APPENDIX A-2

EFFLUENT, ON-SITE AND OFF-SITE RADIOLOGICAL MONITORING PROGRAM

FOR IMPLEMENTATION DURING 1986

EFFLUENT AND ON-SITE RADIOLOGICAL MONITORING PROGRAM
FOR IMPLEMENTATION DURING 1986

SAMPLE LOCATION AND I. D. CODE	MONITORING/REPORTING REQUIREMENTS	SAMPLING TYPE/MEDIUM	COLLECTION FREQUENCY	TOTAL ANNUAL SAMPLES	ANALYSES PERFORMED/ COMPOSITE FREQUENCY
Main plant ventilation exhaust stack **ANSTACK**	Release point for airborne radioactive exhaust Required by: DOE 5484.1, Tech Spec 5.1.2, 5.1.4, 4.1.1 Reported: Internal Monthly Summary Annual Effluent Report Annual Environmental Report	Continuous off-line air particulate monitor	Continuous measurement of fixed filter, replaced weekly	208	Real time alpha and beta monitoring Filters for gross alpha/ beta, gamma isotopic upon collection, H-3 weekly.
Cement Solidification (CSS) facility ventilation exhaust. **ANCSSTK**		Continuous off-line air particulate and iodine sampler[a] Continuous off-line tritium (as water vapor) sampler (ANSTACK ONLY)	Weekly collection of filter paper, charcoal absorber, and dessicant for collection	260	Quarterly composites: filters for Sr-90, Pu/U isotopic, Am-241; gamma isotopic; Charcoal for I-129
Lagoon 3 discharge Weir **WNSP001**	Primary point of liquid effluent batch release Required by: DOE 5484.1 Tech Spec 5.1.1 5.1.4, 4.2 SPDES Reported: NYSDEC Monthly DMR Annual Effluent Report Annual Environmental Report	Grab Liquid	Daily, during Lagoon 3 discharge	40-80	Daily: Gross beta, conductivity, pH. Every sixth daily sample: gross alpha/ beta, H-3, Sr-90, gamma isotopic; two 24 hour composites for Al, NH_3, As, BOD-5, Fe, Zn, Cn, pH, suspended and settleable solids. Weighted monthly composite of daily samples: gross alpha/ beta, H-3, Sr-90, I-129, gamma isotopic Quarterly weighted composite of daily samples: U isotopic, Pu isotopic, Am-241 Annually, a 24 hour composite for: Cd, Cr, Cu, Pb, Ni, Se.

[a] Isokinetic sampling probes placed at 231' (plant elevation) within the main stack, at the 168' level within the CSS vent stack.

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Erdman Brook at security fence **WNSP006**	Combined facility liquid discharge Required by: DOE 5484.1	Continuous proportional sample liquid	Monthly* (Composite of biweekly collections)	12	Gross alpha/beta, H-3, pH, conductivity (Total Fe biweekly) Quarterly composite: gamma isotopic, Sr-90, I-129
	Reported: Internal Monthly Summary NYSDEC/Monthly DMR Annual Environmental Report NH_3 & Fe deleted from schedule	Grab liquid	biweekly	26	NH_3/pH
Plant/Effluent Interceptors **WNINTER**	Untreated liquid to LLWT plant input lagoon Required by: Tech Spec 4/2 Reported: Internal Review DELETED	Grab liquid	Once per transfer	150-250	Quarterly composite/ gross alpha/beta, H-3/ Sr-90
Onsite Ground water (wells) **WNW80-series** **WNW82-series**	Ground water monitoring wells around site facilities Required by: DOE 5484.1	Grab liquid	Quarterly*	132	Gross alpha/beta, H-3, pH, conductivity, chloride, Fe, Mn, Na, sulfate, phenols, TOC, TOH
	Reported: Annual Environmental Report WNWNF series wells to be phased out by 1987 except for periodic tritium/pH measurements		Annually		gamma scan

*Samples to be split (shared with NYSDOH)

FOR IMPLEMENTATION DURING 1986

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Sanitary Waste Discharge **WNSP007**	Liquid effluent point for sanitary and utility plant combined discharge Required by: DOE 5484.1 SPDES	24 hr liquid	3/month	36	Gross alpha/beta, pH, H-3, settleable solids, suspended solids, NH_3, BOD-5, Fe
	Reported: NYSDEC Monthly DMR Internal Monthly Summary Annual Effluent Report Annual Environmental Report	Grab	Annually	1	Chloroform
N.E. Swamp drainage **WNSWAMP**	Site surface drainage Required by: DOE 5484.1 Reported: Annual Effluent Report	Grab liquid	Monthly*	24	Gross alpha/beta, H-3, pH
North Swamp drainage **WNSW74A**					

