



Hanford Site Environmental Surveillance Master Sampling Schedule

L. E. Bisping

January 2001



Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RL01830

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**HANFORD SITE ENVIRONMENTAL SURVEILLANCE
MASTER SAMPLING SCHEDULE**

L. E. Bisping

January 2001

Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830

Pacific Northwest National Laboratory
Richland, Washington 99352

SUMMARY

Environmental surveillance of the Hanford Site and surrounding areas is conducted by the Pacific Northwest National Laboratory (PNNL)^(a) for the U.S. Department of Energy (DOE). Sampling is conducted to evaluate levels of radioactive and nonradioactive pollutants in the Hanford environs, as required in DOE Order 5400.1, "General Environmental Protection Program," and DOE Order 5400.5, "Radiation Protection of the Public and the Environment." The sampling design is described in the Environmental Monitoring Plan, United States Department of Energy, Richland Operations Office, DOE/RL-91-50, Rev.3, U.S. Department of Energy, Richland, Washington.

This document contains the CY 2001 schedules for the routine collection of samples for the Surface Environmental Surveillance Project (SESP) and Drinking Water Monitoring Project. Each section includes sampling locations, sample types, and analyses to be performed. In some cases, samples are scheduled on a rotating basis and may not be collected in 2001 in which case the anticipated year for collection is provided. In addition, a map showing approximate sampling locations is included for each media scheduled for collection in 2001.

SESP SAMPLING

The SESP is a multimedia environmental surveillance effort to measure the concentrations of radionuclides and chemicals in environmental media and assess the integrated effects of these materials on the environment and the public. Project staff collect samples of air, surface water, agricultural products, wildlife, and sediments. In addition, soil and natural vegetation samples are collected approximately every 5 years. Analytical capabilities include the measurement of radionuclides at very low environmental concentrations and, in selected media, nonradiological chemicals including metals, anions, and volatile organic compounds. In addition, the project includes the capability to measure ambient external radiation.

DRINKING WATER MONITORING PROJECT SAMPLING

The responsibility for monitoring onsite drinking water falls outside the scope of the SESP. The operator of the onsite drinking water systems (DynCorp Tri-Cities Services, Inc.) is responsible for monitoring drinking water quality as defined in the National Drinking Water Standards and Washington Administrative Code WAC 246-290. PNNL conducts radiological monitoring of onsite drinking water for DynCorp concurrent with the SESP to promote efficiency and consistency, utilize expertise developed

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over the years, and reduce costs associated with management, procedure development, analytical contracting, data management, quality control, and reporting.

DATA MANAGEMENT

The Hanford Environmental Information System (HEIS) database is used as a repository for data gathered during environmental surveillance activities at the Hanford Site. For ease in retrieving these data from the HEIS database, the location names in this document reflect the exact location names used in the HEIS.

SCHEDULED CHANGES

This schedule is subject to modification during the year in response to changes in site operations, program requirements, and the nature of the observed results. Operational limitations such as weather, mechanical failures, sample availability, etc., may also impact scheduled sampling. Therefore, this document may not be an accurate record of samples collected during the year.

COSAMPLES

Samples that are cosampled and analyzed by both PNNL and the Washington State Department of Health (DOH) are indicated in the schedule as are samples that are cosampled and analyzed by both PNNL and the U.S. Food and Drug Administration (FDA).

ADDITIONAL INFORMATION

Questions relating to the content of this document can be directed to T. M. Poston, Manager, Surface Environmental Surveillance Project, (509) 376-5678 or R. W. (Bill) Hanf, Manager, Drinking Water Monitoring Project, (509) 376-8264.

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ABBREVIATIONS

FREQUENCY SYMBOLS USED

A	annually
BE	biennial (every 2 years)
BW	biweekly (every 2 weeks)
M	monthly
M Comp.	monthly composite
Q	quarterly
Q Comp.	quarterly composite
SA	semiannually
TE	triennial (every 3 years)

ANALYTICAL SYMBOLS USED

Generally, standard element, chemical, and isotope designations are used to indicate the analyses performed. Other analytical designations used are:

Alpha	gross alpha activity of sample
Anions	major anions-generally chloride, fluoride, nitrate, nitrite, sulfate
Beta	gross beta activity of sample
Gamma Scan	analysis of photon energy spectrum for individual photon-emitting radionuclides
HTO	tritiated water ($^3\text{H}^1\text{H}^{16}\text{O}$)
ICP-u, ICP-3	major metals by inductively coupled plasma spectrometry – samples unfiltered unless otherwise noted
Lo ^3H	analytical procedure includes electrolytic enrichment
Pu	Isotopic plutonium (^{238}Pu , $^{239/240}\text{Pu}$)
SEM/AVS	Simultaneously Extracted Metals/Acid Volatile Sulfide
TOC	Total Organic Carbon
U	Isotopic uranium (^{234}U , ^{235}U , ^{238}U)
VOA	Volatile Organic Compounds

INSTRUMENT SYMBOLS USED

BICRON	Microrem meter
GM	Geiger-Müller counter
PIC	Pressurized ionization chamber

1.0 AIR SURVEILLANCE

1.1 AIR – PARTICULATE FILTER

Location	Individual Samples			Composited Samples		
	Location Number ^(a)	Frequency	Analyses	Composite Group	Frequency	Analyses
<u>Onsite</u>						
100 K Area	1	BW	Beta, Alpha	100 Areas	Q	⁹⁰ Sr, Pu, Gamma Scan
100 N-1325 Crib	2	BW	Beta, Alpha			
100 D Area	3	BW	Beta, Alpha			
100 F Met Tower	4	BW	Beta, Alpha	Hanford Townsite	Q	⁹⁰ Sr, Pu, Gamma Scan
Hanford Townsite	5	BW	Beta, Alpha			
N of 200 E	6	BW	Beta, Alpha	N of 200 E	Q	Gamma Scan
E of 200 E	7	BW	Beta, Alpha	200 E Area ^(b)	Q	⁹⁰ Sr, Pu, U, Gamma Scan
200 ESE ^(b)	8	BW	Beta, Alpha			
S of 200 E	9	BW	Beta, Alpha			
B Pond	10	BW	Beta, Alpha	B Pond	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Army Loop Camp	11	BW	Beta, Alpha	200 W South East	Q	⁹⁰ Sr, Pu, U, Gamma Scan
200 Tel. Exchange	12	BW	Beta, Alpha			
SW of B/C Cribs	13	BW	Beta, Alpha			
200 W SE	14	BW	Beta, Alpha	200 West	Q	⁹⁰ Sr, Pu, U, Gamma Scan
200 W SE ^(c)	14	BW (2 nd Q)	Beta, Alpha	200 West	2 nd Q	Gamma Scan
300 Water Intake	15	BW	Beta, Alpha	300 Area	Q	⁹⁰ Sr, Pu, U, Gamma Scan
300 South Gate	16	BW	Beta, Alpha			
300 South West	17	BW	Beta, Alpha			
300 Trench	18	BW	Beta, Alpha	Q U, Gamma	300 NE ^(b) Q	⁹⁰ Sr, Pu
300 NE ^(b)	19	BW	Beta, Alpha	Q U, Gamma		
400 E	20	BW	Beta, Alpha	400 Area	Q	⁹⁰ Sr, Pu, Gamma Scan
400 W	21	BW	Beta, Alpha			
400 S	22	BW	Beta, Alpha			
400 N	23	BW	Beta, Alpha			
Wye Barricade ^(b)	24	BW	Beta, Alpha	Wye Barricade ^(b)	Q	⁹⁰ Sr, Pu, U, Gamma Scan
<u>Perimeter</u>						
Ringold Met Tower	25	BW	Beta, Alpha	Ringold Met Tower	Q	⁹⁰ Sr, Pu, Gamma Scan
W End of Fir Road ^(b)	26	BW	Beta, Alpha	W End of Fir Road ^(b)	Q	⁹⁰ Sr, Pu, U, Gamma Scan

1.1 AIR - PARTICULATE FILTER (contd)

Location	Individual Samples			Composited Samples		
	Location Number ^(a)	Fre-quency	Analyses	Composite Group	Fre-quency	Analyses
<u>Perimeter</u>						
Dogwood Met Tower	27	BW	Beta, Alpha	Dogwood Met Tower	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Byers Landing	28	BW	Beta, Alpha	Byers Landing	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Byers Landing ^(c)	28	BW (4 th Q)	Beta, Alpha	Byers Landing	4 th Q	Gamma Scan
Battelle Complex ^(b)	29	BW	Beta, Alpha	Battelle Complex	Q	Gamma Scan
Horn Rapids Substa	30	BW	Beta, Alpha	Prosser Barricade	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Prosser Barricade	31	BW	Beta, Alpha			
Yakima Barricade	32	BW	Beta, Alpha	Yakima Barricade	Q	⁹⁰ Sr, Pu, Gamma Scan
Rattlesnake Springs	33	BW	Beta, Alpha			
Wahluke Slope	34	BW	Beta, Alpha	Wahluke Slope	Q	⁹⁰ Sr, Pu, Gamma Scan
S End Vernita Bridge	35	BW	Beta, Alpha			
<u>Community^(d)</u>						
Basin City School	36	BW	Beta, Alpha	Basin City School	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Leslie Groves-Rchlnd	37	BW	Beta, Alpha	Leslie Groves-Rchlnd	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Leslie Groves-Rchlnd ^(c)	37	BW (1 st Q)	Beta, Alpha	Leslie Groves-Rchlnd	1 st Q	Gamma Scan
Pasco	38	BW	Beta	Tri Cities	Q	⁹⁰ Sr, Pu, Gamma Scan
Kennewick-Ely Street	39	BW	Beta, Alpha			
Benton City	40	BW	Beta	Benton City	Q	Gamma Scan
Edwin Markham School	41	BW	Beta, Alpha	Edwin Markham School	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Mattawa	42	BW	Beta	Mattawa	Q	Gamma Scan
Othello	43	BW	Beta	Othello	Q	Gamma Scan
<u>Distant</u>						
Yakima	44	BW	Beta, Alpha	Yakima	Q	⁹⁰ Sr, Pu, U, Gamma Scan
Yakima ^(c)	44	BW (3 rd Q)	Beta, Alpha	Yakima	3 rd Q	Gamma Scan
Toppenish ^(d)	45	BW	Beta, Alpha	Toppenish	Q	⁹⁰ Sr, Pu, U, Gamma Scan

(a) Refer to Figure 1.1, 2001 Air Sampling Locations.

