0.005
Calcium, Total	mg/L	--	--	--	--	--
Chloride	mg/L	250	--	--	--	250
Chromium, Dissolved[e]	mg/L	--	--	--	--	--
Chromium, Total	mg/L	0.05	--	--	--	0.05
Cobalt, Total[f]	mg/L	0.005	0.005	0.005	0.110	--
Conductivity	µmhos/cm@25°C	--	--	--	--	--
Copper, Dissolved[e]	mg/L	--	--	--	--	--
Copper, Total	mg/L	0.20	--	--	--	0.20
Cyanide	mg/L	0.0052	0.0052	0.0052	0.22	0.200
Dissolved Oxygen (minimum)	mg/L	4.0	4.0	4.0	3.0	--
Fluoride[e]	mg/L	--	--	--	--	1.5
Hardness	mg/L	--	--	--	--	--
Iron and Manganese (sum)	mg/L	--	--	--	--	0.500

-- 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] Source: 6 NYCRR Parts 701–704; The most stringent applicable pathway (e.g., wildlife, aquatic, human health) values are reported.
[b] Gross alpha standard includes radium-226, but excludes radon and uranium; however WVDP results include these isotopes.
[c] Gross beta standard excludes strontium-90 and alpha emitters, however WVDP results include these isotopes.
[d] Beryllium standard for classes "B" and "C" are based on stream hardness values.
[e] Standards for these constituents vary according to stream location hardness values.
[f] Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.
[g] Applies to the sum of those organic substances which have individual human health water source standards listed at 0.100 mg/L or less in 6 NYCRR Part 703.5
[h] 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-1B (concluded)
New York State Water Quality Standards and Guidelines[a]

Parameter	Units	Class A	Class B	Class C	Class D	Class GA
Iron, Total	mg/L	0.30	0.30	0.30	0.30	0.30
Lead, Dissolved[e]	mg/L	--	--	--	--	--
Lead, Total	mg/L	0.050	--	--	--	0.025
Magnesium, Total	mg/L	35.0	--	--	--	35.0
Manganese, Total	mg/L	0.30	--	--	--	0.30
Mercury, Dissolved	mg/L	0.0000007	0.0000007	0.0000007	0.0000007	--
Mercury, Total	mg/L	0.0007	--	--	--	0.0007
Nickel, Dissolved[e]	mg/L	--	--	--	--	--
Nickel, Total	mg/L	0.10	--	--	--	0.10
Nitrate-N	mg/L	10.0	--	--	--	10.0
Nitrate + Nitrite	mg/L	10.0	10.0	10.0	10.0	10.0
Nitrite-N	mg/L	0.10	0.10	0.10	--	1.00
NPOC[g]	mg/L	0.10	--	--	--	--
Oil & Grease	mg/L	--	--	--	--	--
pH	SU	6.5–8.5[h]	6.5–8.5[h]	6.5–8.5[h]	6.0–9.5	6.5–8.5[h]
Potassium, Total	mg/L	--	--	--	--	--
Selenium, Dissolved	mg/L	0.0046	0.0046	0.0046	--	--
Selenium, Total	mg/L	0.01	--	--	--	0.01
Silver, Total	mg/L	0.05	--	--	--	0.05
Sodium, Total	mg/L	--	--	--	--	20.0
Solids, Settleable	mg/L	--	--	--	--	--
Solids, Total Dissolved	mg/L	500	500	500	--	500
Solids, Total Suspended	mg/L	--	--	--	--	--
Sulfate	mg/L	250	--	--	--	250
Sulfide (undissociated form)	mg/L	0.002	0.002	0.002	--	0.050 (as HS)
Surfactants (as LAS)	mg/L	0.04	0.04	0.04	--	--
Thallium, Total[f]	mg/L	0.0005	0.008	0.008	0.020	0.0005
Titanium, Total	mg/L	--	--	--	--	--
TOX (total organic halides)[g]	mg/L	0.10	--	--	--	--
Vanadium, Total[f]	mg/L	0.014	0.014	0.014	0.190	--
Zinc, Dissolved[e]	mg/L	--	--	--	--	--
Zinc, Total	mg/L	2.00	--	--	--	2.00

-- 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.
HS - Hydrogen sulfide
[a] Source: 6 NYCRR Parts 701–704; The most stringent applicable pathway (e.g., wildlife, aquatic, human health) values are reported.
[b] Gross alpha standard includes radium-226, but excludes radon and uranium; however WVDP results include these isotopes.
[c] Gross beta standard excludes strontium-90 and alpha emitters, however WVDP results include these isotopes.
[d] Beryllium standard for classes "B" and "C" are based on stream hardness.
[e] Standards for these constituents vary according to stream location hardness values.
[f] Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.
[g] Applies to the sum of those organic substances which have individual human health water source standards listed at 0.100 mg/L or less in 6 NYCRR Part 703.5
[h] 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	2.00	2.00	1.0
Beryllium, Total	mg/L	0.004	0.004	--
Cadmium, Total	mg/L	0.005	0.005	0.01
Chromium, Total	mg/L	0.10	0.10	--
Conductivity	µmhos/cm@25°C	--	--	--
Copper, Total	mg/L	1.3	1.3	<0.2
Cyanide	mg/L	0.2	0.2	<0.1
E. Coli	NA	one positive sample	0	--
Fluoride	mg/L	2.2	--	<1.5
Free Residual Chlorine	mg/L	0.02 (min) 4.0 (max)	--	--
Haloacetic Acids-Five (5)	mg/L	0.060	--	--
Iron, Total	mg/L	0.3	--	--
Lead, Total	mg/L	0.015	0	0.05
Mercury, Total	mg/L	0.002	0.002	0.005
Nickel, Total	mg/L	--	--	--
Nitrate-N	mg/L	10	10	--
pH	SU	--	--	6.5–8.5
POC (Principle Organic Contaminant)	mg/L	--	0.0005	--
Selenium, Total	mg/L	0.05	0.05	0.01
Solids, Total Dissolved	mg/L	--	--	500
Thallium, Total	mg/L	0.002	0.0005	--
Total Coliform	NA	2 or more positive samples	0	--
Total Trihalomethanes	mg/L	0.080	--	--
Turbidity	NTU	1 (max)	--	--

-- 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.
NA - Not applicable
[a] *MCL - Listed is NYSDOH or EPA Maximum Contaminant Level. Sources: 40 CFR 141 and/or 5 NYCRR 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 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)[a]

Radionuclide	Units	Concentration in Ingested Water
Gross Alpha (as Am-241)[b]	µCi/mL	3E-08
Gross Beta (as Sr-90)[b]	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 established in DOE Order 5400.5 and are defined as the concentration of a radionuclide that, under conditions of continuous exposure for one year by one exposure mode, would result in an effective dose equivalent of 100 mrem (1mSv).*

[b] *Because there are no DCGs for gross alpha and gross beta concentrations, the DCGs for the most restrictive alpha and beta emitters at the WVDP, americium-241 and strontium-90 (3E-08 and 1E-06 µCi/mL, respectively) are used as a conservative basis for comparison at locations for which there are no radionuclide-specific data, in which case a more appropriate DCG may be applied.*

Appendix C-2

Process Effluent Data

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 nondetectable. 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.

Table C-2A
Total Radioactivity (curies) of Liquid Effluents Released From Lagoon 3 (WNSP001) in 2005

Isotope	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Annual Total
Gross Alpha	**3.77±0.39E-04**	**1.09±0.22E-04**	1.61±0.30E-04	1.91±0.25E-04	8.38±0.59E-04
Gross Beta	5.12±0.09E-03	**4.00±0.08E-03**	**6.89±0.08E-03**	6.05±0.08E-03	2.21±0.02E-02
H-3	**2.55±0.13E-02**	7.65±0.72E-03	**6.63±0.88E-03**	2.26±0.17E-02	6.25±0.24E-02
C-14	1.52±3.67E-04	-0.82±2.71E-04	2.57±2.95E-04	2.27±2.51E-04	5.54±5.98E-04
K-40	2.80±7.61E-04	0.00±5.03E-04	-1.18±3.43E-04	**3.14±2.88E-04**	0.48±1.02E-03
Co-60	0.58±2.76E-05	-0.15±1.76E-05	1.40±1.97E-05	1.05±1.71E-05	2.89±4.18E-05
Sr-90	2.22±0.09E-03	**1.83±0.07E-03**	**2.84±0.07E-03**	2.39±0.05E-03	9.27±0.14E-03
Tc-99	2.52±0.32E-04	**9.49±2.05E-05**	2.16±0.25E-04	**2.90±0.31E-04**	8.54±0.55E-04
I-129	0.61±2.63E-05	0.32±1.04E-05	1.13±1.00E-05	**4.62±1.11E-05**	6.68±3.20E-05
Cs-137	6.36±0.72E-04	**1.71±0.33E-04**	3.00±0.38E-04	**8.57±0.80E-04**	1.96±0.12E-03
U-232	**1.42±0.08E-04**	**5.02±0.36E-05**	5.78±0.34E-05	8.44±0.41E-05	3.34±0.11E-04
U-233/234	**1.00±0.07E-04**	**2.75±0.37E-05**	3.62±0.26E-05	5.01±0.39E-05	2.14±0.09E-04
U-235/236	**7.05±1.52E-06**	**1.17±0.83E-06**	3.84±0.84E-06	4.05±1.12E-06	1.61±0.22E-05
U-238	**7.30±0.56E-05**	**3.09±0.40E-05**	3.16±0.24E-05	4.73±0.38E-05	1.83±0.08E-04
Total U (g)	**2.14±0.04E+02**	**8.99±0.31E+01**	1.07±0.02E+02	1.19±0.02E+02	5.30±0.06E+02
Pu-238	**1.62±1.02E-06**	1.30±2.94E-07	-0.07±1.35E-07	7.68±5.33E-07	2.51±1.20E-06
Pu-239/240	**1.43±0.84E-06**	3.05±3.45E-07	0.83±2.18E-07	6.43±4.96E-07	2.46±1.05E-06
Am-241	1.09±0.79E-06	4.73±4.51E-07	**3.10±2.95E-07**	**1.32±0.58E-06**	3.19±1.12E-06

Note: Bolding convention applied to these data. See page C-10.
Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.

