APPENDIX A

2007 Environmental Monitoring Program

Environmental Monitoring Program Drivers and Sampling Rationale

The following schedule represents the West Valley Demonstration Project (WVDP) routine environmental monitoring program for 2007. This schedule met or exceeded the requirements of the United States (U.S.) Department of Energy (DOE) Order 450.1, "Environmental Protection Program," DOE Order 5400.5, "Radiation Protection of the Public and the Environment," and DOE/EH-0173T, "Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance." Specific methods and monitoring program elements were based on DOE/EP-0096, "A Guide for Effluent Radiological Measurements at DOE Installations," and DOE/EP-0023, "A Guide for Environmental Radiological Surveillance at U.S. Department of Energy Installations." Additional monitoring was mandated by air and water discharge permits (under the National Emission Standards for Hazardous Air Pollutants [NESHAP] regulations in 40 Code of Federal Regulations (CFR) 61, Subpart H, and the New York State Pollutant Discharge Elimination System [SPDES], respectively). Specific groundwater monitoring is required by the Resource Conservation and Recovery Act (RCRA) §3008(h) Administrative Order on Consent.

Permits, agreements, and/or programs may require formal reports of monitoring results. Radiological air emissions from the WVDP are reported annually in the NESHAP report to the U.S. Environmental Protection Agency. Nonradiological releases in water effluent and storm water drainage points covered under SPDES permit are reported monthly to the New York State Department of Environmental Conservation (NYSDEC) in a Discharge Monitoring Report. Groundwater monitoring results are reported quarterly to NYSDEC. Annual results from the monitoring program as a whole are evaluated and discussed in this ASER, which is prepared as directed in DOE Order 231.1A, "Environment, Safety, and Health Reporting," and associated guidance.

Table A-1 summarizes programmatic drivers and guidance applicable to each environmental medium measured or sampled as part of the WVDP Environmental Monitoring Program.

Sampling Schedule

Sampling locations are assigned a specific identifier, the location code, which is used to schedule sampling, track samples, and trace analytical results. This appendix details the sampling schedule conducted at each location in 2007. Changes since the last ASER are summarized on page A-18. Sampling locations are shown on Figs. A-2 through A-14. Table headings in the schedule are as follows:

- **Sample Location Code.** This code describes the physical location where the sample is collected. The code consists of seven or eight characters: The first character identifies the sample medium as **A**ir, **W**ater, **S**oil/sediment, **B**iological, or **D**irect measurement. The second character specifies o**N**-site or o**F**f-site. The remaining characters describe the specific location (e.g., **AFGRVAL** is **A**ir o**F**f-site at **GR**eat **VAL**ley). Distances noted at sampling locations are as measured in a straight line from the ventilation stack of the main plant process building on site.

- **Sampling Type/Medium.** Describes the collection method and the physical characteristics of the medium or sample.

- **Collection Frequency/Total Annual Samples.** Indicates how often the samples are collected or retrieved and the total number of each type of sample processed in one year.

- **Measurements/Analyses.** Notes the type of measurement taken from the sampling medium and/or the constituents of interest, and (in some instances) the type of analysis conducted.

TABLE A-1
WVDP Environmental Program Drivers and Sampling Rationale

Programmatic Drivers	*Sampling Rationale*
On-Site Air Emissions (Appendix A, p. A-6)	
40 CFR 61, Subpart H (radiological air emissions); DOE O 450.1	DOE/EH-0173T, Chapter 3.0 (air effluent monitoring); DOE/EP-0096, Section 3.3 (criteria for effluent measurements)
Ambient Air (Appendix A, p. A-6 [on-site], and A-15 [off-site])	
DOE O 450.1	DOE/EH-0173T, Sections 3.3.2 (air effluent monitoring, diffuse sources) and 5.7.4 (environmental surveillance, air sampling locations); DOE/EP-0023, Section 4.2.3 (air sampling locations and measurement techniques)
On-Site Liquid Effluents and Storm Water (Appendix A, pp. A-7 through A-10)	
New York State SPDES Permit No. NY 0000973 (nonradiological; specified points only), DOE O 450.1 and DOE O 5400.5 (radiological)	DOE/EH-0173T, Section 2.3.3 (sampling locations for effluent monitoring); NYSDOH ELAP (Environmental Laboratory certification for nonpotable water)
Surface Water (Appendix A, pp. A-10 and A-11 [on-site] and A-13 and A-14 [off-site])	
DOE O 450.1	DOE/EH-0173T, Section 5.10.1 (environmental surveillance water sampling locations and methods); NYSDOH ELAP (Environmental Laboratory certification for nonpotable water)
Potable (Drinking) Water (Appendix A, pp. A-11 [on-site] and A-14 [off-site])	
DOE O 450.1	DOE/EH-0173T, Section 5.10 (basis and guidance for environmental surveillance, water); NYSDOH ELAP (Environmental Laboratory certification for nonpotable water)
On-Site Groundwater (Appendix A, pp. A-11 through A-13)	
RCRA §3008(h) Order on Consent (nonradiological); DOE O 450.1	DOE/EH-0173T, Section 5.10 (basis for environmental surveillance, water); NYSDOH ELAP (Environmental Laboratory certification for nonpotable water)
Fallout Precipitation (Appendix A, p. A-14)	
DOE O 450.1	DOE/EP-0023, Section 4.7 (deposition assessment); NYSDOH ELAP (Environmental Laboratory certification for nonpotable water)
Soil and Sediment (Appendix A, p. A-15 [on-site and off-site])	
DOE O 450.1	DOE/EH-0173T, Sections 5.9 (environmental surveillance, terrestrial foodstuffs) and 5.11 (aquatic foodstuffs)
Direct Radiation (Appendix A, p. A-17 [on-site and off-site])	
DOE O 450.1	DOE/EH-0173T, Section 5.5 (environmental surveillance external radiation measurement locations and frequency); DOE/EP-0023, Section 4.6 (external radiation)

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Air Effluent and On-Site Ambient Air (Fig. A-6 [p. A-29]) **Page**

ANSTACK	Main Plant	A-6
ANSTSTK	Supernatant Treatment System	A-6
ANCSSTK	01-14 Building	A-6
ANCSRFK	Contact Size-Reduction Facility	A-6
ANCSPFK	Container Sorting and Packaging Facility	A-6
ANVITSK	Vitrification Heating, Ventilation, and Air Conditioning	A-6
ANRHWFK	Remote-Handled Waste Facility	A-6
OVEs/PVUs[a]	Outdoor Ventilated Enclosures/Portable Ventilation Units	A-6
ANLAGAM	Lag Storage Area (ambient air)	A-6

Liquid Effluent, On-Site Water, and Storm Water Outfalls (Figs. A-2 through A-4 [pp. A-25 through A-27])

WNSP001	Lagoon 3 Weir Point	A-7
WNSP01B[a]	Internal Process Monitoring Point	A-7
WNSP116	Pseudo-Monitoring Point Outfall 116	A-7
WNSP007	Sanitary Waste Discharge	A-8
WNURRAW[a]	Utility Room Raw Water	A-8
WNSP006	Facility Main Drainage	A-8
WNSP008	French Drain LLWTF Area	A-8

WNSO-Series Storm Water Outfalls

GROUP 1

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WNSO04	North Swamp Drainage (WNSW74A)	A-9

GROUP 2

WNSO06	Northeast Swamp Drainage (WNSWAMP)	A-9
WNSO33	LAG Storage Drainage	A-9

GROUP 3

WNSO09	Substation	A-9
WNSO12	South Facility Drainage (WNSP005)	A-9

GROUP 4

WNSO34	Rail Spur Culvert	A-9

GROUP 5

WNSO14	NDA Service Road Drainage North	A-9
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WNSO28	Drum Cell West Road	A-9

[a] Not detailed on map.

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Liquid Effluent, On-Site Water, and Storm Water Outfalls (Figs. A-2 through A-4) *(concluded)* **Page**

GROUP 6

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WNSO38	Lake Two Roadway North	A-9
WNSO39	Lake Two Roadway South	A-9
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WNSO41	Lake One Roadway	A-9
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GROUP 7

WNSO20	Disposal Area Drainage (WNNDADR)	A-10

GROUP 8

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WNSWAMP	Northeast Swamp Drainage Point	A-10
WNSW74A	North Swamp Drainage Point	A-10
WNSP005	South Facility Drainage	A-10
WNCOOLW	Cooling Tower	A-10
WNFRC67	Franks Creek East	A-10
WNERB53	Erdman Brook	A-11
WNNDADR	Disposal Area Drainage	A-11
WNDCELD	Drum Cell Drainage	A-11
WNNDATR	NDA Trench Interceptor Project	A-11
WNSTAW 9	Standing Water Near North Reservoir Intake	A-11
WNDNK Series[a]	Site Potable Water	A-11
WNDNKUR	Utility Room Potable Water Storage Tank	A-11
WNDNKMP	Main Plant Drinking water	A-11
WNDNKEL	Environmental Laboratory Drinking Water	A-11

[a] Not detailed on map.

Index of Environmental Monitoring Program Sample Points *(continued)*

On-Site Groundwater and Seeps (Figs. A-8 and A-9 [pp. A-31 and A-32]) **Page**

SSWMU #1	Low-Level Waste Treatment Facility Wells	A-11
SSWMU #2	Miscellaneous Small Units Wells	A-12
SSWMU #3	Liquid Waste Treatment System Wells	A-12
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SSWMU #6	Low-Level Waste Storage Area Wells	A-12
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SSWMU #8	CDDL Wells	A-12
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RHWF	Remote-Handled Waste Facility Wells	A-13
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Miscellaneous		
Well Points	Downgradient of Main Plant	A-13
WNWNB1S	Former North Plateau Background Well	A-13
WNSE Series	Surface Water Elevation Points	A-13

Off-Site Surface Water (Fig. A-5 [p. A-28])

WFBIGBR	Cattaraugus Creek at Bigelow Bridge, Background	A-13
WFFELBR	Cattaraugus Creek at Felton Bridge	A-13
WFBCTCB	Buttermilk Creek at Thomas Corners	A-13
WFBCBKG	Buttermilk Creek Near Fox Valley, Background	A-13

Off-Site Drinking Water (Figs. A-10, A-13, and A-14 [pp. A-33, A-36, and A-37])

WFWEL Series	Private Off-Site Local Wells	A-14

Precipitation Fallout (Fig. A-6 [p. A-29])

ANRGFOP	Rain Gauge Fallout	A-14

Off-Site Ambient Air (Figs. A-7, A-13, and A-14 [pp. A-30, A-36, and A-37])

AFFXVRD	Fox Valley Sampler	A-15
AFRT240	Route 240 Sampler	A-15
AFSPRVL	Springville Sampler	A-15
AFWEVAL	West Valley Sampler	A-15
AFRSPRD	Rock Springs Road Sampler	A-15
AFGRVAL	Great Valley Sampler, Background	A-15

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Soil and Sediment (Figs. A-2, A-5, A-13, and A-14 [pp. A-25, A-28, A-36, and A-37]) **Page**

SF Soil Series:	Off-Site Soil Collected at Air Samplers	A-15
SFFXVRD	Surface Soil South-Southeast at Fox Valley	A-15
SFRT240	Surface Soil Northeast on Route 240	A-15
SFSPRVL	Surface Soil North at Springville	A-15
SFWEVAL	Surface Soil South-Southeast at West Valley	A-15
SFRSPRD	Surface Soil Northwest on Rock Springs Road	A-15
SFGRVAL	Surface Soil South at Great Valley, Background	A-15
SN Soil Series:	On-Site Soil/Sediment	A-15
SNSW74A	Soil/Sediment at North Swamp Drainage Point	A-15
SNSWAMP	Soil/Sediment at Northeast Swamp Drainage Point	A-15
SNSP006	Soil/Sediment at Facility Main Drainage	A-15
SF Sediment Series:	Off-Site Sediment	A-15
SFCCSED	Cattaraugus Creek at Felton Bridge, Sediment	A-15
SFSDSED	Cattaraugus Creek at Springville Dam, Sediment	A-15
SFTCSED	Buttermilk Creek at Thomas Corners, Sediment	A-15
SFBCSED	Buttermilk Creek at Fox Valley Road, Background Sediment	A-15

Off-Site Biological (Figs. A-10, A-13, and A-14 [pp. A-33, A-36, and A-37])

BFFCATC	Cattaraugus Creek Fish, Downstream	A-16
BFFCATD	Cattaraugus Creek Fish, Downstream of Springville Dam	A-16
BFFCTRL	Cattaraugus Creek Fish, Background	A-16
BFMWIDR	Southeast Milk, Near-Site	A-16
BFMCTLS	Milk, South, Background	A-16
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BFVNEAR[a]	Produce, Near-Site	A-16
BFVCTRL[a]	Produce, Background	A-16
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BFDCTRL	Venison, Background	A-16

Direct Measurement Dosimetry (Figs. A-12 through A-15 [pp. A-35 through A-38])

DFTLD Series	Off-Site Direct Radiation	A-17
DNTLD Series	On-Site Direct Radiation	A-17

[a] Near-site and background produce samples (corn, apples, and beans) are identified specifically as follows: corn = **BFVNEAC** and **BFVCTRC**; apples = **BFVNEAAF** and **BFVCTRA**; beans = **BFVNEAB** and **BFVCTRB**.