(b) Washington State Department of Health air sampler also at this location.

(c) Sample is collected biweekly for one quarter and composited for the quarter indicated.

(d) Community-operated environmental surveillance station.

1.2 AIR – TRITIUM AND IODINE

<u>Location</u>	<u>Location Number^(a)</u>	<u>Frequency^(b)</u>	<u>Analysis</u>	<u>Frequency</u>	<u>Analysis^(c)</u>
<u>Onsite</u>					
100 K Area	1	Q Comp	¹²⁹ I	M	³ H
100 N-1325 Crib	2			M	³ H
200 ESE	8			M	³ H
200 Tel. Exchange	12			M	³ H
300 Water Intake	15			M	³ H
300 South Gate ^(d)	16			M	³ H
300 South West	17			M	³ H
300 Trench	18			M	³ H
300 NE ^(e)	19			M	³ H
400 E	20			M	³ H
<u>Perimeter</u>					
Ringold Met Tower	25	Q Comp	¹²⁹ I	M	³ H
Dogwood Met Tower	27			M	³ H
Byers Landing	28	Q Comp	¹²⁹ I	M	³ H
Battelle Complex ^(e)	29			M	³ H
Prosser Barricade	31			M	³ H
Wahluke Slope	34			M	³ H
<u>Community^(f)</u>					
Basin City School	36			M	³ H
Leslie Groves-Rchlnd	37			M	³ H
Edwin Markham School	41			M	³ H
<u>Distant</u>					
Yakima	44	Q Comp	¹²⁹ I	M	³ H
Toppenish ^(f)	45			M	³ H

(a) Refer to Figure 1.1, 2001 Air Sampling Locations.

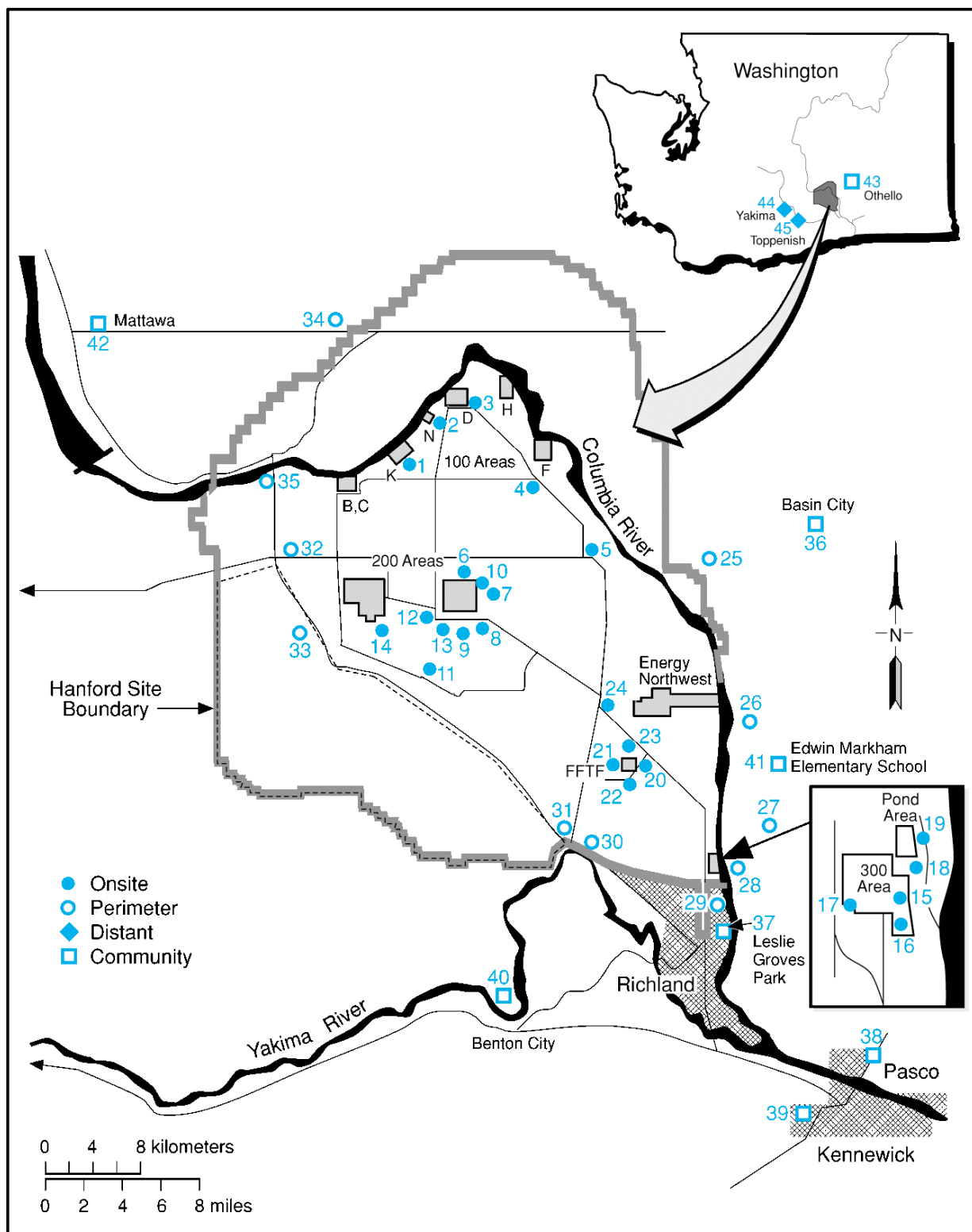
(b) Samples are collected monthly and composited for quarterly analyses.

(c) As HTO.

(d) Two silica gel samples are collected from this location.

(e) Washington State Department of Health air sampler also at this location.

(f) Community-operated environmental surveillance station.



G00120007.1

Figure 1.1. 2001 Air Sampling Locations

2.0 SURFACE WATER SURVEILLANCE

2.1 WATER – COLUMBIA RIVER

Location ^(a)	Sample Type	Frequency	Analyses
Priest Rapids-River	Cumulative	M Comp. ^(b) Q Comp. ^(b)	Alpha, Beta, Lo ³ H, ⁹⁰ Sr, ⁹⁹ Tc, U, DOH ^(c) ¹²⁹ I
	Particulate (filter)	M Comp. ^(d) Q Comp. ^(d)	Gamma Scan Pu
	Soluble (resin)	M Comp. ^(d) Q Comp. ^(d)	Gamma San Pu
Rich.Pmphs HRM 46.4	Cumulative	M Comp. ^(b) Q Comp. ^(b)	Alpha, Beta, Lo ³ H, ⁹⁰ Sr, ⁹⁹ Tc, U ¹²⁹ I
	Particulate (filter)	M Comp. ^(d) Q Comp. ^(d)	Gamma Scan Pu
	Soluble (resin)	M Comp. ^(d) Q Comp. ^(d)	Gamma Scan Pu
	Grab	Q	USGS-NASQAN ^(e)
Rich.Pmphs-1 HRM46.4	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs-2 HRM46.4	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs-3 HRM46.4	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs-5 HRM46.4	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs-7 HRM46.4	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs-10 HRM46.4	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs HRM 43.5	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs HRM 43.9	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs HRM 45.0	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Rich.Pmphs HRM 45.8	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f) Cyanide, VOA
Vernita	Grab	Q	USGS-NASQAN ^(e)
Vernita-1 HRM 0.3	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions Cyanide, VOA
Vernita-2 HRM 0.3	Transect	Q A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions Cyanide, VOA

2.1 WATER – COLUMBIA RIVER (contd)

Location ^(a)	Sample Type	Frequency	Analyses
Vernita-3 HRM 0.3	Transect	Q	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
		A	Cyanide, VOA
Vernita-4 HRM 0.3	Transect	Q	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
		A	Cyanide, VOA
100 N -1 HRM 9.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N -2 HRM 9.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N -3 HRM 9.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N -5 HRM 9.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N -7 HRM 9.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N -10 HRM 9.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N Shore HRM 8.4	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N Shore HRM 8.9	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N Shore HRM 9.2	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 N Shore HRM 9.8	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F -1 HRM 19.0	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F -2 HRM 19.0	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F -3 HRM 19.0	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F -5 HRM 19.0	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F -7 HRM 19.0	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F -10 HRM 19.0	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F SHORE HRM 18	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F SHORE HRM 22	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
100 F SHORE HRM 23	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd TS-1 HRM 28.7	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd TS-2 HRM 28.7	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd TS-3 HRM 28.7	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd TS-5 HRM 28.7	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd TS-7 HRM 28.7	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd TS-10 HRM 28.7	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd Twnsite HRM26	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd Twnsite HRM27	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd Twnsite HRM28	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
Hanfrd Twnsite HRM30	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions
300 Area-1 HRM 43.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area -2 HRM 43.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area -3 HRM 43.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area -5 HRM 43.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area -7 HRM 43.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area -10 HRM 43.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area Shr HRM41.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)

2.1 WATER – COLUMBIA RIVER (contd)

Location ^(a)	Sample Type	Frequency	Analyses
300 Area Shr HRM42.1	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area Shr HRM42.5	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)
300 Area Shr HRM42.9	Transect	A	Lo ³ H, ⁹⁰ Sr, U, ICP-3, ICP-3 Filtered, Anions, DOH ^(f)

- (a) Refer to Figure 2.1, 2001 Surface Water and Drinking Water Sampling Locations. HRM is referenced to Hanford River mile.
(b) Cumulative sample is collected weekly and composited for analysis.
(c) Cosample provided to the Washington State Department of Health (January and June only).
(d) Sample is collected biweekly and composited for analysis.
(e) Analyses are performed by the United States Geological Survey (USGS) in conjunction with the National Stream Quality Accounting Network (NASQAN) Program, and includes: conductance, pH, temperature, turbidity, dissolved oxygen, hardness, Ca, Mg, alkalinity, carbonates, sulfate, Cl, F, solids, NH₄-N, NO₃+NO₂, N-Kjeldahl, P, Cr, Fe, dissolved organic carbon.
(f) Cosample provided to the Washington State Department of Health (September).

