Table 3-1. Summary of Interim Cleanup and Removal Actions Completed at the Former Rayonier Mill Site.

Area	Chemicals of Interest	Cleanup Action Taken	
		Date	***Action***
Finishing Room – Ennis Creek	TPH, PCBs	1989	Instituted measures to contain leaking oil and installed a recovery system to capture oil migrating in the subsurface.
		1991	Initiated oil recovery system and installed a sheet pile wall to improve performance and slow migration of oil to the creek.
		1993	Installed a recovery trench and sumps to improve recovery of oil and impacted groundwater. Approximately 450 yd^3 of soil were removed from the trench and treated.
		1998	Removed more than 8,300 tons of impacted soils and backfilled the excavation with clean soil.
		2002	Removed 1,248 tons of soil and creek sediment for disposal in Port Angeles' sanitary landfill.
Fuel Oil Tank No. 2	TPH	1993	Excavation, treatment, and replacement of 1,500 yd^3 of soil.
		2002	Removed 5,137 tons of soil (includes soils from hog fuel pile area) for disposal in the TPS Technology facility in Lakewood, WA or Port Angeles' Sanitary Landfill.
Hog Fuel Pile	Wood Residue, TPH	2001	Removed ~2,700 yd^3 of wood residue for disposal in Port Angeles' Sanitary Landfill.
		2002	Removed 5,137 tons of soil (includes soils from fuel oil tank No. 2 area) for disposal in the TPS Technology facility in Lakewood, WA and the Port Angeles' Sanitary Landfill.
Former Machine Shop	TPH, PCBs	2002	Removal of 970 tons of soil for disposal in Port Angeles' Sanitary Landfill. Excavation was backfilled with clean concrete rubble.
SSL Lagoon	Stained Soils	2001	The lagoon's clay liner (~3,000 yd^3) were removed and used as cover material at the Mt. Pleasant Landfill.

Table 3-2. Summary of Groundwater Monitoring Wells Installed at the Site. (part 1 of 2)

Well ID	Current Use[a]	Northing[b]	Easting[b]	Date Installed	Date Abandoned	Ground Elevation (ft NGVD 29)	Casing Elevation (ft NGVD 29)	Screened Interval (ft bgs)	Screened Unit[d]	Well Log Source
FA-1	Abandoned	*417821*	*1012241*	11/16/1989	10/98	4.4	8.41	2.3 - 8.3	--	LAI 1991
FA-2	Abandoned	*417862*	*1012235*	11/16/1989	10/98	7.5	11.49	5.3 - 11.3	--	LAI 1991
FA-3	Abandoned	*417784*	*1012233*	11/16/1989	10/98	4.5	8.54	2.4 - 8.4	--	LAI 1991
FA-4	Abandoned	*417843*	*1012239*	6/11/1990	10/98	5.0	8.98	1.7 - 6.7	--	LAI 1991
FA-5	Abandoned	*417801*	*1012237*	6/11/1990	10/98	4.5	8.49	2.2 - 7.2	--	LAI 1991
FA-6	Abandoned	*417908*	*1012247*	6/11/1990	10/98	6.6	10.63	3.1 - 8.1	--	LAI 1991
FA-7	Abandoned	*417836*	*1012199*	6/12/1990	10/98	6.6	10.56	3.9 - 8.9	--	LAI 1991
FA-8	Abandoned	*417889*	*1012169*	6/12/1990	10/98	6.8	10.79	4 - 9	--	LAI 1991
FA-9	Abandoned	*417895*	*1012215*	6/12/1990	10/98	6.5	10.46	4 - 9	--	LAI 1991
FA-10	Abandoned	*417923*	*1012209*	6/13/1990	10/98	6.7	10.72	2.7 - 7.7	--	LAI 1991
FA-11	Abandoned	*417988*	*1012203*	6/13/1990	10/98	5.9	9.88	2.3 - 7.3	--	LAI 1991
FA-12	Abandoned	*417939*	*1012251*	6/28/1990	10/98	6.5	10.51	3.6 - 8.6	--	LAI 1991
FA-13	Abandoned	*417980*	*1012243*	8/16/1990	10/98	6.4	10.39	1.1 - 7.1	--	LAI 1991
FR-1	Abandoned	417954	1012240	11/10/1998	2002	--	5.26	3 - 15	SP, GP	SECOR 1999
FR-2	Abandoned	417970	1012217	11/9/1998	2002	--	6.77	3 - 15	SP, GP	SECOR 1999
FR-3	Abandoned	417901	1012174	11/9/1998	2002	--	6.42	3 - 14	SP, GP	SECOR 1999
FR-4	Abandoned	417825	1012205	11/10/1998	2002	--	5.82	3 - 15	SP, GP	SECOR 1999
MW-3	Abandoned	*417659*	*1011170*	9/26/1990	1993	9.4	10.54	3.6 - 5.8	(SW)	LAI 1990
MW-6	Abandoned	*417625*	*1011154*	9/26/1990	9/27/1990	9.3	9.60	3 - 5.8	(SW)	LAI 1990
MW-7	Abandoned	*417633*	*1011230*	9/26/1990	1993	9.5	11.22	4.2 - 8.7	(SP)	LAI 1990
MW-11	Abandoned	417628	1011272	9/25/1990	2002	11.0	10.73	6 - 9.5	SM, GP, ML, WD	LAI 1990
MW-13	Abandoned	*417725*	*1011162*	9/24/1990	1993	11.8	11.76	6 - 16	GM-GP, (ML), SM	LAI 1990
MW-16	Abandoned	*417657*	*1011259*	9/27/1990	1993	11.4	11.65	5.6 - 11.2	SM, GP	LAI 1990
MW-19	Abandoned	*417706*	*1011295*	2/20/1991	2002	11.0	10.46[c]	3 - 12	ML-GM, SW	LAI 1991
MW-20	Abandoned	417717	1011237	2/21/1991	2002	12.9	12.56[c]	3.9 - 13	GM, SW	LAI 1991
MW-23	Monitoring Well	417783	1011276	2/21/1991	NA	12.9	11.10[c]	4 - 13	ML-GM, GW	LAI 1991
MW-26	Abandoned	417818	1011088	6/11/1991	12/29/1997	9.42	9.00	5.1 - 15.5	(SW), ML	LAI 1991
MW-27	Abandoned	417802	1011130	6/11/1991	2/14/2001	10.45	10.09	6 - 11	SW, SM	LAI 1991
MW-28	Observation Well	417745	1011088	6/12/1991	NA	10.36	9.79[c]	5 - 15.3	SW, SM	LAI 1991
MW-29	Monitoring Well	417791	1011174	6/12/1991	NA	11.38	10.88[c]	5.1 - 15.5	(SW), SM	LAI 1991
MW-51	Monitoring Well	418288	1011799	2/26/1998	NA	--	13.36	13 - 23	(SM)	LAI 1998
MW-52	Monitoring Well	417610	1010635	2/25/1998	NA	--	14.10	13 - 23	GP, (SP)	LAI 1998
MW-53	Monitoring Well	417990	1011135	2/14/2001	NA	9.4	11.91	8 - 14	(GM), SP-SM	LAI 2001
MW-54	Monitoring Well	418173	1011250	2/14/2001	NA	10.9	13.59	7 - 23	(WD), RK, SP-SM	LAI 2001
MW-55	Monitoring Well	418282	1011322	2/13/2001	NA	10.0	13.84	9.5 - 27.5	SP-SM, ML, WD, SM	LAI 2001
MW-56	Monitoring Well	418194	1012044	2/14/2001	NA	10.6	10.86	12 - 32	ML, (SP-SM), SM	LAI 2001
MW-57	Monitoring Well	418069	1011468	11/21/2002	NA	12.06	14.06	5-30	SM, SP-SM, GP	LAI 2001
MW-58	Monitoring Well	417926	1011911	11/21/2002	NA	10.05	12.05	5-20	SM, SP-SM, GM	LAI 2001
MW-59	Monitoring Well	417190	1013376	11/22/2002	NA	12.02	14.02	4-19	SM, SP-SM,	LAI 2001