Sample Location Code	*Sampling Type/ Medium*	*Collection Frequency/ Total Annual Samples*	*Measurements/Analyses*
On-Site Air Emissions			
ANSTACK[a] Main plant process building ventilation exhaust stack **ANSTSTK**[a] Supernatant treatment system ventilation exhaust **ANCSSTK**[a] 01-14 building ventilation exhaust **ANCSRFK**[a] Contact size-reduction facility exhaust **ANCSPFK**[a] Container sorting and packaging facility exhaust **ANVITSK**[a] Vitrification heating, ventilation, and air conditioning exhaust **ANRHWFK**[a] Remote-handled waste facility exhaust	Continuous off-line air particulate monitors	Continuous measurement of fixed filter; replaced biweekly; held as backup	Real-time alpha and beta monitoring
	Continuous off-line air particulate filters	Biweekly; 26 each location	Gross alpha/beta, gamma isotopic[b] upon collection, flow
	Composite of biweekly particulate filters	Semiannually; 2 each location	Sr-90, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241, gamma isotopic, flow
	Continuous off-line desiccant columns for collection of water vapor	Biweekly; 26 each at ANSTACK and ANSTSTK only	H-3, flow
	Continuous off-line charcoal cartridges	Cartridges collected biweekly and composited into 2 semiannual samples at each location	I-129
OVEs/PVUs[a] **Outdoor ventilated enclosures/portable ventilation units**	Continuous off-line air particulate filter	Collected as required by project	Gross alpha/beta, gamma isotopic[b] upon collection, flow
	Composite of filters	Semiannually; 2 each location	Sr-90, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241, gamma isotopic, flow
ANLAGAM Lag storage area ambient air	Continuous off-line air particulate filter	Biweekly; 26 per year	Gross alpha/beta, flow
	Composite of biweekly filters	Semiannually; 2 per year	Sr-90, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241, gamma isotopic, flow

[a] Required by 40 CFR 61, Subpart H. Results reported in the Annual NESHAP Report and evaluated in this ASER.
[b] Gamma isotopic analysis done only if gross alpha/beta activity rises significantly.

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
On-Site Liquid Effluents			
WNSP001[a] Lagoon 3 discharge weir	Grab liquid	Daily during discharge. Lagoon 3 is discharged 4 to 8 times per year, averaging 6 to 7 days per discharge; 24–56 per year	Daily flow, hold for flow-weighted composite
	Grab liquid	Twice during discharge; 8–16 per year	Gross alpha/beta, H-3, Sr-90, gamma isotopic
	Flow-weighted composite of daily samples for each discharge	4 to 8 per year	Gross alpha/beta, H-3, C-14, Sr-90, Tc-99, I-129, gamma isotopic, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241
	24-hour composite liquid	Twice during discharge; 8–16 per year	BOD_5, TSS, SO_4, NO_3-N,NO_2-N, NH_3, total Fe and Hg (method 1631)
	Grab liquid	Twice during discharge; 8–16 per year	Settleable solids, TDS, oil & grease, total recoverable Se
	24-hour composite liquid	Once during discharge; 4–8 per year	Total Al, dissolved As, dissolved sulfide
	Grab liquid	Once during discharge; 4–8 per year	pH, total recoverable V, Co
	24-hour composite liquid	Quarterly; 4 per year	Bromide and total B, total recoverable Pb
	24-hour composite liquid	Semiannually; 2 per year	Total Ti, Mn, dissolved Cu, total recoverable Cu, Cr, Ni, and Zn
	24-hour composite liquid	Annually; 1 per year	Total recoverable Cd, total Ba and Sb
	Grab liquid	Semiannually; 2 per year	Heptachlor, cyanide amenable to chlorination, surfactant (as LAS)
	Grab liquid	Annually; 1 per year	Chloroform, dichlorodifluoromethane, trichlorofluoromethane, 3,3-dichlorobenzidine, tributyl phosphate, hexachlorobenzene, alpha-BHC, xylene, 2-butanone, total recoverable Cr^{+6}
WNSP01B[a] Internal process monitoring point	Continuous measurement; recorded weekly	NA	Flow
	Continuous; recorded monthly	NA	Elapsed flow time
	Composite liquid	Twice per month when operating; 0–24 per year	Total Hg
WNSP116[a] Pseudo-monitoring point outfall 116	Calculated	Twice per lagoon discharge; 8–16 per year	TDS

NA - Not applicable

[a] Required by SPDES Permit #NY0000973. Results reported in the SPDES DMR and evaluated in this ASER.

Sample Location Code	*Sampling Type/ Medium*	*Collection Frequency/ Total Annual Samples*	*Measurements/Analyses*
On-Site Liquid Effluents			
WNSP007[a] Sanitary waste discharge	24-hour composite liquid	2 per month; 24 per year	Gross alpha/beta, H-3
	Composite of monthly samples	Semiannually; 2 per year	Sr-90, gamma isotopic
	24-hour composite liquid	3 per month; 36 per year	TSS, NH_3, NO_2-N, BOD_5, total Fe, flow
	Grab liquid	3 per month; 36 per year	Oil & grease
	Grab liquid	Weekly; 52 per year	pH, settleable solids, total residual chlorine
	Grab liquid	Annually; 1 per year	Chloroform
	Grab liquid	Monthly; 12 per year	Flow, flow time
WNURRAW[a] Utility room raw water	Composite liquid	Weekly; 52 per year	Total Fe
	Grab liquid	Two per lagoon discharge; near start, and near end; 8–16 per year	TDS
	Direct field measurement	Monthly; 12 per year	Monthly flow
	Grab liquid	Quarterly; 4 per year	TOC, alkalinity
WNSP006 Franks Creek at the security fence	Timed continuous composite liquid	Weekly during lagoon discharge, otherwise biweekly; 26–34 per year	Gross alpha/beta, H-3
	Composite of weekly and biweekly samples	Monthly; 12 per year[b]	Sr-90 and gamma isotopic
	Composite of weekly and biweekly samples	Quarterly; 4 per year	C-14, Tc-99, I-129, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241
	Grab liquid	Two per lagoon discharge, before start, and after end 8–16 per year	TDS, flow
	Grab liquid	Monthly; 12 per year	Hardness (Ca and Mg)
	Grab liquid	Semiannually; 2 per year	Temperature (field), pH (field), dissolved oxygen (field), TOX, oil & grease
	24-hour timed continuous composite liquid	Semiannually; 2 per year	TSS, NPOC, NH_3 (as N), NO_3 (as N), NO_2 (as N), bromide, fluoride, chloride, sulfate, total sulfide, surfactant (as LAS). Alpha-BHC, B, Ba, Co, Fe, Na, Mn, Sb, Ti, Tl, V, dissolved Al, As, Cd, Cr, Cu, Hg (method 1631), Ni, Pb, Se, Zn
WNSP008[a] French drain (Capped off in 2001; routinely checked to verify no discharge)	Grab liquid	Monthly; 12 per year if discharging	Gross alpha/beta, H-3
	Grab liquid	Three per month if discharging; 36 per year	Conductivity, pH, BOD_5, total Fe, total recoverable Cd and Pb, flow
	Grab liquid	Annually; 1 per year if discharging	Total As, Cr, Ag, and Zn

[a] Required by SPDES Permit #NY0000973. Results reported in the SPDES DMR and evaluated in this ASER.
[b] Sample shared with NYSDOH

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
Storm Water Outfalls			
Group 1[a] **WNSO02 (S02)** **WNSO04 (S04)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, Cd, Cr, Se, V, Cr^{+6}, TKN, ammonia (as NH_3), NO_3-N, NO_2-N, total nitrogen (as N)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
Group 2[a] **WNSO06 (S06)** **WNSO33 (S33)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, surfactant (as LAS)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
Group 3[a] **WNSO09 (S09)** **WNSO12 (S12)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, TKN, ammonia (as NH_3), NO_3-N, NO_2-N, alpha-BHC, total nitrogen (as N)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
Group 4[a] **WNSO34 (S34)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, surfactant (as LAS)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
Group 5[a] **WNSO14 (S14)** **WNSO17 (S17)** **WNSO28 (S28)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, V, TKN, ammonia (as NH_3), NO_3-N, NO_2-N, surfactant (as LAS), sulfide, settleable solids, total nitrogen (as N)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
Group 6[a] **WNSO36 (S36)** **WNSO37 (S37)** **WNSO38 (S38)** **WNSO39 (S39)** **WNSO40 (S40)** **WNSO41 (S41)** **WNSO42 (S42)** **WNSO43 (S43)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, V, TKN, ammonia (as NH_3), NO_3-N, NO_2-N, surfactant (as LAS), sulfide, settleable solids, total nitrogen (as N)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease

[a] Required by SPDES Permit #NY0000973. Results reported in the SPDES DMR and evaluated in this ASER.

Sample Location Code	*Sampling Type/ Medium*	*Collection Frequency/ Total Annual Samples*	*Measurements/Analyses*
Storm Water Outfalls			
Group 7[a] **WNSO20 (S20)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, TKN, ammonia (as NH_3), NO_3-N, NO_2-N, surfactant (as LAS), sulfide, total nitrogen (as N)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
Group 8[a] **WNSO27 (S27)** **WNSO35 (S35)**	First flush grab liquid	Semiannually; 2 per year	pH, oil & grease, BOD_5, TSS, TDS, total P, Al, Fe, total recoverable Cu, Pb, Zn, TKN, ammonia (as NH_3), NO_3-N, NO_2-N, surfactant (as LAS), total nitrogen (as N)
	Flow-weighted composite liquid	Semiannually; 2 per year	Total flow, plus all of the above constituents except for pH and oil & grease
WNSWR01[a] Site rain gauge	Field measurement of precipitation	1 each storm water event	pH
On-Site Surface Water			
WNSWAMP Northeast swamp drainage	Timed continuous composite liquid	Biweekly; 26 per year	Gross alpha/beta, H-3, pH, flow (at WNSWAMP only)
	Composite of biweekly samples	Monthly; 12 per year[b]	Sr-90 and gamma isotopic
WNSW74A North swamp drainage	Composite of biweekly samples	Semiannually; 2 per year	C-14, I-129, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241
	Grab liquid	Semiannually; 2 per year (not sampled during wet weather conditions)	Temperature (field), pH (field), TOX, oil & grease
	24-hour timed continuous composite liquid	Semiannually; 2 per year (not sampled during wet weather conditions)	TSS, TDS, NPOC, NH_3 (as N), NO_3 (as N), NO2 (as N), bromide, fluoride, sulfate, total sulfide, surfactant (as LAS), alpha-BHC, hardness (Ca and Mg), total Al, B, Cd, Co, Cr, Cu, Fe, Hg (method 1631), Mn, Ni, Pb, Sb, Se, Ti, Tl, V, Zn, dissolved As, Cu
WNSP005 Facility yard drainage	Grab liquid	Monthly; 12 per year	Gross alpha/beta, H-3, pH
	Composite of monthly samples	Semiannually; 2 per year	Sr-90 and gamma isotopic
WNCOOLW Cooling tower basin	Grab liquid	Annually; 1 per year	Gross alpha/beta, H-3, Sr-90, gamma isotopic, pH
WNFRC67 Franks Creek east of the SDA	Grab liquid	Quarterly; 4 per year[b] (collected at same time as **WNNDADR**)	Gross alpha/beta, H-3, Sr-90, gamma isotopic, pH

[a] Required by SPDES Permit #NY0000973. Results reported in the SPDES DMR and evaluated in this ASER.
[b] Shared with NYSDOH

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
On-Site Surface Water			
WNERB53 Erdman Brook north of disposal areas	Grab liquid	Quarterly; 4 per year (collected at same time as **WNNDADR**)[a]	Gross alpha/beta, H-3, pH
	Composite of quarterly samples	Semiannually; 2 per year	Gross alpha/beta, H-3, Sr-90, gamma isotopic
WNNDADR Drainage between NDA and SDA	Grab liquid	Biweekly; 26 per year	H-3, pH, NPOC, TOX
	Timed continuous composite liquid	Biweekly; 26 per year	Held for composite
	Composite of biweekly samples	Monthly; 12 per year	Gross alpha/beta, gamma isotopic
	Composite of biweekly samples	Semiannually; 2 per year	Sr-90 and I-129
	Grab liquid	Quarterly; 4 per year	Gross alpha/beta, H-3
WNDCELD Drainage south of drum cell	Grab liquid	Bimonthly; 6 per year	Gross alpha/beta, H-3, pH
	Composite of bimonthly samples	Semiannually; 2 per year	H-3, Sr-90, I-129, gamma isotopic
WNNDATR NDA trench interceptor project	Grab liquid	Monthly; 12 per year	Gross alpha/beta, H-3, gamma isotopic, NPOC, TOX
	Composite of monthly samples	Semiannually; 2 per year	I-129
WNSTAW9 North reservoir near intake	Grab liquid	Annually; 1 per year	Gross alpha/beta, H-3, Sr-90, gamma isotopic, pH, conductivity, Cl, Fe, Mn, Na, NO_3+NO_2-N, SO_4
On-Site Potable (Drinking) Water			
WNDNKUR Utility room (entry point [EP-1]) potable water storage tank	Grab liquid	Monthly; 12 per year	Gross alpha/beta, H-3, pH, conductivity
	Grab liquid[b]	Annually; 1 per year	As, Ba, Be, Cd, Cr, Hg, Ni, Sb, Se, Tl, cyanide, fluoride
WNDNKMP Main plant drinking water	Grab liquid	Annually; 1 per year from each location	Gross alpha/beta, H-3, pH, conductivity
WNDNKEL Environmental laboratory drinking water	Grab liquid[b]	Annually; 1 per year (**WNDNKEL** only)	Total haloacetic acids, total trihalomethanes
On-Site Groundwater			
Low-level waste treatment facility: SSWMU #1 (wells 103, 104, 105, 106, 107, 108, 110, 111, 116, 8604, 8605)	Grab liquid	Quarterly during the fiscal year (generally[c]); 4 per year	Gross alpha/beta, H-3
	Direct field measurement	Twice each sampling event; 8 per year for wells sampled quarterly	Conductivity, pH

[a] Sample shared with NYSDOH

[b] A sample for NO_3 (as total nitrate) is collected by the Cattaraugus County Health Department (CCHD). Pb and Cu are sampled at this site based upon CCHD guidance.

[c] Sampling frequency and analyses vary from point to point.