*Samples to be split (WNSWAMP only) with NYSDOH

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French Drain **WNSP008**	Drains subsurface water from LLWT lagoon area	Grab liquid	3/month	36	pH, conductivity, BOD-5 Fe
	Required by: DOE 5484.1				
	Reported: NYSDEC Monthly DMR		Monthly	12	Gross alpha/beta, H-3
	Annual Effluent Report		Annually	1	Ag, Zn
Franks Creek E of NYSLLWB **WNFRC67**	Drains NYS Low Level Waste Burial area	Grab liquid	Monthly	12	Gross alpha/beta, H-3, pH
	Required by: DOE 5484.1		Weekly*		
	Reported: Internal review NYSERDA				
Erdman Brook N of burial areas **WNERB53**	Drains NYS and WVDP disposal areas	Grab liquid	Weekly*	52	Gross alpha/beta, H-3 pH
	Required by: DOE 5484.1				
	Reported: Internal Review NYSERDA				

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Ditch N of WVDP NDA & LLWB **WNNDADR**	Drains WVDP disposal area Required by: DOE 5484.1 Reported: Internal Review	Composite Continuous Liquid	Weekly	52	Weekly gamma isotopic, pH, conductivity, monthly: gross alpha/beta, quarterly composite: Sr-90, I-129
Cooling water pipe **WNSFILT**	Discharges sand filter backwash liquid Required by: DOE 5484.1 Reported by: Internal Review DELETED	Grab liquid	Monthly	12	Gross beta
Condensate Pipe **WNCONDP**	Discharges drainage water from utility ditch[b] Required by: DOE 5484.1 Reported: Internal Review DELETED	Grab liquid	Monthly	12	Gross beta

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Condensate and Cooling Water Ditch **WNSP005**	Combined drainage from facility yard area Required by: DOE 5484.1 SPDES Reported: Internal Review	Grab liquid	Monthly	12	Gross alpha/beta, H-3 pH
Settling Basin Outfall **WNSETLB**	Drains settling basins that receive discharge water from demineralizer backwash Required by: DOE5484.1 Reported: Internal Review DELETED	Grab liquid	Monthly	12	Gross alpha/beta, H-3
Cooling Tower Basin **WNCOOLW**	Cools plant utility steam system water Required by: DOE 5484.1 Reported: Internal Review	Grab liquid	Monthly	12	Gross alpha/beta, H-3, pH

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(7) Onsite Standing water (ponds not receiving effluent) **WNSTAW-series**	Water within vicinity of plant airborne or ground water effluents Required by: DOE 5484.1 Reported: Internal Review	Grab liquid	Annually	7	Gross alpha/beta, H-3, pH, conductivity, chloride, Fe, Mn, Na, phenols, sulfate
Site Potable Water **WNDRNKW**	Source of water within site perimeter Required by: DOE 5484.1 Reported: Internal Review	Grab liquid	Monthly	12	Gross alpha/beta, H-3, pH, conductivity
			Annually	2	Toxic metals, pesticides chemical pollutants

OFF-SITE RADIOLOGICAL MONITORING PROGRAM
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Cattaraugus Creek at Felton Bridge location **FFELBR**	Unrestricted surface waters receiving plant effluents Required by: DOE 5484.1 Tech Spec 5.1.1, 5.1.4 Reported: Internal Monthly Summary Annual Environmental Report	Flow weighted continuous liquid	Weekly*	52	Weekly for gross alpha/beta, H-3, pH; Monthly composite for gamma isotopic and Sr-90

*Samples to be split (shared with NYSDOH)

SAMPLE LOCATION AND I.D. CODE	MONITORING/REPORTING REQUIREMENTS	SAMPLING TYPE/MEDIUM	COLLECTION FREQUENCY	TOTAL ANNUAL SAMPLES	ANALYSES PERFORMED/ COMPOSITE FREQUENCY
Cattaraugus Creek upstream of Buttermilk Creek confluence at Bigelow Bridge WFBIGBK	Unrestricted surface water background Required by: DOE 5484.1 Reported: Annual Environmental Report DELETE	Grab liquid	Monthly	12	Gross alpha/beta, H-3
Buttermilk Creek, just upstream of Cattaraugus Creek confluence at Thomas Corners Road WFBCTCB	Restricted surface waters receiving plant effluents Required by: DOE 5484.1 Tech Spec 5.1.4 Reported: Annual Environmental Report	Composite continuous liquid	Biweekly	26	Monthly for gross alpha/beta, H-3, pH; Quarterly composite for gamma isotopic and Sr-90
Buttermilk Creek control location near Fox Valley WFBCBKG	Restricted surface water background Required by: DOE 5484.1 Reported: Internal Monthly Summary Annual Environmental Report	Composite continuous liquid	Biweekly	26	Monthly for gross alpha/beta, H-3; Quarterly composite for gamma isotopic and SR-90