Table 3-2. Summary of Groundwater Monitoring Wells Installed at the Site. (part 2 of 2)

Well ID	Current Use[a]	Northing[b]	Easting[b]	Date Installed	Date Abandoned	Ground Elevation (ft NGVD 29)	Casing Elevation (ft NGVD 29)	Screened Interval (ft bgs)	Screened Unit[d]	Well Log Source
PZ-1	Abandoned	*417653*	*1010557*	8/5/1993	--	--	--	4 - 19	(SW), ML	HLA 1993
PZ-2	Observation Well	417932	1011234	8/5/1993	NA	11.13	10.77[c]	4 - 19	GW, SW	HLA 1993
PZ-3	Monitoring Well	418244	1011484	8/4/1993	NA	10.77	10.60[c]	4 - 19	SW, (GW)	HLA 1993
PZ-4	Monitoring Well	417726	1011547	8/9/1993	NA	9.07	8.81[c]	4 - 19	SW, SM	HLA 1993
PZ-5	Monitoring Well	417284	1012067	8/10/1993	NA	10.13	9.91[c]	4 - 14	SW, SW-GW, SM	HLA 1993
PZ-6	Monitoring Well	416878	1011841	8/2/1993	NA	15.43	15.26[c]	4 - 14	(SW), SM	HLA 1993
PZ-7	Monitoring Well	417068	1012258	8/3/1993	NA	20.73	20.49[c]	4.5 - 19.5	SM, SW, (GW)	HLA 1993
PZ-9	Monitoring Well	417397	1012941	8/5/1993	NA	9.58	9.26[c]	3.5 - 21.5	(SW), SP	HLA 1993
PZ-10	Monitoring Well	417164	1012938	8/10/1993	NA	10.60	10.33[c]	4 - 19	(SW), GW, SM	HLA 1993
PZ-11	Monitoring Well	416754	1012559	8/3/1993	NA	28.20	27.91[c]	6 - 15	(ML), SM	HLA 1993
PZ-12	Monitoring Well	416547	1012281	8/10/1993	NA	30.51	30.21[c]	7 - 22	SM, (GW)	HLA 1993
PZ-13	Observation Well	416876	1013854	8/6/1993	NA	10.68	11.60[c]	4 - 19	ML, SP, (SW)	HLA 1993

Notes:

[a] "Observation Well" indicates a well that is used only for monitoring groundwater levels. "Monitoring Well" indicates a well that is used to collect groundwater samples and to monitor groundwater levels.

[b] Coordinates listed are relative to the Washington Coordinate System of 1983, North Zone [NAD 83(91)]. Surveys conducted by Northwestern Territories Inc. in Feb. 2001 and Nov. 2002. Italics indicates scanned from figures.

[c] Casing elevation based on 2001 survey data, not information on original log of boring.

[d] Predominant soil type, if applicable, is designated by parentheses. [GP-poorly graded gravel; GM-silty gravel; GW-well-sorted gravel; ML–silt; RK–rock; SM–silty sand; DP-poorly graded sand; SW-well-sorted sand; WD-wood.]

NA = Not applicable.

-- = Information not available.

Table 3-3. Finishing Room 1999 Compliance Monitoring - Sample Results Summary.

Sample Location	Sample Date	TPH - Diesel Range (ppm)	TPH - Oil Range (ppm)	Total Polychlorinated Biphenyls (ppb)	Total Suspended Solids (ppm)
		10 ppm [a]	10 ppm [a]	0.1 ppb [b]	50 ppm [c]
FR-1	3/26/1999	0.25U	0.50U	1.0U	4.0
	5/5/1999	0.25U	0.50U	0.1U [d]	6.1
	8/2/1999	0.25U	0.50U	0.1U [d]	5.8
	10/7/1999	0.25U	0.50U	0.1U [d]	1.4
FR-2	3/26/1999	0.25U	0.50U	1.0U	86.0
	5/5/1999	0.25U	0.50U	0.1U [d]	1.5
	8/2/1999	0.25U	0.50U	0.1U [d]	4.6
	10/7/1999	0.25U	0.50U	0.1U [d]	1.8
FR-3	3/26/1999	0.25U	0.50U	1.0U	89.0
	5/5/1999	0.25U	0.50U	0.1U [d]	6.7
	8/2/1999	0.25U	0.50U	0.1U [d]	1.1U
	10/7/1999	0.25U / 0.25U [e]	0.50U / 0.50U [e]	0.1U / 0.1U [d,e]	5.0 / 5.1 [e]
FR-4	3/26/1999	0.25U	0.50U	1.0U	9.5
	5/5/1999	0.25U / 0.25U [e]	0.50U / 0.50U [e]	0.1U / 0.1U [d]	8.8 / 6.6 [e]
	8/2/1999	0.25U / 0.25U [e]	0.50U / 0.50U [e]	0.1U / 0.1U [d]	3.8 / 1.3 [e]
	10/7/1999	0.25U	0.50U	0.1U [d]	14.0
Ennis Creek	3/26/1999	0.25U	0.50U	1.0U	14.0
	5/5/1999	0.25U	0.50U	0.1U [d]	1.2
	8/2/1999	0.25U	0.50U	0.1U [d]	2.4
	10/7/1999	0.25U	0.50U	0.1U [d]	180.0

Notes:

Source: Modified from Landau 1999, Table 1.

[a] Cleanup action level criteria from the consent order. Criterion based on total TPH results (diesel and oil fractions).

[b] PCB cleanup action level criteria from the consent order.

[c] Total suspended solids data provided for information purposes. Discharge limit criteria established in the consent order.

[d] PCB Aroclors were not detected. Results for PCB Aroclors 1016, 1242, 1248, 1254, 1260, and 1232 showed no detections at a reporting limit concentration of 0.10 µg/L. Results for PCB Aroclor 1221 were not detected at a reporting limit of 0.2 µg/L. For this data summary table, the total PCB reporting limit is identified as less than 0.1 µg/L.

[e] Sample/blind field duplicate analytical results.

Table 3-4. Fuel Oil Tank #2 Sample Analysis Results-Groundwater (all units µg/L).

						Volatile Organic Compounds[e]							
Location	Date	TPH[a]	TPH as Gasoline[b]	TPH as Diesel[©]	PAHs[d]	Benzene	Tolunene	Ethyl-benzene	Xylene	Total 1,2-Dichloro-ethane	Trichloro-ethene	Vinyl Chloride	Acetone
MW-7	3/18/1991	OP	--	--	--	--	--	--	--	--	--	--	--
MW-11	3/18/1991	3800	310	2300	ND	0.52	0.472	1.6	7.2	--	--	--	--
MW-13	3/18/1991	570	<30	--	ND	0.74	<0.30	<0.30	0.32	93	7	26	<10
MW-13	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	72	<2.0	34	<10
MW-16	3/18/1991	OP	--	--	--	6.4	2.1	11	28	<2.0	<2.0	<2.0	<10
MW-19	3/18/1991	600	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10
MW-20	3/18/1991	<500	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10
MW-20	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10
MW-23	3/18/1991	<500	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10
MW-23	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10
MW-26	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	12	<2.0	<2.0	8.6
MW-27	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	26
MW-28	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10
MW-29	7/1/1991	--	--	--	--	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<10

Notes:

Source: Modified from Landau 1999, Table 3.

OP=Free phase oil present in well during all measurement periods.

ND=Not Detected.

[a] Method 418.1

[b] Method 8015

[c] Method 8015

[d] Method 8100

[e] Method 8020 or 8240

Table 3-5. Groundwater Sampling Events Included in the Foster Wheeler (2000) Evaluation of Chemicals of Concern.