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
On-Site Groundwater			
Miscellaneous small units: SSWMU #2 (wells 201, 204, 205, 206, 208) **Liquid waste treatment system:** SSWMU #3 (wells 301, 302) **High-level waste storage and processing tank:** SSWMU #4 (wells 401, 402, 403, 405, 406, 408, 409) **Maintenance shop leach field:** SSWMU #5 (wells 501, 502) **Low-level waste storage area:** SSWMU #6 (wells 602A, 604, 605, 8607, 8609) **Chemical process cell waste storage area:** SSWMU #7 (wells 704, 706, 707) **Construction and demolition debris landfill:** SSWMU #8 (wells 801, 802, 803, 804, 8603, 8612) **NRC-licensed disposal area (NDA):** SSWMU #9 (wells 901, 902, 903, 906, 908, 909, 910, 8610, 8611, trench NDATR) **IRTS drum cell:** SSWMU #10 (wells 1005, 1006, 1007, 1008B, 1008C)	Grab liquid	Quarterly during the fiscal year (generally[a]); 4 per year	Gross alpha/beta, H-3
	Direct field measurement	Twice each sampling event; 8 per year for wells sampled quarterly	Conductivity, pH
State-licensed disposal area (SDA) (SSWMU #11)	Groundwater wells in SSWMU #11 are sampled by NYSERDA under a separate program. For information, see the NYSERDA website at www.nyserda.org.		

[a] Sampling frequency and analyses vary from point to point.

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
On-Site Groundwater			
Remote-handled waste facility (not in an SSWMU): Wells 1301, 1302, 1303, 1304	Grab liquid	Quarterly during the fiscal year (generally[a]); 4 per year	Gross alpha/beta, H-3
	Direct field measurement	Twice each sampling event; 8 per year for wells sampled quarterly	Conductivity pH
North plateau seeps (not in an SSWMU): (points GSEEP, SP04, SP06, SP11, SP12)	Grab liquid	Semiannually (quarterly at GSEEP); 2 (or 4) per year	Gross alpha/beta, H-3 (also VOCs at GSEEP and SP12)
	Direct field measurement of sampled water	Semiannually at SP12 (quarterly at GSEEP); 2 (or 4) per year	pH, conductivity
Miscellaneous monitoring locations (not in an SSWMU): Well points WP-A, WP-C, WP-H, NB1S	Grab liquid	Annually (quarterly at NB1S); 1 (or 4) per year	Gross alpha/beta, H-3
	Direct field measurement of sampled water	Annually (quarterly at NB1S); 1 (or 4) per year	pH, conductivity
Surface water elevation points: (SE001 through SE011)	Direct field measurement	Quarterly; 4 per year at each location	Water level
Off-Site Surface Water			
WFBIGBR Cattaraugus Creek at Bigelow Bridge (background)	Grab liquid	Quarterly; 4 per year	Gross alpha/beta, H-3, Sr-90, gamma isotopic, pH
WFFELBR Cattaraugus Creek at Felton Bridge (downstream of confluence with Buttermilk Creek); nearest point of public access to waters receiving WVDP effluents	Timed continuous composite liquid	Weekly during lagoon 3 discharge, otherwise biweekly; 26–34 per year	Gross alpha/beta, H-3, pH, flow
	Flow-weighted composite of weekly and biweekly samples	Monthly; 12 per year[b]	Gross alpha/beta, H-3, Sr-90, and gamma isotopic
	Composite of weekly and biweekly samples	Semiannually; 2 per year	Tc-99
WFBCTCB Buttermilk Creek at Thomas Corners Road, downstream of WVDP and upstream of confluence with Cattaraugus Creek	Timed continuous composite liquid	Biweekly; 26 per year	Hold for composite
	Composite of biweekly	Monthly; 12 per year[b]	Gross alpha/beta, H-3
	Composite of biweekly samples	Semiannually; 2 per year	Sr-90, Tc-99, gamma isotopic
	Grab liquid	Monthly; 12 per year	Hardness (Ca and Mg)
	Grab liquid	Semiannually; 2 per year[c]	Temperature (field), pH (field), dissolved oxygen (field), TOX, oil & grease
	24-hour timed continuous composite	Semiannually; 2 per year[c]	TSS, TDS, NPOC, NH3 (as N), NO3 (as N), NO2 (as N), bromide, fluoride, sulfate, total sulfide, surfactant (as LAS), alpha-BHC, B, Ba, Co, Fe, Na, Mn, Sb, Ti, Tl, V, dissolved Al, As, Cd, Cr, Cu, Hg (method 1631), Ni, Pb, Se, Zn

[a] Sampling frequency and analyses vary from point to point.
[b] Sample shared with NYSDOH
[c] Samples are collected when point WNSP001 and WNSP007 are discharging.

Sample Location Code	*Sampling Type/ Medium*	*Collection Frequency/ Total Annual Samples*	*Measurements/Analyses*
Off-Site Surface Water			
WFBCBKG Buttermilk Creek near Fox Valley (background)	Timed continuous composite liquid	Weekly; 52 per year	Hold for composite
	Composite of weekly samples	Monthly; 12 per year[a]	Gross alpha/beta, H-3
	Composite of weekly samples	Quarterly; 4 per year	C-14, Sr-90, Tc-99, I-129, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241, gamma isotopic
	Grab liquid	Monthly; 12 per year	Hardness (Ca and Mg)
	Grab liquid	Semiannually; 2 per year[b]	Temperature (field), pH (field), dissolved oxygen (field), TOX, oil & grease
	24-hour timed continuous composite	Semiannually; 2 per year[b]	TSS, TDS, NPOC, NH_3 (as N), NO_3 (as N), NO_2 (as N), bromide, fluoride, sulfate, total sulfide, surfactant (as LAS), alpha-BHC, B, Ba, Co, Fe, Na, Mn, Sb, Ti, Tl, V, dissolved Al, As, Cd, Cr, Cu, Hg (method 1631), Ni, Pb, Se, Zn
Off-Site Potable (Drinking) Water Wells			
WFWEL06 Background well, 29 km south of WVDP	Grab liquid	Annually; 1 per year	Gross alpha/beta, H-3, Sr-90, gamma isotopic, pH, conductivity
Near-site private wells[c] **WFWEL01** (3.0 km WNW) **WFWEL02** (1.5 km NW) **WFWEL03** (3.5 km NW) **WFWEL04** (3.0 km NW) **WFWEL05** (2.5 km SW) **WFWEL07** (4.4 km NNE) **WFWEL08** (2.5 km ENE) **WFWEL09** (3.0 km SE) **WFWEL10** (7.0 km N)	Grab liquid	Biennially; 1 every other year at each location	Gross alpha/beta, H-3, Sr-90, gamma isotopic, pH, conductivity
Fallout			
ANRGFOP Rain gauge on-site	Integrated precipitation	Monthly; 12 per year	Gross alpha/beta, H-3, gamma isotopic, volume

[a] Samples shared with NYSDOH
[b] Samples are collected when points WNSP001 and WNSP007 are discharging.
[c] Samples were last collected in 2006. No drinking water wells are located in hydrogeological units affected by site activity.

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
Off-Site Air			
AFFXVRD 3.0 km south-southeast at Fox Valley **AFRT240** 2.0 km northeast on Route 240 **AFSPRVL** 9.4 km north at Springville **AFWEVAL** 6.2 km south-southeast at West Valley **AFRSPRD** 1.5 km northwest on Rock Springs Road **AFGRVAL** 29 km south at Great Valley (background)	Continuous air particulate filter	Biweekly; 26 per year at each location	Gross alpha/beta, flow
	Composite of biweekly filters	Semiannually; 2 per year	Sr-90, gamma isotopic, flow At **AFRSPRD** and **AFGRVAL**, also U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241
	Continuous charcoal cartridge	Monthly (**AFRSPRD** and **AFGRVAL** only)	Held for composite
	Composite of monthly charcoal cartridges	Semiannually; 2 per year	I-129
Off-Site Soil			
SF off-site soil series (collected at each of 6 off-site air samplers); SFFXVRD, SFRT240, SFSPRVL, SFWEVAL, SFRSPRD, and SFGRVAL	Surface plug composite soil	Triennial; 1 each location every third year	Gross alpha/beta, Sr-90, gamma isotopic, Pu-238, Pu-239/240, Am-241. At **SFRSPRD** and **SFGRVAL**, also U-232, U-233/234, U-235/236, U-238, and total U
On-Site Soil/Sediment			
SN on-site soil series; **SNSW74A** (near WNSW74A), **SNSWAMP** (near WNSWAMP), and **SNSP006** (near WNSP006)	Surface plug composite soil/sediment	Annually; 1 per location	Gross alpha/beta, gamma isotopic, Sr-90, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241, Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Hg, Ni, K, Se, Ag, Na, Tl, V, Zn
Off-Site Sediment			
SFCCSED Cattaraugus Creek at Felton Bridge **SFSDSED**[a] Cattaraugus Creek at Springville Dam **SFTCSED** Buttermilk Creek at Thomas Corners Road **SFBCSED**[a] Buttermilk Creek at Fox Valley Road (background)	Grab stream sediment	Annually; 1 per year	Gross alpha/beta, gamma isotopic, Sr-90, U-232, U-233/234, U-235/236, U-238, total U, Pu-238, Pu-239/240, Am-241

[a] Samples shared with NYSDOH

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
Off-Site Biological			
BFFCATC[a] Fish from Cattaraugus Creek downstream of its confluence with Buttermilk Creek **BFFCATD** Fish from Cattaraugus Creek downstream of the Springville Dam **BFFCTRL**[a] Control fish sample from nearby stream not affected by WVDP (7 km or more upstream of site effluent point); background	Individual collection of fish	Annually; 10 fish from each location	Gamma isotopic and Sr-90 in edible portions, % moisture
BFMWIDR Dairy farm 3.0 km southeast of WVDP	Grab milk sample	Monthly; 12 per year	Samples held for composite
	Composite of monthly samples	Quarterly; 4 per year	Sr-90, I-129, gamma isotopic
BFMCTLS Control location 22 km south (background) **BFMBLSY**[a] Dairy farm 5.5 km west-northwest **BFMSCHT** Dairy farm 4.9 km south	Grab milk sample	Annually; 1 per year	Sr-90, I-129, gamma isotopic
BFVNEAR[a] Apples, beans, and corn from locations near the WVDP **BFVCTRL**[a] Control apples, beans, and corn from locations far from the WVDP	Grab biological	Annual (at harvest); 1 per year per sample type	Gamma isotopic and Sr-90 in edible portions, % moisture, H-3 in free moisture
BFDNEAR[a] Deer in the vicinity of the WVDP **BFDCTRL**[a] Control deer 16 km or more from the WVDP	Individual collection of venison samples, usually from deer killed in collisions with vehicles	Six deer collected annually, during hunting season	Gamma isotopic and Sr-90 in edible portions of meat, % moisture, H-3 in free moisture

[a] Samples shared with NYSDOH.

Sample Location Code	Sampling Type/ Medium	Collection Frequency/ Total Annual Samples	Measurements/Analyses
Off-Site Direct Radiation			
DFTLD Series: Off-site environmental thermoluminescent dosimeters (TLDs): **#1 through #16**, at each of 16 compass sectors at nearest accessible perimeter point **#20:** 1,500 m northwest (downwind receptor) **#21:** 9.4 km north, Springville **#22:** 6.2 km south-southwest **#23:** 29 km south, Great Valley (background)	Integrating TLD	Quarterly; 4 per year at each location	Gamma radiation exposure
On-Site Direct Radiation			
DNTLD Series: On-site TLDs **#19, #33**: Corners of the SDA **#24, #26–30**: Security fence around the WVDP **#35, #36, #38–40**: Near operational areas on-site **#25**: 500 m north-northwest of the plant, Rock Springs Road **#43**: SDA west perimeter fence	Integrating TLD	Quarterly; 4 per year at each location	Gamma radiation exposure

Summary of Monitoring Program Changes in 2007

Location Code	Description of Changes
WNDNKMS	The drinking water monitoring point at the maintenance shop was dropped from the program prior to demolition of the facility in April 2007.
WNS043	A new storm water monitoring location at the firing range was added to storm water group 6.
WNURRAW	Sampling for TOC and alkalinity was reduced from monthly to quarterly. The schedule is driven by the Cattaraugus County Department of Health.

The monitoring program for calendar year 2007, as presented in this Appendix, was completely reviewed at the end of the year. Modifications were made to reflect current site conditions and activities and to make the program more efficient.

Each sampling location was evaluated on several bases: (1) regulatory requirements or other drivers, (2) pathways and hazard conditions, (3) a statistical evaluation of up to 16 years of monitoring data, and (4) a determination of the need for each constituent. As a result, sampling at several locations was discontinued altogether, frequency of sampling at other locations was cut back, and the number of constituents monitored at some locations was reduced.

The revised program was put into place at the beginning of 2008. A complete listing of changes at each monitoring location is presented below. Maps in Appendix A have been revised to show those locations at which the program remained the same as that in 2007, those locations at which sampling was reduced, and those locations at which sampling has been discontinued.

Summary of Monitoring Program Changes in 2008

Location Code	Description of Changes
ANLAGAM	Continuous sampling of on-site ambient air at this location was discontinued. (Assume special ambient air sampling during activities with potential for radiological releases to air [e.g., demolition, soil excavation].)
WNSP01B	Weekly monitoring of flow has been discontinued, monthly elapsed flow time retained. Required information is obtained without weekly measurement.
WNSP007	Frequency of gross alpha/beta and tritium sampling was decreased from twice a month to monthly. Compositing frequency for gamma isotopic and strontium-90 analysis was decreased from semiannual to annual.
WNSP006 **WNSWAMP** **WNSW74A**	Sampling for all nonradiological constituents was discontinued (except for TDS at WNSP006, as discussed above). Sufficient historical data are available to characterize.
WNSP005	Sampling frequency was decreased from monthly to quarterly. (The semiannual composite for gamma isotopic and strontium-90 was retained.) The location is well characterized by historical sampling, and the flow is ultimately captured at WNSP006.