OFF-SITE RADIOLOGICAL MONITORING PROGRAM
FOR IMPLEMENTATION DURING 1986

SAMPLE LOCATION AND I.D. CODE	MONITORING/REPORTING REQUIREMENTS	SAMPLING TYPE/MEDIUM	COLLECTION FREQUENCY	TOTAL ANNUAL SAMPLES	ANALYSES PERFORMED/ COMPOSITE FREQUENCY
Wells near WVDP outside WNYNSC Perimeter 3.0 Km WNW **WFWEL01** 1.5 Km NW **WFWEL02** 4.0 Km NW **WFWEL03** 3.0 Km NW **WFWEL04** 2.5 Km SW **WFWEL05** 11.0 Km SSW **WFWEL06** 4.0 Km NNE **WFWEL07** 2.5 Km ENE **WFWEL08** 3.0 Km SE **WFWEL09** 7.0 Km N **WFWEL10**	Drinking supply ground water near facility. Required by: DOE 5484.1 Reported: Annual Environmental Report	Grab liquid	Biennially	10 (year of collection)	Gross alpha/beta, H-3, gamma isotopic, pH, conductivity

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3.0 Km SSE at Fox Valley **AFFXVRD** 3.7 Km NNW at Thomas Corners Road **AFTCORD** 2.0 Km NE of Route 240 **AFRT240*†** 1.5 Km NW on Rock Springs Road (added in 1984) **AFRSPRD*†** 29 Km S at Great Valley (background added in 1984) **AFGRVAL*†** 7 Km at Springville (added in 1984) **AFSPRVL** 6 Km SSE at West Valley (added in 1984) **AFWEVAL** 50 Km W at Dunkirk **AFDNKRK** 1.1 Km W on Boberg Road **AFBOBRG**	Particulate air samples around WNYNSC perimeter Required by: DOE 5484.1 Tech Spec 5.4.1 Reported: Annual Environmental Report *Monthly Internal Summary	Continuous air particulate Continuous H-3, charcoal†	Weekly	780	Weekly (each filter) gross alpha/beta, H-3 Quarterly: (Each station) composite filters for Sr-90, gamma isotopic; I-129 (on 3 stations)

OFF-SITE RADIOLOGICAL MONITORING PROGRAM
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SAMPLE LOCATION AND I.D. CODE	MONITORING/REPORTING REQUIREMENTS	SAMPLING TYPE/MEDIUM	COLLECTION FREQUENCY	TOTAL ANNUAL SAMPLES	ANALYSES RFORMED/ COMPOSITE FREQUENCY
2.5 Km Sw **AFDHFOP** 3.0 Km SSE **AFFXFOP** 3.7 Km NNW **AFTCFOP** 2.0 Km NE **AF24FOP**	Fallout particulate and fluid collection around WNYNSC perimeter Required by: DOE 5484.1 Reported: Annual Environmental Report	Integrating liquid	Monthly	48	Gross alpha/beta, H-3, pH
(9) Surface soil (at each air particulate sampler) 26 Km SSW at Little Valley **SF-series**	Long-term fallout accumulation Required by: DOE 5484.1 Reported: Annual Environmental Report	Surface plug composite soil	Triennially*	10 (year of collection)	Gamma isotopic, Sr-90, Pu, Am-241

*Samples to be split (shared with NYSDOH)

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Buttermilk Creek at Thomas Corners Road **SFTCSED†**	Deposition in sediment downstream of facility effluents	Grab stream sediment	Semiannually * (split two only)	10	Gross alpha/beta, isotopic gamma and Sr-90
			Annually†	2	U/Pu isotopic, Am-241
Buttermilk Creek at Fox Valley Road (background)*† **SFBCSED**	Required by: DOE 5484.1 Tech Spec 5.1.4				
Cattaraugus Creek at Felton Bridge **SFCCSED**	Reported: Annual Environmental Report				
Cattaraugus Creek at Springville Dam* **SFSDSED**					
Cattaraugus Creek at Bigelow Bridge (background) **SFBISED**					

*Samples to be split (shared with NYSDOH)

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Cattaraugus Creek downstream of the Buttermilk Creek confluence **BFFCATC** Cattaraugus Creek downstream of Springville Dam **BFFCATD** Control sample from nearby stream not affected by WVDP (7 Km or more upstream of site effluent point) **BFFCTRL**	Fish in waters downstream of facility effluents Required by: DOE 5484.1 Tech Spec 5.1.4 Reported: Annual Environmental Report	Individual collection, biological	Semiannually*	52 (each sample point is 9 fish)	Isotopic gamma and Sr-90 in edible portions; Sr-90 in skeleton (down stream BFFCATC only)