2.2 RIVERBANK SPRINGS

Location ^(a)	Sample Type	Frequency	Analyses
100-B Spring 38-3	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, ⁹⁹ Tc, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA
100-B Spring 39-2	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, ⁹⁹ Tc, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA, DOH ^(b)
100-K Spring 63-1	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA
100-K Spring 77-1	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA
100-N Spring 8-13	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, Gamma Scan, ICP-3, ICP-3 Filtered, Anions
100-N Spring Near 199N-46	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, DOH ^(b)
100-D Spring 110-1	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, Gamma Scan, ICP-3, ICP-3 Filtered, Anions
100-D Spring 102-1	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, Gamma Scan, ICP-3, ICP-3 Filtered, Anions
100-H Spring 152-2	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, ⁹⁹ Tc, U, Gamma Scan, ICP-3, ICP-3 Filtered, Anions
100-H Spring 145-1	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, ⁹⁹ Tc, U, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, DOH ^(b)
100-F Spring 207-1	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, U, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA
Hanford Spring 28-2	Grab	A	Alpha, Beta, ³ H, ⁹⁹ Tc, U, ¹²⁹ I, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, DOH ^(b)
Hanford Spr UR 28-2	Grab	A	Alpha, Beta, ³ H, ⁹⁹ Tc, U, ¹²⁹ I, Gamma Scan, ICP-3, ICP-3 Filtered, Anions
Hanford Spr DR 28-2	Grab	A	Alpha, Beta, ³ H, ⁹⁹ Tc, U, ¹²⁹ I, Gamma Scan, ICP-3, ICP-3 Filtered, Anions
300 Area Spring 42-2	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, U, ¹²⁹ I, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA, DOH ^(b)
300 Area Spr DR 42-2	Grab	A	Alpha, Beta, ³ H, ⁹⁰ Sr, U, ¹²⁹ I, Gamma Scan, ICP-3, ICP-3 Filtered, Anions, VOA, DOH ^(b)

- (a) Refer to Figure 2.1, 2001 Surface Water and Drinking Water Sampling Locations.
(b) Cosample provided to the Washington State Department of Health.

2.3 ONSITE PONDS

<u>Location^(a)</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Analyses</u>
West Lake	Grab	Q	Alpha, Beta, ^3H , ^{99}Tc , U, Gamma Scan
FFTF Pond	Grab	Q	Alpha, Beta, ^3H , Gamma Scan

(a) Refer to Figure 2.1, 2001 Surface Water and Drinking Water Sampling Locations.

2.4 OFFSITE IRRIGATION WATER

<u>Location^(a)</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Analyses</u>
Riverview Canal	Grab	3 (May-Sept)	Alpha, Beta, Lo ^3H , ^{90}Sr , U, Gamma Scan, DOH ^(b)
Horn Rapids Area	Grab	3 (May-Sept)	Alpha, Beta, Lo ^3H , ^{90}Sr , U, Gamma Scan, DOH ^(b)

(a) Refer to Figure 2.1, 2001 Surface Water and Drinking Water Sampling Locations.

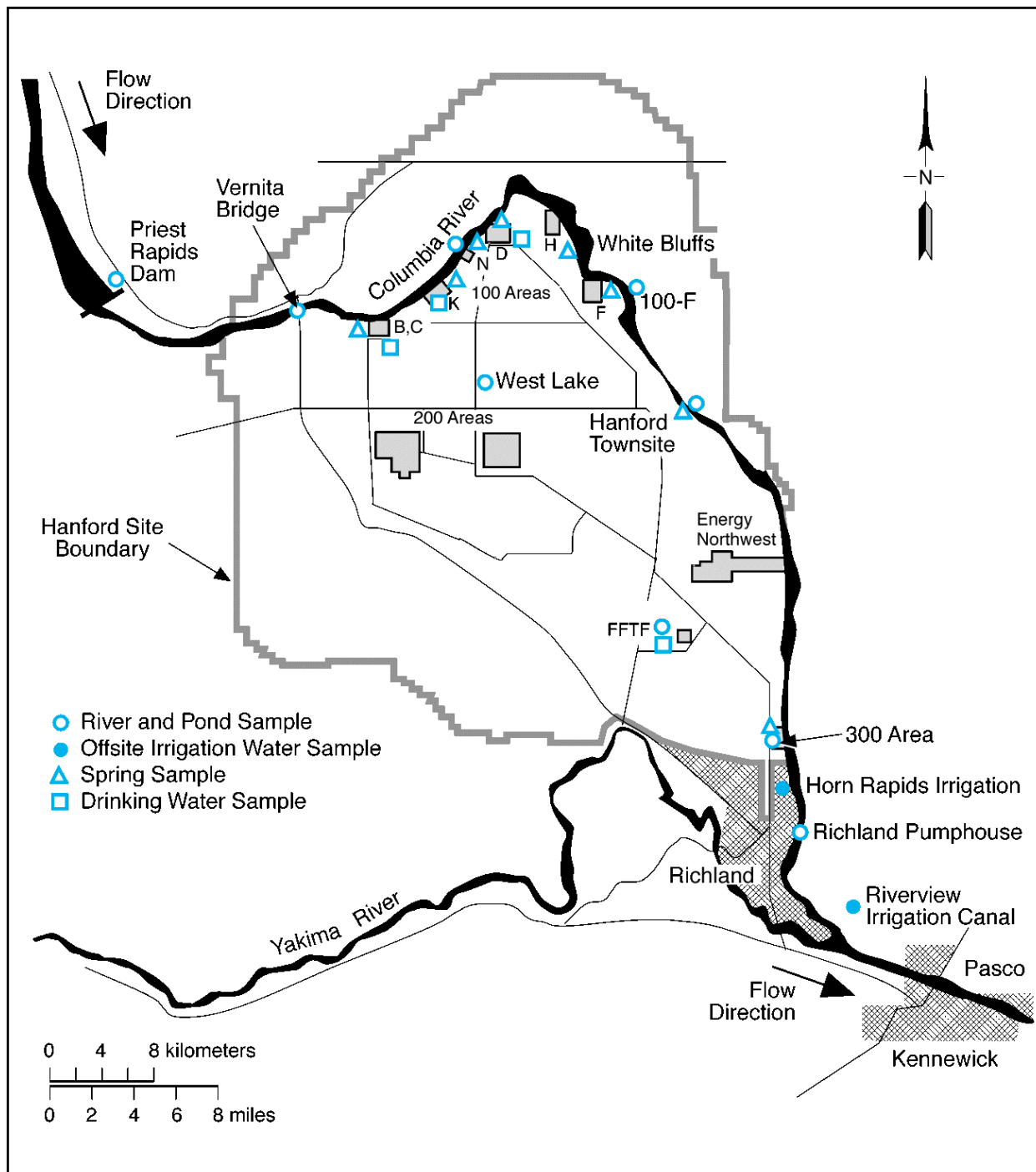
(b) One cosample provided to the Washington State Department of Health.

2.5 ONSITE DRINKING WATER

<u>Location^(a)</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Analyses</u>
100 B Area-River	Grab	Q	Alpha, Beta, Lo ^3H , ^{90}Sr
100 D Area	Grab	Q	Alpha, Beta, ^3H , ^{90}Sr
100 K Area	Grab	Q	Alpha, Beta, Lo ^3H , ^{90}Sr , DOH ^(b)
FFTF	Grab	Q	Alpha, Beta, ^3H , ^{90}Sr , DOH ^(b)

(a) Refer to Figure 2.1, 2001 Surface Water and Drinking Water Sampling Locations.

(b) During 2nd quarter, cosample provided to the Washington State Department of Health.



G00120007.2

Figure 2.1. 2001 Surface Water and Drinking Water Sampling Locations

3.0 BIOTA

3.1 FOODSTUFFS AND FARM PRODUCTS

3.1.1 Whole Milk

Location ^(a)	Frequency	Analyses
East Wahluke Area ^(b)	Q SA	Lo ³ H, ⁹⁰ Sr, Gamma Scan ¹²⁹ I
Sagemoor Composite ^(b)	Q SA	Lo ³ H, ⁹⁰ Sr, Gamma Scan ¹²⁹ I
Sunnyside Area	Q SA	Lo ³ H, ⁹⁰ Sr, Gamma Scan ¹²⁹ I

(a) Refer to Figure 3.1, 2001 Food and Farm Product Sampling Locations.

(b) Sample composited from multiple dairies in each area.

3.1.2 Leafy Vegetables

Location ^{(a)(b)}	Frequency ^(c)	Analyses
Riverview Area	A	⁹⁰ Sr, Gamma Scan, FDA ^(d) , DOH ^(e)
Sunnyside Area	A	⁹⁰ Sr, Gamma Scan, FDA ^(d)
Sagemoor Area	BE (2001)	⁹⁰ Sr, Gamma Scan, DOH ^(e)
East Wahluke Area	BE (2002)	⁹⁰ Sr, Gamma Scan, DOH ^(e)

(a) Refer to Figure 3.1, 2001 Food and Farm Product Sampling Locations.

(b) Two samples collected within each area, one sample analyzed and one archived.

(c) Sample are collected in 2001 according to their specified frequency unless otherwise noted.

(d) Cosamples sent to U.S. Food and Drug Administration.

(e) Cosample provided to the Washington State Department of Health.

3.1.3 Vegetables

Location ^{(a)(b)}	Sample Type	Frequency ^(c)	Analyses
Riverview Area	Potatoes	A	⁹⁰ Sr, Gamma Scan
	Tomatoes	A	⁹⁰ Sr, ³ H, Gamma Scan, DOH ^(d)
Sunnyside Area	Potatoes	A	⁹⁰ Sr, Gamma Scan, FDA ^(e)
East Wahluke Area	Potatoes	A	⁹⁰ Sr, Gamma Scan
Harrah/Wapato Area ^(f)	Tomatoes	A	⁹⁰ Sr, ³ H, Gamma Scan, DOH ^(d)
Horn Rapids Area	Potatoes	TE (2002)	⁹⁰ Sr, Gamma Scan, FDA ^(e)
Sagemoor Area	Potatoes	TE (2003)	⁹⁰ Sr, Gamma Scan, DOH ^(d) , FDA ^(e)

(a) Refer to Figure 3.1, 2001 Food and Farm Product Sampling Locations.