Summary of Monitoring Program Changes in 2008 *(continued)*

Location Code	Description of Changes
WNCOOLW	Water sampling at the cooling tower has been dropped from monitoring program. (The point continues to be monitored for process control.)
WNFRC67	Frequency of composites for strontium-90 and gamma isotopic analysis has been decreased from quarterly to semiannual. The location is well characterized by historical sampling and flow is ultimately captured at WNSP006.
WNERB53	Analysis of semiannual composites for gross alpha/beta and tritium has been discontinued. (These analyses are already performed on quarterly samples and need not be repeated.)
WNNDADR	Biweekly grab sampling for pH, tritium, NPOC, and TOX and quarterly grab sampling for gross alpha/beta and tritium have been discontinued. Biweekly sampling of timed continuous composites and monthly analysis of composites for gross alpha/beta, tritium, and gamma isotopic have been retained. This location is well characterized by historical sampling and flow is ultimately captured at WNSP006.
WNDCELD	Sampling at the drum cell drainage point has been discontinued. (Drums of radioactive waste have been removed from the drum cell and off-site shipment was completed in 2007.) The location is well characterized by historical sampling, and flow is ultimately captured at both WNFRC67 and WNSP006.
WNNDATR	For program efficiency, this location will be monitored only under the groundwater monitoring program. Separate sampling under the environmental monitoring program has been discontinued.
WNSTAW9	Sampling was discontinued at the last remaining standing water location near the on-site lakes that provide site utility and drinking water. No contamination above background has been noted over its historical sampling period.
WNDNKMP **WNDNKEL** **WNDNKUR**	Sampling of on-site drinking water for radiological constituents and for all chemical constituents not required by Cattaraugus County has been discontinued. Sufficient historical data are available to characterize for non-regulatory constituents. (Sampling for radiological constituents will be continued in the MPPB at point WNDNKMP.)
WFBCBKG	Frequency of sampling at the Buttermilk Creek background location for gross alpha/beta and tritium has been reduced from weekly to biweekly for consistency with the sampling schedule at other locations. Frequency of composites for radionuclides has been reduced from quarterly to semiannual. All sampling for nonradiological constituents has been discontinued.
WFBIGBR	Sampling at Cattaraugus Creek background location has been discontinued. Sufficient historical data are available to characterize. (Sampling at Buttermilk Creek background has been retained.)
WFBCTCB **WFFELBR**	Semiannual composites for analysis of technetium-99 have been discontinued. Four years of data have shown no technetium-99 contamination downstream of site.

Summary of Monitoring Program Changes in 2008 *(continued)*

Location Code	Description of Changes
WFWEL01 through WFWEL10	Sampling has been discontinued at near-site and background drinking water sources. Wells are not in aquifers affected by the site. Monitoring results from more than 15 years of sampling have shown no contamination from the WVDP.
AFFXVRD AFRT240 AFRSPRD	Sample collection at near-site ambient air sampling points has been discontinued. Ambient air samples are not required to demonstrate NESHAP compliance. (NESHAP compliance at the WVDP is demonstrated on the basis of emission measurement and modeling.) It is planned that sampling of ambient air will be resumed once EPA approval is received to use an ambient air monitoring network to demonstrate NESHAP compliance. (It is assumed that special ambient air sampling will continue to be done on-site during activities with potential for radiological releases to air [e.g., demolition, soil excavation].)
AFSPRVL AFWEVAL	Ambient air samplers in the nearby communities of Springville and West Valley were removed in early 2008. Historical data from more than 17 years of monitoring are indistinguishable from data at the background location, indicating no effect from the WVDP.
ANRGFOP	Monthly sampling of precipitation for radiological constituents has been discontinued. Sufficient historical data are available to characterize.
SFFXVRD SFRT240 SFRSPRD SFGRVAL	The sampling frequency of off-site soils has been decreased from once every three years to once every five years, consistent with guidance on periodic confirmatory sampling in DOE/EH-0173T.
SFSPRVL SFWEVAL	Sampling of off-site soils in the nearby communities of Springville and West Valley has been discontinued. The soils have been collected at the community air samplers, which have been deleted from the monitoring program. Historical data have shown no contamination.
SFCCSED SFSDSED SFTCSED SFBCSED SNSW74A SNSWAMP SNSP006	Sampling frequency for radiological constituents in sediments has been reduced from annual to once every five years, consistent with guidance on periodic confirmatory sampling in DOE/EH-0173T.
SNSW74A SNSWAMP SNSP006	Sampling for chemical constituents in on-site soils/sediments has been discontinued. Fifteen years of historical monitoring data are available for chemical characterization.
WNW0107 WNW0403 WNW0704	Discontinue annual analysis for volatile organic compounds (VOCs). None have been detected in several years of monitoring and no new sources have been identified.
WNW0108	Discontinue annual analysis of VOCs. None have been detected in several years of monitoring and no new sources have been identified. Reduce sampling frequency for radiological indicators from four to two times per year. No radiological contamination of the unweathered Lavery till (ULT) at well 108 has been observed to date, nor is expected.

Summary of Monitoring Program Changes in 2008 *(continued)*

Location Code	Description of Changes
WNW0405	Discontinue quarterly analysis for VOCs, semivolatile organic compounds (SVOCs), and radioisotopes. No VOCs or SVOCs have been detected in recent years and no new sources have been identified. Radiological indicator parameters will continue to be monitored downgradient of the waste tank farm (WTF).
WNW0706	Discontinue quarterly analysis for VOCs, SVOCs, and radioisotopes. Sampling and analyses was increased in this area to provide a pre-construction baseline for the remote-handled waste facility (RHWF). This baseline has now been established. No organics have been detected in this area. Potential radiological contamination (downgradient of active RHWF) will be monitored by radiological indicators.
WNW0111 **WNW8605**	Discontinue annual Sr-90 analysis but continue to sample for gross beta. Sr-90 is approximately equal to 50% of the gross beta result.
WNW0116	Discontinue annual Sr-90 analysis but continue to sample for gross beta. Sr-90 is about 50% of the gross beta result. Reduce analysis of indicator parameters from four to two times per year. Semiannual sampling will provide adequate coverage.
WNW0801	Reduce Sr-90 analysis from four times to once per year. The Sr-90/gross beta relationship in this area has been established. The well is sampled quarterly for radiological indicators, including gross beta.
WNW0707	Reduce analysis of indicators from four to two times per year. Semiannual sampling will provide adequate coverage.
WNW0201 **WNW0208**	Discontinue sampling. SWMUs in this area designated for No Further Action (NFA) in the RCRA Current Conditions report and subsequent NYSDEC correspondence. Wells are not monitored pursuant to the 3008(h) Order. Only DOE approval is needed.
WNW0602A	Reduce sampling frequency for radiological indicators from four to two times per year. The lag storage areas are designated NFA and are scheduled for removal in the next four years. Retain sampling to define the western edge of the plume.
WNW0604	Reduce sampling for radiological indicators from four to two times per year. The lag storage areas are designated NFA. However, sampling at this location is used to monitor potential contamination downgradient of the WTF.
WNW1007	Discontinue semiannual sampling at this well on the south plateau near the drum cell. The drum cell has been emptied.
WNW1008B **WNW1008C**	Reduce sampling for radiological indicators from two times per year to annually. Concentrations at these background locations are well characterized.
WNW1301	Discontinue quarterly sampling for VOCs, SVOCs, radioisotopes, and metals. Reduce sampling frequency for radiological indicators to once per year. No organics or radionuclides have been detected in this upgradient well and none are anticipated as a result of size-reduction operations in the RHWF. Baseline concentrations for metals have been established insofar as possible (well 1301 is often dry).

Summary of Monitoring Program Changes in 2008 *(continued)*

Location Code	Description of Changes
WNW1302	Discontinue quarterly sampling for VOCs, SVOCs, and radioisotopes. Reduce sampling frequency for radiological indicators and metals to once per year. No organics or radionuclides have been detected in this upgradient well and none are anticipated as a result of size-reduction operations in the RHWF. Baseline concentrations for metals have been established.
WNW1303	Discontinue quarterly sampling for VOCs, SVOCs, and radioisotopes. No organics or radionuclides have been detected in this area and none are anticipated because this well monitors the ULT.
WMW1304	Discontinue quarterly sampling for VOCs and SVOCs. Reduce sampling for radioisotopes to once per year. No organics have been detected in this area and none are anticipated. Continue monitoring dowgradient of the RHWF for radioisotopes.
WNW8603	Discontinue annual Sr-90 analysis but continue to sample for gross beta. Sr-90 is about 50% of the gross beta result. Reduce sampling for dinciators from four to two times per year. Semiannual sampling will provide adequate coverage.
WNW8609	Reduce Sr-90 analysis from twice to once per year. The Sr-90/gross beta relationship in this area has been established.
WNWNB1S	Discontinue sampling. Well NB1S was originally drilled as a background location for the sand and gravel (S&G) unit, but encountered only a very thin S&G interval. During the RFI new background locations were established, so NB1S is no longer used for this purpose.
SE001 through SE006 SE010	Discontinue water level measurements at select locations where the general pattern has been established.
BFFCATC (fish) BFFCATD (fish) BFFCTRL (fish) BFMCTLS (milk) BFMBLSY (milk) BFMSCHT (milk) BFVNEAAF (apples) BFVCTRA (apples) BFVNEAB (beans) BFVCTRB (beans) BFVNEAC (corn) BFVCTRC (corn)	Frequency of sampling of most off-site biological matrices (foodstuffs) has been decreased from annual to once every five years, consistent with guidance on periodic confirmatory sampling in DOE/EH-0173T.
BFMWIDR (milk)	This one milk sampling point (of four) has been retained for annual confirmation of low dose potential from the site. Sampling frequency has been reduced from monthly to annual.
BFVNEAA (apples)	Sampling of on-site apples has been discontinued. Sufficient historical data are available to characterize, and the apples are not available to the public for consumption.

Summary of Monitoring Program Changes in 2008 *(concluded)*

Location Code	Description of Changes
WNSP006 (water) **WNSWAMP (water)** **WNFRC67 (water)** **WNERB53 (water)** **WFBCTCB (water)** **WFBCBKG (water)** **WFFELBR (water)** **AFRT240 (air)** **SFSDSED (sediments)** **SFBCSED (sediments)** **BFFCATC (fish)** **BFFCTRL (fish)** **BFMBLSY (milk)** **BFVNEAAF (apples)** **BFVCTRA (apples)** **BFVNEAB (beans)** **BFVCTRB (beans)** **BFVNEAC (corn)** **BFVCTRC (corn)** **BFDNEAR (venison)** **BFDCTRL (venison)**	Sample sharing with the New York State Department of Health (NYSDOH), performed as a courtesy, has been discontinued as a cost savings.
DFTLD01 **through** **DFTLD16** **DFTLD20**	Frequency of sampling for perimeter thermoluminescent dosimeters (TLDs) has been reduced from quarterly to semiannually. Results at perimeter TLDs over more than two decades of monitoring have been statistically indistinguishable from results from background TLD measurements.
DFTLD21 **DFTLD22**	TLDs at the community air sampling locations in Springville and West Valley have been discontinued. (Off-site exposure is measured by TLDs around site perimeter.)
DFTLD23	The frequency of background TLD measurements at Great Valley has been reduced from quarterly to semiannual to maintain the background on the same frequency as the other TLDs.
DNTLD19 **DNTLD25** **DNTLD26** **DNTLD27** **DNTLD29** **DNTLD30** **DNTLD39**	On-site TLDs at specific locations have been discontinued due to reduction and/or redistribution of radioactive sources on site.
DNTLD24 **DNTLD28** **DNTLD33** **DNTLD35** **DNTLD36** **DNTLD38** **DNTLD40** **DNTLD43**	The frequency of measurements at remaining on-site TLDs has been reduced from quarterly to semiannual.