*Samples to be split (shared with NYSDOH)

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FOR IMPLEMENTATION DURING 1986

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Dairy farm, 3.8* Km NNW **BFMREED**	Milk from animals foraging around facility perimeter	Grab biological	Monthly* (BFMREED)	12	Gamma isotopic, Sr-90, H-3 and I-129 on annual samples and quarterly composites of monthly samples
Dairy farm, 2.5* Km ENE **BFMZIMM**	Required by: DOE 5484.1 Tech Spec 5.1.4		Annual (others)* (split 2 only)	3	
Dairy farm, 1.9 Km WNW **BFMCOBO**	Reported: Annual Environmental Report				
Control location* (central NY State sample to be provided by NYSDOH) **BFMCTRL**					
Dairy Farm NE of site **BFMXXXX**					
Dairy Farm 2.5 Km SSW **BFMWIDR**					

*Samples to be split (shared with NYSDOH)

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(3) Nearby downwind location **BFVNEAR** (3) Remote location (16 Km or more from facility) **BFVCTRL**	Fruit and vegetables grown near facility perimeter Required by: DOE 5484.1 Reported: Annual Environmental Report	Grab Biological	Annually,* at harvest	6	Gamma isotopic and Sr-90 analyses of edible portions, H-3 in free moisture
Beef animal from nearby farm in downwind direction **BFBNEAR** Beef animal from control location (16 Km or more from facility) **BFBCTRL**	Meat-Beef foraging near facility perimeter Required by: DOE 5484.1 Reported: Annual Environmental Report	Grab biological	Semiannually*	4	Gamma isotopic analysis of meat.

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In vicinity of the site **BFDNEAR** Control animal (16 Km or more from facility) **BFDCTRL**	Meat-Deer foraging near facility perimeter Required by: DOE 5484.1 Tech Spec 5.1.4 Reported: Annual Environmental Report	Individual collection biological	Annually, during hunting season* During year as available*	2	Gamma isotopic analyses of meat, Sr-90 in meat, Sr-89/90 in bone (BFDNEAR only)

*Samples to be split (shared with NYSDOH)

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Thermoluminescent Dosimetry (TLD) (16) at each of 16 compass sectors, at nearest accessible perimeter point (2) at corners of NYS LLW burial area (5) at security fence around site. Rock Springs Road 500 m NNW of plant. 1500 m NW (nearest downwind receptor) "5 Points" landfill, 19 Km SW (background) Great Valley, 29 Km S (background) Springville 7 Km N West Valley 6 Km SSE Dunkirk, 50 Km W (background) **DFTLD-series**	Direct Radiation around facility Required by: DOE 5484.1 Tech Spec 5.1.4 Reported: Annual Environmental Report	Integrating LiF TLD	Quarterly* (data shared from overlap locations)	116	Quarterly gamma dose

*Samples to be split (shared with NYSDOH)