Table C-2B
Comparison of 2005 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	8.38±0.59E-04	3.10±0.22E+07	1.63±0.11E-08	NA[d]	NA
Gross Beta	2.21±0.02E-02	8.16±0.06E+08	4.29±0.03E-07	NA[d]	NA
H-3	6.25±0.24E-02	2.31±0.09E+09	1.21±0.05E-06	2E-03	0.06
C-14	5.54±5.98E-04	2.05±2.21E+07	1.08±1.16E-08	7E-05	<0.02
K-40	0.48±1.02E-03	1.76±3.76E+07	0.93±1.98E-08	NA[e]	NA
Co-60	2.89±4.18E-05	1.07±1.55E+06	5.61±8.13E-10	5E-06	<0.02
Sr-90	9.27±0.14E-03	3.43±0.05E+08	1.80±0.03E-07	1E-06	18.0
Tc-99	8.54±0.55E-04	3.16±0.20E+07	1.66±0.11E-08	1E-04	0.02
I-129	6.68±3.20E-05	2.47±1.18E+06	1.30±0.62E-09	5E-07	0.26
Cs-137	1.96±0.12E-03	7.27±0.44E+07	3.82±0.23E-08	3E-06	1.27
U-232[f]	3.34±0.11E-04	1.24±0.04E+07	6.49±0.21E-09	1E-07	6.49
U-233/234[f]	2.14±0.09E-04	7.91±0.33E+06	4.16±0.17E-09	5E-07	0.83
U-235/236[f]	1.61±0.22E-05	5.96±0.83E+05	3.13±0.43E-10	5E-07[g]	0.06
U-238[f]	1.83±0.08E-04	6.76±0.30E+06	3.55±0.16E-09	6E-07	0.59
Pu-238	2.51±1.20E-06	9.29±4.44E+04	4.88±2.33E-11	4E-08	0.12
Pu-239/240	2.46±1.05E-06	9.11±3.90E+04	4.78±2.05E-11	3E-08	0.16
Am-241	3.19±1.12E-06	1.18±0.41E+05	6.21±2.17E-11	3E-08	0.21
Total % of DCGs					28.1

NA - Not applicable
Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
[a] *Half-lives are listed in Table K-1.*
[b] *Total volume released: 5.14E+10 mL (1.36E+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) = 5.30±0.06E+02; Average U (µg/mL) = 1.03±0.01E-02*
[g] *DCG for U-236 is used for this comparison.*

Table C-2C
2005 SPDES Results for Outfall 001 (WNSP001): Water Quality

	Ammonia (mg/L)		**BOD_5 day** (mg/L)		**Cyanide (amenable to chlorination)**		**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	0.13	0.14	<2.0	<2.0	<0.003	<0.003	0.292	0.381
February [a]	--	--	--	--	--	--	--	--
March	0.11	0.13	<2.0	<2.0	<0.0030	<0.0030	0.312	0.433
April	0.05	0.07	<3.0	4.0	<0.0043	0.0055	0.271	0.334
May [a]	--	--	--	--	--	--	--	--
June [a]	--	--	--	--	--	--	--	--
July	<0.015	0.018	<2.0	<2.0	<0.0030	<0.0030	0.203	0.211
August [a]	--	--	--	--	--	--	--	--
September	<0.014	0.016	<2.3	2.6	<0.0030	<0.0030	0.235	0.289
October [a]	--	--	--	--	--	--	--	--
November	<0.011	<0.011	<2.0	<2.0	<0.0052	0.0074	0.193	0.243
December	0.048	0.059	<2.0	<2.0	<0.0030	<0.0030	0.319	0.353

	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	0.88	0.91	<0.05	<0.05	<2.7	<2.7
February [a]	--	--	--	--	--	--
March	1.1	1.1	<0.05	<0.05	<2.7	<2.7
April	0.71	0.73	<0.05	<0.05	<2.7	<2.7
May [a]	--	--	--	--	--	--
June [a]	--	--	--	--	--	--
July	<0.036	<0.036	<0.05	<0.05	<2.7	<2.7
August [a]	--	--	--	--	--	--
September	<0.036	<0.036	<0.05	<0.05	<2.7	<2.7
October [a]	--	--	--	--	--	--
November	<0.011	<0.011	<0.02	<0.02	<3.6	5.0
December	0.27	0.28	<0.02	<0.02	<2.2	<2.2

Note: No results exceeded the permit limits.
[a] *No discharge this month*

Table C-2C (concluded)
2005 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	6.5–8.5		0.3 mL/L daily maximum		Monitor		45 mg/L daily maximum; 30 daily average	
Month	**Min**	**Max**	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	7.3	7.4	<0.1	<0.1	682	695	<4.0	<4.0
February [a]	--	--	--	--	--	--	--	--
March	7.6	7.7	<0.1	<0.1	709	709	<4.0	<4.0
April	7.6	7.9	<0.1	<0.1	561	635	<4.0	<4.0
May [a]	--	--	--	--	--	--	--	--
June [a]	--	--	--	--	--	--	--	--
July	7.7	8.1	<0.1	<0.1	767	779	<4.0	<4.0
August [a]	--	--	--	--	--	--	--	--
September	7.4	8.0	<0.1	<0.1	723	724	<5.5	7.0
October [a]	--	--	--	--	--	--	--	--
November	7.3	7.9	<0.1	<0.1	712	723	<4.5	5.0
December	7.6	7.8	<0.1	<0.1	660	660	<7.0	10.0

	Sulfate (as S) (mg/L)		**Sulfide (as S) Dissolved** (mg/L)		**Surfactant 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	49	50	<0.04	<0.04	<0.01	0.02
February [a]	--	--	--	--	--	--
March	31	32	<0.04	<0.04	0.04	0.06
April	19	19	<0.04	<0.04	0.04	0.05
May [a]	--	--	--	--	--	--
June [a]	--	--	--	--	--	--
July	42	43	<0.04	<0.04	<0.04	0.06
August [a]	--	--	--	--	--	--
September	49	51	<0.04	<0.04	0.03	0.05
October [a]	--	--	--	--	--	--
November	36	56	<0.03	0.03	<0.01	<0.01
December	45	47	<0.02	<0.02	0.06	0.1

Note: No results exceeded the permit limits.
[a] *No discharge this month*

Table C-2D
2005 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	14.0 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	0.145	0.199	0.0015	0.0019	<0.0006	<0.0006	<0.002	<0.002
February[a]	--	--	--	--	--	--	--	--
March	0.068	0.0749	0.00066	0.00068	<0.0003	<0.0003	<0.0008	<0.0008
April	0.21	0.320	0.00068	0.00073	<0.0003	<0.0003	<0.0008	<0.0008
May[a]	--	--	--	--	--	--	--	--
June[a]	--	--	--	--	--	--	--	--
July	0.465	0.904	<0.0026	<0.0029	<0.0003	<0.0003	<0.0008	<0.0008
August[a]	--	--	--	--	--	--	--	--
September	0.145	0.229	<0.0026	<0.0034	<0.0003	<0.0003	<0.0008	<0.0008
October[a]	--	--	--	--	--	--	--	--
November	0.222	0.270	0.0018	0.0019	<0.0003	<0.0003	<0.0008	<0.0008
December	0.869	1.35	<0.0034	<0.0034	<0.0003	<0.0003	<0.0008	<0.0008

	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	<0.0009	<0.0009	<0.008	<0.008	0.0057	0.0084	0.0042	0.0045
February[a]	--	--	--	--	--	--	--	--
March	<0.0009	<0.0009	<0.008	<0.008	0.0023	0.0027	0.0024	0.0026
April	<0.0009	<0.0009	<0.008	<0.008	0.003	0.004	0.0022	0.0029
May[a]	--	--	--	--	--	--	--	--
June[a]	--	--	--	--	--	--	--	--
July	<0.0009	<0.0009	<0.008	<0.008	0.0020	0.0027	0.0024	0.0024
August[a]	--	--	--	--	--	--	--	--
September	<0.0009	<0.0009	<0.008	<0.008	0.0035	0.0038	0.0022	0.0022
October[a]	--	--	--	--	--	--	--	--
November	<0.0009	<0.0009	<0.0045	<0.008	0.0050	0.0062	0.0045	0.0046
December	<0.0009	<0.0009	<0.008	<0.008	0.0024	0.0030	<0.0016	<0.0016

Note: No results exceeded the permit limits.
[a] *No discharge this month*

Table C-2D (concluded)
2005 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)** (µg/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	0.133	0.171	<0.0003	0.0004	0.057	0.063	<0.0002	<0.0002	0.0082	0.0086
February [a]	--	--	--	--	--	--	--	--	--	--
March	0.0703	0.0756	<0.0003	<0.0003	0.031	0.032	<0.0002	<0.0002	0.0072	0.0075
April	0.154	0.204	<0.0003	<0.0003	0.015	0.019	<0.0002	<0.0002	0.0026	0.0028
May [a]	--	--	--	--	--	--	--	--	--	--
June [a]	--	--	--	--	--	--	--	--	--	--
July	0.140	0.206	<0.0003	<0.0003	0.050	0.055	<0.0002	<0.0002	0.0025	0.0027
August [a]	--	--	--	--	--	--	--	--	--	--
September	0.169	0.246	<0.0003	<0.0003	0.056	0.071	<0.0002	<0.0002	0.0016	0.0018
October [a]	--	--	--	--	--	--	--	--	--	--
November	0.188	0.232	0.0004	0.0004	0.014	0.014	<0.0002	<0.0002	0.0041	0.0047
December	0.641	0.957	0.0009	0.0009	0.028	0.031	<0.0002	<0.0002	0.0045	0.0046

	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	<0.0019	0.0022	0.0008	0.0009	<0.0011	<0.0011	0.0079	0.0096
February [a]	--	--	--	--	--	--	--	--
March	0.0017	0.0018	<0.0006	0.0008	<0.00098	<0.00098	0.0058	0.0063
April	0.0013	0.0017	<0.0004	<0.0004	<0.00098	<0.00098	0.0053	0.0072
May [a]	--	--	--	--	--	--	--	--
June [a]	--	--	--	--	--	--	--	--
July	0.0019	0.0022	<0.0004	<0.0004	<0.00098	<0.00098	0.0072	0.010
August [a]	--	--	--	--	--	--	--	--
September	0.0014	0.0014	<0.0004	<0.0004	<0.00098	<0.00098	0.0040	0.0043
October [a]	--	--	--	--	--	--	--	--
November	0.0018	0.0022	<0.0004	<0.0004	<0.00098	<0.00098	0.0065	0.0072
December	0.0022	0.0027	<0.0004	<0.0004	0.0014	0.0017	0.0083	0.013

Note: No results exceeded the permit limits.
[a] *No discharge this month*

Table C-2E
2005 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	<0.020	0.030	<2.27	2.8	0.02	0.03	0.023	0.033	<0.047	0.091
February	<0.020	0.037	<2.0	<2.0	0.02	0.02	0.024	0.032	0.137	0.195
March	<0.033	0.046	<2.0	<2.0	0.03	0.06	0.026	0.033	0.114	0.187
April	<0.036	0.055	<2.5	3.4	0.03	0.06	0.028	0.031	0.101	0.169
May	<0.023	0.046	<3.2	4.2	0.01	0.02	0.020	0.035	0.0954	0.115
June	0.033	0.044	<2.0	<2.0	0.01	0.02	0.017	0.026	0.072	0.088
July	<0.019	0.022	<2.3	2.9	0.01	0.01	0.019	0.023	0.0351	0.0577
August	<0.051	0.13	<2.7	3.4	<0.01	0.02	0.023	0.028	0.048	0.059
September	<0.022	0.028	<2.0	<2.0	<0.01	0.02	0.011	0.024	<0.034	0.0495
October	<0.016	0.022	<2.9	4.6	<0.02	0.02	0.010	0.012	0.0437	0.0682
November	<0.011	<0.011	<2.77	4.0	<0.01	0.02	0.012	0.016	0.0547	0.117
December	<0.011	<0.011	<2.33	3.0	0.02	0.04	0.009	0.012	0.0575	0.0686

	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		15.0 mg/L daily maximum		6.5 to 8.5		0.3 mL/L daily maximum		45 mg/L daily maximum; 30 daily average	
Month	**Avg**	**Max**	**Avg**	**Max**	**Min**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.05	<0.05	<2.7	<2.7	7.3	7.8	<0.1	<0.1	<4.0	<4.0
February	<0.05	<0.05	<2.7	<2.7	7.2	7.9	<0.1	<0.1	<5.3	8.0
March	<0.05	<0.05	<2.7	<2.7	7.0	7.9	<0.1	<0.1	<4.0	<4.0
April	<0.05	<0.05	<2.7	<2.7	7.5	7.5	<0.1	<0.1	<5.7	9.0
May	<0.05	<0.05	<2.7	<2.7	7.4	7.7	<0.1	<0.1	<4.0	<4.0
June	<0.05	<0.05	<2.7	<2.7	7.4	7.6	<0.1	<0.1	<4.0	<4.0
July	<0.05	<0.05	<2.7	<2.7	7.5	7.9	<0.1	0.1	<4.0	4.0
August	<0.05	<0.05	<2.7	<2.7	7.3	7.6	<0.1	<0.1	<4.0	<4.0
September	<0.05	<0.05	<2.7	<2.7	7.1	7.4	<0.1	0.1	<4.0	4.0
October	<0.04	<0.05	<2.3	2.6	7.6	7.9	<0.1	<0.1	<4.0	<4.0
November	<0.02	<0.02	<3.1	4.8	7.4	7.9	<0.1	<0.1	<4.0	<4.0
December	<0.02	<0.02	<2.3	2.6	7.2	7.9	<0.1	<0.1	<4.0	<4.0

Note: No results exceeded the permit limits.