FIGURE A-1
West Valley Demonstration Project Base Map

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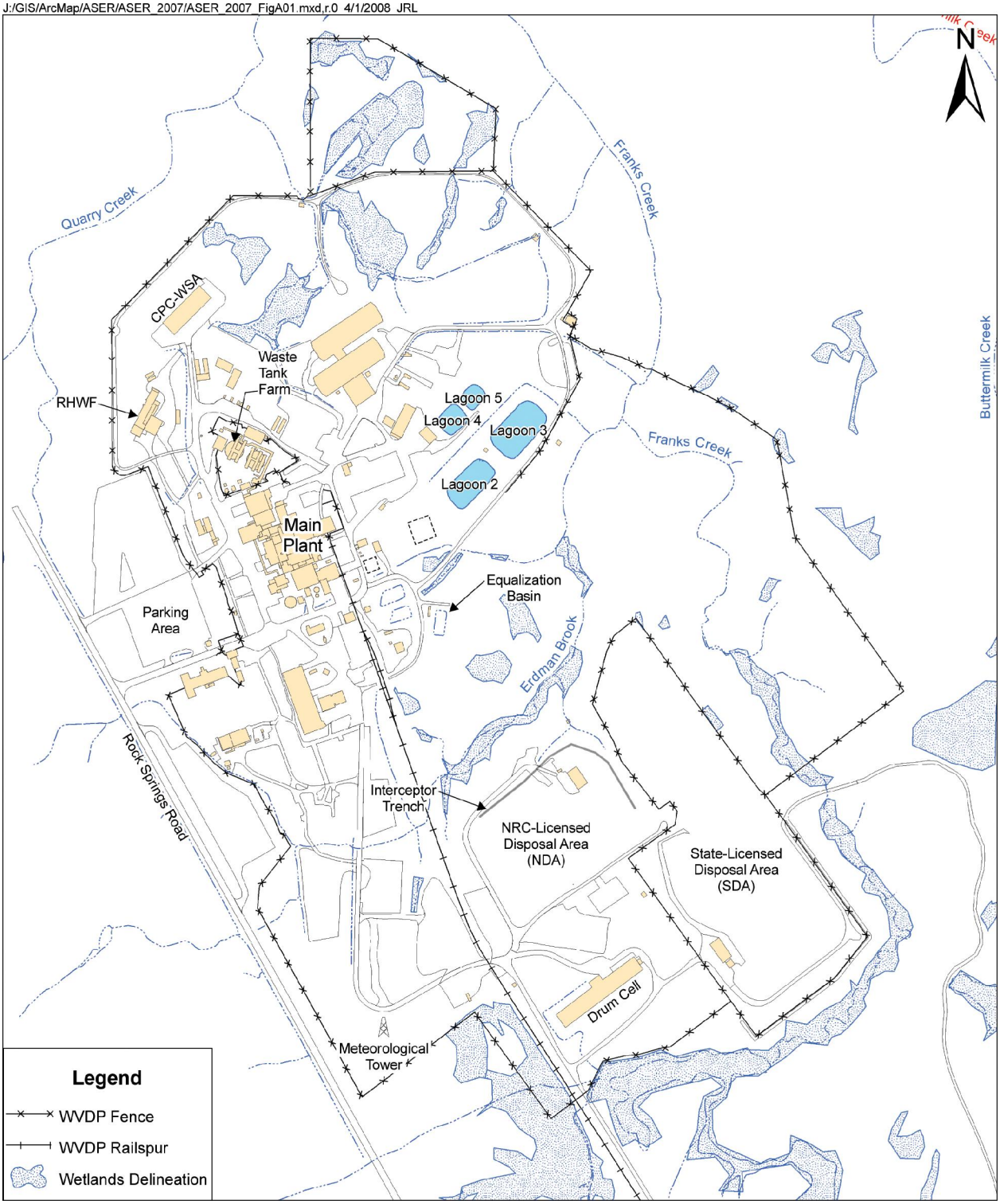
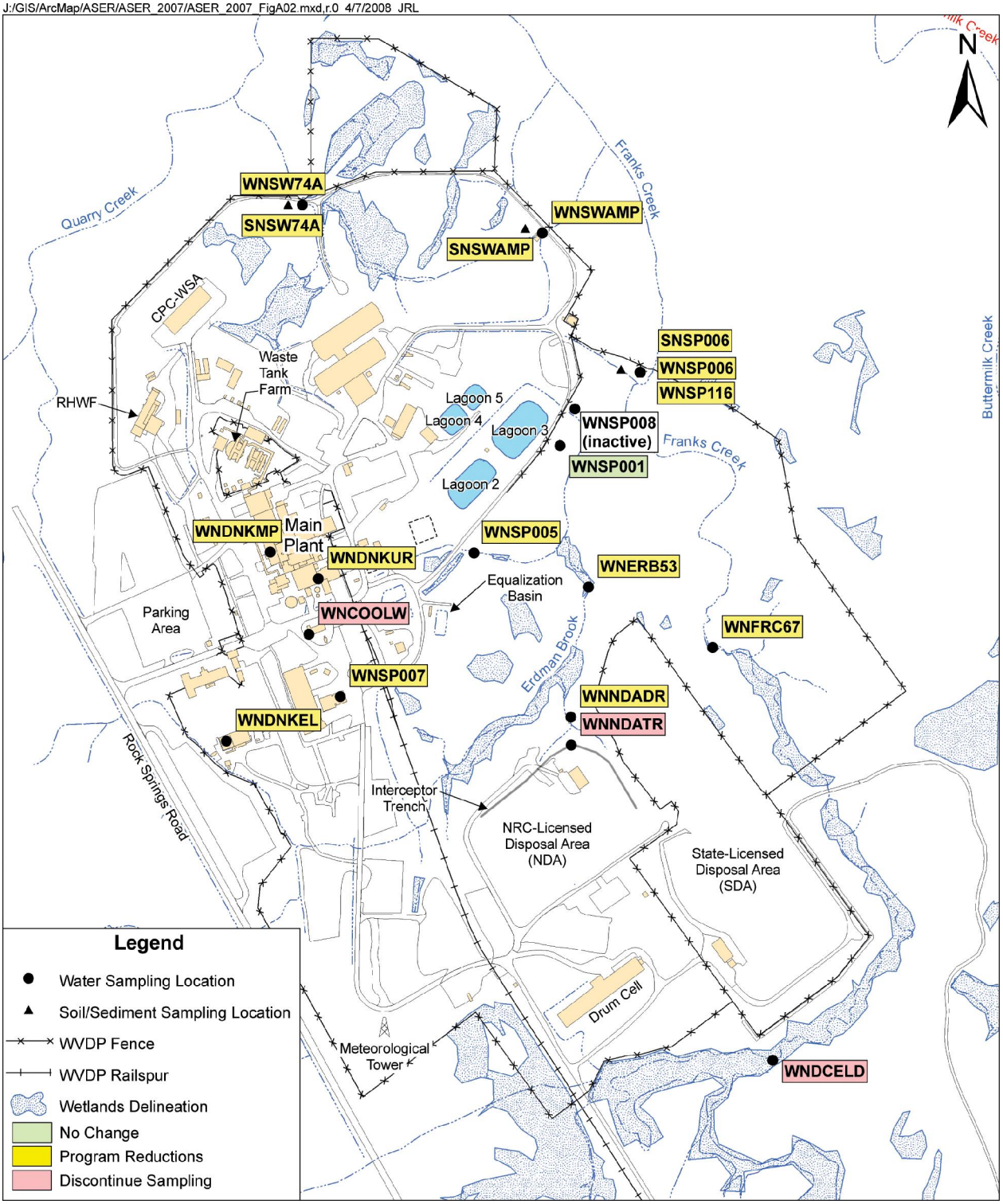


FIGURE A-2
On-Site Surface Water and Soil/Sediment Sampling Locations

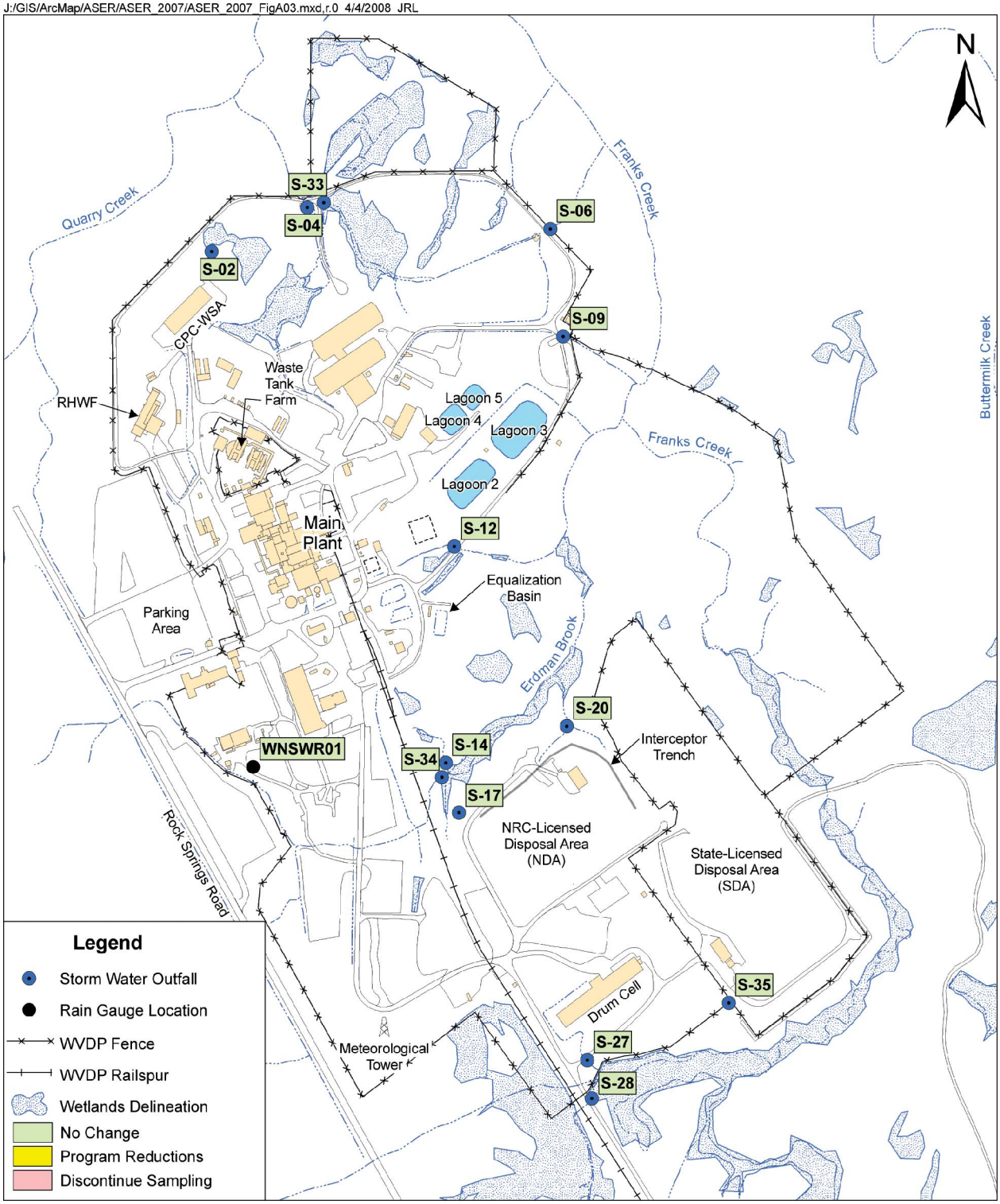
J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA02.mxd,r.0 4/7/2008 JRL