(b) Two samples collected within each area, one sample analyzed and one archived.

(c) Samples are collected in 2001 according to their specified frequency unless otherwise noted.

(d) Cosample provided to the Washington State Department of Health.

(e) Cosamples sent to U.S. Food and Drug Administration.

(f) Samples provided to PNNL by Washington State Department of Health.

3.1.4 Fruit

<u>Location^{(a)(b)}</u>	<u>Sample Type</u>	<u>Frequency^(c)</u>	<u>Collection Period</u>	<u>Analyses</u>
Sagemoor Area	Concord Grapes ^(d)	TE (2001)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e)
	Cherries	TE (2002)	June	⁹⁰ Sr, Gamma Scan, DOH ^(e) , FDA ^(f)
	Apples	TE (2003)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e) , FDA ^(f)
Sunnyside Area	Concord Grapes ^(d)	TE (2001)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e)
	Cherries	TE (2002)	June	⁹⁰ Sr, Gamma Scan, DOH ^(e)
	Apples	TE (2003)	September	⁹⁰ Sr, Gamma Scan
Riverview Area	Concord Grapes ^(d)	TE (2001)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e) , FDA ^(f)
	Cherries	TE (2002)	June	⁹⁰ Sr, Gamma Scan
	Apples	TE (2003)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e) , FDA ^(f)
Cold Creek Area	Concord Grapes ^(d)	TE (2001)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e)
Ringold Area	Cherries	TE (2002)	June	⁹⁰ Sr, Gamma Scan
East Wahuake Area	Cherries	TE (2002)	June	⁹⁰ Sr, Gamma Scan
Mattawa Area	Apples	TE (2003)	September	⁹⁰ Sr, Gamma Scan, DOH ^(e)

- (a) Refer to Figure 3.1, 2001 Food and Farm Product Sampling Locations.
(b) Two samples collected within each area, one sample analyzed and one archived.
(c) Samples are collected in 2001 according to their specified frequency unless otherwise noted.
(d) Concord grapes preferred; table grapes acceptable if concord grapes are unavailable.
(e) Cosample provided to the Washington State Department of Health.
(f) Cosamples sent to U.S. Food and Drug Administration.

3.1.5 Wine

<u>Location^{(a)(b)}</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Collection Period</u>	<u>Analyses</u>
Columbia Basin	White	A	December	Lo ³ H, Gamma Scan, DOH ^(c)
	Red	A	December	Lo ³ H, Gamma Scan, DOH ^(c)
Yakima Valley	White	A	December	Lo ³ H, Gamma Scan, DOH ^(c)
	Red	A	December	Lo ³ H, Gamma Scan, DOH ^(c)

- (a) Refer to Figure 3.1, 2001 Food and Farm Product Sampling Locations.
(b) Two samples of each type collected within each area.
(c) Cosample provided to the Washington State Department of Health.

3.1.6 Alfalfa

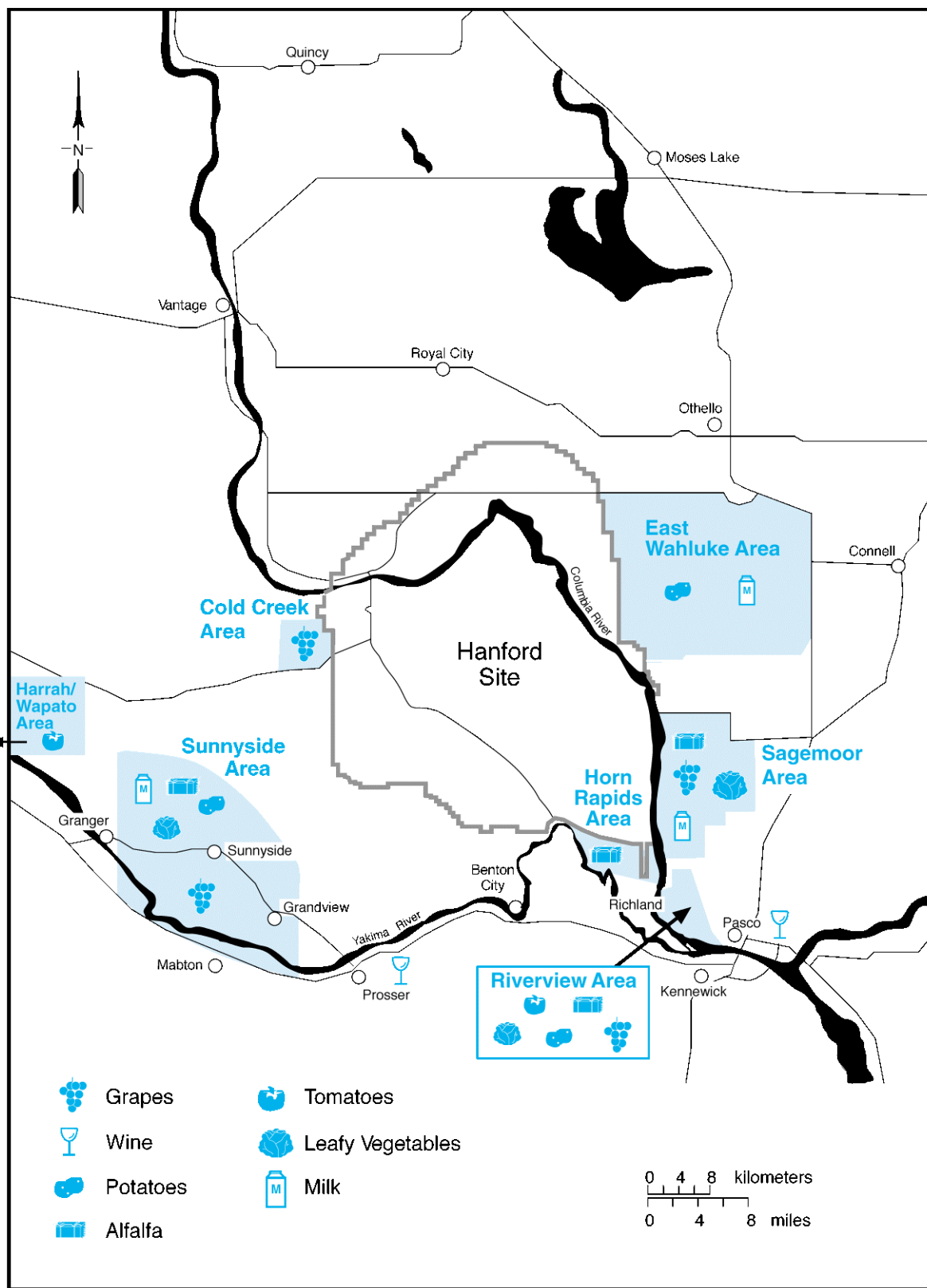
<u>Location^{(a)(b)}</u>	<u>Sample Type</u>	<u>Frequency</u>	<u>Collection Period</u>	<u>Analyses</u>
Sagemoor Area	Alfalfa	BE (2001)	May	⁹⁰ Sr, Gamma Scan
Riverview Area	Alfalfa	BE (2001)	May	⁹⁰ Sr, Gamma Scan, FDA ^(c) , DOH ^(d)
Sunnyside Area	Alfalfa	BE (2001)	May	⁹⁰ Sr, Gamma Scan, FDA ^(c) ,
Horn Rapids Area	Alfalfa	BE (2001)	May	⁹⁰ Sr, Gamma Scan, DOH ^(d)

(a) Refer to Figure 3.1, 2001 Food and Farm Product Sampling Locations.

(b) Two samples collected within each area, one sample analyzed and one archived.

(c) Cosamples sent to U.S. Food and Drug Administration.

(d) Cosample provided to the Washington State Department of Health.



G00120007.3

Figure 3.1. 2001 Food and Farm Product Sampling Locations

3.2 WILDLIFE

3.2.1 Aquatic Biota

<u>Location^(a)</u>	<u>Species/ Sample</u>	<u>Number of Samples</u>	<u>Frequency^(b)</u>	<u>Collection Period</u>	<u>Analyses</u>
100 N Area to 100 D Area ^(c)	Whitefish				
	Fillet	5	BE (2001)	November	Gamma Scan, DOH ^(d) ⁹⁰ Sr, DOH ^(d)
	Carcass	5	BE (2001)	November	
	Carp				
	Fillet	5	BE (2002)	June	Gamma Scan, DOH ^(d) ⁹⁰ Sr, DOH ^(d)
	Carcass	5	BE (2002)	June	
Background	Whitefish				
	Fillet	5	TE (2001)	Jan & Dec	Gamma Scan ⁹⁰ Sr
	Carcass	5	TE (2001)	Jan & Dec	
100 F Slough	Bass				
	Fillet	5	TE (2002)	May-June	Gamma Scan ⁹⁰ Sr
	Carcass	5	TE (2002)	May-June	
Hanford Slough	Bass				
	Fillet	5	TE (2002)	May-June	Gamma Scan ⁹⁰ Sr
	Carcass	5	TE (2002)	May-June	
300 Area ^(c)	Carp				
	Fillet	5	BE (2002)	June	Gamma Scan, DOH ^(d) ⁹⁰ Sr, DOH ^(d)
	Carcass	5	BE (2002)	June	
Desert Aire	Bass				
	Fillet	5	TE (2002)	June	Gamma Scan, DOH ^(d) ⁹⁰ Sr, DOH ^(d)
	Carcass	5	TE (2002)	June	
Vantage	Carp				
	Fillet	5	BE (2002)	June	Gamma Scan, DOH ^(d) ⁹⁰ Sr, DOH ^(d)
	Carcass	5	BE (2002)	June	

(a) Refer to Figure 3.2, 2001 Wildlife Sampling Locations.