Table C-2F
2005 SPDES Results for Sums of Outfalls 001, 007, 008, and 116: Water Quality

2005 Results for Sums of Outfalls 001, 007 and 008

	Ammonia[a] Flow-Weighted (mg/L)		**BOD_5 day** (mg/L)		**Iron Total Flow-Weighted** (mg/L)	
Permit limit	1.49 daily average	2.1 daily maximum	5.0 daily average		Monitor	0.30 daily maximum
Month	**Avg**	**Max**	**Avg**	**Max**	**Avg**	**Max**
January	<0.087	0.14	<2.0	<2.1	0.00	0.00
February	<0.020	0.037	<2.0	<2.0	0.00	0.00
March	<0.077	0.12	<2.0	<2.0	0.00	0.00
April	<0.050	0.067	<2.7	3.9	0.00	0.00
May	<0.023	0.046	<3.2	4.2	0.00	0.00
June	0.033	0.044	<2.0	<2.0	0.00	0.00
July	<0.017	0.022	<2.0	<2.1	0.00	0.00
August	<0.051	0.13	<2.7	3.4	0.00	0.00
September	<0.014	0.016	<2.2	<2.6	0.00	0.00
October	<0.016	0.022	<2.9	4.6	0.00	0.00
November	<0.011	<0.011	<2.7	4.0	0.00	0.00
December	<0.035	<0.057	<2.3	3.0	0.00	0.00

2005 Results for Outfall 116

	Total Dissolved Solids (mg/L)	
Permit limit	500 mg/L daily maximum	
Month	**Avg**	**Max**
January	353	381
February[b]	--	--
March	387	396
April	293	348
May[b]	--	--
June[b]	--	--
July	380	405
August[b]	--	--
September	313	320
October[b]	--	--
November	227	258
December	387	432

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

Table C-2G
2005 Quarterly/Semiannual/Annual SPDES Results for Outfall 001 (WNSP001): Water Quality, Metals, and Organics

Permit Limit Parameters	Permit Limit	Monitoring Frequency	Collection Date	Maximum Measured
2-Butanone (mg/L)	0.5 mg/L daily maximum	Annual	March 2005	<0.005
3,3-Dichlorobenzidine (mg/L)	0.01 mg/L daily maximum	Annual	March 2005	<0.007
Alpha-BHC (mg/L)	0.00001 mg/L daily maximum	Annual	March 2005	<0.000001
Dichlorodifluoromethane (mg/L)	0.01 mg/L daily maximum	Annual	March 2005	<0.002
Heptachlor (mg/L)	0.00001 mg/L daily maximum	Semiannual	March 2005 September 2005	<0.0000008 <0.0000008
Hexachlorobenzene (mg/L)	0.02 mg/L daily maximum	Annual	March 2005	<0.007
Tributyl Phosphate (mg/L)	32 mg/L daily maximum	Annual	March 2005	<0.0013
Trichlorofluoromethane (mg/L)	0.01 mg/L daily maximum	Annual	March 2005	<0.002
Xylene (mg/L)	0.05 mg/L daily maximum	Annual	March 2005	<0.007
Action Level Parameters	**Action Level**	**Monitoring Frequency**	**Collection Date**	**Maximum Measured**
Antimony, Total (mg/L)	1.0 mg/L daily maximum	Annual	March 2005	<0.020
Barium, Total (mg/L)	0.5 mg/L daily maximum	Annual	March 2005	0.03
Boron, Total (mg/L)	2.0 mg/L daily maximum	Quarterly	March 2005 July 2005 September 2005 November 2005	0.034 0.036 0.040 0.042
Bromide, Total (mg/L)	5.0 mg/L daily maximum	Quarterly	March 2005 July 2005 September 2005 November 2005	1.2 1.4 1.4 0.85
Chloroform (mg/L)	0.3 mg/L daily maximum	Annual	March 2005	<0.0009
Titanium, Total (mg/L)	0.65 mg/L daily maximum	Semiannual	March 2005 September 2005	0.0011 0.0052

Note: No results exceeded the permit limits or action levels.

Table C-2H
2005 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 2005	<0.005

Table C-2I
2005 Annual SPDES Results for Outfall 01B (WNSP01B): Water Quality

	Discharge Rate (GPD)		**N**	**Mercury, Total (per EPA Method 245.1)** (µg/L)		**Mercury, Total (per EPA Method 1631)** (µg/L)	
Permit limit	Monitor			10.0 µg/L daily maximum		No Limit	
Month	**Avg**	**Max**		**Avg**	**Max**	**Avg**	**Max**
January	--	--	--	--	--	--	--
February	--	--	--	--	--	--	--
March	--	--	--	--	--	--	--
April	--	--	--	--	--	--	--
May	--	--	--	--	--	--	--
June	--	--	--	--	--	--	--
July	--	--	--	--	--	--	--
August	5,251	6,492	2	<0.2	<0.2	0.00856	0.00921
September	--	--	--	--	--	--	--
October	--	--	--	--	--	--	--
November	--	--	--	--	--	--	--
December	--	--	--	--	--	--	--

N - Number of samples

Table C-2J
2005 SPDES Results for Outfall 008 (WNSP008): Water Quality

NO DISCHARGE;
DRAINAGE PIPE CAPPED IN MAY 2001

Table C-2K
2005 Radioactivity at Sewage Treatment Outfall (WNSP007)

Isotope[a]	N	Discharge Activity[b] (Ci)	Radioactivity[c] Becquerels	Average Concentration (µCi/mL)	DCG (µCi/mL)	% of DCG
Gross Alpha	27	0.77±1.91E-05	2.84±7.08E+05	3.01±7.50E-10	NA[d]	NA
Gross Beta	27	3.38±0.32E-04	1.25±0.12E+07	1.32±0.12E-08	NA[d]	NA
Tritium	27	7.27±6.09E-04	2.69±2.25E+07	2.85±2.39E-08	2E-03	<0.01
Sr-90	3	1.05±0.23E-04	3.87±0.84E+06	4.10±0.89E-09	1E-06	0.41
Cs-137	3	2.59±2.56E-05	9.58±9.46E+05	1.01±1.00E-09	3E-06	0.03
Total % DCG						0.44

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.

N - Number of samples

NA - Not applicable

[a] *Half-lives are listed in Table K-1.*

[b] *Total volume released: 2.55E+10 mL (6.74E+06 gal)*

[c] *1 curie (Ci) = 3.7E+10 becquerels (Bq); 1 Bq = 2.7E-11 Ci*

[d] *DOE-derived concentration guides (DCGs) do not exist for indicator parameters gross alpha and gross beta.*

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Appendix C-3

SPDES-Permitted Storm Water Outfall Discharge Data

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Table C-3A
2005 Storm Water Discharge Monitoring Data for Outfall Group 1

Storm Water Outfall S04

Analyte	Units	N	First Flush Grab 7/5/2005	Flow-weighted Composite 7/6/2005
Aluminum, Total	mg/L	2	7.14	2.31
Ammonia Nitrogen (as NH_3)	mg/L	2	0.370	0.244
BOD_5	mg/L	2	8.5	6.7
Cadmium, Total Recoverable	mg/L	2	<0.00089	<0.00089
Chromium, Total Recoverable	mg/L	2	0.0091	0.0037
Chromium, Hexavalent, Total Recoverable	mg/L	2	<0.016	<0.008
Copper, Total Recoverable	mg/L	2	0.0247	0.0089
Iron, Total	mg/L	2	11.6	3.02
Lead, Total Recoverable	mg/L	2	0.0138	0.0034
Nitrogen, Nitrate (as N)	mg/L	2	0.79	1.00
Nitrogen, Nitrite (as N)	mg/L	2	0.083	<0.049
Nitrogen, Total (as N)	mg/L	2	1.87	<2.03
Nitrogen, Total Kjeldahl	mg/L	2	1.00	0.98
Oil & Grease[a]	mg/L	1	<2.7	NR
pH[b]	SU	1	7.85	NR
Phosphorous, Total	mg/L	2	0.58	0.11
Selenium, Total Recoverable	mg/L	2	<0.0056	<0.0056
Solids, Total Dissolved	mg/L	2	199	241
Solids, Total Suspended	mg/L	2	395	65
Vanadium, Total Recoverable	mg/L	2	0.0112	0.0041
Zinc, Total Recoverable	mg/L	2	0.212	0.0598
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	4.96	
Rainfall During Sampling Event	inches	--	0.16	
Total Flow During Sampling Event	gallons	--	118,982	
Maximum Flow Rate During Sampling Event	gpm	--	2,400	

N - Number of samples
NR - Not required by permit
[a] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[b] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3B
2005 Storm Water Discharge Monitoring Data for Outfall Group 2

Storm Water Outfall S06

Analyte	Units	N	First Flush Grab 4/20/2005	Flow-weighted Composite 4/21/2005
Aluminum, Total	mg/L	2	0.0681	2.54
BOD_5	mg/L	2	2.0	3.0
Copper, Total Recoverable	mg/L	2	0.00094	0.0125
Iron, Total	mg/L	2	0.226	5.38
Lead, Total Recoverable	mg/L	2	<0.0025	0.0056
Oil & Grease[a]	mg/L	1	<1.0	NR
pH[b]	SU	1	7.34	NR
Phosphorous, Total	mg/L	2	<0.020	0.062
Solids, Total Dissolved	mg/L	2	928	658
Solids, Total Suspended	mg/L	2	<5.0	111
Surfactant	mg/L	2	<0.100	0.160
Zinc, Total Recoverable	mg/L	2	0.013	0.291
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	6.05	
Rainfall During Sampling Event	inches	--	0.41	
Total Flow During Sampling Event	gallons	--	11,468	
Maximum Flow Rate During Sampling Event	gpm	--	165	

N - Number of samples
NR - Not required by permit
[a] The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.
[b] The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.

Table C-3B (concluded)
2005 Storm Water Discharge Monitoring Data for Outfall Group 2

Storm Water Outfall S33

Analyte	Units	N	First Flush Grab 11/9/2005	Flow-weighted Composite 11/9/2005
Aluminum, Total	mg/L	2	0.060	0.155
BOD_5	mg/L	2	3.5	3.8
Copper, Total Recoverable	mg/L	2	0.0025	0.0019
Iron, Total	mg/L	2	1.25	1.36
Lead, Total Recoverable	mg/L	2	<0.0016	<0.0016
Oil & Grease[a]	mg/L	1	2.4	NR
pH[b]	SU	1	7.24	NR
Phosphorous, Total	mg/L	2	0.057	0.010
Solids, Total Dissolved	mg/L	2	330	315
Solids, Total Suspended	mg/L	2	16.0	11.0
Surfactant	mg/L	2	0.095	0.100
Zinc, Total Recoverable	mg/L	2	0.0052	0.0033
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	5.87	
Rainfall During Sampling Event	inches	--	0.50	
Total Flow During Sampling Event	gallons	--	15,073	
Maximum Flow Rate During Sampling Event	gpm	--	100	

N - Number of samples
NR - Not required by permit
[a] The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.
[b] The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.

Table C-3C
2005 Storm Water Discharge Monitoring Data for Outfall Group 3

Storm Water Outfall S09

Analyte	Units	N	First Flush Grab 11/9/2005	Flow-weighted Composite 11/9/2005
Alpha-BHC	mg/L	2	<0.000002	<0.000002
Aluminum, Total	mg/L	2	2.80	2.83
Ammonia Nitrogen (as NH_3)	mg/L	2	<0.011	0.014
BOD_5	mg/L	2	4.0	3.3
Copper, Total Recoverable	mg/L	2	0.0092	0.0138
Iron, Total	mg/L	2	2.55	2.58
Lead, Total Recoverable	mg/L	2	0.002	<0.0016
Nitrogen, Nitrate (as N)	mg/L	2	0.20	0.29
Nitrogen, Nitrite (as N)	mg/L	2	<0.020	<0.020
Nitrogen, Total (as N)	mg/L	2	<0.42	<0.56
Nitrogen, Total Kjeldhal	mg/L	2	0.200	0.250
Oil & Grease[a]	mg/L	1	<2.2	NR
pH[b]	SU	1	8.18	NR
Phosphorous, Total	mg/L	2	0.16	0.061
Solids, Total Dissolved	mg/L	2	88	112
Solids, Total Suspended	mg/L	2	58	48
Zinc, Total Recoverable	mg/L	2	0.0195	0.0204
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	5.87	
Rainfall During Sampling Event	inches	--	0.50	
Total Flow During Sampling Event	gallons	--	358	
Maximum Flow Rate During Sampling Event	gpm	--	5.2	

N - Number of samples
NR - Not required by permit
[a] The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.
[b] The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.