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

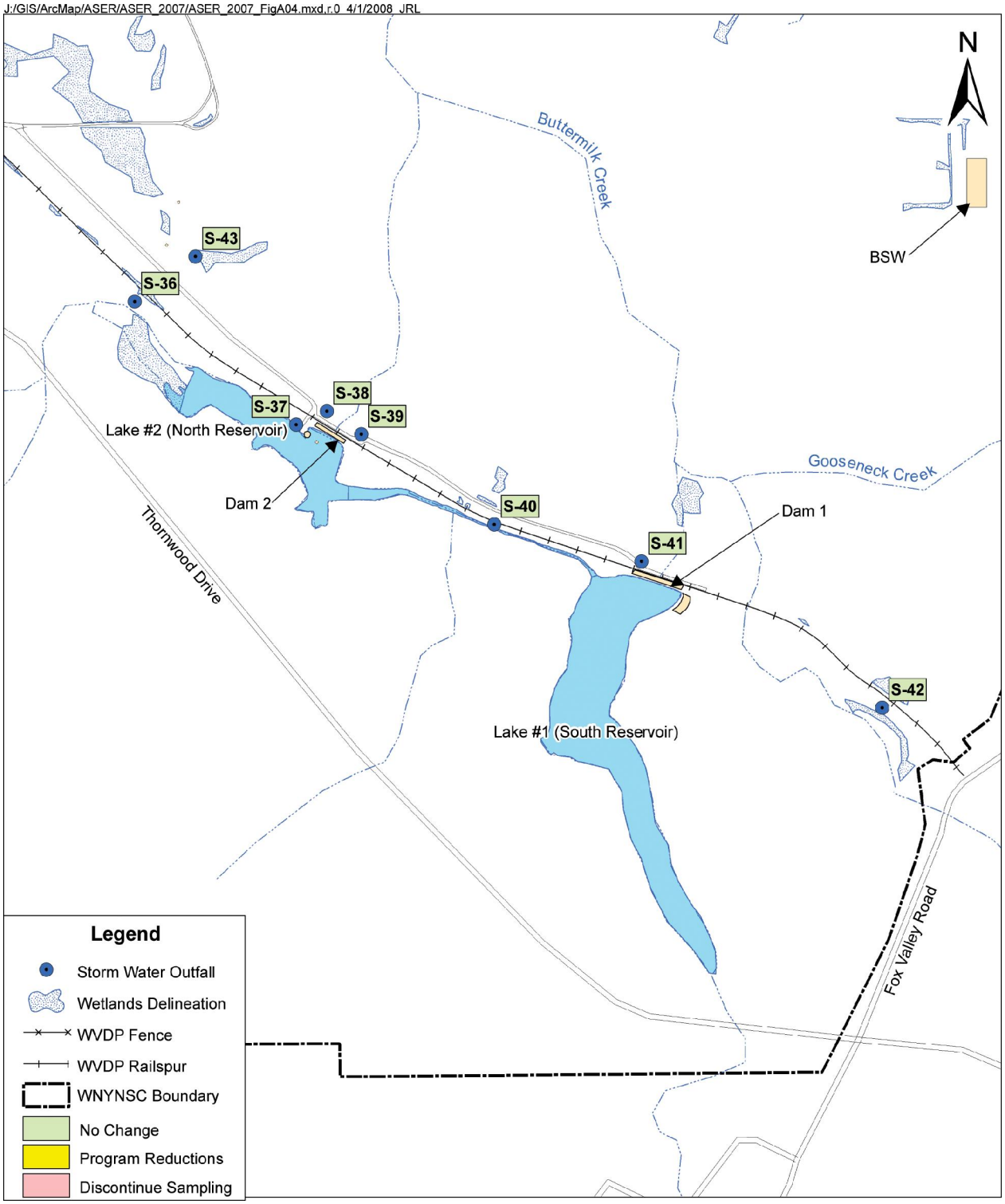
FIGURE A-3
On-Site Storm Water Outfalls

J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA03.mxd,r.0 4/4/2008 JRL



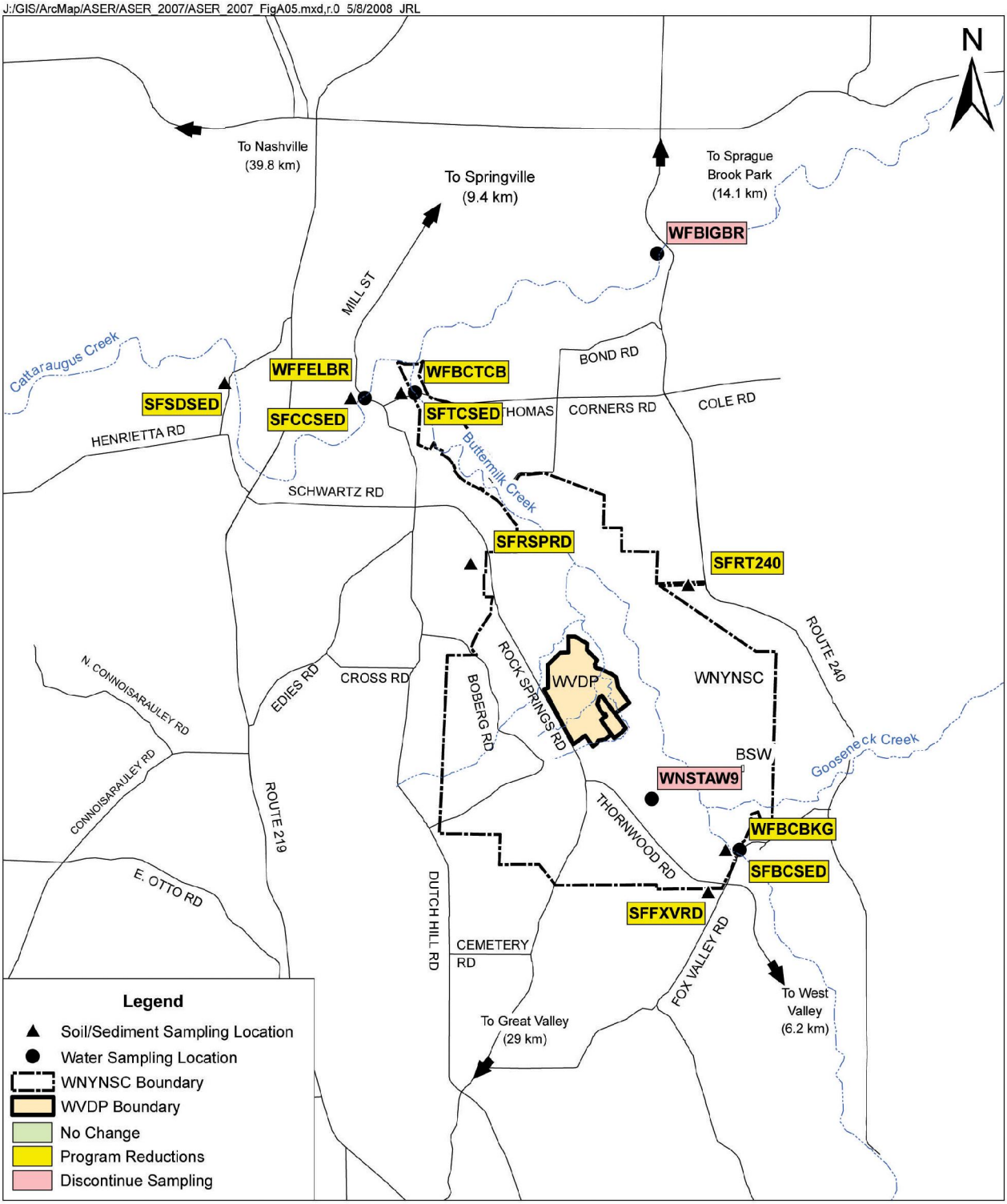
Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

FIGURE A-4
Rail Spur Storm Water Outfalls



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

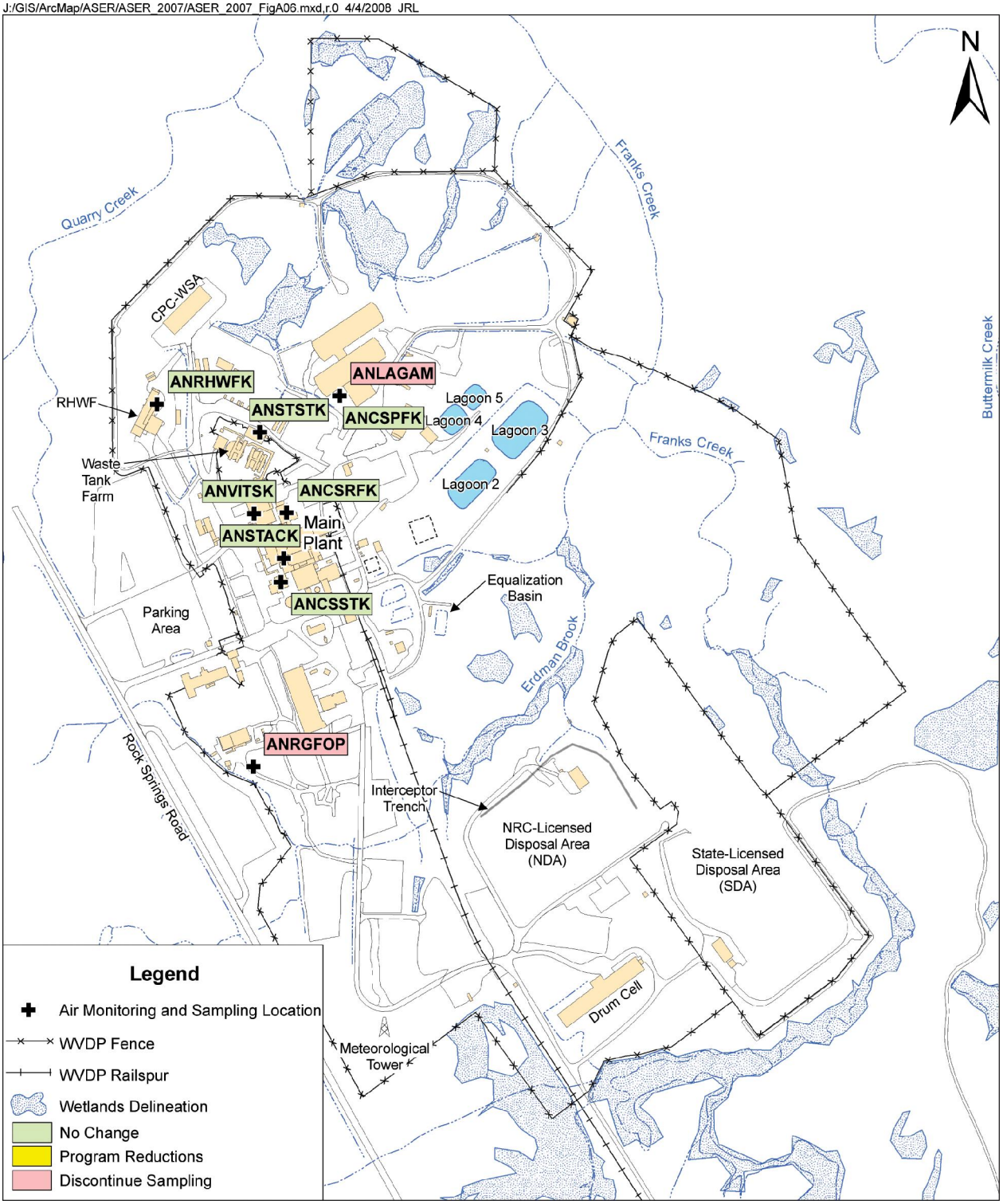
FIGURE A-5
Off-Site Surface Water and Soil/Sediment Sampling Locations



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

FIGURE A-6
On-Site Air Monitoring and Sampling Locations

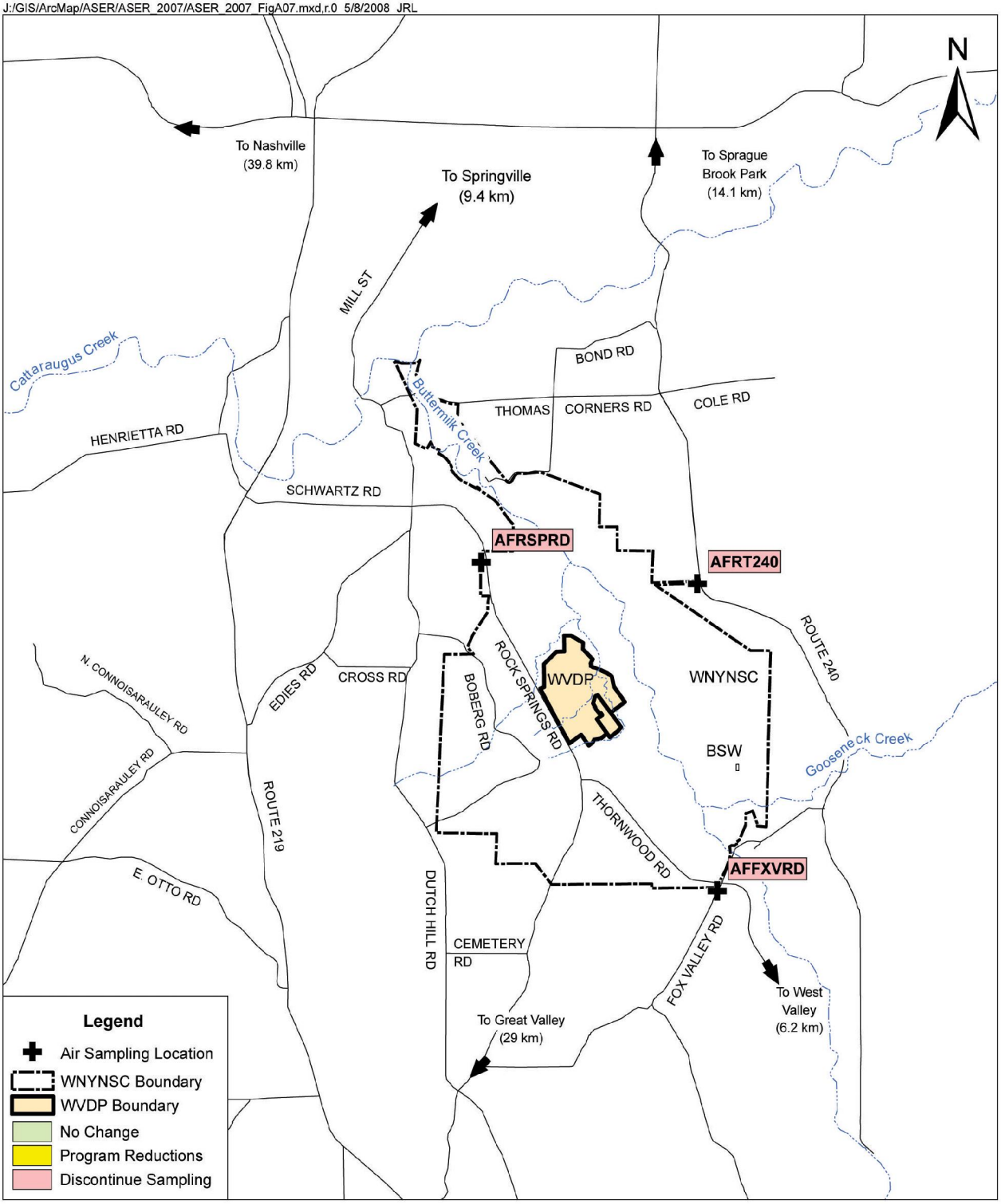
J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA06.mxd,r.0 4/4/2008 JRL



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

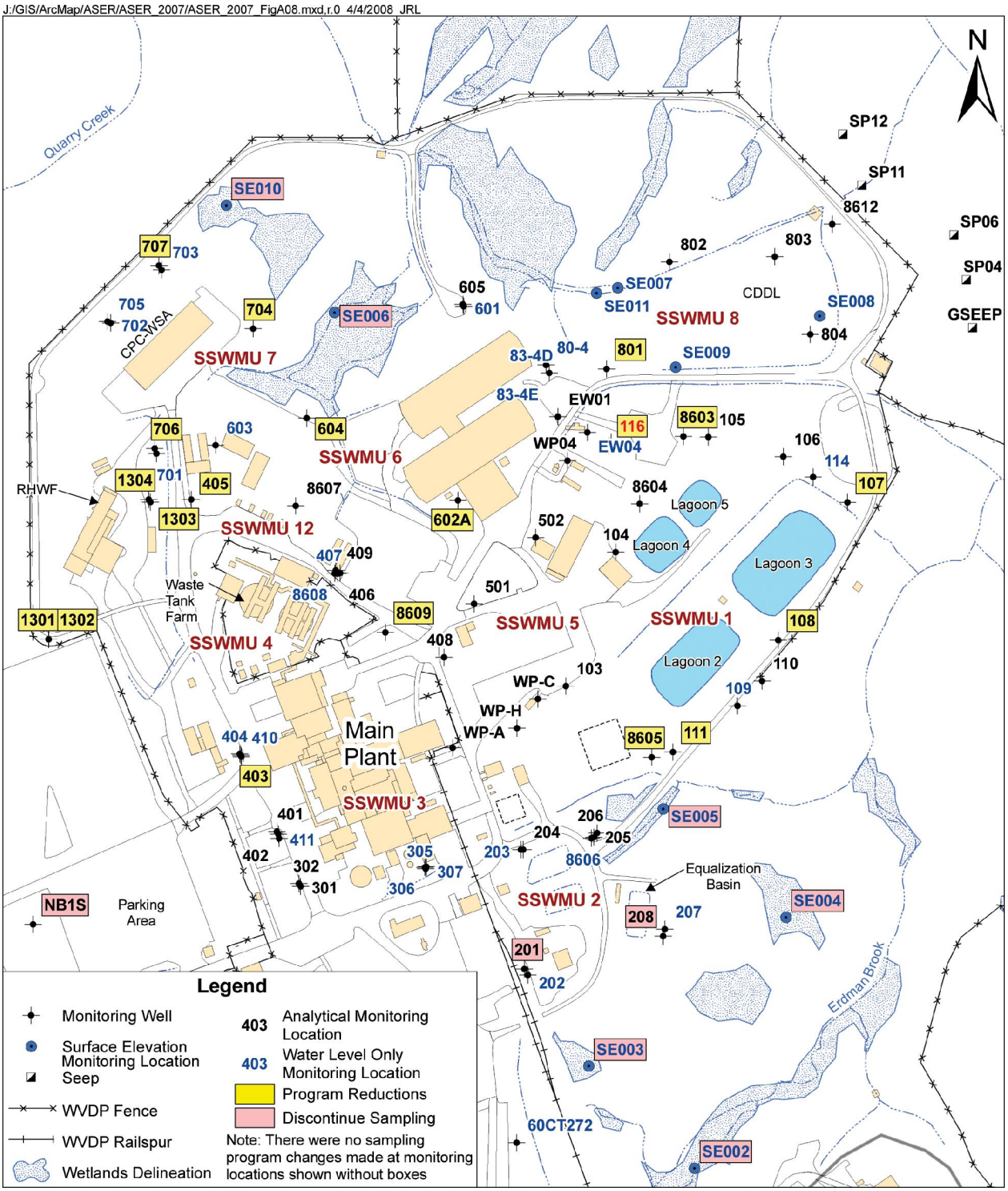
FIGURE A-7
Off-Site Air Sampling Locations