(b) Samples are collected in 2001 according to their specified frequency unless otherwise noted.

(c) If available, PNNL will collect one Squawfish sample and provide to the Washington State Department of Health.

(d) One sample provided to the Washington State Department of Health.

3.2.2 Geese

<u>Location^(a)</u>	<u>Species/Sample</u>	<u>Number of Samples</u>	<u>Frequency^(b)</u>	<u>Collection Period</u>	<u>Analyses</u>
100 Areas	Canada Goose				
	Muscle	5	BE (2001)	August	Gamma Scan, DOH ^(c)
	Bone	5	BE (2001)	August	⁹⁰ Sr, DOH ^(c)
Hanford Townsite	Canada Goose				
	Muscle	5	BE (2001)	August	Gamma Scan
	Bone	5	BE (2001)	August	⁹⁰ Sr
Vantage	Canada Goose				
	Muscle	5	BE (2001)	August	Gamma Scan
	Bone	5	BE (2001)	August	⁹⁰ Sr

(a) Refer to Figure 3.2, 2001 Wildlife Sampling Locations.

(b) Samples are collected in 2001 according to their specified frequency unless otherwise noted.

(c) One sample provided to the Washington State Department of Health.

3.2.3 Game Birds

<u>Location</u>	<u>Species/Sample^(a)</u>	<u>Number of Samples</u>	<u>Frequency</u>	<u>Collection Period</u>	<u>Analyses</u>
100 D Area to 100 H Area	Pheasant				
	Muscle	4	BE (2002)	September	Gamma Scan, DOH ^(b)
	Bone	4	BE (2002)	September	⁹⁰ Sr, DOH ^(b)
100 H Area to 100 F Area	Pheasant				
	Muscle	6	BE (2002)	September	Gamma Scan, DOH ^(b)
	Bone	6	BE (2002)	September	⁹⁰ Sr, DOH ^(b)
Background	Pheasant				
	Muscle	5	BE (2002)	September	Gamma Scan, DOH ^(b)
	Bone	5	BE (2002)	September	⁹⁰ Sr, DOH ^(b)

(a) Pheasant preferred; chukar or quail acceptable if pheasant is unavailable.

(b) One sample provided to the Washington State Department of Health.

3.2.4 Rabbits

<u>Location^(a)</u>	<u>Species/Sample</u>	<u>Number of Samples</u>	<u>Frequency^(b)</u>	<u>Collection Period</u>	<u>Analyses</u>
100 N Area	Cottontail or Jack Rabbit				
	Muscle	4	BE (2001)	April	Gamma Scan, DOH ^(c)
	Bone	4	BE (2001)	April	⁹⁰ Sr, DOH ^(c)
200 E Area	Jack Rabbit				
	Muscle	4	BE (2001)	April	Gamma Scan
	Bone	4	BE (2001)	April	⁹⁰ Sr
200 West	Jack Rabbit				
	Muscle	4	BE (2001)	April	Gamma Scan
	Bone	4	BE (2001)	April	⁹⁰ Sr
Background	Cottontail or Jack Rabbit				
	Muscle	5	TE (2001)	April	Gamma Scan
	Bone	5	TE (2001)	April	⁹⁰ Sr

(a) Refer to Figure 3.2, 2001 Wildlife Sampling Locations.

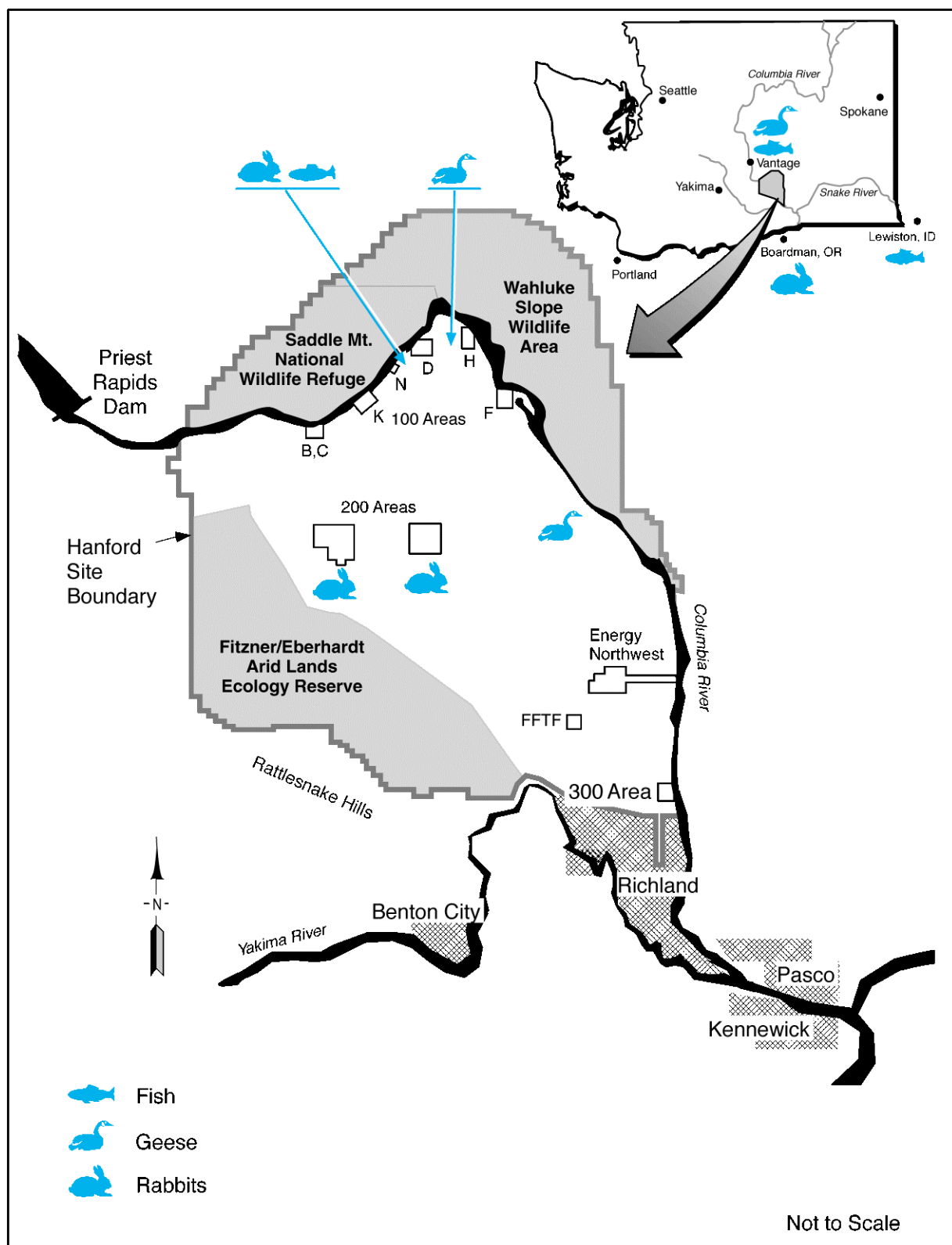
(b) Samples are collected in 2001 according to their specified frequency unless otherwise noted.

(c) One sample provided to the Washington State Department of Health.

3.2.5 Deer

<u>Location</u>	<u>Species/Sample</u>	<u>Number of Samples</u>	<u>Frequency</u>	<u>Collection Period</u>	<u>Analyses</u>
100 N Area	Mule				
	Muscle	2	BE (2002)	December	Gamma Scan, DOH ^(a)
	Bone	2	BE (2002)	December	⁹⁰ Sr, DOH ^(a)
200 Areas	Mule				
	Muscle	2	BE (2002)	December	Gamma Scan, DOH ^(a)
	Bone	2	BE (2002)	December	⁹⁰ Sr, DOH ^(a)
Road Kill at Onsite Location	Mule				
	Muscle	6	BE (2002)	As Available	Gamma Scan
	Bone	6	BE (2002)	As Available	⁹⁰ Sr
Background	Mule				
	Muscle	2	BE (2002)	October	Gamma Scan
	Bone	2	BE (2002)	October	⁹⁰ Sr

(a) One sample provided to the Washington State Department of Health.



G00120007.4

Figure 3.2. 2001 Wildlife Sampling Locations

4.0 SOIL AND VEGETATION

4.1 SOIL

Location ^(a)	Location Number	Frequency ^(b)	Collection Period	Analyses
100 K Area ^(c)	1	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
NE of 100 N Area	2	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
E of 100 N Area	3	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
100N Shore Above HGP ^(c)	4	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
100N Spring Shoreline ^(c)	5	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Above 100D Pumpphouse	6	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
100 Area Fire Stat ^(c)	7	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
200 ENC ^(c)	8	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
E of 200 E	9	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
200 ESE	10	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, ²⁴¹ Am, DOH ^(d)
S of 200 E	11	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
SW of B/C Cribs	12	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, ²⁴¹ Am, DOH ^(d)
E of 200 W Gate	13	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, ²⁴¹ Am, DOH ^(d)
S of 200 W	14	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
Rattlesnake Springs ^(c)	15	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
Yakima Barricade ^(c)	16	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
400 E	17	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
SE Side of FFTF	18	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
North of 300 Area	19	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
South of 300 Area	20	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
Hanford Townsite ^(c)	21	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Wye Barricade ^(c)	22	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Prosser Barricade ^(c)	23	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
ALE Field Lab ^(c)	24	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
N End Vernita Bridge ^(c)	25	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Wahluke Slope ^(c)	26	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Berg Ranch ^(c)	27	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Ringold Area	28	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
W End of Fir Road ^(c)	29	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Taylor Flats No. 2 ^(c)	30	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Sagemoor Farm	31	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, ²⁴¹ Am
Byers Landing	32	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Riverview-Harris	33	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Benton City ^(c)	34	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(d)
Sunnyside	35	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, ²⁴¹ Am
McNary Dam ^(c)	36	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Walla Walla ^(c)	37	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Washtucna ^(c)	38	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Toppenish ^(c)	39	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu

(a) Refer to Figure 4.1, 2001 Soil and Vegetation Sampling Locations.

(b) Samples are collected once every 3 to 5 years and will be collected in 2001.