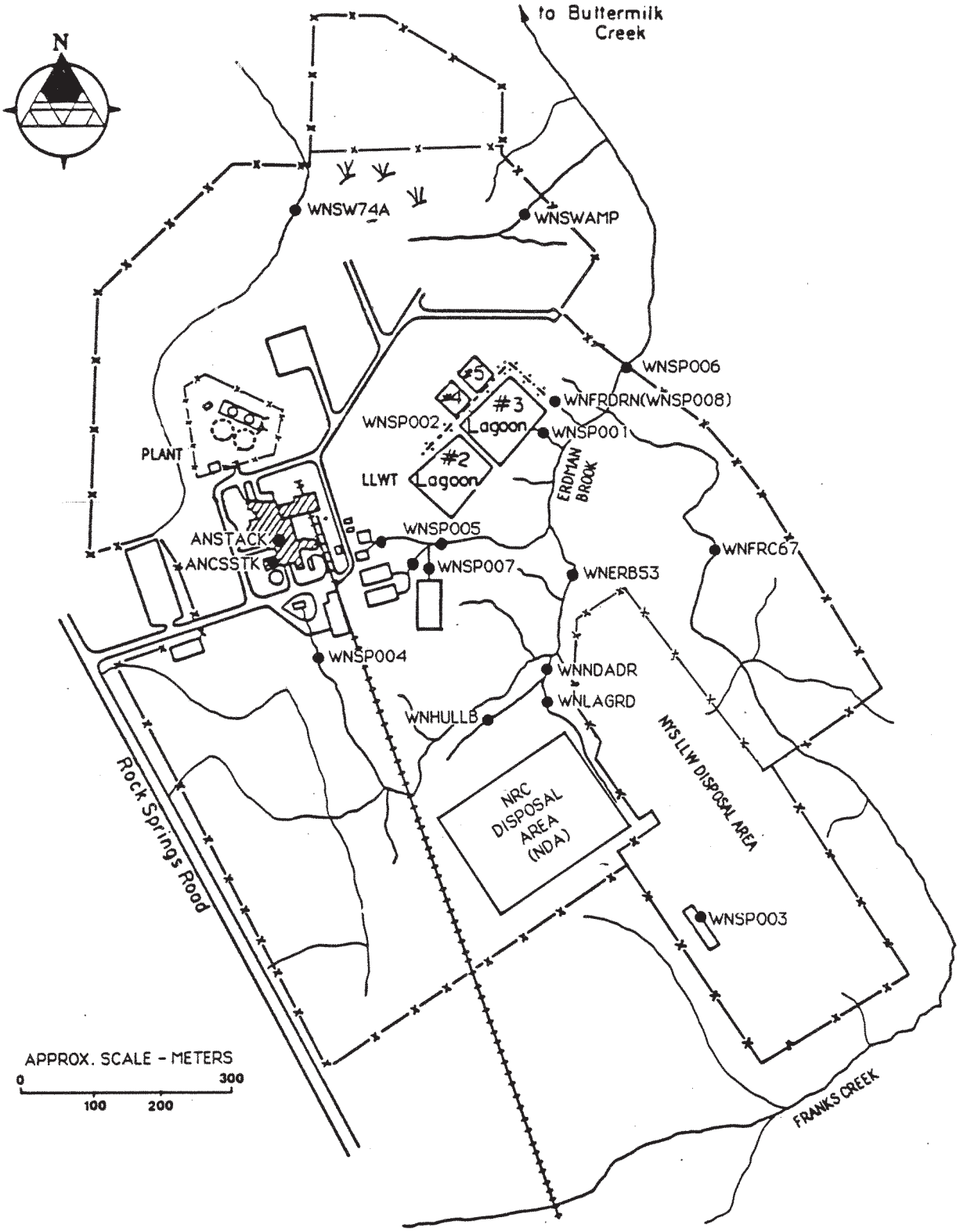

FIGURE A-1
Location of Effluent
Radiological Monitoring Points On-site

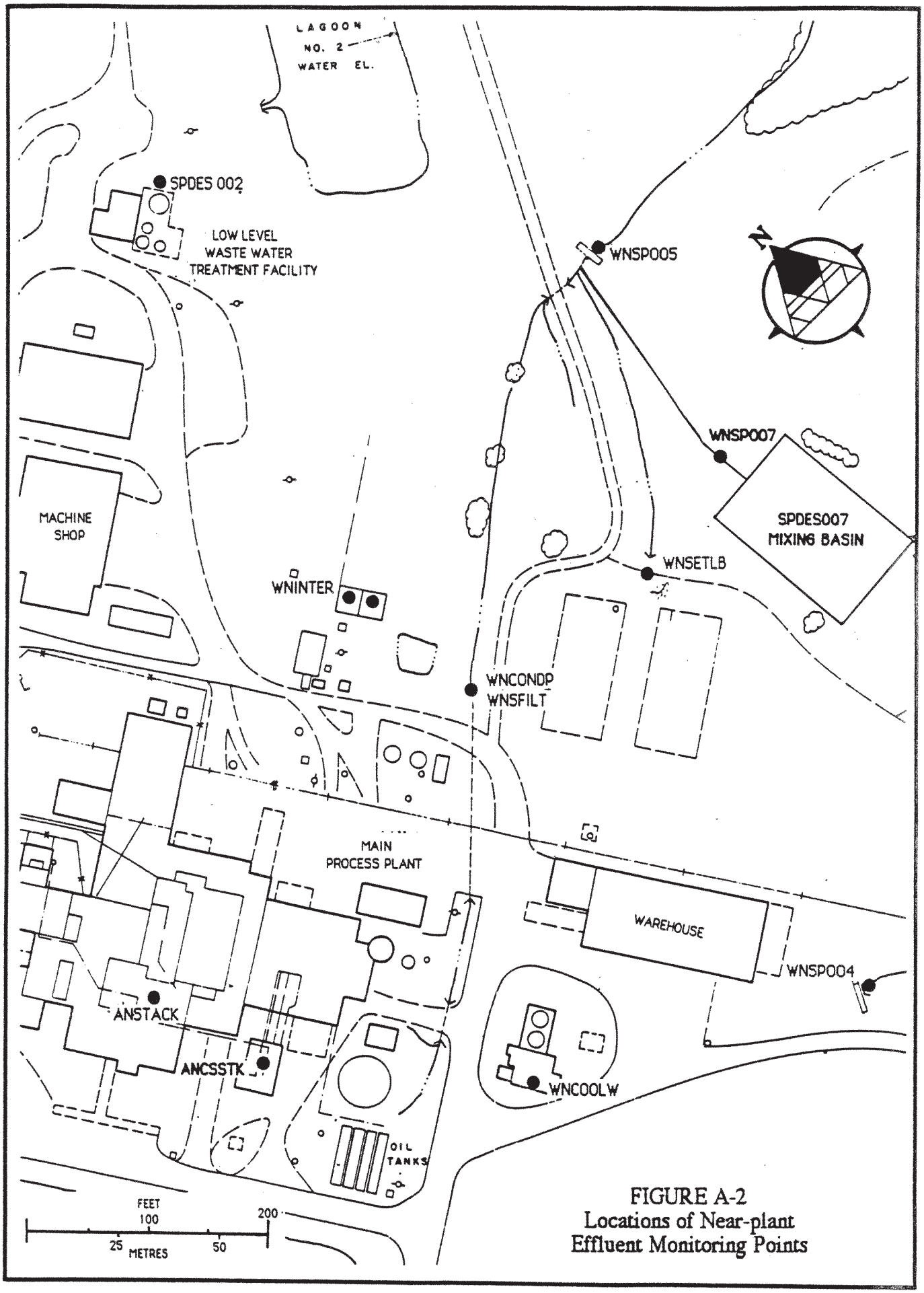

FIGURE A-2
Locations of Near-plant
Effluent Monitoring Points