Table C-3C (concluded)
2005 Storm Water Discharge Monitoring Data for Outfall Group 3

Storm Water Outfall S12

Analyte	Units	N	First Flush Grab 10/7/2005	Flow-weighted Composite 10/7/2005
Alpha-BHC	mg/L	2	<0.000002	<0.000002
Aluminum, Total	mg/L	2	0.406	0.407
Ammonia Nitrogen (as NH_3)	mg/L	2	<0.011	0.019
BOD_5	mg/L	2	<2.0	2.0
Copper, Total Recoverable	mg/L	2	0.0019	0.0052
Iron, Total	mg/L	2	0.719	1.10
Lead, Total Recoverable	mg/L	2	<0.0016	<0.0016
Nitrogen, Nitrate (as N)	mg/L	2	0.06	0.07
Nitrogen, Nitrite (as N)	mg/L	2	<0.049	<0.049
Nitrogen, Total (as N)	mg/L	2	<0.21	<0.59
Nitrogen, Total Kjeldahl	mg/L	2	0.100	0.470
Oil & Grease[a]	mg/L	1	<2.2	NR
pH[b]	SU	1	7.20	NR
Phosphorous, Total	mg/L	2	0.059	0.12
Solids, Total Dissolved	mg/L	2	365	227
Solids, Total Suspended	mg/L	2	13	25
Zinc, Total Recoverable	mg/L	2	0.0106	0.0257
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	7.78	
Rainfall During Sampling Event	inches		0.25	
Total Flow During Sampling Event	gallons		62,577	
Maximum Flow Rate During Sampling Event	gpm		720	

N - Number of samples
NR - Not required by permit
[a] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[b] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3D
2005 Storm Water Discharge Monitoring Data for Outfall Group 4

Storm Water Outfall S34

Analyte	Units	N	First Flush Grab[a] 4/20/2005	Flow-weighted Composite[a] 4/21/2005
Aluminum, Total	mg/L	4	16.3	12.1
BOD_5	mg/L	4	5.9	5.9
Copper, Total Recoverable	mg/L	4	0.0471	0.0386
Iron, Total	mg/L	4	31.6	19.2
Lead, Total Recoverable	mg/L	4	0.0258	0.0145
Oil & Grease[b]	mg/L	2	3.2	NR
pH[c]	SU	2	7.84	NR
Phosphorous, Total	mg/L	4	0.440	0.260
Solids, Total Dissolved	mg/L	4	495	453
Solids, Total Suspended	mg/L	4	896	436
Surfactant	mg/L	4	0.041	0.067
Zinc, Total Recoverable	mg/L	4	0.406	0.232
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	6.05	
Rainfall During Sampling Event	inches	--	0.41	
Total Flow During Sampling Event	gallons	--	347,712	
Maximum Flow Rate During Sampling Event	gpm	--	4,043	

N - Number of samples
NR - Not required by permit
[a] *The first flush grab and the flow-weighted composite were sampled and analyzed in duplicate and data were averaged.*
[b] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[c] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3D (concluded)
2005 Storm Water Discharge Monitoring Data for Outfall Group 4

Storm Water Outfall S34

Analyte	Units	N	First Flush Grab 9/8/2005	Flow-weighted Composite 9/8/2005
Aluminum, Total	mg/L	2	3.01	1.54
BOD_5	mg/L	2	5.4	3.4
Copper, Total Recoverable	mg/L	2	0.018	0.0071
Iron, Total	mg/L	2	8.26	2.77
Lead, Total Recoverable	mg/L	2	0.0071	0.0027
Oil & Grease[a]	mg/L	1	<2.7	NR
pH[b]	SU	1	7.62	NR
Phosphorous, Total	mg/L	2	0.29	0.078
Solids, Total Dissolved	mg/L	2	699	353
Solids, Total Suspended	mg/L	2	334	71
Surfactant	mg/L	2	0.044	0.130
Zinc, Total Recoverable	mg/L	2	0.282	0.0723
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	4.70	
Rainfall During Sampling Event	inches	--	0.14	
Total Flow During Sampling Event	gallons	--	218,377	
Maximum Flow Rate During Sampling Event	gpm	--	4,000	

N - Number of samples
NR - Not required by permit
[a] The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.
[b] The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.

Table C-3E
2005 Storm Water Discharge Monitoring Data for Outfall Group 5

Storm Water Outfall S17

Analyte	Units	N	First Flush Grab 11/9/2005	Flow-weighted Composite 11/9/2005
Aluminum, Total	mg/L	2	0.879	0.844
Ammonia Nitrogen (as NH_3)	mg/L	2	<0.011	<0.011
BOD_5	mg/L	2	6.1	3.2
Copper. Total Recoverable	mg/L	2	0.0039	0.0033
Iron, Total	mg/L	2	0.695	0.548
Lead, Total Recoverable	mg/L	2	<0.0016	<0.0016
Nitrogen, Nitrate (as N)	mg/L	2	0.062	0.20
Nitrogen, Nitrite (as N)	mg/L	2	<0.020	<0.020
Nitrogen, Total (as N)	mg/L	2	<0.472	<0.390
Nitrogen, Total Kjeldahl	mg/L	2	0.390	0.170
Oil & Grease[a]	mg/L	1	<2.2	NR
pH[b]	SU	1	7.47	NR
Phosphorous, Total	mg/L	2	<0.008	0.058
Solids, Setttleable	mg/L	2	0.3	<0.1
Solids, Total Dissolved	mg/L	2	264	228
Solids, Total Suspended	mg/L	2	34	18
Sulfide	mg/L	2	<0.03	<0.03
Surfactant	mg/L	2	0.120	0.088
Vanadium, Total Recoverable	mg/L	2	0.0013	0.0028
Zinc, Total Recoverable	mg/L	2	0.0197	0.0144
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	5.87	
Rainfall During Sampling Event	inches	--	0.50	
Total Flow During Sampling Event	gallons	--	77,085	
Maximum Flow Rate During Sampling Event	gpm	--	470	

N - Number of samples
NR - Not required by permit
[a] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[b] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3F
2005 Storm Water Discharge Monitoring Data for Outfall Group 6

Storm Water Outfall S36

Analyte	Units	N	First Flush Grab 10/7/2005	Flow-weighted Composite 10/7/2005
Aluminum, Total	mg/L	2	0.0932	0.158
Ammonia Nitrogen (as NH_3)	mg/L	2	0.028	<0.011
BOD_5	mg/L	2	<2.0	<2.0
Copper, Total Recoverable	mg/L	2	<0.0016	<0.0016
Iron, Total	mg/L	2	0.170	0.305
Lead, Total Recoverable	mg/L	2	<0.0016	<0.0016
Nitrogen, Nitrate (as N)	mg/L	2	0.07	0.29
Nitrogen, Nitrite (as N)	mg/L	2	<0.049	<0.049
Nitrogen, Total (as N)	mg/L	2	<0.50	<0.47
Nitrogen, Total Kjeldahl	mg/L	2	0.380	0.130
Oil & Grease[a]	mg/L	1	<2.2	NR
pH[b]	SU	1	7.48	NR
Phosphorous, Total	mg/L	2	0.02	<0.008
Solids, Settleable	mg/L	2	<0.1	<0.1
Solids, Total Dissolved	mg/L	2	300	320
Solids, Total Suspended	mg/L	2	8.0	7.0
Sulfide	mg/L	2	0.03	<0.03
Surfactant	mg/L	2	<0.012	0.014
Vanadium, Total Recoverable	mg/L	2	<0.00098	<0.00098
Zinc, Total Recoverable	mg/L	2	0.013	0.0101
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	7.78	
Rainfall During Sampling Event	inches	--	0.25	
Total Flow During Sampling Event	gallons	--	1,189	
Maximum Flow Rate During Sampling Event	gpm	--	7.7	

N - Number of samples
NR - Not required by permit
[a] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[b] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3G
2005 Storm Water Discharge Monitoring Data for Outfall Group 7

Storm Water Outfall S20

Analyte	Units	N	First Flush Grab 4/20/2005	Flow-weighted Composite 4/21/2005
Aluminum, Total	mg/L	2	8.91	1.74
Ammonia Nitrogen (as NH_3)	mg/L	2	0.77	0.46
BOD_5	mg/L	2	34.6	4.9
Copper, Total Recoverable	mg/L	2	0.023	0.0039
Iron, Total	mg/L	2	23.1	2.99
Lead, Total Recoverable	mg/L	2	0.0127	<0.0013
Nitrogen, Nitrate (as N)	mg/L	2	2.60	0.62
Nitrogen, Nitrite (as N)	mg/L	2	0.079	0.052
Nitrogen, Total (as N)	mg/L	2	9.0	2.0
Nitrogen, Total Kjeldahl	mg/L	2	6.30	1.30
Oil & Grease[a]	mg/L	1	3.0	NR
pH[b]	SU	1	7.97	NR
Phosphorous, Total	mg/L	2	0.47	0.095
Solids, Total Dissolved	mg/L	2	210	124
Solids, Total Suspended	mg/L	2	78	94
Sulfide	mg/L	2	<0.04	<0.04
Surfactant	mg/L	2	<0.012	0.14
Zinc, Total Recoverable	mg/L	2	0.348	0.0362
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	6.05	
Total Rainfall During Sampling Event	inches	--	0.41	
Total Flow During SamplingEvent	gallons	--	46,005	
Maximum Flow Rate During Sampling Event	gpm	--	494	

N - Number of samples
NR - Not required by permit
[a] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[b] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3G (concluded)
2005 Storm Water Discharge Monitoring Data for Outfall Group 7

Storm Water Outfall S20

Analyte	Units	N	First Flush Grab[a] 9/8/2005	Flow-weighted Composite 9/8/2005
Aluminum, Total	mg/L	3	0.575	0.260
Ammonia Nitrogen (as NH_3)	mg/L	3	0.055	<0.012
BOD_5	mg/L	3	11.1	<2.0
Copper, Total Recoverable	mg/L	3	0.0029	0.002
Iron, Total	mg/L	3	0.931	0.357
Lead, Total Recoverable	mg/L	3	<0.0022	<0.0016
Nitrogen, Nitrate (as N)	mg/L	3	1.15	0.49
Nitrogen, Nitrite (as N)	mg/L	3	<0.049	<0.049
Nitrogen, Total (as N)	mg/L	3	<2.50	<1.26
Nitrogen, Total Kjeldahl	mg/L	3	1.30	0.720
Oil & Grease[b]	mg/L	2	<2.7	NR
pH[c]	SU	1	7.76	NR
Phosphorous, Total	mg/L	3	0.086	0.045
Solids, Total Dissolved	mg/L	3	187	111
Solids, Total Suspended	mg/L	3	45.5	7.0
Sulfide	mg/L	3	<0.04	<0.04
Surfactant	mg/L	3	0.026	<0.012
Zinc, Total Recoverable	mg/L	3	0.013	0.005
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	4.70	
Rainfall During Sampling Event	inches	--	0.14	
Total Flow During Sampling Event	gallons	--	21,377	
Maximum Flow Rate During Sampling Event	gpm	--	440	

N - Number of samples
NR - Not required by permit
[a] *The first flush grab was sampled and analyzed in duplicate and data were averaged.*
[b] *The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.*
[c] *The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.*

Table C-3H
2005 Storm Water Discharge Monitoring Data for Outfall Group 8

Storm Water Outfall S27

Analyte	Units	N	First Flush Grab 4/20/2005	Flow-weighted Composite 4/21/2005
Aluminum, Total	mg/L	2	14.6	6.28
Ammonia Nitrogen (as NH_3)	mg/L	2	0.29	0.12
BOD_5	mg/L	2	19.5	6.4
Copper, Total Recoverable	mg/L	2	0.0258	0.0118
Iron, Total	mg/L	2	17.9	7.68
Lead, Total Recoverable	mg/L	2	0.0165	0.0069
Nitrogen, Nitrate (as N)	mg/L	2	1.40	0.50
Nitrogen, Nitrite (as N)	mg/L	2	<0.049	0.14
Nitrogen, Total (as N)	mg/L	2	<7.7	2.3
Nitrogen, Total Kjeldahl	mg/L	2	6.30	1.70
Oil & Grease[a]	mg/L	1	<2.7	NR
pH[b]	SU	1	7.11	NR
Phosphorous, Total	mg/L	2	1.4	0.20
Solids, Total Dissolved	mg/L	2	323	249
Solids, Total Suspended	mg/L	2	3,870	181
Surfactant	mg/L	2	0.042	0.027
Zinc, Total Recoverable	mg/L	2	0.141	0.0473
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	6.05	
Rainfall During Sampling Event	inches	--	0.41	
Total Flow During Sampling Event	gallons	--	3,106	
Maximum Flow Rate During Sampling Event	gpm	--	45	

N - Number of samples
NR - Not required by permit
[a] The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.
[b] The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.