Sampling Event	Sampling Date	Wells Tested[1]	Chemical Classes Evaluated
EPA ESI	11/97	PZ-2, PZ-3, PZ-4, PZ-7, PZ-9, PZ-11, PZ-12	Volatiles, Semivolatiles, PCBs/Pesticides[2]
Rayonier ESI Field Split	11/97	PZ-2, PZ-9, PZ-11	General Parameters[3]
Rayonier Finishing Room Cleanup Monitoring	12/99, 8/99, 5/99, 3/99	FR-1, FR-2, FR-3, FR-4	PCBs, TPH[4]
Rayonier Limited Sampling 1998 (Rayonier 1998)	8/98	MW-51, MW-52	Volatiles, Semivolatiles, PCBs/Pesticides, Inorganics, TPH, General Parameters
Rayonier Groundwater Survey 1997 (Rayonier 1997)	8/97	PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-10, PZ-11, PZ-12, PZ-13, MW-11, MW-20, MW-23, MW-29	Volatiles, Semivolatiles, PCBs/Pesticides, Inorganics, TPH, General Parameters
Rayonier Groundwater Survey 1997 (Rayonier 1997)	2/97	PZ-2, PZ-3, PZ-4, PZ-5, PZ-6, PZ-7, PZ-10, PZ-11, PZ-12, PZ-13, MW-11, MW-20, MW-23, MW-29	Volatiles, Semivolatiles, PCBs/Pesticides, Inorganics, TPH, General Parameters

[1] Well MW-19 has not been sampled during the last 6 years and was removed as part of the 2002 Interim Actions.
[2] Total metals data are not included per WAC 173-340-720. Finishing room well data are not included as sampling was conducted before area cleanup. Push-probe sample data are not included as protocols are not suitable for groundwater quality criteria comparisons.
[3] Conventional data are included since the EPA data set did not include these constituents. Other duplicate results are used for data validation.
[4] Data from compliance monitoring wells installed following the finishing room interim action.

Table 3-6. Groundwater Sampling Data Summary and Relevant Regulatory (Part 1 of 3) Criteria. (All units µg/L)

Chemical Analyte	No, of Samples	Detection Frequency	Detection Limit Range		Range of Detections		Minimum Regulatory Criteria	Regulatory Citation
			Min.	Max.	Min.	Max.		
Metals, Dissolved								
Antimony	27	0%	50	200			4,300	Fed Human Health
Arsenic	27	4%	*50*	*200*	**100**	**100**	0.10	WA Human Health
Beryllium	27	0%	*1*	*5*			0.08	WA Human Health
Cadmium	27	0%	*2*	*10*			0.70	WA Aquatic
Chromium	27	11%	5	5	**81**	**1,500**	10	WA Aquatic
Copper	27	30%	2	2	2	**30**	2.40	Fed Aquatic
Iron	27	78%	20	20	50	102,000		
Lead	27	0%	*20*	*100*			1.41	WA Aquatic
Manganese	27	96%	1	1	2	13,900		
Mercury	25	0%	*0.1*	*0.5*			0.012	WA Aquatic
Nickel	27	4%	*10*	*50*	**10**	**10**	8.20	WA Aquatic
Selenium	27	41%	*50*	*50*	**50**	**300**	5.00	WA Aquatic
Silver	27	0%	*3*	*20*			1.9	WA Aquatic
Thallium	27	0%	*50*	*200*			1.56	WA Human Health
Zinc	27	44%	4	20	5	24	66.8	WA Aquatic
Pesticides/PCBs								
4,4'-DDD	7	0%	*0.10*	*5*			0.00050	WA Human Health
4,4'-DDE	7	0%	*0.10*	*5*			0.00036	WA Human Health
4,4'-DDT	7	0%	*0.10*	*5*			0.00036	WA Human Health
Aldrin	7	0%	*0.05*	*2.5*			0.00008	WA Human Health
Alpha-BHC	7	0%	*0.05*	*2.5*			0.0079	WA Human Health
Alpha-Chlordane	7	0%	*0.05*	*2.5*			0.0006	Fed Human Health
Aroclor-1016	48	0%	*0.10*	*3,900*			0.014	Fed Aquatic
Aroclor-1221	48	0%	*0.20*	*7,800*			0.014	Fed Aquatic
Aroclor-1232	48	0%	*0.10*	*3,900*			0.014	Fed Aquatic
Aroclor-1242	48	0%	*0.10*	*3,900*			0.014	Fed Aquatic
Aroclor-1248	48	0%	*0.10*	*3,900*			0.014	Fed Aquatic
Aroclor-1254	48	0%	*0.10*	*3,900*			0.014	Fed Aquatic
Aroclor-1260	48	0%	*0.10*	*3,900*			0.014	Fed Aquatic
Total PCBs	16	0%	*0.10*	*1.0*			0.00017	Fed Human Health
Beta-BHC	7	0%	*0.05*	*2.5*			0.028	WA Human Health
Delta-BHC	7	0%	0.05	2.5				
Dieldrin	7	0%	*0.10*	*5.0*			0.00014	Fed Human Health
Endosulfan I	7	0%	*0.05*	*2.5*			0.0087	WA Aquatic
Endosulfan II	7	0%	*0.10*	*5.0*			0.0087	WA Aquatic
Endosulfan sulfate	7	0%	0.10	*5.0*			2.00	Fed Human Health
Endrin	7	0%	*0.10*	*5.0*			0.0023	WA Aquatic
Endrin Aldehyde	7	0%	0.10	*5.0*			0.81	Fed Human Health
Endrin Ketone	7	0%	0.10	5.0				
Gamma-BHC (Lindane)	7	0%	*0.05*	*2.5*			0.04	WA Human Health
Gamma-Chlordane	7	0%	*0.05*	*2.5*			0.0040	WA Aquatic
Heptachlor	7	0%	*0.05*	*2.5*			0.00013	WA Human Health
Heptachlor epoxide	7	0%	*0.05*	*2.5*			0.000064	WA Human Health
Methoxychlor	7	0%	*0.50*	*25*			0.030	Fed Aquatic
Toxaphene	7	0%	*5.00*	*250*			0.00020	Fed Aquatic
Semivolatile Compounds								
1,2,4-Trichlorobenzene	7	0%	10	10			227	WA Human Health
1,2-Dichlorobenzene	34	0%	1	10			4,200	WA Human Health
1,3-Dichlorobenzene	34	0%	1	10			2,600	Fed Human Health
1,4-Dichlorobenzene	34	0%	1	*10*			4.86	WA Human Health
2,2'-oxybis(1-Chloropropane)	7	0%	10	10				
2,2'-Oxybis(2-chloropropane)	27	0%	1	1			42,000	WA Human Health
2,4,5-Trichlorophenol	34	0%	5	25				
2,4,6-Trichlorophenol	34	0%	*5*	*10*			3.93	WA Human Health
2,4-Dichlorophenol	34	0%	3	10			790	Fed Human Health
2,4-Dimethylphenol	34	0%	3	10			191	WA Human Health
2,4-Dinitrophenol	34	0%	10	25			553	WA Human Health
2,4-Dinitrotoluene	34	0%	5	10			1,360	WA Human Health
2,6-Dinitrotoluene	34	0%	5	10				
2-Chloronaphthalene	34	0%	1	10				
2-Chlorophenol	34	0%	1	10			96.7	WA Human Health
2-Methyl-4,6-dinitrophenol	34	0%	10	25			765	Fed Human Health
2-Methylnaphthalene	34	0%	1	10				
2-Methylphenol	34	0%	2	10				
2-Nitroaniline	34	0%	5	25				
3,3'-Dichlorobenzidine	34	0%	*5*	*10*			0.046	WA Human Health
3-Nitroaniline	34	0%	6	25				
4-Bromophenyl phenyl ether	34	0%	1	10				
4-Chloro-3-methylphenol	34	0%	2	10				
4-Chloroaniline	34	0%	3	10				

Table 3-6. Groundwater Sampling Data Summary and Relevant Regulatory (Part 2 of 3) Criteria. (All units µg/L)