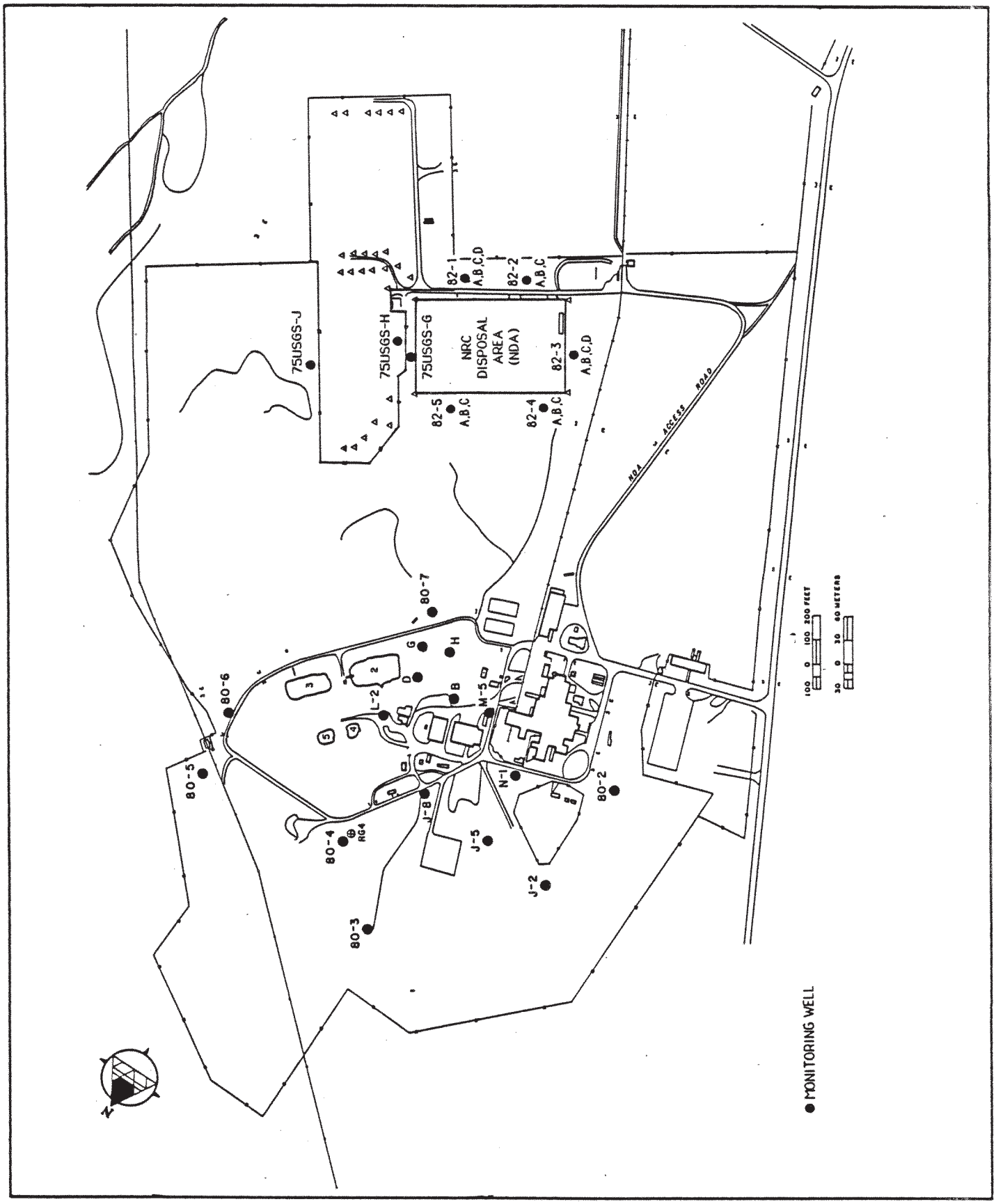

FIGURE A-3
Location of On-site Wells
Monitored in 1985

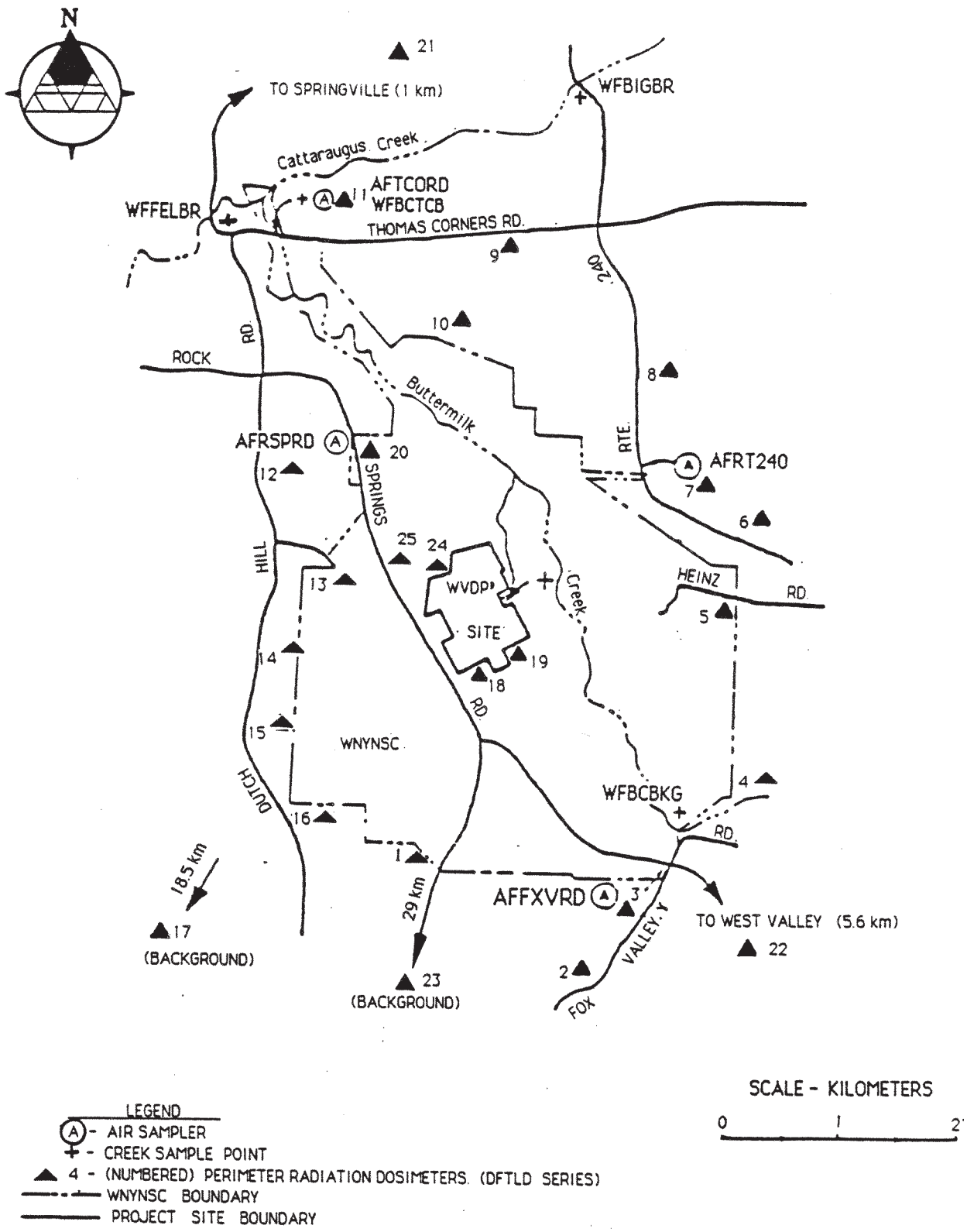

FIGURE A-4
Locations of Perimeter Environmental Monitoring Stations