Table C-3H (concluded)
2005 Storm Water Discharge Monitoring Data for Outfall Group 8

Storm Water Outfall S35

Analyte	Units	N	First Flush Grab 10/7/2005	Flow-weighted Composite 10/7/2005
Aluminum, Total	mg/L	2	0.192	0.118
Ammonia Nitrogen (as NH_3)	mg/L	2	0.023	0.017
BOD_5	mg/L	2	9.1	2.9
Copper, Total Recoverable	mg/L	2	0.0016	<0.0016
Iron, Total	mg/L	2	0.330	0.158
Lead, Total Recoverable	mg/L	2	<0.0016	<0.0016
Nitrogen, Nitrate (as N)	mg/L	2	<0.011	<0.011
Nitrogen, Nitrite (as N)	mg/L	2	<0.049	<0.049
Nitrogen, Total (as N)	mg/L	2	<1.16	<0.91
Nitrogen, Total Kjeldahl	mg/L	2	1.10	0.850
Oil & Grease[a]	mg/L	1	<2.2	NR
pH[b]	SU	1	7.32	NR
Phosphorous, Total	mg/L	2	0.068	0.030
Solids, Total Dissolved	mg/L	2	366	324
Solids, Total Suspended	mg/L	2	10.0	5.0
Surfactant	mg/L	2	0.021	0.012
Zinc, Total Recoverable	mg/L	2	0.0287	0.0133
Rain Event Summary				
pH of Rainfall During Sampling Event	SU	1	7.78	
Rainfall During Sampling Event	inches	--	0.25	
Total Flow During Sampling Event	gallons	--	242	
Maximum Flow Rate During Sampling Event	gpm	--	4.1	

N - Number of samples
NR - Not required by permit
[a] The SPDES permit specifies that oil and grease concentrations shall not exceed 15 mg/L.
[b] The SPDES permit specifies that pH shall not be less than the measured pH of rainfall collected from the site rain gauge at WNSWR01 during storm water discharge sampling or 6.0 SU, whichever is less, and the pH shall not exceed 9.0.

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Appendix C-4

Site Surface Drainage, Subsurface Drainage, and Contained Water Data

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Table C-4A
2005 Radioactivity 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	<8.56E-10	1.38±2.85E-09	7.71E-09	3E-08[c]
Gross Beta	µCi/mL	12	1.02E-07	2.37±0.09E-07	4.14E-07	1E-06[d]
Tritium	µCi/mL	12	<7.81E-08	6.29±9.19E-08	1.64E-07	2E-03
Sr-90	µCi/mL	3	9.45E-08	1.20±0.06E-07	1.44E-07	1E-06
Cs-137	µCi/mL	3	<1.78E-09	0.07±2.60E-09	<3.69E-09	3E-06
pH	SU	12	7.19	7.57	8.35	6.0–9.5

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 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-4B
2005 Radioactivity in Surface Water at French Drain (WNSP008)

NO DISCHARGE FROM THE
FRENCH DRAIN SINCE MAY 2001

Table C-4C
2005 Water Quality of Surface Water at the North Swamp (WNSW74A)

RADIOACTIVE CONSTITUENTS

Isotope[a]	N	Discharge Activity[b] (Ci)	Radioactivity[c] (Becquerels)	Average Concentration (µCi/mL)	DCG (µCi/mL)	% of DCG
Gross Alpha	32	0.76±3.67E-05	0.28±1.36E+06	1.66±7.99E-10	NA[d]	NA
Gross Beta	32	5.88±0.55E-04	2.18±0.20E+07	1.28±0.12E-08	NA[d]	NA
Tritium	32	2.10±1.27E-03	7.77±4.68E+07	4.57±2.76E-08	2E-03	<0.01
C-14	2	-4.00±8.34E-04	-1.48±3.09E+07	-0.87±1.82E-08	7E-05	<0.01
Sr-90	12	2.12±0.21E-04	7.84±0.78E+06	4.62±0.46E-09	1E-06	0.05
I-129	2	0.22±1.82E-05	0.81±6.75E+05	0.47±3.97E-10	5E-07	0.01
Cs-137	12	2.98±5.79E-05	1.10±2.14E+06	0.65±1.26E-09	3E-06	0.02
U-232[e]	2	0.13±1.71E-06	0.50±6.33E+04	0.29±3.72E-11	1E-07	<0.01
U-233/234[e]	2	6.45±3.02E-06	2.39±1.12E+05	1.40±0.66E-10	5E-07	0.03
U-235/236[e]	2	1.90±1.71E-06	7.04+-6.32E+04	4.14±3.72E-11	5E-07[f]	0.01
U-238[e]	2	5.40±2.77E-06	2.00±1.03E+05	1.18±0.60E-10	6E-07	0.02
Pu-238	2	-3.05±3.79E-07	-1.13±1.40E+04	-6.63±8.25E-12	4E-08	<0.01
Pu-239/240	2	-1.35±9.00E-07	-0.50±3.33E+04	-0.30±1.96E-11	3E-08	<0.01
Am-241	2	1.20±1.27E-06	4.45±4.69E+04	2.62±2.76E-11	3E-08	0.09
Total % of DCG						0.23

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.

N - Number of samples

NA - Not applicable

[a] *Half-lives are listed in Table K-1.*

[b] *Total volume released: 4.59E+10 mL (1.21E+07 gal)*

[c] *1 curie (Ci) = 3.7E+10 becquerels (Bq); 1 Bq= 2.7E-11 Ci*

[d] *DOE-derived concentration guides (DCGs) do not exist for indicator parameters gross alpha and gross beta.*

[e] *Total Uranium (g) = 1.47±0.04E+01; Average Total Uranium (µg/mL) = 3.20±0.08E-04*

[f] *DCG for U-236 is used for this comparison.*

Table C-4C (continued)
2005 Water Quality of Surface Water at the North Swamp (WNSW74A)

CHEMICAL CONSTITUENTS

Analyte	Units	N	WNSW74A Concentrations		N	Reference Values	
			Average	Maximum		Background Range WFBCBKG[a]	Standard[b]
Alpha-BHC	mg/L	2	<0.000010	<0.000010	2	<0.000008–<0.000009	0.000002
Aluminum, Total	mg/L	2	<0.11	0.12	0	NA	--
Ammonia-N	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	0.67–29
Antimony, Total	mg/L	2	<0.003	<0.003	2	<0.003–<0.003	--
Arsenic, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.340
Boron, Total	mg/L	2	0.02	0.03	2	0.01–0.02	--
Bromide	mg/L	2	<0.50	<0.50	2	<0.50–<0.50	--
Cadmium, Total	mg/L	2	<0.001	<0.001	0	NA	--
Calcium, Total	mg/L	2	74.8	79.2	12	19.8–51.3	--
Chromium, Total	mg/L	2	<0.010	<0.010	0	NA	--
Cobalt, Total	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.110[c]
Copper, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.039[d]
Copper, Total	mg/L	2	<0.005	<0.005	0	NA	--
Fluoride	mg/L	2	0.16	0.21	2	<0.10–<0.10	23.6[d]
Hardness	mg/L	2	228	242	12	62–158	--
Iron, Total	mg/L	2	<0.13	0.21	2	0.24–0.72	0.30
Lead, Total	mg/L	2	<0.0005	<0.0005	0	NA	--
Magnesium, Total	mg/L	2	10.16	10.80	12	2.92–9.52	--
Manganese, Total	mg/L	2	0.04	0.06	2	0.02–0.02	--
Mercury, Total, Method 1631	mg/L	2	0.000000974	0.00000114	0	NA	--
Nickel, Total	mg/L	2	<0.04	<0.04	0	NA	--
Nitrate-N	mg/L	2	0.15	0.20	2	<0.05–0.25	--
Nitrite-N	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	--
NPOC	mg/L	2	2.2	2.3	2	1.5–1.9	--
Oil & Grease	mg/L	2	<5	<5	2	<5–<5	--
pH	SU	22	7.55	8.05	2	7.29–8.19	6.0–9.5
Selenium, Total	mg/L	2	<0.001	<0.001	0	NA	--
Solids, Total Dissolved	mg/L	2	624	638	2	132–292	--
Solids, Total Suspended	mg/L	2	<4	<4	2	<4–20	--

N - Number of samples
NA - No data available
-- No guideline or standard available for these analytes
[a] *Background location*
[b] *New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNSW74A*
[c] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*
[d] *Calculated from maximum measurement of hardness of surface water drainage at WNSW74A*

Table C-4C (concluded)
2005 Water Quality of Surface Water at the North Swamp (WNSW74A)

CHEMICAL CONSTITUENTS *(concluded)*

Analyte	Units	N	WNSW74A Concentrations		N	Reference Values	
			Average	Maximum		Background Range WFBCBKG[a]	Standard[b]
Sulfate	mg/L	2	29.9	31.6	2	16.8–23.8	--
Sulfide	mg/L	2	<0.04	<0.04	2	<0.04–<0.04	--
Surfactants	mg/L	2	<0.10	<0.10	2	<0.02–<0.10	--
Thallium, Total	mg/L	2	<0.008	<0.008	2	<0.008–<0.008	0.020[c]
Titanium, Total	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	--
TOX	mg/L	2	0.05	0.05	2	<0.005–0.006	--
Vanadium, Total	mg/L	2	<0.01	<0.01	2	<0.01–<0.01	0.190[c]
Zinc, Total	mg/L	2	<0.02	<0.02	0	NA	--

N - Number of samples
NA - No data available
-- No guideline or standard available for these analytes
[a] *Background location*
[b] *New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNSW74A*
[c] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*

Table C-4D
2005 Water Quality of Surface Water at the Northeast Swamp (WNSWAMP)

RADIOACTIVE CONSTITUENTS

Isotope[a]	N	Discharge Activity[b] (Ci)	Radioactivity[c] (Becquerels)	Average Concentration (µCi/mL)	DCG (µCi/mL)	% of DCG
Gross Alpha	32	0.87±8.73E-05	0.32±3.23E+06	0.65±6.47E-10	NA[d]	NA
Gross Beta	32	4.60±0.01E-01	1.70±0.01E+10	3.41±0.01E-06	NA[d]	NA
Tritium	32	1.59±0.36E-02	5.87±1.31E+08	1.18±0.26E-07	2E-03	0.01
C-14	2	0.85±2.79E-03	0.32±1.03E+08	0.63±2.07E-08	7E-05	0.01
Sr-90	12	2.25±0.01E-01	8.34±0.04E+09	1.67±0.01E-06	1E-06	167
I-129	2	0.93±1.44E-04	3.44±5.32E+06	0.69±1.07E-09	5E-07	0.14
Cs-137	12	2.34±9.18E-05	0.87±3.40E+06	1.73±6.81E-10	3E-06	0.01
U-232[e]	2	-2.48±1.35E-05	-9.18±5.00E+05	-1.84±1.00E-10	1E-07	<0.01
U-233/234[e]	2	2.75±1.04E-05	1.02±0.39E+06	2.04±0.77E-10	5E-07	0.04
U-235/236[e]	2	8.16±6.56E-06	3.02±2.43E+05	6.05±4.86E-11	5E-07[f]	0.01
U-238[e]	2	1.52±0.75E-05	5.62±2.78E+05	1.12±0.56E-10	6E-07	0.02
Pu-238	2	-0.21±3.24E-06	-0.01±1.20E+05	-0.15±2.40E-11	4E-08	0.28
Pu-239/240	2	0.19±2.31E-06	0.70±8.55E+04	0.14±1.71E-11	3E-08	<0.01
Am-241	2	-1.19±1.73E-06	-4.40±6.40E+04	-0.88±1.28E-11	3E-08	<0.01
Total % of DCG						167

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.