Chemical Analyte	No, of Samples	Detection Frequency	Detection Limit Range		Range of Detections		Minimum Regulatory Criteria	Regulatory Citation
			Min.	Max.	Min.	Max.		
Semivolatile Compounds, *continued . . .*								
4-Chlorophenylphenyl ether	34	0%	1	10				
4-Methylphenol	34	0%	1	10				
4-Nitrophenol	34	0%	5	25				
Acenaphthene	34	21%	1	10	3.7	27	643	WA Human Health
Acenaphthylene	34	0%	1	10				
Anthracene	34	0%	1	10			25,900	WA Human Health
Benzo(a)anthracene	34	0%	*1*	*10*			0.03	WA Human Health
Benzo(a)pyrene	34	0%	*1*	*10*			0.03	WA Human Health
Benzo(b)fluoranthene	34	0%	*1*	*10*			0.03	WA Human Health
Benzo(g,h,i)perylene	34	0%	1	10				
Benzo(k)fluoranthene	34	0%	*1*	*10*			0.03	WA Human Health
Benzoic Acid	27	0%	10	10				
Benzyl Alcohol	27	0%	5	5				
bis(2-Chloroethoxy)methane	34	0%	1	10				
bis(2-Chloroethyl) ether	34	0%	*2*	*10*			0.85	WA Human Health
bis(2-Ethylhexyl) phthalate	34	32%	1	*10*	2.2	**13**	3.56	WA Human Health
Butyl benzyl phthalate	34	0%	1	10			1,250	WA Human Health
Carbazole	34	15%	1	10	1.8	7		
Chrysene	34	0%	*1*	*10*			0.03	WA Human Health
Dibenzo(a,h)anthracene	34	0%	*1*	*10*			0.00	WA Human Health
Dibenzofuran	34	9%	1	10	1.2	2		
Diethyl phthalate	34	0%	1	10			28,400	WA Human Health
Dimethyl phthalate	34	0%	1	10			72,000	WA Human Health
Di-n-butyl phthalate	34	3%	1	10	1.3	1.3	2,910	WA Human Health
Di-n-octyl Phthalate	34	0%	1	10				
Fluoranthene	34	12%	1	10	1	2	90.2	WA Human Health
Fluorene	34	18%	1	10	1.1	4.2	3,460	WA Human Health
Hexachlorobenzene	34	0%	*1*	*10*			0.00	WA Human Health
Hexachlorobutadiene	34	0%	2	10			29.9	WA Human Health
Hexachlorocyclopentadiene	34	0%	5	10			4,180	WA Human Health
Hexachloroethane	34	0%	2	*10*			5.33	WA Human Health
Indeno(1,2,3-cd)pyrene	34	0%	*1*	*10*			0.03	WA Human Health
Isophorone	34	0%	1	10			600	Fed Human Health
Naphthalene	34	3%	1	10	1.5	1.5	9,880	WA Human Health
Nitrobenzene	34	0%	1	10			449	WA Human Health
N-Nitroso-di-n-propylamine	34	0%	*2*	*10*			0.82	WA Human Health
N-Nitrosodiphenylamine	34	0%	1	*10*			9.73	WA Human Health
o-Nitrophenol	34	0%	5	10				
Pentachlorophenol	34	0%	*5*	*25*			4.91	WA Human Health
Phenanthrene	34	6%	1	10	1	1		
Phenol	34	0%	2	10			1,100,000	WA Human Health
p-Nitroaniline	34	0%	5	25				
Pyrene	34	6%	1	10	1	1	2,590	WA Human Health
Volatile Compounds								
1,1,1,2-Tetrachloroethane	27	0%	1	9				
1,1,1-Trichloroethane	34	0%	1	10			417,000	WA Human Health
1,1,2,2-Tetrachloroethane	34	0%	1	*10*			6.48	WA Human Health
1,1,2-Trichloroethane	34	0%	1	10			25.3	WA Human Health
1,1,2-Trichlorotrifluoroethane	27	0%	2	18				
1,1-Dichloroethane	34	6%	1	10	1.9	3.2		
1,1-Dichloroethene	34	0%	1	*10*			1.93	WA Human Health
1,1-Dichloropropene	27	0%	1	9				
1,2,3-Trichlorobenzene	27	0%	5	45				
1,2,3-Trichloropropane	27	0%	1	9				
1,2,4-Trichlorobenzene	38	0%	1	45			227	WA Human Health
1,2,4-Trimethylbenzene	27	0%	1	9				
1,2-Dibromo-3-chloropropane	27	0%	5	45				
1,2-Dibromoethane	27	0%	1	9				
1,2-Dichlorobenzene	27	0%	1	9			4,200	WA Human Health
1,2-Dichloroethane	34	0%	1	10			59.4	WA Human Health
1,2-Dichloropropane	34	0%	1	10			23.2	WA Human Health
1,3,5-Trimethylbenzene	27	0%	1	9				
1,3-Dichlorobenzene	27	0%	1	9			2,600	Fed Human Health
1,3-Dichloropropane	27	0%	1	9			18.9	WA Human Health
1,4-Dichlorobenzene	27	0%	1	*9*			4.86	WA Human Health
2,2-Dichloropropane	27	0%	1	9				
2-Butanone	27	4%	5	45	10	10		
2-Chloroethylvinylether	27	0%	5	45				
2-Chlorotoluene	27	0%	1	9				
2-Hexanone	27	0%	5	45				
4-Chlorotoluene	27	0%	1	9				
4-Methyl-2-Pentanone	27	0%	5	45				
Acetone	27	7%	5	45	5.7	28		
Acrolein	27	0%	50	450			780	Fed Human Health

Table 3-6. Groundwater Sampling Data Summary and Relevant Regulatory (Part 3 of 3) Criteria. (All units µg/L)

Chemical Analyte	No, of Samples	Detection Frequency	Detection Limit Range		Range of Detections		Minimum Regulatory Criteria	Regulatory Citation
			Min.	Max.	Min.	Max.		
Volatile Compounds, *continued . . .*								
Acrylonitrile	27	0%	*5*	*45*			0.40	WA Human Health
Benzene	34	0%	1	10			43	WA Human Health
Bromobenzene	27	0%	1	9				
Bromochloromethane	27	0%	1	9				
Bromodichloromethane	34	0%	1	10			22	Fed Human Health
Bromoethane	27	0%	2	18				
Bromoform	34	0%	1	10			219	WA Human Health
Bromomethane	33	0%	2	18			968	WA Human Health
Carbon Disulfide	34	3%	1	10	2.0	2.0		
Carbon Tetrachloride	34	0%	1	*10*			2.66	WA Human Health
Chlorobenzene	34	0%	1	10			5,030	WA Human Health
Chloroethane	34	0%	2	18				
Chloroform	34	0%	1	10			283	WA Human Health
Chloromethane	34	0%	2	18			133	WA Human Health
cis-1,2-Dichloroethene	34	3%	1	10	1.3	1.3		
Cis-1,3-Dichloropropene	34	0%	1	10				
Dibromochloromethane	34	0%	1	10			20.6	WA Human Health
Dibromomethane	27	0%	1	9				
Ethylbenzene	34	0%	1	10			6,910	WA Human Health
Hexachlorobutadiene	27	0%	5	*45*			29.9	WA Human Health
Isopropylbenzene	27	0%	1	9				
m+p Xylenes	27	0%	1	9				
Methyl Iodide	27	0%	1	9				
Methylene Chloride	34	6%	2	18	42	42	960	WA Human Health
Naphthalene	27	22%	1	45	1.2	20		
N-Butylbenzene	27	0%	1	9				
n-Propylbenzene	27	0%	1	9				
o-Xylene	27	0%	1	9				
P-Isopropyltoluene	27	0%	1	9				
Sec-Butylbenzene	27	0%	1	9				
Styrene	34	0%	1	10				
Tert-Butylbenzene	27	0%	1	9				
Tetrachloroethene	34	0%	1	*10*			4.15	WA Human Health
Toluene	34	21%	1	10	1	49	48,500	WA Human Health
trans-1,2-Dichloroethene	27	0%	1	9			32,800	WA Human Health
trans-1,3-Dichloropropene	34	0%	1	10				
trans-1,4-Dichloro-2-butene	27	0%	5	45				
Trichloroethene	34	3%	1	10	1	1	55.6	WA Human Health
Trichlorofluoromethane	27	0%	2	18				
Vinyl Acetate	27	0%	5	45				
Vinyl Chloride	34	0%	2	*18*			2.92	WA Human Health
Xylene (Total)	7	0%	10	10				
Petroleum								
Diesel	39	28%	250	10,000	250	840		
Gasoline	16	0%	0.25	10,000				
Heavy Oil	39	0%	500	25,000				
General Physical Parameters								
Ammonia	30	97%	1.22	1.22	52.3	**68,100**	22	WA AWQC
Chemical Oxygen Demand	11	100%			6,100	7,600,000		
Chloride	30	100%			5,700	360,000		
Field pH	28	100%			5.99	**11.98**	11	WA AWQC
Nitrate (ug-N/L)	27	81%	10	200	30,000	30,000		
Nitrate + Nitrite (ug-N/L)	30	57%	10	200	30,000	30,000		
Nitrite (ug-N/L)	30	57%	10	100	30,000	30,000		
Sulfate	30	100%			23,000	1,000,000		
Total Organic Carbon	27	96%	1,500	1,500	2,200	7,300,000		
Tannins & Lignins	14	100%			76.0	1,130,000		

Table Key

Italics - Detection limit value exceeds applicable regulatory screening criteria.