(c) Samples will be collected and archived but may be submitted for analyses at a later date.

(d) Cosample provided to the Washington State Department of Health.

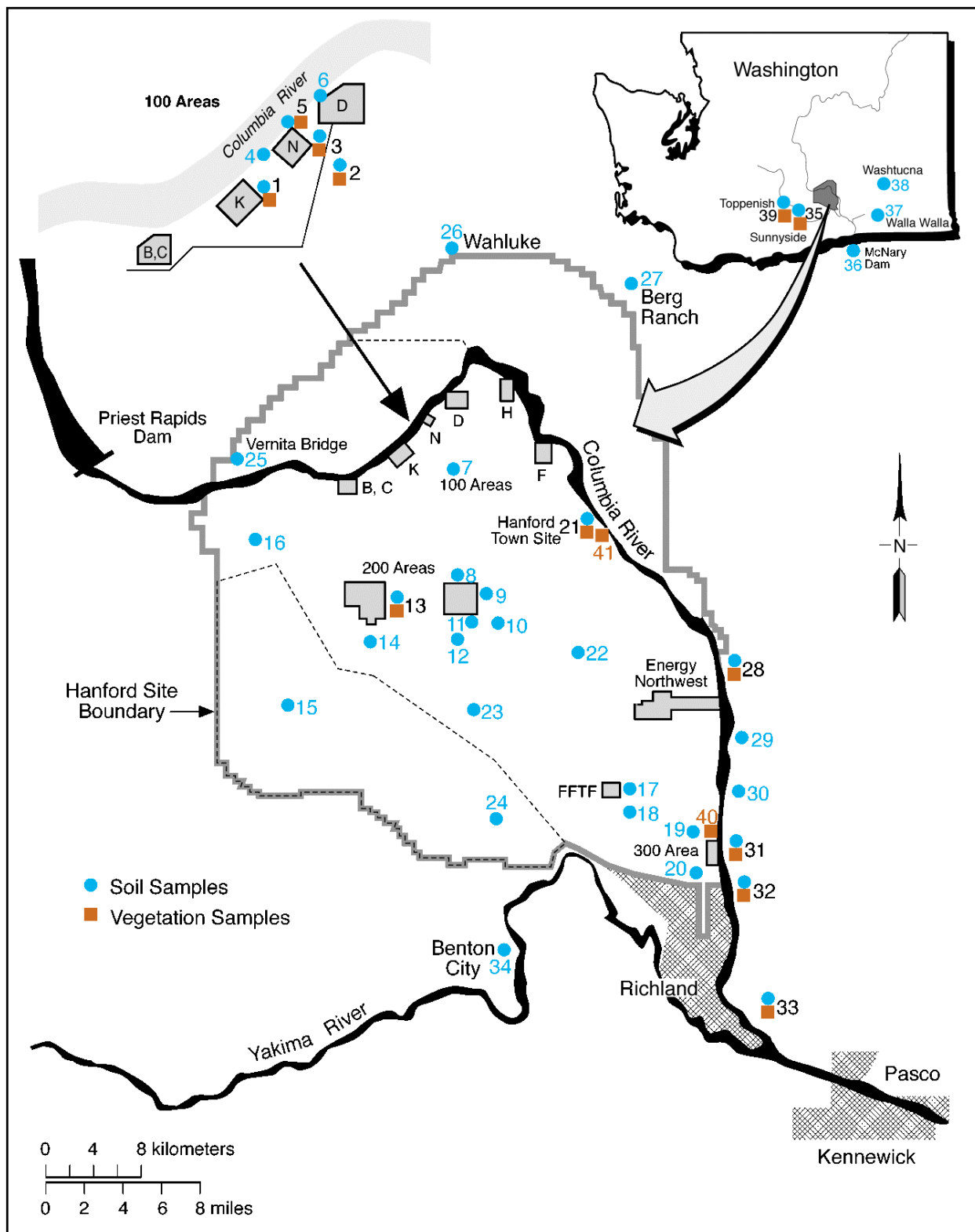
4.2 VEGETATION

<u>Location^(a)</u>	<u>Location Number</u>	<u>Frequency^(b)</u>	<u>Collection Period</u>	<u>Analyses</u>
100 K Area	1	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
NE of 100 N Area	2	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
E of 100 N Area	3	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(c)
100N Spring Shoreline	5	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
E of 200 W Gate	13	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
300 Area Shoreline	40	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, DOH ^(c)
Hanford Townsite	21	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Hanford Twnsite HRM28	41	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu, ⁹⁹ Tc, DOH ^(c)
Ringold Area	28	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Sagemoor Farm	31	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Byers Landing	32	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Riverview-Harris	33	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Sunnyside	35	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu
Toppenish	39	3 to 5 yrs	June-Sept	Gamma Scan, ⁹⁰ Sr, U, Pu

(a) Refer to Figure 4.1, 2001 Soil and Vegetation Sampling Locations.

(b) Samples are collected once every 3 to 5 years and will be collected in 2001.

(c) Cosample provided to the Washington State Department of Health.



G00120007.9

Figure 4.1. 2001 Soil and Vegetation Sampling Locations

5.0 SEDIMENT

<u>Location</u> ^(a)	<u>Frequency</u>	<u>Analyses</u>
<u>River</u>		
McNary Dam		
McNary-OR. Side Near Dam	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC, DOH ^(b)
McNary-Wash. Side Near Dam	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC, DOH ^(b)
Priest Rapids Dam (PRD)		
PRD-Grant Side Near Dam	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC, DOH ^(b)
PRD-Yakima Side Near Dam	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC, DOH ^(b)
White Bluffs Slough	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC
100 F Slough	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC, DOH ^(b)
Hanford Slough	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC
Richland	A	Gamma Scan, ⁹⁰ Sr, U, Pu, ICP-u, SEM/AVS, TOC, DOH ^(b)
<u>Springs</u>		
100-B Spring 38-3	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u, DOH ^(b)
100-K Spring 63-1	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u
100-K Spring 77-1	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u
100-F Spring 207-1	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u, DOH ^(b)
Hanford Spr UR 28-2	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u
Hanford Spr DR 28-2	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u, DOH ^(b)
300 Area Spring 42-2	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u, DOH ^(b)
300 Area Spr DR 42-2	A	Gamma Scan, ⁹⁰ Sr, U, ICP-u, DOH ^(b)

(a) Refer to Figure 5.1, 2001 Sediment Sampling Locations. UR and DR referenced to upriver and downriver.

(b) Cosample provided to the Washington State Department of Health.