N - Number of samples

NA - Not applicable

[a] *Half-lives are listed in Table K-1.*

[b] *Total volume released: 1.35E+11 mL (3.56E+07 gal)*

[c] *1 curie (Ci) = 3.7E+10 becquerels (Bq); 1 Bq = 2.7E-11 Ci*

[d] *DOE-derived concentration guides (DCGs) do not exist for indicator parameters gross alpha and gross beta.*

[e] *Total Uranium (g) = 4.01±0.09E+01; Average Total Uranium (µg/mL) = 2.97±0.07E-04*

[f] *DCG for U-236 is used for this comparison.*

Table C-4D (continued)
2005 Water Quality of Surface Water at the Northeast Swamp (WNSWAMP)

CHEMICAL CONSTITUENTS

Analyte	Units	N	WNSWAMP Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Standard[b]
Alpha-BHC	mg/L	2	<0.00002	<0.00002	2	<0.000008–<0.000009	0.000002
Aluminum, Total	mg/L	2	<0.04	0.06	0	NA	--
Ammonia-N	mg/L	2	<0.10	<0.10	2	<0.05–<0.05	0.67–29
Antimony, Total	mg/L	2	<0.004	<0.004	2	<0.003–<0.003	--
Arsenic, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.340
Boron, Total	mg/L	2	0.09	0.13	2	0.07–0.10	--
Bromide	mg/L	2	1.4	1.6	2	<0.50–<0.50	--
Cadmium, Total	mg/L	2	<0.0004	<0.0004	0	NA	--
Calcium, Total	mg/L	2	121	125	12	19.8–51.3	--
Chromium, Total	mg/L	2	<0.0007	<0.0007	0		--
Cobalt, Total	mg/L	2	<0.001	<0.001	2	<0.005–<0.005	0.110[c]
Copper, Dissolved	mg/L	2	<0.002	<0.003	2	<0.005–<0.005	0.048[d]
Copper, Total	mg/L	2	<0.002	<0.003	0	NA	--
Fluoride	mg/L	2	<0.10	0.11	2	<0.10–<0.10	35.8[d]
Hardness	mg/L	2	368	383	12	62–158	--
Iron, Total	mg/L	2	0.15	0.18	2	0.24–0.72	0.30
Lead, Total	mg/L	2	<0.0027	<0.0029	0	NA	--
Magnesium, Total	mg/L	2	16.1	17.2	12	2.92–9.52	--
Manganese, Total	mg/L	2	0.26	0.28	2	0.02–0.02	--
Mercury, Total, Method 1631	mg/L	2	<0.00000472	0.00000894	0	NA	--
Nickel, Total	mg/L	2	<0.0018	<0.0022	0	NA	--
Nitrate-N	mg/L	2	<0.08	0.1	2	<0.05–0.25	--
Nitrite-N	mg/L	2	<0.42	<0.76	2	<0.05–<0.05	--
NPOC	mg/L	2	3.8	4.2	2	1.5–1.9	--
Oil & Grease	mg/L	2	<1	<1	2	<5–<5	--
pH	SU	21	7.48	8.11	2	7.29–8.19	6.0–9.5
Selenium, Total	mg/L	2	<0.005	<0.005	0	NA	--
Solids, Total Dissolved	mg/L	2	1,135	1,190	2	132–292	--
Solids, Total Suspended	mg/L	2	<5	<5	2	<4–20	--

N - Number of samples
NA - No data available
-- No guideline or standard available for these analytes
[a] *Background location*
[b] *New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNSWAMP*
[c] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*
[d] *Calculated from maximum measurement of hardness of surface water drainage at WNSWAMP*

Table C-4D (concluded)
2005 Water Quality of Surface Water at the Northeast Swamp (WNSWAMP)

CHEMICAL CONSTITUENTS *(concluded)*

Analyte	Units	N	WNSWAMP Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Standard[b]
Sulfate	mg/L	2	22.6	22.7	2	16.8–23.8	--
Sulfide	mg/L	2	<1.00	<1.00	2	<0.04–<0.04	--
Surfactant	mg/L	2	<0.10	<0.10	2	<0.02–<0.10	--
Thallium, Total	mg/L	2	<0.008	<0.008	2	<0.008–<0.008	0.020[c]
Titanium, Total	mg/L	2	<0.0004	<0.0004	2	<0.05–<0.05	--
TOX	mg/L	2	0.01	0.02	2	<0.00–0.01	--
Vanadium, Total	mg/L	2	<0.0006	<0.0006	2	<0.01–<0.01	0.190[c]
Zinc, Total	mg/L	2	0.04	0.06	0	NA	--

N - Number of samples
NA - No data available
-- No guideline or standard available for these analytes
[a] *Background location*
[b] *New York State Water Quality Standards, Class "D" as a comparative reference for nonradiological results at WNSWAMP*
[c] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*

Table C-4E
2005 Indicator Results at Storage and Disposal Area Drainage (WNNDADR)

Analyte	Units	N	WNNDADR Concentrations			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	14	<9.60E-10	1.08±1.16E-09	2.12E-09	--
Gross Beta	µCi/mL	14	6.41E-08	1.93±0.06E-07	3.23E-07	--
Tritium	µCi/mL	42	9.39E-08	7.39±1.05E-07	1.46E-06	--
Sr-90	µCi/mL	3	7.84E-08	8.16±0.45E-08	8.71E-08	--
I-129	µCi/mL	2	6.14E-10	3.58±6.87E-10	6.14E-10	--
Cs-137	µCi/mL	12	<1.42E-09	1.64±5.50E-09	1.15E-08	--
NPOC	mg/L	36	<1.0	<5.6	20.3	--
pH	SU	36	6.5	7.46	8.08	6.0–9.5
TOX	mg/L	36	<0.01	<0.01	0.04	--

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
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

Table C-4F
2005 Indicator Results in Subsurface Water at the NDA Interceptor Trench (WNNDATR)

Analyte	Units	N	WNNDATR Concentrations		
			Minimum	Average	Maximum
Gross Alpha	µCi/mL	12	<1.05E-09	1.67±1.81E-09	6.13E-09
Gross Beta	µCi/mL	12	1.42E-07	2.03±0.08E-07	3.28E-07
Tritium	µCi/mL	12	5.08E-07	2.50±0.15E-06	4.90E-06
I-129	µCi/mL	2	<6.86E-10	6.95±8.12E-10	1.39E-09
Cs-137	µCi/mL	12	<1.76E-09	1.44±4.95E-09	<6.79E-09
NPOC	mg/L	12	<1.0	<4.6	6.7
TOX	mg/L	12	<0.01	<0.02	0.03

Note: No applicable reference standard available for this location. These waters are pumped and treated at the LLWTF prior to discharge at outfall WNSP001.
N - Number of samples

Table C-4G
2005 Indicator Results at SDA Drainage (WNSDADR)

Analyte	Units	N	WNSDADR Concentrations			Guideline or Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<2.83E-10	9.70±6.33E-10	2.83E-09	--
Gross Beta	µCi/mL	12	1.08E-09	5.11±1.02E-09	2.71E-08	--
Tritium	µCi/mL	12	1.90E-07	5.07±1.01E-07	1.04E-06	--
Cs-137	µCi/mL	12	<1.99E-09	0.94±5.45E-09	8.67E-09	--
pH	SU	12	6.39	7.07	7.83	6.5–8.5

Note: As of the end of 2005, sampling at this location is under NYSERDA's cognizance. For information, see the NYSERDA website at www.nyserda.org.
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-4H
2005 Indicator Results in Surface Water at Cooling Tower Basin (WNCOOLW)

Analyte	Units	N	WNCOOLW
Gross Alpha	µCi/mL	1	1.52±0.90E-09
Gross Beta	µCi/mL	1	-0.21±2.36E-09
Tritium	µCi/mL	1	-1.88±0.80E-07
Sr-90	µCi/mL	1	2.26±1.40E-09
Cs-137	µCi/mL	1	3.67±7.20E-09
pH	SU	1	7.16

Note: No standards are applicable for this location. These waters are pumped and treated at the LLWTF prior to discharge at outfall WNSP001.
Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
N - Number of samples

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Appendix C-5

Ambient Surface Water Data

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Table C-5A
2005 Radioactivity and pH in Surface Water Downstream of the WVDP in Cattaraugus Creek at Felton Bridge (WFFELBR)

Analyte	Units	N	WFFELBR Concentrations		N	Reference Values	
			Average	Maximum		WFBIGBR[a] Background Range	Guideline[b] or Standard[c]
Gross Alpha	µCi/mL	12	1.28±1.26E-09	3.94E-09	6	<8.55E-10–<2.71E-09	3E-08[d]
Gross Beta	µCi/mL	12	4.37±1.61E-09	9.19E-09	6	2.11E-09–5.24E-09	1E-06[e]
Tritium	µCi/mL	12	5.15±9.10E-08	1.25E-07	6	<5.63E-08–1.70E-07	2E-03
Sr-90	µCi/mL	12	1.38±1.26E-09	3.52E-09	6	<6.79E-10–1.94E-09	1E-06
Tc-99	µCi/mL	2	1.08±1.64E-09	2.24E-09	0	NA	1E-04
Cs-137	µCi/mL	12	0.45±2.78E-09	<5.40E-09	6	<1.81E-09–<2.60E-09	3E-06
pH	SU	38	7.25	8.28	6	6.74–8.27	6.5–8.5

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
N - Number of samples
NA - Data not available
[a] *Background location*
[b] *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.*
[c] *New York State Water Quality Standards, Class "B" as a comparative reference for nonradiological results*
[d] *Alpha as Am-241*
[e] *Beta as Sr-90*

Table C-5B
2005 Water Quality of Surface Water Downstream of the WVDP in Buttermilk Creek at Thomas Corners Bridge (WFBCTCB)

RADIOACTIVITY CONCENTRATIONS

Analyte	Units	N	WFBCTCB Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Guideline[b]
Gross Alpha	µCi/mL	12	6.51±9.25E-10	1.75E-09	12	<2.81E-10–1.60E-09	3E-08[c]
Gross Beta	µCi/mL	12	1.09±0.16E-08	1.97E-08	12	1.12E-09–5.88E-09	1E-06[d]
Tritium	µCi/mL	12	3.45±8.68E-08	2.44E-07	12	<5.49E-08–1.38E-07	2E-03
Sr-90	µCi/mL	3	3.10±1.61E-09	3.92E-09	4	<5.54E-10–2.80E-09	1E-06
Tc-99	µCi/mL	2	1.15±1.55E-09	2.01E-09	4	<1.33E-09–<2.03E-09	1E-04
Cs-137	µCi/mL	3	2.12±2.13E-09	2.56E-09	4	<1.30E-09–3.99E-09	3E-06