Bold - Detected concentration exceeds applicable regulatory screening criteria.

WA Aquatic - Ambient water quality criteria (chronic) for fresh and marine waters, WAC 173-201A.

Fed Aquatic - Federal National Toxics Rule ambient water quality criteria (chronic) for fresh and marine waters from National Recommended Water Quality Criteria under Section 304(a) of the Clean Water Act; Federal Register 12/22/92, 05/04/95, and 11/09/99.

WA Human Health - State of Washington human health criteria based on consumption of aquatic organisms, derived from WAC 173-340-730(3)(a)(A&B) (Method B).

Fed Human Health - Federal National Toxics Rule human health criteria based on consumption of aquatic organisms, from National Recommended Water Quality Criteria; Federal Register 12/22/92, 05/04/95, and 11/09/99.

Table 3-7. Historic Groundwater Monitoring Data and Relevent Regulatory Criteria Rayonier Mill, Port Angeles, Washington.

Applicable Criteria Washington State (a) Ecological	No. o f Samples	U?	UJ?	No. of Detections	Detection Frequency	Detection Limit Range Min.	Detection Limit Range Max.	Range of Detection Min.	Range of Detection Max.	Minimum Criteria	Regulatory Criteria
VOLATILE COMPOUNDS (ug/L)											
Chloromethane	81	81	0	0	0%	0.2	18			133	WA Human Health
Vinyl Chloride	81	81	0	0	0%	0.2	*18*			4	WA Human Health
Chloroethane	81	81	0	0	0%	0.2	18				
Methylene Chloride	81	76	0	5	6%	0.3	18	0.3	0.4	590	EPA 304 Human Health
Acetone	81	65	0	16	20%	1	45	1	44		
Carbon Disulfide	81	76	0	5	6%	0.2	9	0.3	1.3		
1,1-Dichloroethene	81	81	0	0	0%	0.2	*9*			2	WA Human Health
1,1-Dichloroethane	81	75	0	6	7%	0.2	9	0.3	3.2		
trans-1,2-Dichloroethene	81	81	0	0	0%	0.2	9			32800	WA Human Health
cis-1,2-Dichloroethene	81	74	0	7	9%	0.2	9	0.2	2		
Chloroform	81	81	0	0	0%	0.2	9			283	WA Human Health
1,2-Dichloroethane	81	81	0	0	0%	0.2	9			37	EPA 304 Human Health
2-Butanone	81	78	0	3	4%	1	45	5.5	10		
1,1,1-Trichloroethane	81	81	0	0	0%	0.2	9			417000	WA Human Health
Carbon Tetrachloride	81	81	0	0	0%	0.2	*9*			2	EPA 304 Human Health
Vinyl Acetate	81	81	0	0	0%	0.2	45				
Bromodichloromethane	81	81	0	0	0%	0.2	9			17	EPA 304 Human Health
1,2-Dichloropropane	81	81	0	0	0%	0.2	9			15.0	EPA 304 Human Health
cis-1,3-Dichloropropene	81	81	0	0	0%	0.2	9				
Trichloroethene	81	75	0	6	7%	0.2	9	0.2	9.6	30	EPA 304 Human Health
Dibromochloromethane	81	81	0	0	0%	0.2	9			13.0	EPA 304 Human Health
1,1,2-Trichloroethane	81	81	0	0	0%	0.2	9			16	EPA 304 Human Health
Benzene	81	76	0	5	6%	0.2	9	0.2	1.5	23	WA Human Health
trans-1,3-Dichloropropene	81	81	0	0	0%	0.2	9				
Bromoform	81	81	0	0	0%	0.2	9			140	EPA 304 Human Health
4-Methyl-2-Pentanone	81	80	0	1	1%	1	45	1.3	1.3		
2-Hexanone	81	81	0	0	0%	1	45				
Tetrachloroethene	81	81	0	0	0%	0.2	*9*			3.30	EPA 304 Human Health
1,1,2,2-Tetrachloroethane	81	81	0	0	0%	0.2	*9*			4.00	EPA 304 Human Health
Toluene	81	72	0	9	11%	0.2	1	0.2	49	48500	WA Human Health
Chlorobenzene	81	81	0	0	0%	0.2	9			5030	WA Human Health
Ethylbenzene	81	78	0	3	4%	0.2	9	0.3	1.1	6910	WA Human Health
Styrene											
m,p-Xylene											
o-Xylene											
Total Xylenes											
4-Isopropyltoluene											
SEMIVOLATILE COMPOUNDS (ug/L)											
Dibromochloropropane	36	36	0	0	0%	5	6.4				
Phenol	81	77	0	4	5%	2	2.6	2.5	80	1110000	WA Human Health
Bis-(2-Chloroethyl) Ether	81	81	0	0	0%	*2*	*2.6*			0.530	EPA 304 Human Health
2-Chlorophenol	81	81	0	0	0%	1	1.3			97	WA Human Health
1,3-Dichlorobenzene	81	81	0	0	0%	1	1.3			960	EPA 304 Human Health

Table 3-7. Historic Groundwater Monitoring Data and Relevent Regulatory Criteria Rayonier Mill, Port Angeles, Washington.