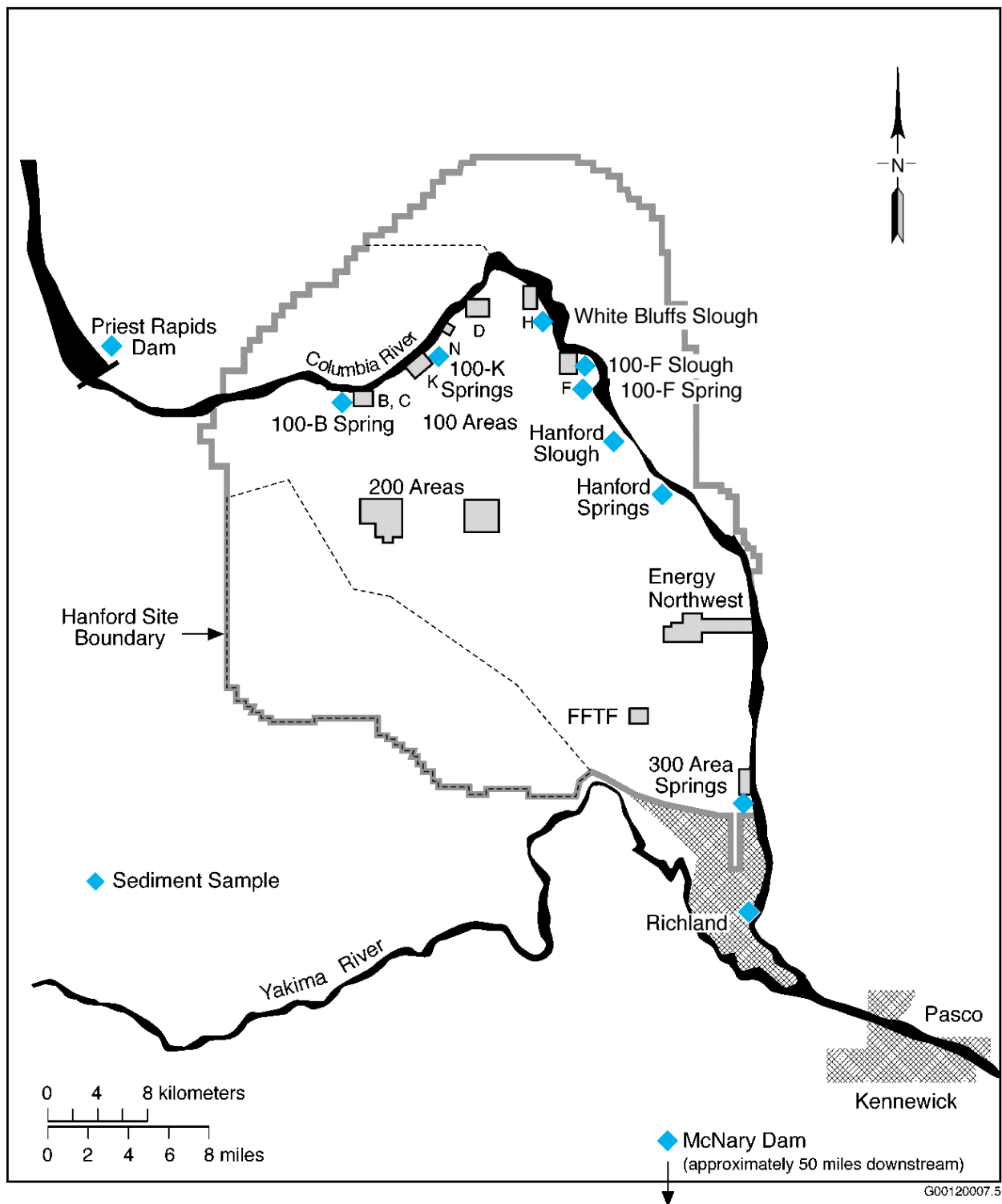


Figure 5.1. 2001 Sediment Sampling Locations

6.0 EXTERNAL RADIATION

6.1 THERMOLUMINESCENT DOSIMETERS (TLDS)

6.1.1 Terrestrial Locations

<u>Location</u>	<u>Location Number</u>	<u>Frequency</u>	<u>Measurement</u>	<u>Instrument</u>
<u>Onsite^(a)</u>				
100 K Area ^(b)	1	Q	Ambient Dose	
100 D Area ^(b)	2	Q	Ambient Dose	
100 F Met Tower ^(b)	3	Q	Ambient Dose	
Hanford Townsite ^(b)	4	Q	Ambient Dose	
N of 200 E ^(b)	5	Q	Ambient Dose, DOH ^(c)	
B Pond ^(b)	6	Q	Ambient Dose	
E of 200 E ^(b)	7	Q	Ambient Dose, DOH ^(c)	
200 ESE ^(b)	8	Q	Ambient Dose	
S of 200 E ^(b)	9	Q	Ambient Dose	
200 Tel. Exchange ^(b)	10	Q	Ambient Dose	
SW of B/C Cribs ^(b)	11	Q	Ambient Dose	
200 W SE ^(b)	12	Q	Ambient Dose	
Army Loop Camp ^(b)	13	Q	Ambient Dose	
3705 Bldg. 300 Area	14	Q	Ambient Dose	
300 Water Intake ^(b)	15	Q	Ambient Dose	
300 Southwest Gate	16	Q	Ambient Dose	
300 South Gate ^(b)	17	Q	Ambient Dose	
300 Trench ^(b)	18	Q	Ambient Dose	
300 NE ^(b)	19	Q	Ambient Dose	
400 E ^(b)	20	Q	Ambient Dose	
400 W ^(b)	21	Q	Ambient Dose	
400 S ^(b)	22	Q	Ambient Dose	
400 N ^(b)	23	Q	Ambient Dose	
US Ecology NE Corner	24	Q	Ambient Dose, DOH ^(c)	
US Ecology SE Corner	25	Q	Ambient Dose, DOH ^(c)	
US Ecology NW Corner	26	Q	Ambient Dose, DOH ^(c)	
US Ecology SW Corner	27	Q	Ambient Dose, DOH ^(c)	
Wye Barricade ^(b)	28	Q	Ambient Dose, DOH ^(c)	
WPPSS 1; S of WNP 2	29	Q	Ambient Dose, DOH ^(c)	
<u>Perimeter^(d)</u>				
Ringold Met Tower ^(b)	1	Q	Ambient Dose	
W End of Fir Road ^(b)	2	Q	Ambient Dose, DOH ^(c)	
Dogwood Met Tower ^(b)	3	Q	Ambient Dose	
Byers Landing ^(b)	4	Q	Ambient Dose	
Battelle Complex ^(b)	5	Q	Ambient Dose	
WPPSS 4; WPS Warehse	6	Q	Ambient Dose, DOH ^(c)	
Horn Rapids Substa ^(b)	7	Q	Ambient Dose	
Prosser Barricade ^(b)	8	Q	Ambient Dose	
Yakima Barricade ^(b)	9	Q	Ambient Dose, DOH ^(c)	
Rattlesnake Springs ^(b)	10	Q	Ambient Dose	
Wahluke Slope ^(b)	11	Q	Ambient Dose	
Mattawa ^(b)	12	Q	Ambient Dose	

6.1.1 Terrestrial Locations (contd)

<u>Location</u>	<u>Location Number</u>	<u>Frequency</u>	<u>Measurement</u>	<u>Instrument</u>
<u>Community^{(d)(e)}</u>				
Othello ^(b)	13	Q	Ambient Dose, DOH ^(c)	
Basin City School ^(b)	14	Q	Ambient Dose	PIC
Edwin Markham School ^(b)	15	Q	Ambient Dose	PIC
Leslie Groves-RchInd ^(b)	16	Q	Ambient Dose	PIC
Pasco ^(b)	17	Q	Ambient Dose	
Kennewick-Ely Street ^(b)	18	Q	Ambient Dose, DOH ^(c)	
Benton City ^(b)	19	Q	Ambient Dose	
<u>Distant^(d)</u>				
Yakima ^(b)	20	Q	Ambient Dose, DOH ^(c)	
Toppenish ^{(b)(e)}	21	Q	Ambient Dose, DOH ^(c)	PIC

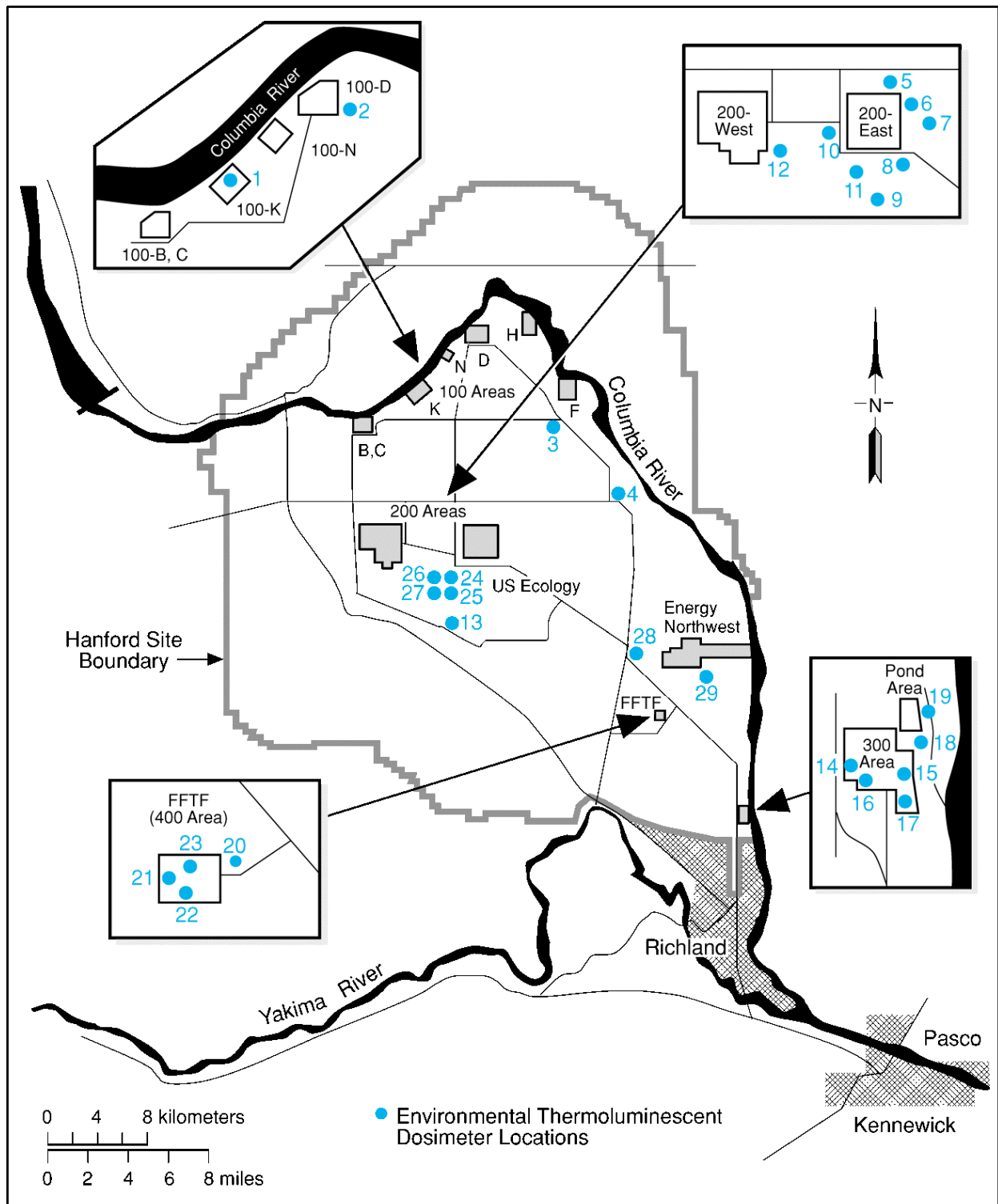
(a) Refer to Figure 6.1, 2001 Thermoluminescent Dosimeter (TLD) Locations on the Hanford Site.

(b) Collocated with air sampling station.

(c) Washington State Department of Health TLD also at this location.