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
N - Number of samples
[a] *Background location*
[b] *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.*
[c] *Alpha as Am-241*
[d] *Beta as Sr-90*

Table C-5B (continued)
2005 Water Quality of Surface Water Downstream of the WVDP in Buttermilk Creek at Thomas Corners Bridge (WFBCTCB)

CHEMICAL CONSTITUENTS

Analyte	Units	N	WFBCTCB Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Standard[b]
Alpha-BHC	mg/L	2	<0.000009	<0.000009	2	<0.000008–<0.000009	0.000002
Aluminum, Dissolved	mg/L	2	<0.266	0.433	2	<0.100–0.149	0.10
Ammonia-N	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	0.09–2.1
Antimony, Total	mg/L	2	<0.003	<0.003	2	<0.003–<0.003	--
Arsenic, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.150
Barium, Total	mg/L	2	0.06	0.07	2	0.07–0.10	--
Boron, Total	mg/L	2	0.02	0.02	2	0.01–0.02	10.0
Bromide	mg/L	2	<0.50	<0.50	2	<0.50–<0.50	--
Cadmium, Dissolved	mg/L	2	<0.001	<0.001	2	<0.001–<0.001	0.003[c]
Calcium, Total	mg/L	12	40.5	54.6	12	19.8–51.3	--
Chloride	mg/L	2	25	30	2	15–16	--
Chromium, Dissolved	mg/L	2	<0.01	<0.01	2	<0.01–<0.01	0.116[c]
Cobalt, Total	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.005[d]
Copper, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.014[c]
Dissolved, Oxygen	mg/L	2	10.1	11.3	2	8.2–11.1	4.0 (min)
Fluoride	mg/L	2	<0.10	<0.10	2	<0.10–<0.10	3.47[c]
Hardness	mg/L	12	130	172	12	62–158	--
Iron, Total	mg/L	2	1.94	3.41	2	0.24–0.72	0.30
Lead, Dissolved	mg/L	2	<0.0005	<0.0005	2	<0.0005–<0.0005	0.007[c]
Magnesium, Total	mg/L	12	6.87	11.8	12	2.92–9.52	--
Manganese, Total	mg/L	2	0.04	0.06	2	0.02–0.02	--
Mercury, Dissolved, Method 1631	mg/L	2	0.00000111	0.00000147	2	<0.00000050–0.00000102	--
Nickel, Dissolved	mg/L	2	<0.04	<0.04	2	<0.04–<0.04	0.082[c]
Nitrate-N	mg/L	2	0.56	0.56	2	<0.05–0.25	--
Nitrite-N	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	0.10
NPOC	mg/L	2	2.1	2.2	2	1.5–1.9	--

N - Number of samples
-- No reference standard available for this analyte
[a] *Background location*
[b] *New York State Water Quality Standards, Class "C" as a comparative reference for nonradiological results*
[c] *Calculated from maximum measurement of hardness of surface water stream at WFBCTCB*
[d] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*

Table C-5B (concluded)
2005 Water Quality of Surface Water Downstream of the WVDP in Buttermilk Creek at Thomas Corners Bridge (WFBCTCB)

CHEMICAL CONSTITUENTS *(concluded)*

Analyte	Units	N	WFBCTCB Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Standard[b]
Oil & Grease	mg/L	2	<5	<5	2	<5–<5	--
pH	SU	2	8.00	8.16	2	7.29–8.19	6.5–8.5
Selenium, Dissolved	mg/L	2	<0.001	<0.001	2	<0.001–<0.001	0.0046
Sodium, Total	mg/L	2	15.2	18.9	2	8.7–11.5	--
Solids, Total Dissolved	mg/L	2	184	252	2	132–292	500
Solids, Total Suspended	mg/L	2	<18	32	2	<4–20	--
Sulfate	mg/L	2	22	26.2	2	16.8–23.8	--
Sulfide	mg/L	2	<0.04	<0.04	2	<0.04–<0.04	0.002
Surfactant	mg/L	2	<0.10	<0.10	2	<0.02–<0.10	0.04
Thallium, Total	mg/L	2	<0.008	<0.008	2	<0.008–<0.008	0.008[d]
Titanium, Total	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	--
TOX	mg/L	2	<0.01	0.01	2	<0.00–0.01	--
Vanadium, Total	mg/L	2	<0.01	<0.01	2	<0.01–<0.01	0.014[d]
Zinc, Dissolved	mg/L	2	<0.02	<0.02	2	<0.02–<0.02	0.131[c]

N - Number of samples
-- No reference standard available for this analyte
[a] Background location
[b] New York State Water Quality Standards, Class "C" as a comparative reference for nonradiological results
[c] Calculated from maximum measurement of hardness of surface water stream at WFBCTCB
[d] Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.

Table C-5C
2005 Water Quality of Surface Water Downstream of the WVDP at Frank's Creek (WNSP006)

RADIOACTIVITY CONCENTRATIONS

Analyte	Units	N	WNSP006 Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Guideline[b]
Gross Alpha	µCi/mL	36	1.66±1.57E-09	5.61E-09	12	<2.81E-10–1.60E-09	3E-08[c]
Gross Beta	µCi/mL	36	6.68±0.40E-08	1.75E-07	12	1.12E-09–5.88E-09	1E-06[d]
Tritium	µCi/mL	36	1.69±0.99E-07	1.42E-06	12	<5.49E-08–1.38E-07	2E-03
C-14	µCi/mL	4	0.40±2.63E-08	<3.07E-08	4	<2.23E-08–<3.06E-08	7E-05
Sr-90	µCi/mL	12	3.04±0.31E-08	4.96E-08	4	<5.54E-10–2.80E-09	1E-06
Tc-99	µCi/mL	4	0.93±1.83E-09	<2.08E-09	4	<1.33E-09–<2.03E-09	1E-04
I-129	µCi/mL	4	5.35±8.21E-10	7.49E-10	4	<5.21E-10–<1.10E-09	5E-07
Cs-137	µCi/mL	12	5.37±7.22E-09	1.65E-08	4	<1.30E-09–3.99E-09	3E-06
U-232	µCi/mL	4	3.52±1.31E-10	6.24E-10	4	<2.02E-11–<1.06E-10	1E-07
U-233/234	µCi/mL	4	4.07±1.41E-10	5.78E-10	4	8.16E-11–2.01E-10	5E-07
U-235/236	µCi/mL	4	5.40±5.46E-11	9.43E-11	4	3.27E-11–6.43E-11	5E-07[e]
U-238	µCi/mL	4	4.03±1.41E-10	7.43E-10	4	4.31E-11–2.26E-10	6E-07
Total U	µg/mL	4	9.89±0.23E-04	1.38E-03	4	2.17E-04–3.61E-04	--
Pu-238	µCi/mL	4	0.99±2.76E-11	<4.59E-11	4	<7.27E-12–<4.13E-11	4E-08
Pu-239/240	µCi/mL	4	-0.19±2.43E-11	<3.17E-11	4	<5.54E-12–<2.86E-11	3E-08
Am-241	µCi/mL	4	2.15±3.01E-11	3.24E-11	4	<1.37E-11–<3.05E-11	3E-08

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
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] *Alpha as Am-241*
[d] *Beta as Sr-90*
[e] *DCG for U-236 is used for this comparison.*

Table C-5C (continued)
2005 Water Quality of Surface Water Downstream of the WVDP at Frank's Creek (WNSP006)

CHEMICAL CONSTITUENTS

Analyte	Units	N	WNSP006 Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Standard[b]
Alpha-BHC	mg/L	2	<0.000008	<0.000009	2	<0.000008–<0.000009	0.000002
Aluminum, Dissolved	mg/L	2	0.347	0.397	2	<0.100–0.149	0.10
Ammonia-N	mg/L	2	<0.05	0.06	2	<0.05–<0.05	0.09–2.1
Antimony, Total	mg/L	2	<0.003	<0.003	2	<0.003–<0.003	--
Arsenic, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.150
Barium, Total	mg/L	2	<0.05	0.06	2	0.07–0.10	--
Boron, Total	mg/L	2	0.02	0.02	2	0.01–0.02	10.0
Bromide	mg/L	2	<0.50	0.5	2	<0.50–<0.50	--
Cadmium, Dissolved	mg/L	2	<0.001	<0.001	2	<0.001–<0.001	0.005[c]
Calcium, Total	mg/L	12	48.7	86.7	12	19.8–51.3	--
Chloride	mg/L	2	105	114	2	15–16	--
Chromium, Dissolved	mg/L	2	<0.01	<0.01	2	<0.01–<0.01	0.167[c]
Cobalt, Total	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.005[d]
Copper, Dissolved	mg/L	2	<0.005	<0.005	2	<0.005–<0.005	0.021[c]
Dissolved Oxygen	mg/L	2	10.1	12	2	8.2–11.1	4.0 (min)
Fluoride	mg/L	2	<0.10	0.1	2	<0.10–<0.10	4.72[c]
Hardness	mg/L	12	154	270	12	62–158	--
Iron, Total	mg/L	2	1.6	1.84	2	0.24–0.72	0.30
Lead, Dissolved	mg/L	2	<0.0005	<0.0005	2	<0.0005–<0.0005	0.011[c]
Magnesium, Total	mg/L	12	7.97	13.1	12	2.92–9.52	--
Manganese, Total	mg/L	2	0.11	0.15	2	0.02–0.02	--
Mercury, Dissolved, Method 1631	mg/L	2	0.00000456	0.00000658	2	<0.0000005–0.00000102	--
Nickel, Dissolved	mg/L	2	<0.04	<0.04	2	<0.04–<0.04	0.121[c]
Nitrate-N	mg/L	2	0.73	0.81	2	<0.05–0.25	--
Nitrite-N	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	0.10
NPOC	mg/L	2	3.0	3.5	2	1.5–1.9	--
Oil & Grease	mg/L	2	<5	<5	2	<5–<5	--
pH	SU	2	7.87	7.92	2	7.29–8.19	6.5–8.5

N - Number of samples
-- No guideline or standard available for these analytes
[a] *Background location*
[b] *New York Water Quality Standards for Class "C" surface waters as a comparative reference for nonradiological results.*
[c] *Calculated from maximum measured hardness of surface water stream at WNSP006.*
[d] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*

Table C-5C (concluded)
2005 Water Quality of Surface Water Downstream of the WVDP at Frank's Creek (WNSP006)

CHEMICAL CONSTITUENTS *(concluded)*

Analyte	Units	N	WNSP006 Concentrations		N	Reference Values	
			Average	Maximum		WFBCBKG[a] Background Range	Standard[b]
Selenium, Dissolved	mg/L	2	<0.001	<0.001	2	<0.001–<0.001	0.0046
Sodium, Total	mg/L	2	65.2	74.7	2	8.7–11.5	--
Solids, Total Dissolved	mg/L	35	340	619	2	132–292	500
Solids, Total Suspended	mg/L	2	44	60	2	<4–20	--
Sulfate	mg/L	2	36.6	45.1	2	16.8–23.8	--
Sulfide	mg/L	2	<0.04	<0.04	2	<0.04–<0.04	0.002
Surfactants	mg/L	2	<0.06	<0.10	2	<0.02–<0.10	0.40
Thallium, Total	mg/L	2	<0.008	<0.008	2	<0.008–<0.008	0.008[d]
Titanium, Total	mg/L	2	<0.05	<0.05	2	<0.05–<0.05	--
TOX	mg/L	2	0.01	0.01	2	<0.00–0.01	--
Vanadium, Total	mg/L	2	<0.01	<0.01	2	<0.01–<0.01	0.014[d]
Zinc, Dissolved	mg/L	2	<0.02	<0.02	2	<0.02–<0.02	0.192[c]