	Applicable Criteria Washington State (a) Ecological	No. o f Samples	U?	UJ?	No. of Detections	Detection Frequency	Detection Limit Range Min.	Detection Limit Range Max.	Range of Detection Min.	Range of Detection Max.	Minimum Criteria	Regulatory Criteria
1,4-Dichlorobenzene		81	81	0	0	0%	1	1.3			4.86	WA Human Health
Benzyl Alcohol		81	81	0	0	0%	5	6.4				
1,2-Dichlorobenzene		81	81	0	0	0%	1	1.3			4200	WA Human Health
2-Methylphenol		81	78	0	3	4%	1	2	1.8	4.5		
2,2'-Oxybis(1-Chloropropane)		81	81	0	0	0%	1	1.3			38	WA Human Health
N-Nitroso-Di-N-Propylamine		81	81	0	0	0%	*2*	*2.6*			0.510	EPA 304 Human Health
Hexachloroethane		81	81	0	0	0%	2	2.6			3	EPA 304 Human Health
Nitrobenzene		81	81	0	0	0%	1	1.3			449	WA Human Health
Isophorone		81	81	0	0	0%	1	1.3			600	Fed Human Health
2-Nitrophenol		81	81	0	0	0%	5	6.4				
2,4-Dimethylphenol		81	79	0	2	2%	3	3.8	3.5	5.6	553	WA Human Health
Benzoic Acid		81	78	0	3	4%	10	64	13	62		
bis(2-Chloroethoxy) Methane		81	81	0	0	0%	1	1.3				
2,4-Dichlorophenol		81	81	0	0	0%	3	3.8			191	WA Human Health
1,2,4-Trichlorobenzene		81	81	0	0	0%	1	1.3			227	WA Human Health
4-Chloroaniline		81	81	0	0	0%	3	3.8				
Hexachlorobutadiene		81	81	0	0	0%	2	2.6			18.0	EPA 304 Human Health
4-Chloro-3-methylphenol		81	81	0	0	0%	2	2.6				
2-Methylnaphthalene		81	81	0	0	0%	1	1.3				
Hexachlorocyclopentadiene		81	81	0	0	0%	5	6.4			3580	WA Human Health
2,4,6-Trichlorophenol		81	81	0	0	0%	*5*	*6.4*			2.40	EPA 304 Human Health
2,4,5-Trichlorophenol		81	81	0	0	0%	5	6.4				
2-Chloronaphthalene		81	81	0	0	0%	1	1.3			1000	WA Human Health
2-Nitroaniline		81	81	0	0	0%	5	6.4				
Dimethylphthalate		81	81	0	0	0%	1	1.3			72000	WA Human Health
3-Nitroaniline		81	81	0	0	0%	6	7.7				
2,4-Dinitrophenol		81	81	0	0	0%	10	32			3460	WA Human Health
4-Nitrophenol		81	81	0	0	0%	5	6.4				
Dibenzofuran		81	76	0	5	6%	1	1.3	1.2	5.4		
2,6-Dinitrotoluene		81	81	0	0	0%	5	6.4				
2,4-Dinitrotoluene		81	81	0	0	0%	*5*	*6.4*			3.4	EPA 304 Human Health
Diethylphthalate		81	80	0	1	1%	1	1.3	1.1	1.1	28400	WA Human Health
4-Chlorophenyl-phenylether		81	81	0	0	0%	1	1.3				
4-Nitroaniline		81	81	0	0	0%	5	6.4				
4,6-Dinitro-2-Methylphenol		81	81	0	0	0%	10	19			765	WA Human Health
N-Nitrosodiphenylamine		81	81	0	0	0%	1	1.3			6.00	EPA 304 Human Health
4-Bromophenyl-phenylether		81	81	0	0	0%	1	1.3				
Hexachlorobenzene		81	81	0	0	0%	*1*	*1.3*			0.000290	EPA 304 Human Health
Pentachlorophenol	7.9	81	79	0	2	2%	*5*	*6.4*	**7.7**	**83**	3.00	EPA 304 Human Health
Carbazole		81	76	0	5	6%	1	1.3	1.8	6.8		
Di-n-Butylphthalate		81	75	0	6	7%	1	1.3	1	1.4	2910	WA Human Health
Butylbenzylphthalate		81	81	0	0	0%	1	1.3			1250	WA Human Health
3,3'-Dichlorobenzidine		81	81	0	0	0%	*5*	*6.4*			0.0280	EPA 304 Human Health
bis(2-Ethylhexyl)phthalate		81	69	0	12	15%	1	*15*	1.7	**35**	2	EPA 304 Human Health
Di-n-Octyl phthalate		81	81	0	0	0%	1	1.3				
3-,4-Methylphenol		36	34	0	2	6%	1	1.3	10	16		
Diallate A		36	36	0	0	0%	2	6.4				

Table 3-7. Historic Groundwater Monitoring Data and Relevent Regulatory Criteria Rayonier Mill, Port Angeles, Washington.

	Applicable Criteria Washington State (a) Ecological	No. o f Samples	U?	UJ?	No. of Detections	Detection Frequency	Detection Limit Range Min.	Detection Limit Range Max.	Range of Detection Min.	Range of Detection Max.	Minimum Criteria	Regulatory Criteria
Diallate B		36	36	0	0	0%	2	6.4				
Isodrin		36	36	0	0	0%	5	6.4				
Chlorobenzilate		36	36	0	0	0%	2	6.4				
PAHs (µg/L) (d)												
Naphthalene		81	70	0	11	14%	0.1	1	0.27	11	4940	WA Human Health
Acenaphthylene		81	79	0	2	2%	0.1	1	0.12	0.39		
Acenaphthene		81	56	0	25	31%	0.1	1	0.1	46	643	WA Human Health
Fluorene		81	71	0	10	12%	0.1	1	0.17	7.4	3460	WA Human Health
Phenanthrene		81	76	0	5	6%	0.1	1	0.12	8.3		
Anthracene		81	73	0	8	10%	0.1	1	0.1	0.27	25900	WA Human Health
Fluoranthene		81	67	0	14	17%	0.1	1	0.11	1.9	90	WA Human Health
Pyrene		81	70	0	11	14%	0.1	1	0.1	1	2590	WA Human Health
Benzo(a)anthracene		81	78	0	3	4%	*0.1*	*1*	**0.1**	**0.12**	0.0180	EPA 304 Human Health
Chrysene		81	79	0	2	2%	*0.1*	*1*	**0.11**	**0.12**	0.0180	EPA 304 Human Health
Benzo(b)fluoranthene		81	81	0	0	0%	*0.1*	*1*			0.0180	EPA 304 Human Health
Benzo(k)fluoranthene		81	81	0	0	0%	*0.1*	*1*			0.0180	EPA 304 Human Health
Benzo(a)pyrene		81	80	0	1	1%	*0.1*	*1*	**0.1**	**0.1**	0.0180	EPA 304 Human Health
Indeno(1,2,3-cd)pyrene		81	81	0	0	0%	*0.1*	*1*			0.0180	EPA 304 Human Health
Dibenz(a,h)anthracene		81	81	0	0	0%	*0.1*	*1*			0.0180	EPA 304 Human Health
Benzo(g,h,i)perylene												
PETROLEUM HYDROCARBONS (mg/L) NWTPH-D extended												
Diesel Range Hydrocarbons		55	53	0	2	4%	0.25	0.25	0.25	**12**	0.5000	WA Method A
Motor Oil		55	54	0	1	2%	0.5	0.5	**6.3**	**6.3**	0.5000	WA Method A
DISSOLVED METALS (mg/L)												
Arsenic	0.036	69	27	0	42	61%	0.0002	*0.2*	0.0004	**0.09**	0.00500	Nat'l Bgrd*
Beryllium		52	52	0	0	0%	0.001	0.005			0.27	WA Human Health
Chromium (c)	0.05	69	41	0	28	41%	0.0005	0.02	0.0006	**1.15**	0.050	WA AWQC
Copper	0.0031	69	31	0	38	55%	0.0005	*0.01*	0.0008	**0.031**	0.0024	Fed AWQC
Lead	0.0081	69	66	0	3	4%	0.001	*0.1*	0.002	0.007	0.0081	WA AWQC
Nickel	0.0082	69	32	0	37	54%	*0.01*	*0.05*	0.0007	**0.023**	0.0082	WA AWQC
Selenium	0.071	69	42	0	27	39%	0.0005	*0.2*	0.0006	**0.3**	0.07	WA AWQC
Zinc	0.081	67	48	0	19	28%	0.004	0.08	0.004	0.024	0.081	WA AWQC
PESTICIDES (µg/L)												
alpha-BHC		36	36	0	0	0%	*0.05*	*0.062*			0.00490	EPA 304 Human Health
beta-BHC		36	36	0	0	0%	*0.05*	*0.062*			0.0170	EPA 304 Human Health
delta-BHC		36	36	0	0	0%	0.05	0.062				
gamma-BHC (Lindane)	0.16	36	36	0	0	0%	*0.05*	*0.062*			0.0384	WA Human Health
Heptachlor	0.0036	36	36	0	0	0%	*0.05*	*0.083*			0.00008	EPA 304 Human Health
Aldrin	0.0019	36	36	0	0	0%	*0.05*	*0.062*			0.000050	EPA 304 Human Health
Heptachlor Epoxide		36	36	0	0	0%	*0.05*	*0.062*			0.000039	EPA 304 Human Health
Endosulfan I	0.0087	36	36	0	0	0%	*0.05*	*0.062*			0.0087	WA AWQC

Table 3-7. Historic Groundwater Monitoring Data and Relevent Regulatory Criteria Rayonier Mill, Port Angeles, Washington.