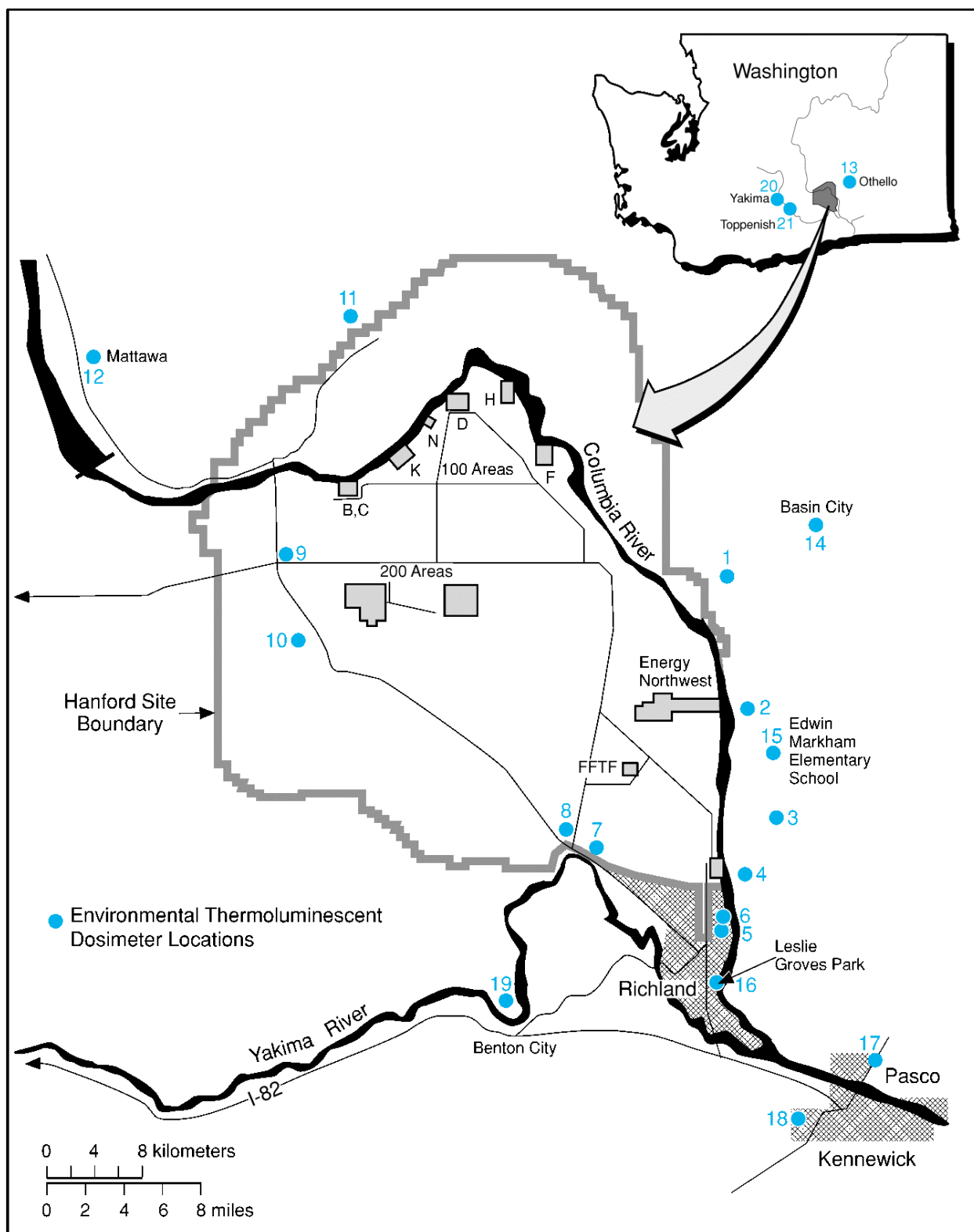
(d) Refer to Figure 6.2, 2001 Thermoluminescent Dosimeter (TLD) Locations for Perimeter, Community, and Distant Sites.

(e) Community-operated environmental surveillance station.



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Figure 6.1. 2001 Thermoluminescent Dosimeter (TLD) Locations on the Hanford Site



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Figure 6.2. 2001 Thermoluminescent Dosimeter (TLD) Locations for Perimeter, Community, and Distant Sites

6.1.2 Columbia River Shoreline Locations

<u>Location^(a)</u>	<u>Location Number</u>	<u>Frequency</u>	<u>Measurement</u>
S End Vernita Bridge ^(b)	1	Q	Ambient Dose
Above 100 B Area	2	Q	Ambient Dose
Below 100 B Ret Basin	3	Q	Ambient Dose
Above 1K Boat Ramp	4	Q	Ambient Dose
Below 100N Outfall	5	Q	Ambient Dose
Above Tip 100N Berm	6	Q	Ambient Dose
100 N Trench Spring	7	Q	Ambient Dose
Below 100 D Area	8	Q	Ambient Dose
100-D Island	9	Q	Ambient Dose
100 H Area	10	Q	Ambient Dose
Lo End Locke Isl	11	Q	Ambient Dose
White Bluffs Fy Lnd.	12	Q	Ambient Dose
White Bluffs Slough	13	Q	Ambient Dose
Below 100 F	14	Q	Ambient Dose
100 F Floodplain	15	Q	Ambient Dose
Hanford Slough	16	Q	Ambient Dose
Hanf Powerline Xing	17	Q	Ambient Dose
Hanford RR Track	18	Q	Ambient Dose
Savage Isl Slough	19	Q	Ambient Dose
Ringold Island	20	Q	Ambient Dose
Powerline Crossing	21	Q	Ambient Dose
S End Wooded Island	22	Q	Ambient Dose
IsInd Above 300 Area	23	Q	Ambient Dose
Island Near 300 Area	24	Q	Ambient Dose
Port of Benton-River	25	Q	Ambient Dose
Isl DS Bateman Isl	26	Q	Ambient Dose

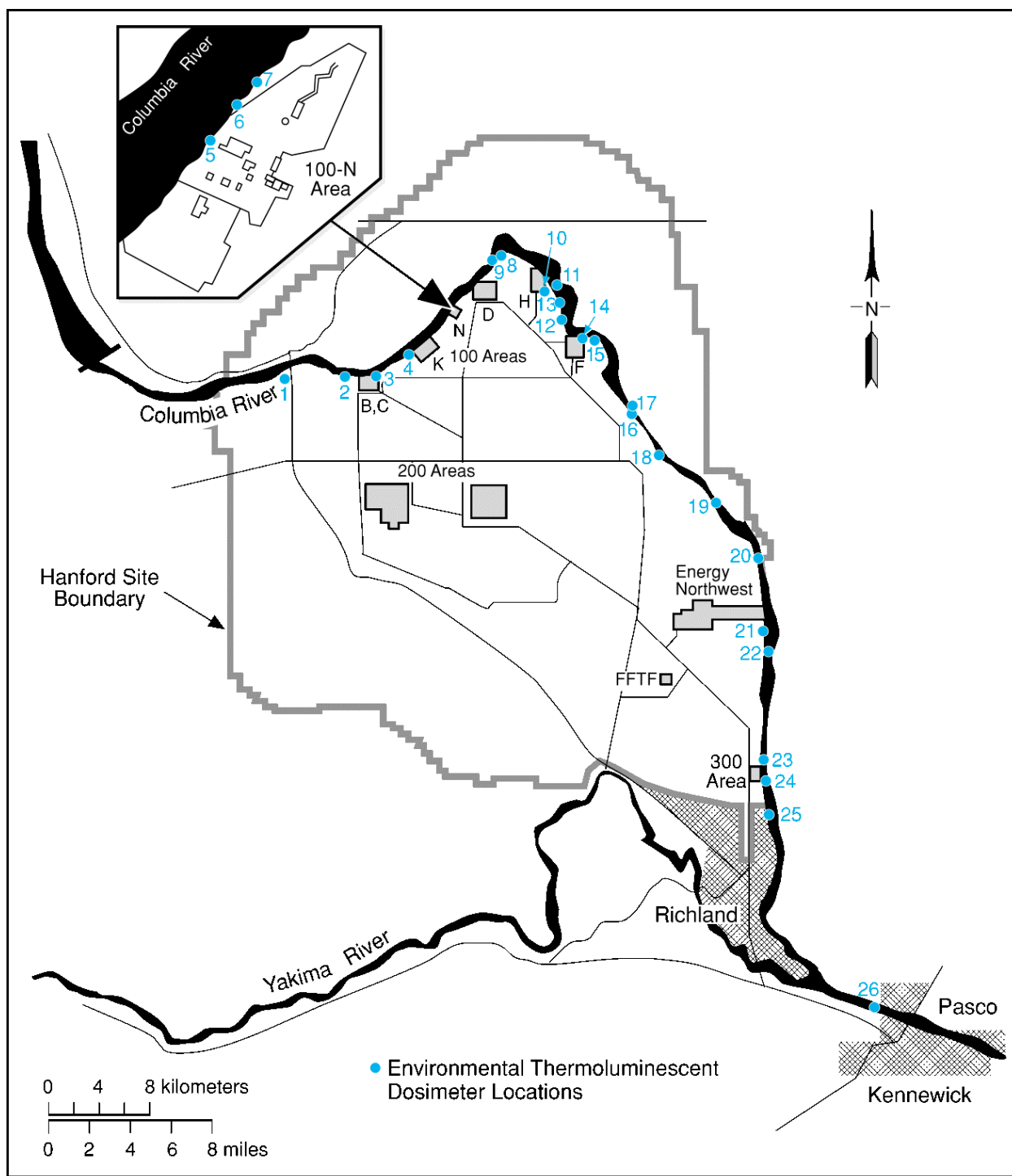
(a) Refer to Figure 6.3, 2001 Thermoluminescent Dosimeter (TLD) Locations on the Hanford Reach of the Columbia River.

(b) Collocated with air sampling station.

6.2 COLUMBIA RIVER SHORELINE RADIATION SURVEYS

<u>Location^(a)</u>	<u>Location Number</u>	<u>Frequency</u>	<u>Measurement</u>	<u>Instrument</u>
S End Vernita Bridge	1	Q	Exposure, Surface contamination	BICRON, GM
Above 1K Boat Ramp	4	Q	Exposure, Surface contamination	BICRON, GM
Below 100N Outfall	5	Q	Exposure, Surface contamination	BICRON, GM
Above Tip 100N Berm	6	Q	Exposure, Surface contamination	BICRON, GM
100 N Trench Spring	7	Q	Exposure, Surface contamination	BICRON, GM
100-D Island	9	Q	Exposure, Surface contamination	BICRON, GM
Lo End Locke Isl	11	Q	Exposure, Surface contamination	BICRON, GM
White Bluffs Fy Lnd.	12	Q	Exposure, Surface contamination	BICRON, GM
Below 100 F	14	Q	Exposure, Surface contamination	BICRON, GM
Hanf Powerline Xing	17	Q	Exposure, Surface contamination	BICRON, GM
Hanford RR Track	18	Q	Exposure, Surface contamination	BICRON, GM
Ringold Island	20	Q	Exposure, Surface contamination	BICRON, GM
Powerline Crossing	21	Q	Exposure, Surface contamination	BICRON, GM
IsInd Above 300 Area	23	Q	Exposure, Surface contamination	BICRON, GM

(a) Refer to Figure 6.3, 2001 Thermoluminescent Dosimeter (TLD) Locations on the Hanford Reach of the Columbia River.



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Figure 6.3. 2001 Thermoluminescent Dosimeter (TLD) Locations on the Hanford Reach of the Columbia River

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