N - Number of samples
-- No guideline or standard available for these analytes
[a] *Background location*
[b] *New York Water Quality Standards for Class "C" surface waters as a comparative reference for nonradiological results.*
[c] *Calculated from maximum measured hardness of surface water stream at WNSP006.*
[d] *Standards for cobalt, thallium, and vanadium are applicable to the acid-soluble fraction.*

Table C-5D
2005 Total Dissolved Solids From Outfall WNSP116

Month	Units	N	Total Dissolved Solids		Daily Maximum Limit
			Average	Maximum	
January	mg/L	2	353	381	500
February[a]	mg/L	0	--	--	500
March	mg/L	2	387	396	500
April	mg/L	2	293	348	500
May[a]	mg/L	0	--	--	500
June[a]	mg/L	0	--	--	500
July	mg/L	2	380	405	500
August[a]	mg/L	0	--	--	500
September	mg/L	2	313	320	500
October[a]	mg/L	0	--	--	500
November	mg/L	2	227	258	500
December	mg/L	2	387	432	500

N - Number of samples
[a] *No discharge this month*

Table C-5E
2005 Indicator Results in Surface Water at Erdman Brook (WNERB53)

Analyte	Units	N	WNERB53 Concentrations			Reference Guideline[a] or Standard[b]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	24	<8.86E-10	0.33±1.54E-09	2.07E-09	3E-08[c]
Gross Beta	µCi/mL	24	8.69E-09	1.59±0.27E-08	2.96E-08	1E-06[d]
Tritium	µCi/mL	24	<5.58E-08	5.92±7.64E-08	1.74E-07	2E-03
Sr-90	µCi/mL	3	5.30E-09	6.92±1.64E-09	8.75E-09	1E-06
Cs-137	µCi/mL	3	<1.54E-09	2.59±4.25E-09	<6.92E-09	3E-06
pH	SU	24	6.60	7.47	8.08	6.0–9.5

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 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 "D" for surface waters as a standard for nonradiological results*
[c] *Alpha as Am-241*
[d] *Beta as Sr-90*

Table C-5F
2005 Indicator Results in Surface Water at Frank's Creek East of the SDA (WNFRC67)

Analyte	Units	N	WNFRC67 Concentrations			Reference Guideline[a] or Standard[b]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	8	<5.02E-10	1.54±7.55E-10	1.95E-09	3E-08[c]
Gross Beta	µCi/mL	8	8.07E-10	2.32±1.27E-09	6.74E-09	1E-06[d]
Tritium	µCi/mL	8	<7.80E-08	1.51±8.56E-08	1.60E-07	2E-03
Sr-90	µCi/mL	4	1.28E-09	0.97±1.16E-09	1.37E-09	1E-06
Cs-137	µCi/mL	4	<1.83E-09	0.68±2.00E-09	2.26E-09	3E-06
pH	SU	7	7.08	7.45	7.98	6.5–8.5

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 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-5G
2005 Indicator Results in Surface Water at Drum Cell Drainage (WNDCELD)

Analyte	Units	N	WNDCELD Concentrations			Reference Guideline[a] or Standard[b]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	9	<5.39E-10	3.21±7.59E-10	1.57E-09	3E-08[c]
Gross Beta	µCi/mL	9	<1.20E-09	2.17±1.25E-09	3.60E-09	1E-06[d]
Tritium	µCi/mL	6	<7.81E-08	0.05±1.03E-07	1.52E-07	2E-03
Sr-90	µCi/mL	3	<5.78E-10	0.88±1.16E-09	2.57E-09	1E-06
I-129	µCi/mL	2	<8.44E-10	0.61±1.13E-09	<1.36E-09	5E-07
Cs-137	µCi/mL	3	<3.18E-09	1.10±5.44E-09	<6.33E-09	3E-06
pH	SU	8	7.49	7.65	8.44	6.5–8.5

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 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-5H
2005 Water Quality of Surface Water at the Standing Water Location (WNSTAW9)

Analyte	Units	N	WNSTAW9	Reference Values Guideline[a] or Standard[b]
Gross Alpha	µCi/mL	1	0.11±2.49E-10	3E-08[c]
Gross Beta	µCi/mL	1	2.06±0.81E-09	1E-06[d]
Tritium	µCi/mL	1	0.04±1.12E-07	2E-03
Sr-90	µCi/mL	1	2.69±6.70E-10	1E-06
Cs-137	µCi/mL	1	0.00±2.85E-09	3E-06
Chloride	mg/L	1	12	--
Conductivity	µmhos/cm@25°C	1	210	--
Iron, Total	mg/L	1	0.24	0.3
Manganese, Total	mg/L	1	0.25	--
Nitrate+Nitrite	mg/L	1	0.07	--
pH	SU	1	7.85	6.5–8.5
Sodium, Total	mg/L	1	6.9	--
Sulfate	mg/L	1	18.2	--

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
N - Number of samples
-- 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 "D" surface waters as a comparative standard for nonradiological results
[c] Alpha as Am-241
[d] Beta as Sr-90

Appendix C-6

Potable Water (Drinking Water) Data

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Table C-6A
2005 Indicator Results in Background Potable Well Water

Analyte	Units	N	Background WFWEL06	Standard[a,b]
Gross Alpha	µCi/mL	1	-5.04±7.90E-10	1.5E-08[c]
Gross Beta	µCi/mL	1	1.30±1.28E-09	1E-06[d]
Tritium	µCi/mL	1	1.22±1.19E-07	--
Sr-90	µCi/mL	1	-3.00±5.11E-10	--
Cs-137	µCi/mL	1	0.38±1.69E-09	--
Conductivity	µmhos/cm@25°C	1	292	--
pH	SU	1	8.41	6.5–8.5

Note: Strontium-90 (Sr-90) analysis in water was performed by a non-NYSDOH ELAP-certified analytical method. See Chapter 5.
Note: As of April 2005, all off-site potable wells are sampled once every two years, with the exception of the background well WFWEL06, which is sampled annually. The remaining wells are scheduled to be sampled in CY 2006.
N - Number of samples
-- No guideline or standard available for these analytes
[a] *New York State Water Quality Standard for Class "GA" for fresh groundwater*
[b] *NYSDOH raw water supply standards (10 NYCRR Part 170.4)*
[c] *Alpha standard excludes radon and uranium, however, the WVDP results include these isotopes.*
[d] *Beta standard excludes strontium and alpha emitters, however the WVDP results include these isotopes.*

Table C-6B
2005 Indicator Results in Main Plant Potable Water (WNDNKMP)

Analyte	Units	N	Annual Concentration			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	1	5.64E-10	5.64±3.72E-10	5.64E-10	1.5E-08
Gross Beta	µCi/mL	1	<7.23E-10	5.58±7.23E-10	<7.23E-10	5E-08
Tritium	µCi/mL	1	<5.66E-08	-1.50±0.57E-07	<5.66E-08	2E-05
Conductivity	µmhos/cm@25°C	1	167	167	167	--
pH	SU	1	7.42	7.42	7.42	--

2005 Indicator Results in Environmental Laboratory Potable Water (WNDNKEL)

Analyte	Units	N	Annual Concentration			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	2	<4.86E-10	2.80±5.00E-10	<5.13E-10	1.5E-08
Gross Beta	µCi/mL	2	1.38E-09	1.77±0.93E-09	2.16E-09	5E-08
Tritium	µCi/mL	2	<7.75E-08	-0.36±9.17E-08	<1.04E-07	2E-05
Conductivity	µmhos/cm@25°C	2	179	194	209	--
Haloacetic Acids-Five (5)	mg/L	3	<0.028	<0.029	<0.031	0.06
pH	SU	2	7.32	7.57	8.26	--
Total Trihalomethanes	mg/L	3	<0.010	<0.041	<0.057	0.08

2005 Indicator Results in Maintenance Shop Potable Water (WNDNKMS)

Analyte	Units	N	Annual Concentration			Standard[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	2	<3.80E-10	2.27±4.66E-10	<5.38E-10	1.5E-08
Gross Beta	µCi/mL	2	<7.14E-10	6.77±7.19E-10	9.11E-10	5E-08
Tritium	µCi/mL	2	<7.80E-08	3.98±7.93E-08	<8.06E-08	2E-05
Conductivity	µmhos/cm@25°C	2	180	185	190	--
pH	SU	2	8.00	8.11	8.26	--

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-6C
2005 Water Quality Results in Utility Room Potable Water (WNDNKUR)

Analyte	Units	N	WNDNKUR Concentrations			Standard or Guideline[a]
			Minimum	Average	Maximum	
Gross Alpha	µCi/mL	12	<3.14E-10	3.54±4.99E-10	1.86E-09	1.5E-08
Gross Beta	µCi/mL	12	<7.21E-10	2.18±0.94E-09	7.94E-09	5E-08
Tritium	µCi/mL	12	<5.43E-08	2.06±9.60E-08	1.42E-07	2E-05
Antimony, Total	mg/L	1	NA	NA	<0.0008	0.006
Arsenic, Total	mg/L	1	NA	NA	<0.001	0.05
Barium, Total	mg/L	1	NA	NA	<0.20	2.00
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	<0.01	0.10
Conductivity	µmhos/cm@25°C	12	127	197	255	--
Cyanide, Total	mg/L	1	NA	NA	<0.01	0.2
Fluoride	mg/L	1	NA	NA	<0.20	2.2
Free Residual Chlorine	mg/L	1,095	0.10	NR	2.2	0.2–4.0
Mercury, Total	mg/L	1	NA	NA	<0.0004	0.002
Nickel, Total	mg/L	1	NA	NA	<0.005	--
pH	SU	12	7.58	7.97	8.35	--
Selenium, Total	mg/L	1	NA	NA	<0.002	0.05
Thallium, Total	mg/L	1	NA	NA	<0.001	0.002
Turbidity	NTU	2,190	0.1	NR	0.5	1.0[b]

N - Number of samples
NA - Not available
NR - Not reported
-- 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*
[b] *A treatment standard of 0.3 NTU applies to the 95th percentile on a monthly basis.*

Table C-6D
2005 Water Quality Results in Utility Room Raw (Untreated) Water (WNURRAW)

Analyte	Units	N	WNURRAW Concentrations		
			Minimum	Average	Maximum
Gross Alpha	µCi/mL	2	<4.94E-09	2.83±5.35E-09	<5.72E-09
Gross Beta	µCi/mL	2	<5.79E-09	5.58±6.18E-09	1.01E-08
Tritium	µCi/mL	2	<6.57E-07	4.15±7.12E-07	<7.63E-07
Iron, Total	mg/L	52	0.13	0.74	10.1
Solids, Total Dissolved	mg/L	14	54	111	150

N - Number of samples

Table C-6E
2005 Biological and Chlorine Results From Various Site Tap Water Locations (Analyzed by Cattaraugus County Health Department)

Analyte	Units	N	Various Site Tap Water Locations Results	Standard[a]
E. coli	NA	12	Negative	one positive sample
Free Residual Chlorine	mg/L	12	Range: 0.31–0.98	4.0 (max)
Total Coliform	NA	12	Negative	two or more positive samples

N - Number of samples
NA - Not applicable
[a] New York State Department of Health MCLs for drinking water or EPA MCLGs, whichever is more stringent

Table C-6F
2005 Tap Water Nitrate Results From WVDP Restroom Sink (Analyzed by Cattaraugus County Health Department)

Analyte	Units	N	Date Collected	Annual Concentration	Standard[a]
Nitrate-N	mg/L	1	03/14/05	1.74	10

N - Number of samples
[a] New York State Department of Health MCLs for drinking water or EPA MCLGs, whichever is more stringent

Table C-6G
2005 Copper and Lead Results From On-Site Tap Water Locations at the WVDP

Analyte	Units	N	WNDNK01	WNDNK06	WNDNK10	WNDNK14	WNDNK15	Standard[a]
Copper, Total	mg/L	1	<0.05	0.269	0.057	0.254	0.213	1.3
Lead, Total	mg/L	1	0.0014	0.0062	0.0019	<0.001	0.002	<0.015

N - Number of samples
[a] New York State Department of Health MCLs for drinking water used as a comparative reference