	Applicable Criteria Washington State (a) Ecological	No. o f Samples	U?	UJ?	No. of Detections	Detection Frequency	Detection Limit Range Min.	Detection Limit Range Max.	Range of Detection Min.	Range of Detection Max.	Minimum Criteria	Regulatory Criteria
Dieldrin	0.0019	36	36	0	0	0%	*0.1*	*0.12*			0.000054	EPA 304 Human Health
4,4'-DDE	0.001	36	36	0	0	0%	*0.1*	*0.12*			0.0002	EPA 304 Human Health
Endrin	0.0023	36	36	0	0	0%	*0.1*	*0.12*			0.0023	WA AWQC FW
Endosulfan II	0.0087	36	36	0	0	0%	*0.1*	*0.12*			0.0087	WA AWQC
4,4'-DDD	0.001	36	36	0	0	0%	*0.1*	*0.12*			0.0003	EPA 304 Human Health
Endosulfan Sulfate		36	36	0	0	0%	0.1	0.12			2	WA Human Health
4,4'-DDT	0.001	36	36	0	0	0%	*0.1*	*0.12*			0.00022	EPA 304 Human Health
Methoxychlor		36	36	0	0	0%	0.5	0.62			8.36	WA Human Health
Endrin Ketone		36	36	0	0	0%	0.1	0.12				
Endrin Aldehyde		36	36	0	0	0%	0.1	0.12			0.300	EPA 304 Human Health
gamma Chlordane	0.004	36	36	0	0	0%	0.05	0.062			0.00059	WA AWQC
alpha Chlordane		36	36	0	0	0%	0.05	0.062				
Toxaphene	0.0002	36	36	0	0	0%	*5*	*6.2*			0.0002	WA AWQC FW
PCBs (ug/L)												
Aroclor 1016	0.03	41	41	0	0	0%	*0.1*	*1*			0.005820	WA Human Health
Aroclor 1242	0.03	41	41	0	0	0%	*0.1*	*1*			0.030000	Fed AWQC
Aroclor 1248	0.03	41	41	0	0	0%	*0.1*	*1*			0.030000	Fed AWQC
Aroclor 1254	0.03	41	41	0	0	0%	*0.1*	*1*			0.001660	Fed AWQC
Aroclor 1260	0.03	41	40	0	1	2%	*0.1*	*1*	**0.13**	**0.13**	0.030000	Fed AWQC
Aroclor 1221	0.03	41	41	0	0	0%	*0.2*	*2*			0.030000	WA Human Health
Aroclor 1232	0.03	41	41	0	0	0%	*0.1*	*1*			0.030000	Fed AWQC
CONVENTIONAL PARAMETERS												
N-Ammonia (un-ionized) (mg/L)	0.035	81	4	0	77	95%	N/A	N./A	1.24E-06	**12**	0.0350	WA AWQC
N-Nitrate (mg-N/L)		51	24	0	27	53%	0.01	0.25	0.01	8		
N-Nitrite (mg-N/L)		52	36	0	16	31%	0.01	0.1	0.011	0		
Nitrate + Nitrite (NO2+NO3) (mg-N/L)		80	27	0	53	66%	0.01	0.2	0.01	8		
Chemical Oxygen Demand (mg/L)		47	2	0	45	96%	5	5	5.4	7600		
Total Organic Carbon (mg/L)		81	3	0	78	96%	1.5	1.5	2.2	7300		
Tannins & Lignins (mg/L)		57	0	0	57	100%			0.068	861		
Field pH (avg)		82	0	0	82	100%			**5.985**	**12**	7-8.5	WA AWQC
Field Temperature (°C) (avg)		82	0	0	82	100%			5.325	18		
Field Conductivity (µS) (avg)		82	0	0	82	100%			198	46300		
Field Dissolved Oxygen (mg/L)		36	0	0	36	100%			0	5		

Table Key
Italics - Detection limit value exceeds applicable regulatory screening criteria
Bold - Detected concentration exceeds applicable regulatory screening criteria
References for screening criteria:
1. Aquatic AWQC = Aquatic Ambient Water Quality Criteria. Value represents the more stringent chronic criteria from the following sources:
- Water Quality Standards for Surface Waters of the State of Washington, WAC Chapter 173-201A-240, Table 240(3), Ecology, 2001
- National Water Quality Criteria, 40CFR 131.36, August 2002
- EPA 304 values from National Recommended Water Quality Criteria:2002, EPA-822-R-02-047
2. Human Health AWQC = Human Health Ambient Water Quality Criteria. Value represents the more stringent criteria from the following sources:
- State Values from Ecology Surface water Method B values
- National values (assuming human health for consumption of organism only) from 40CFR 131.36, August 2002
- EPA 304 values from National Recommended Water Quality Criteria:2002, EPA-822-R-02-047
* Natural Background for arsenic as per MTCA Table 720-1, Footnote b.