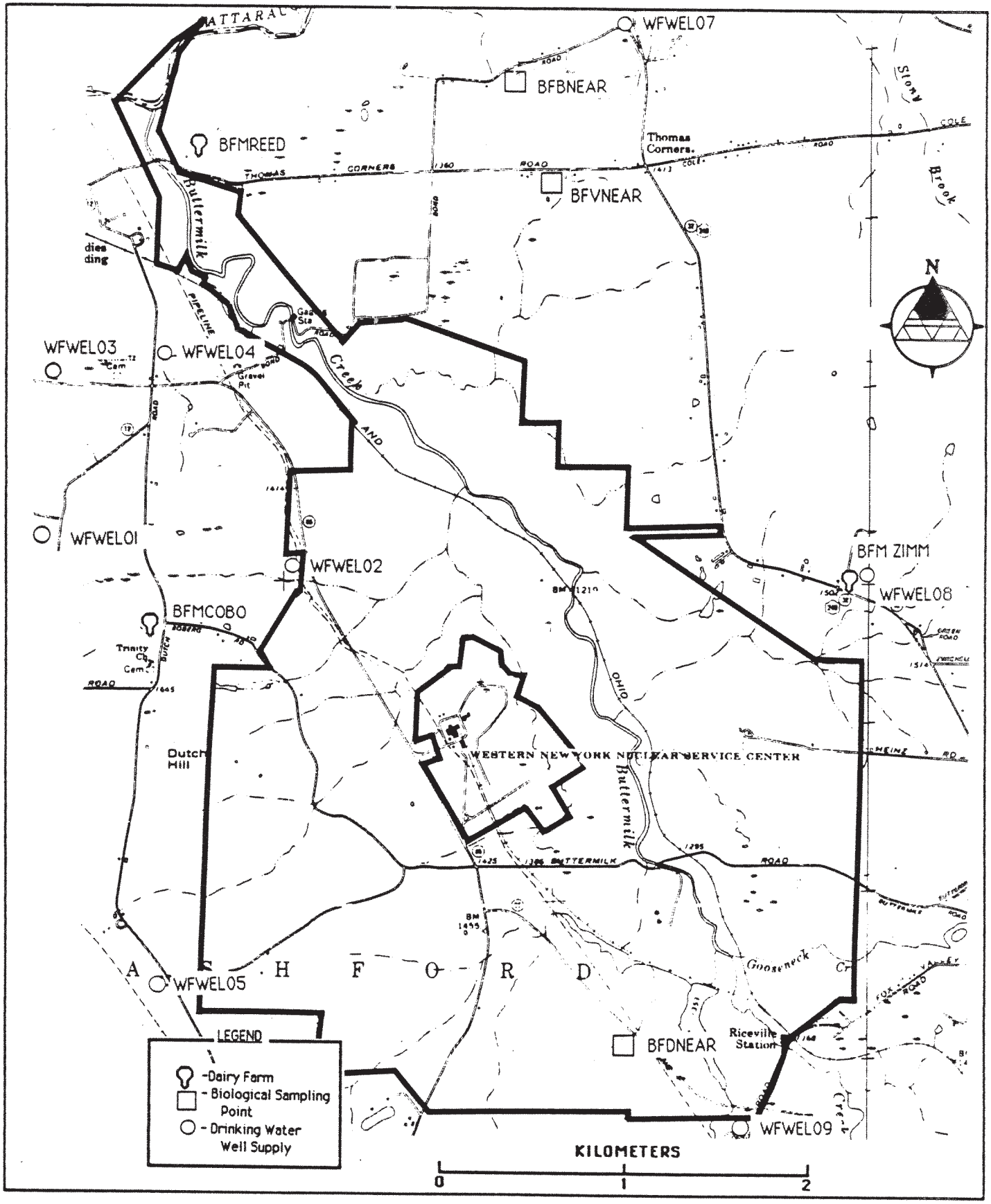

FIGURE A-5
Nearsite Drinking Water
and Biological Sample Points - 1985

ENVIRONMENTAL SAMPLING POINTS
MORE THAN 5 km FROM WVDP SITE
N
BFFCTRL
AFSPRVL
WFWEL10
10 km
20 km
30 km
AFWEVAL
WFWEL06
DFTLD17
AFGRVAL
BFDCTRL
BFBCTRL
LEGEND
- Thermoluminescent Dosimetry
- Air Sampler
- Drinking Water Well Supply
- Meat Sampling Point
5 0 5 10 15 20 25 30 Kilometers

FIGURE A-6