J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA07.mxd,r.0 5/8/2008 JRL



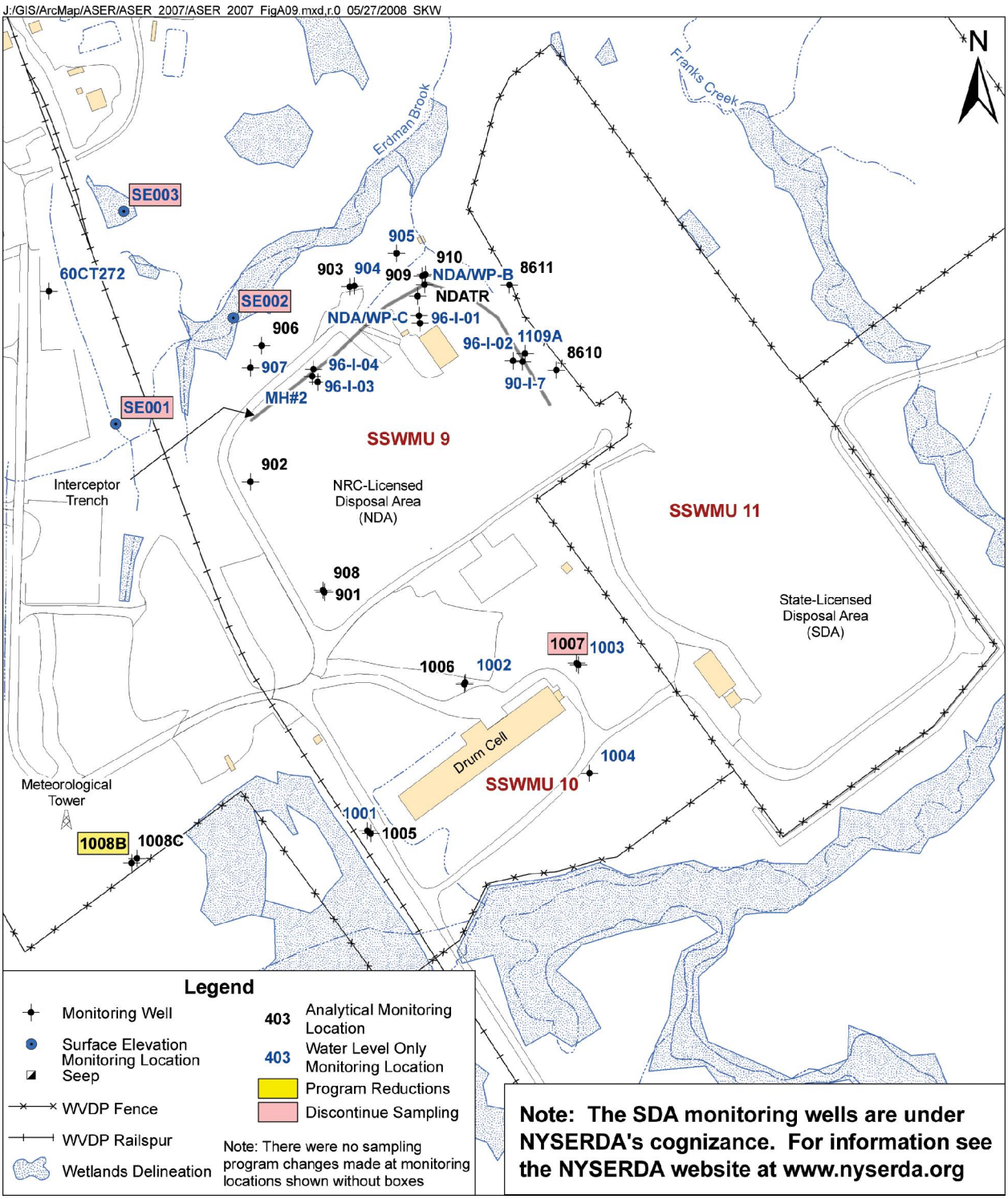
Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

FIGURE A-8
North Plateau Groundwater Monitoring Network
(Includes Wells Used for Water-Level Measurements)



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

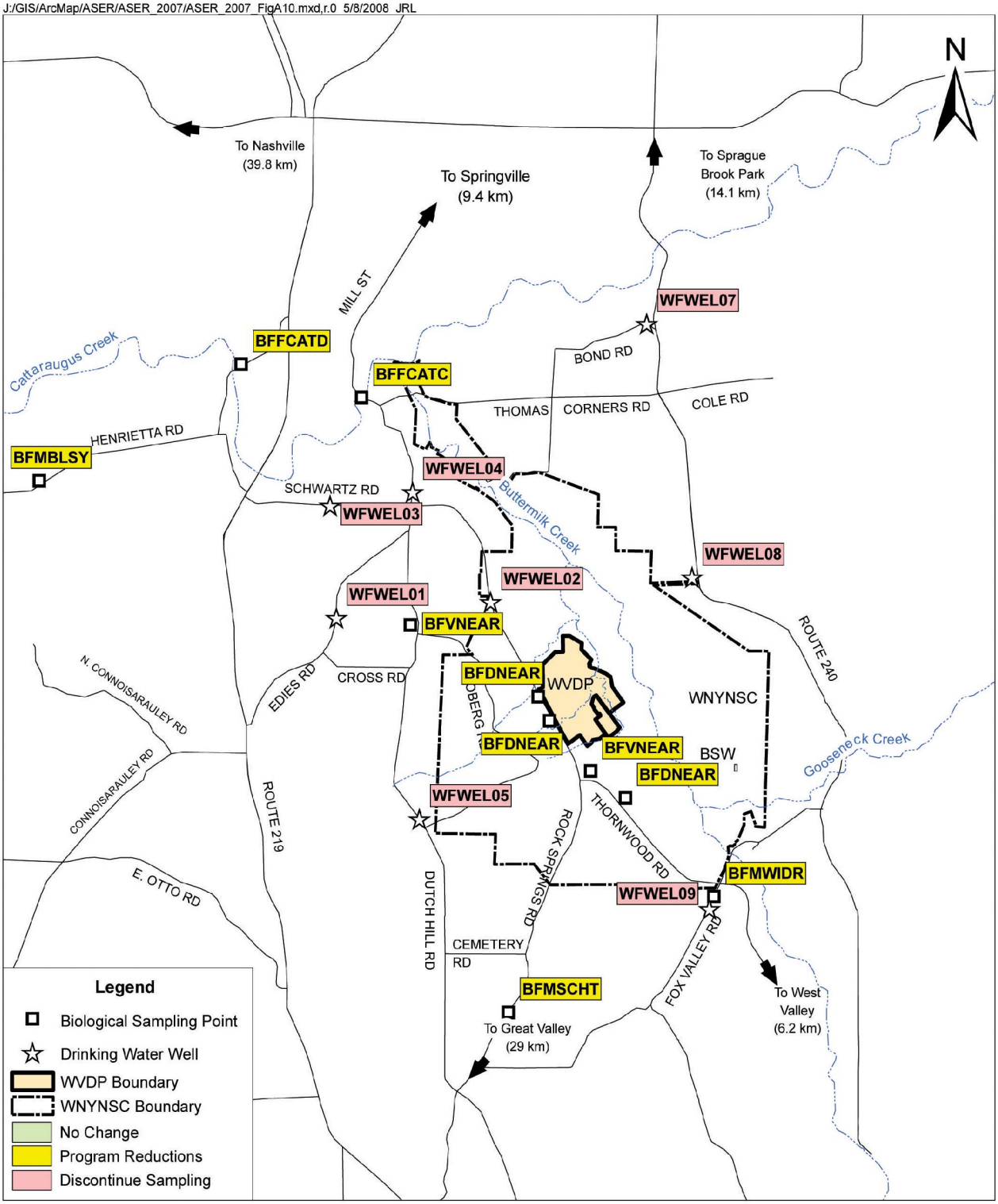
FIGURE A-9
South Plateau Groundwater Monitoring Network
(Includes Wells Used for Water-Level Measurements)



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

FIGURE A-10
Near-Site Drinking Water and Biological Sampling Locations

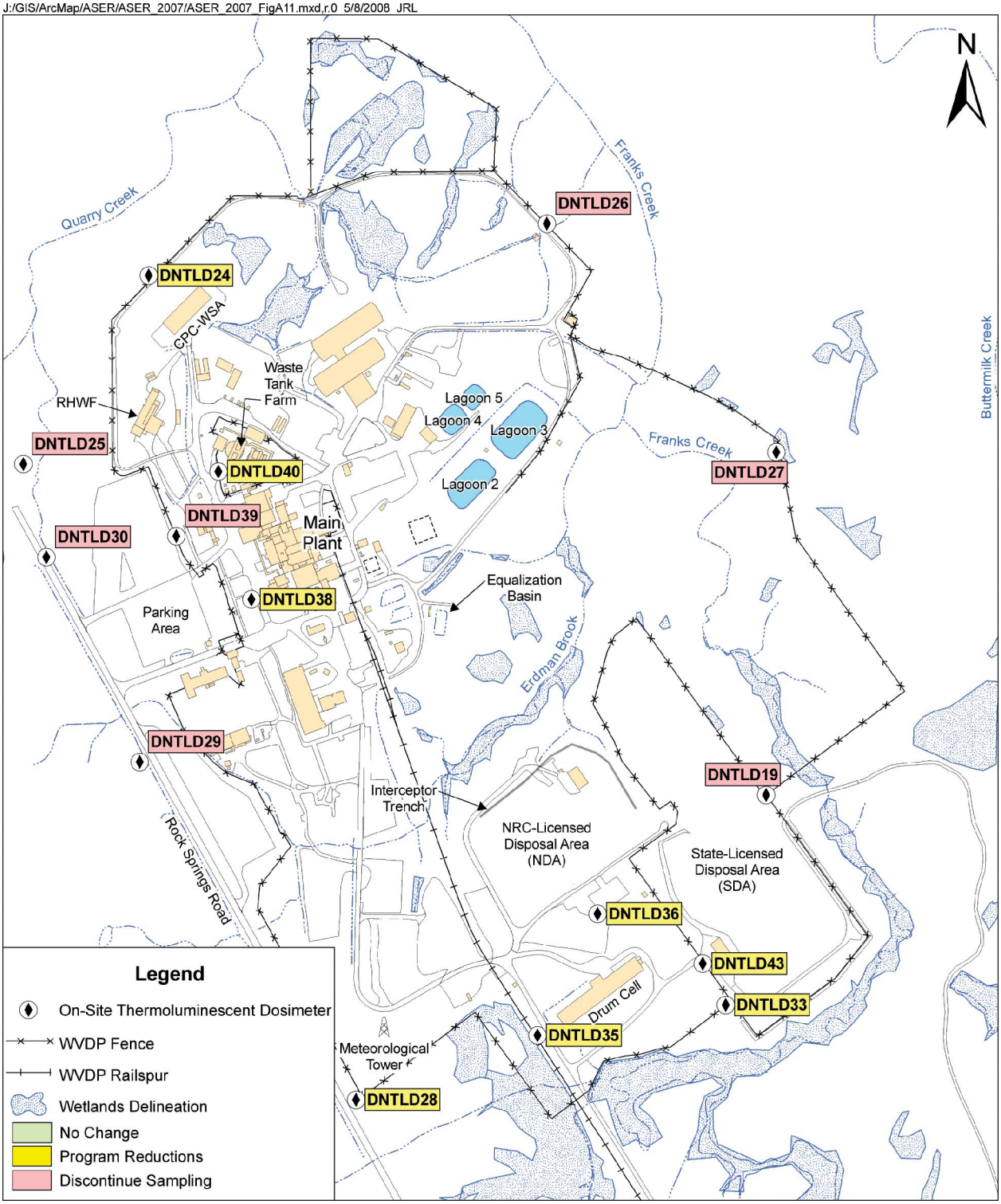
J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA10.mxd,r.0 5/8/2008 JRL



Program changes indicated in color are for CY 2008 (see pages A-19–A-24A-19–A-24).

FIGURE A-11
Location of On-Site Thermoluminescent Dosimeters (TLDs)

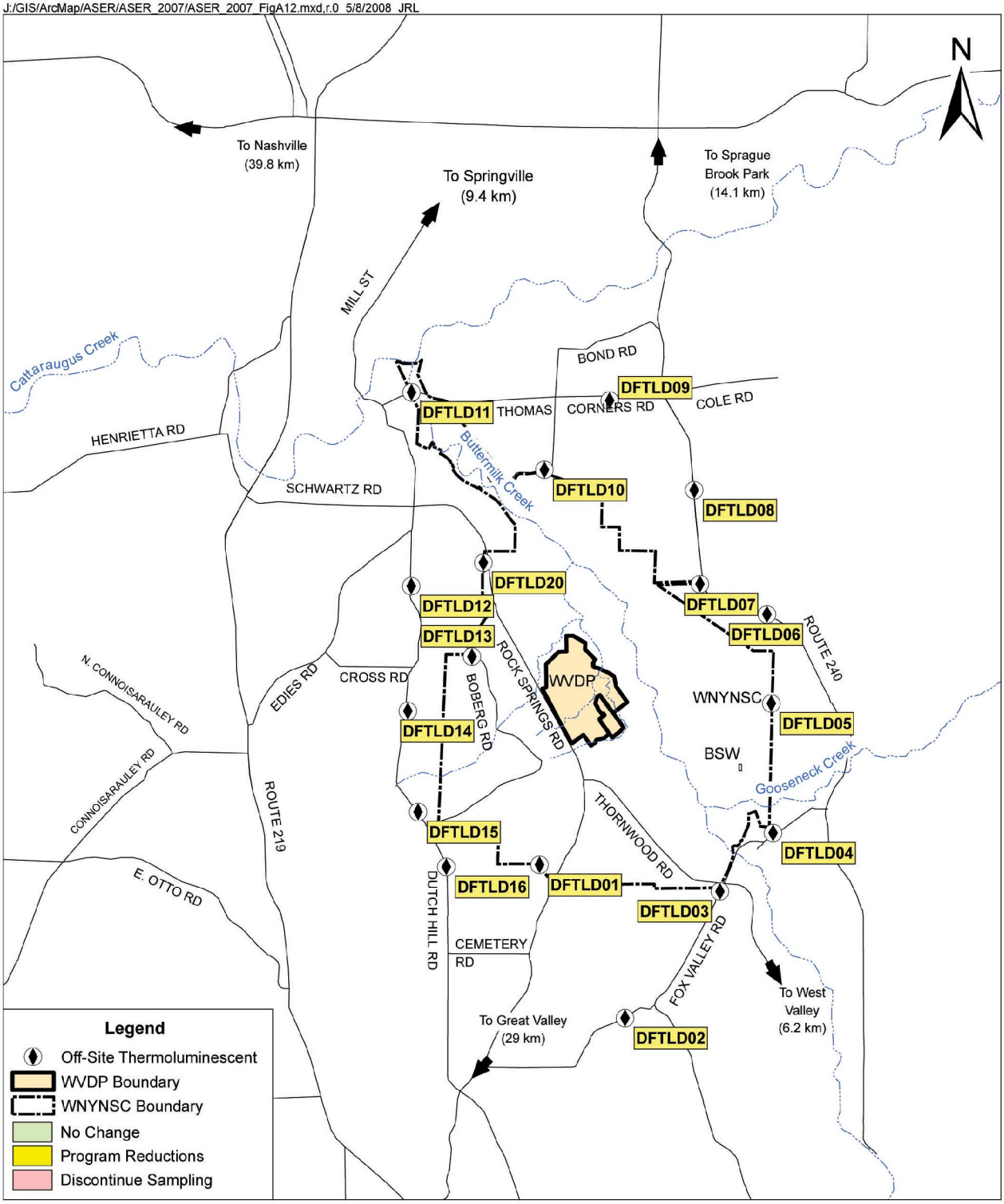
J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA11.mxd,r.0 5/8/2008 JRL



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

FIGURE A-12
Location of Off-Site Thermoluminescent Dosimeters (TLDs) Within 5 Kilometers of the WVDP

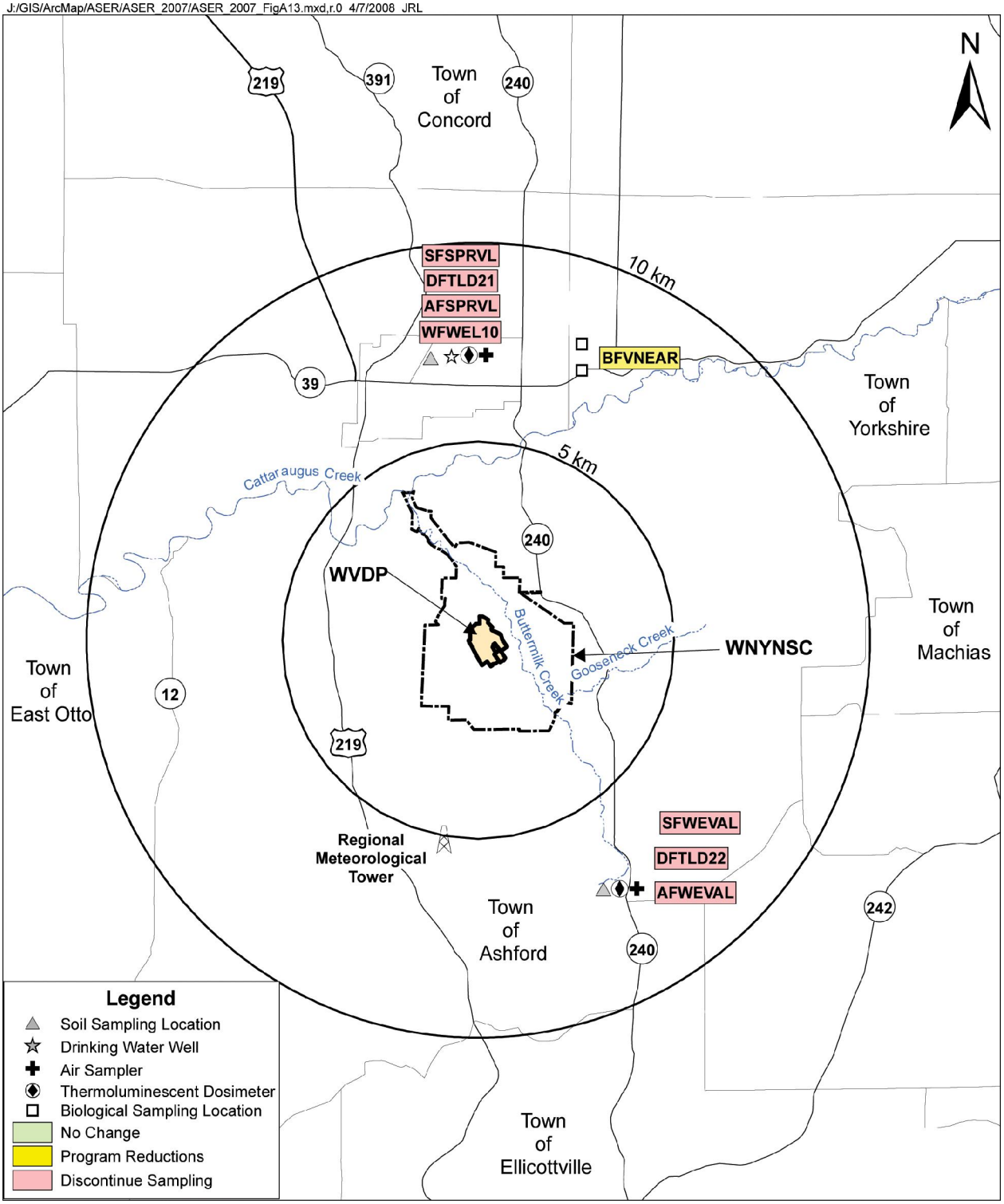
J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA12.mxd,r.0 5/8/2008 JRL



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

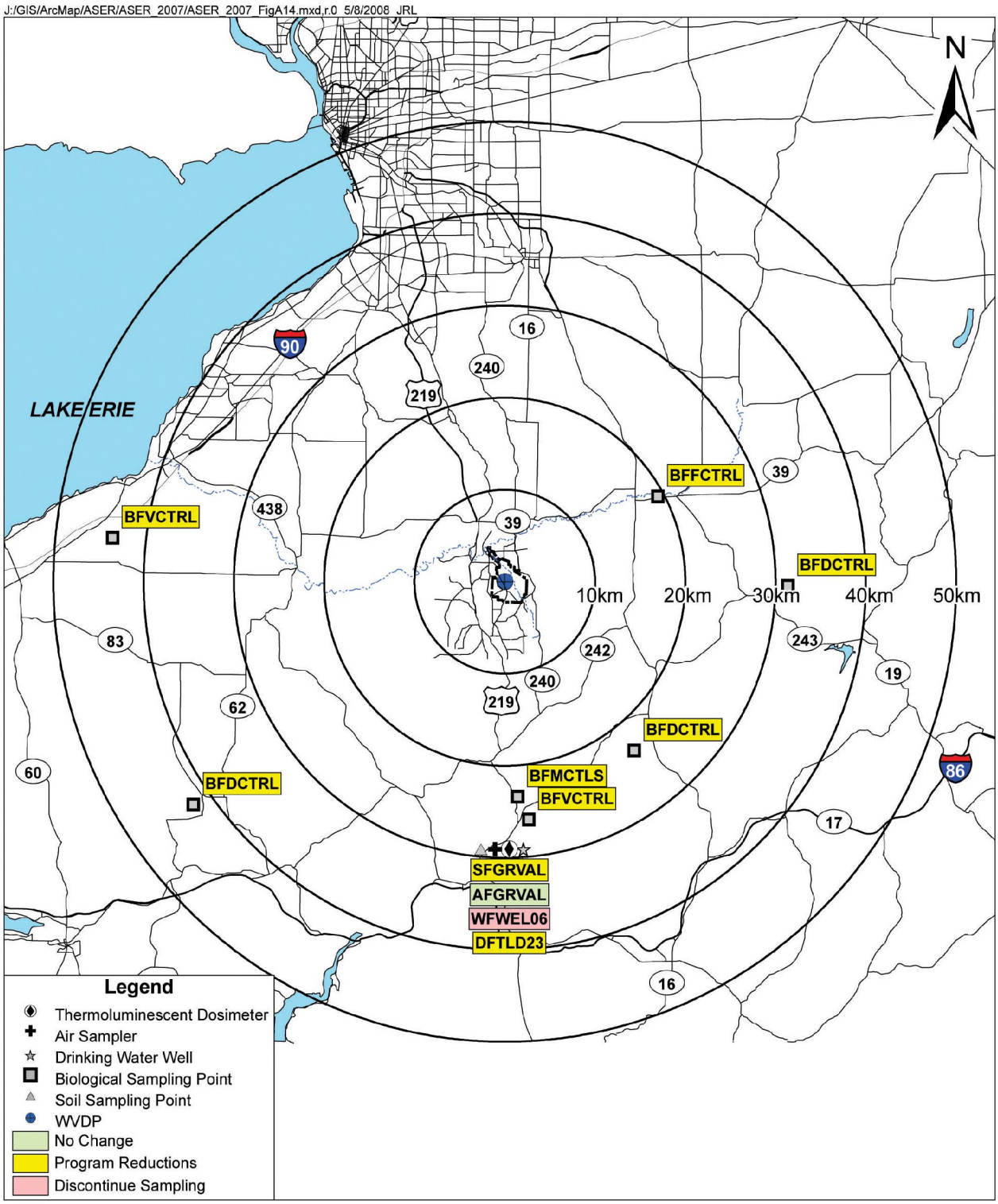
FIGURE A-13
Environmental Sampling Locations Between 5 and 10 Kilometers From the WVDP

J:/GIS/ArcMap/ASER/ASER_2007/ASER_2007_FigA13.mxd,r.0 4/7/2008 JRL



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

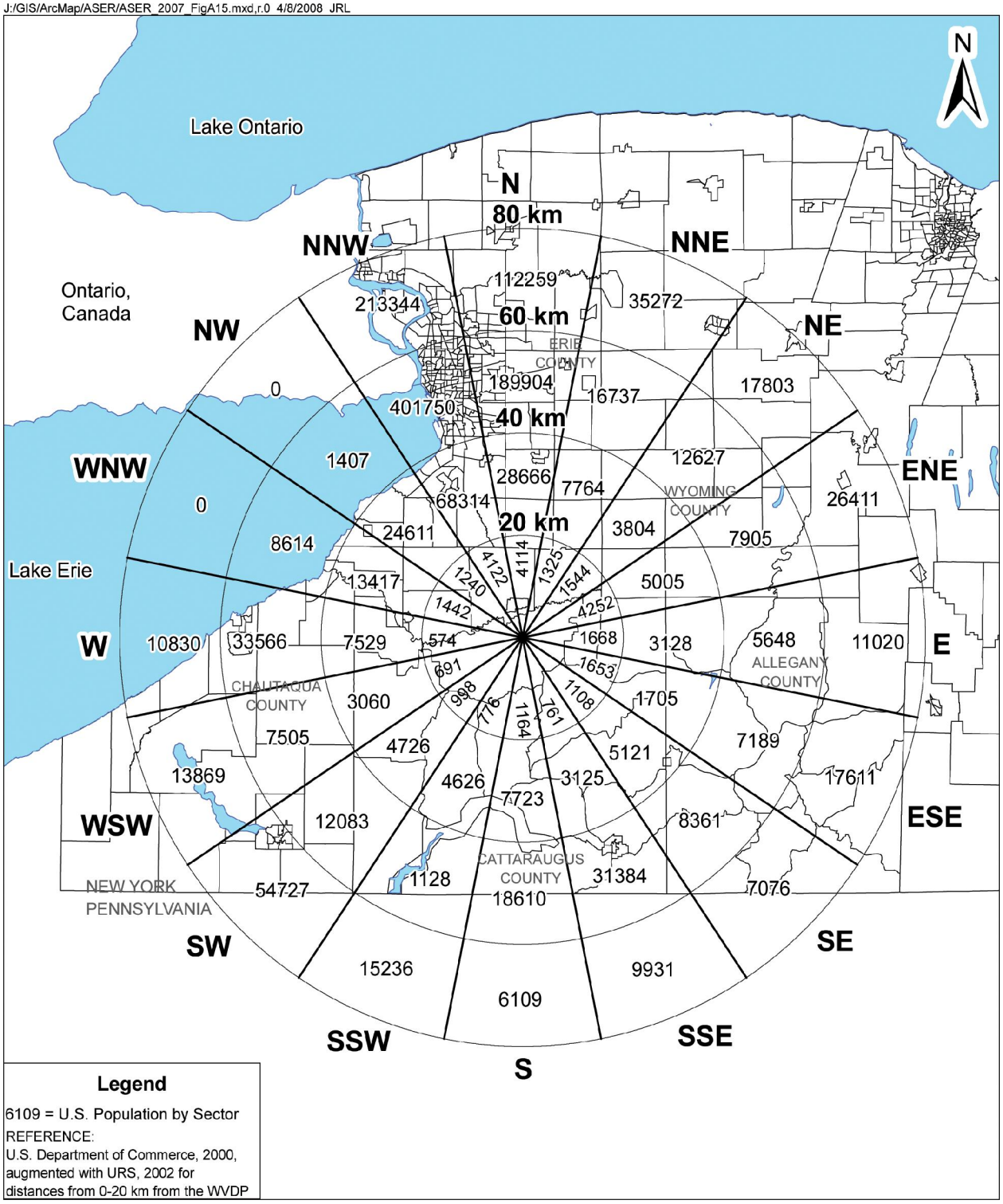
FIGURE A-14
Environmental Sampling Locations More Than 10 Kilometers From the WVDP



Program changes indicated in color are for CY 2008 (see pages A-19–A-24).

FIGURE A-15
U.S. Population by Sector Within 80 Kilometers of the WVDP (2002 Estimate)

J:/GIS/ArcMap/ASER/ASER_2007_FigA15.mxd,r.0 4/8/2008 JRL



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