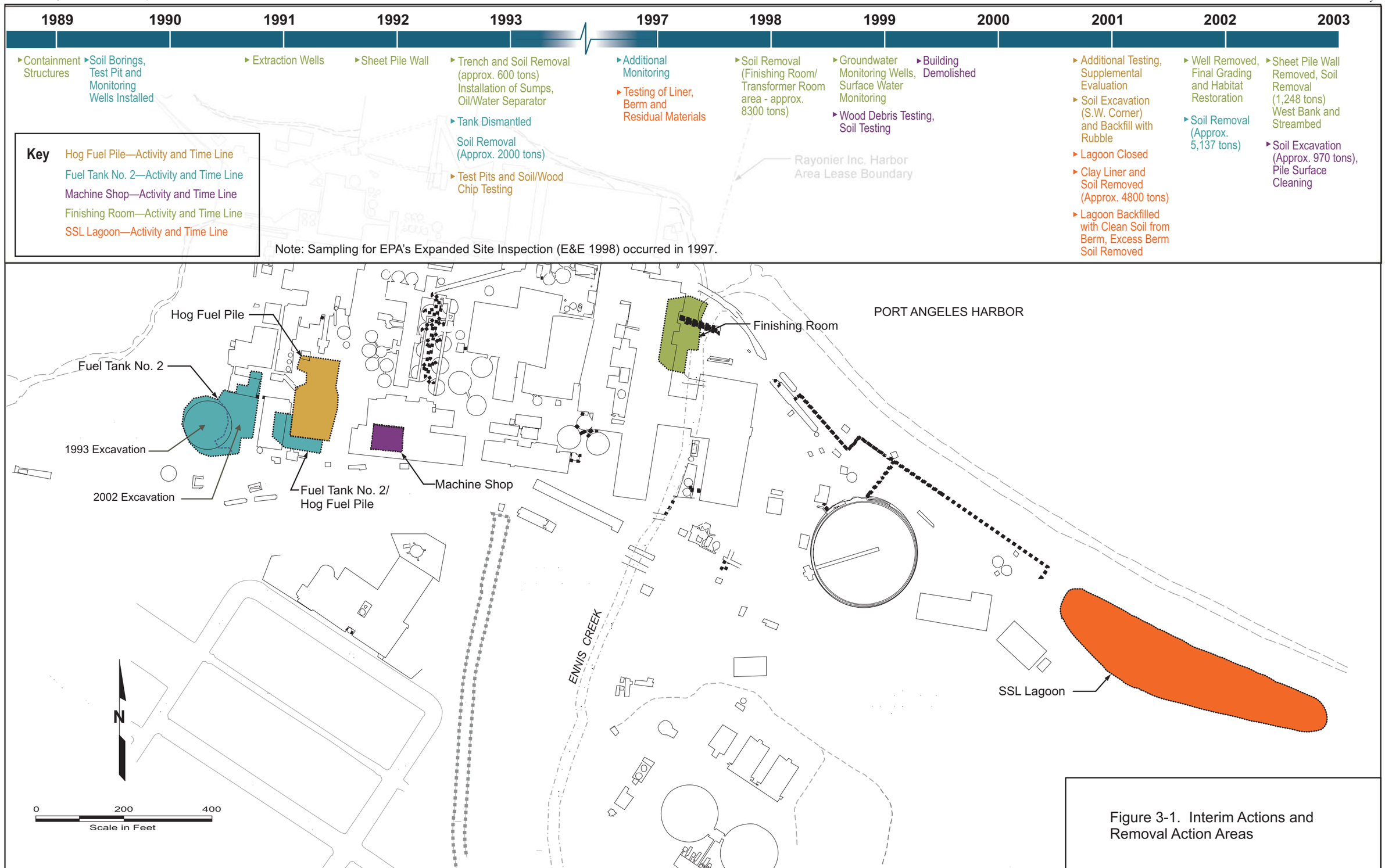


Figure 3-1. Interim Actions and Removal Action Areas

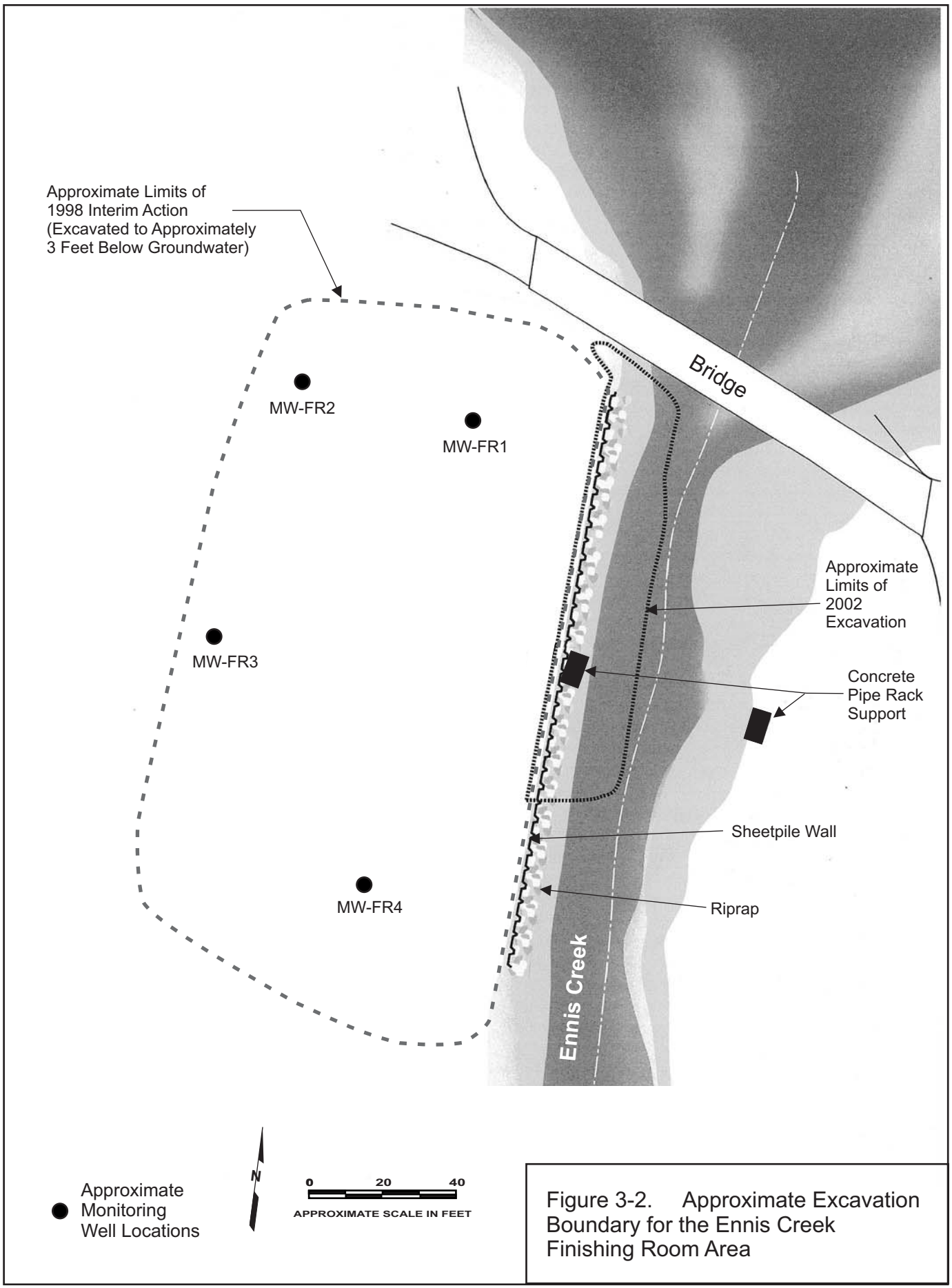


Figure 3-2. Approximate Excavation Boundary for the Ennis Creek Finishing Room Area

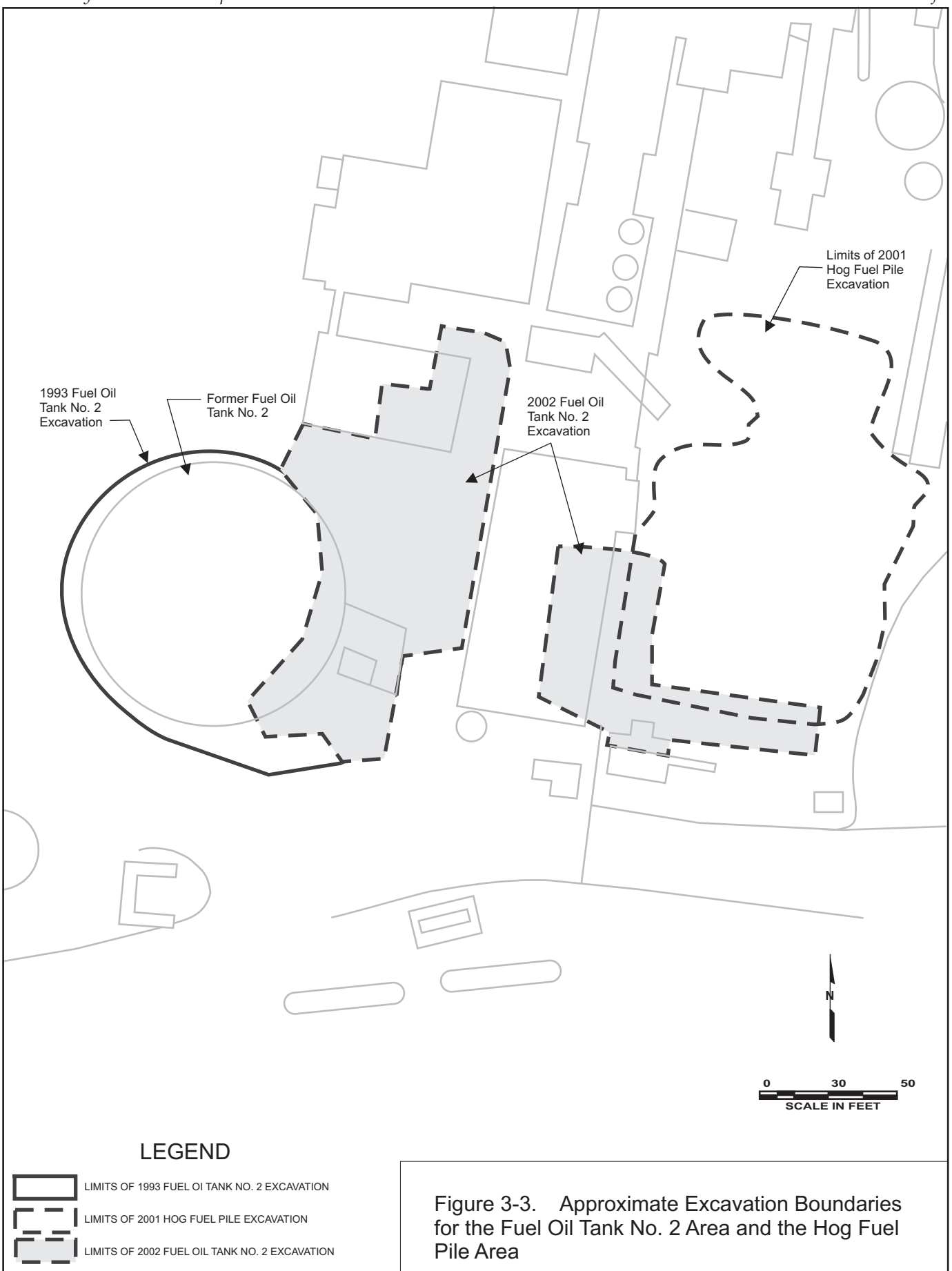
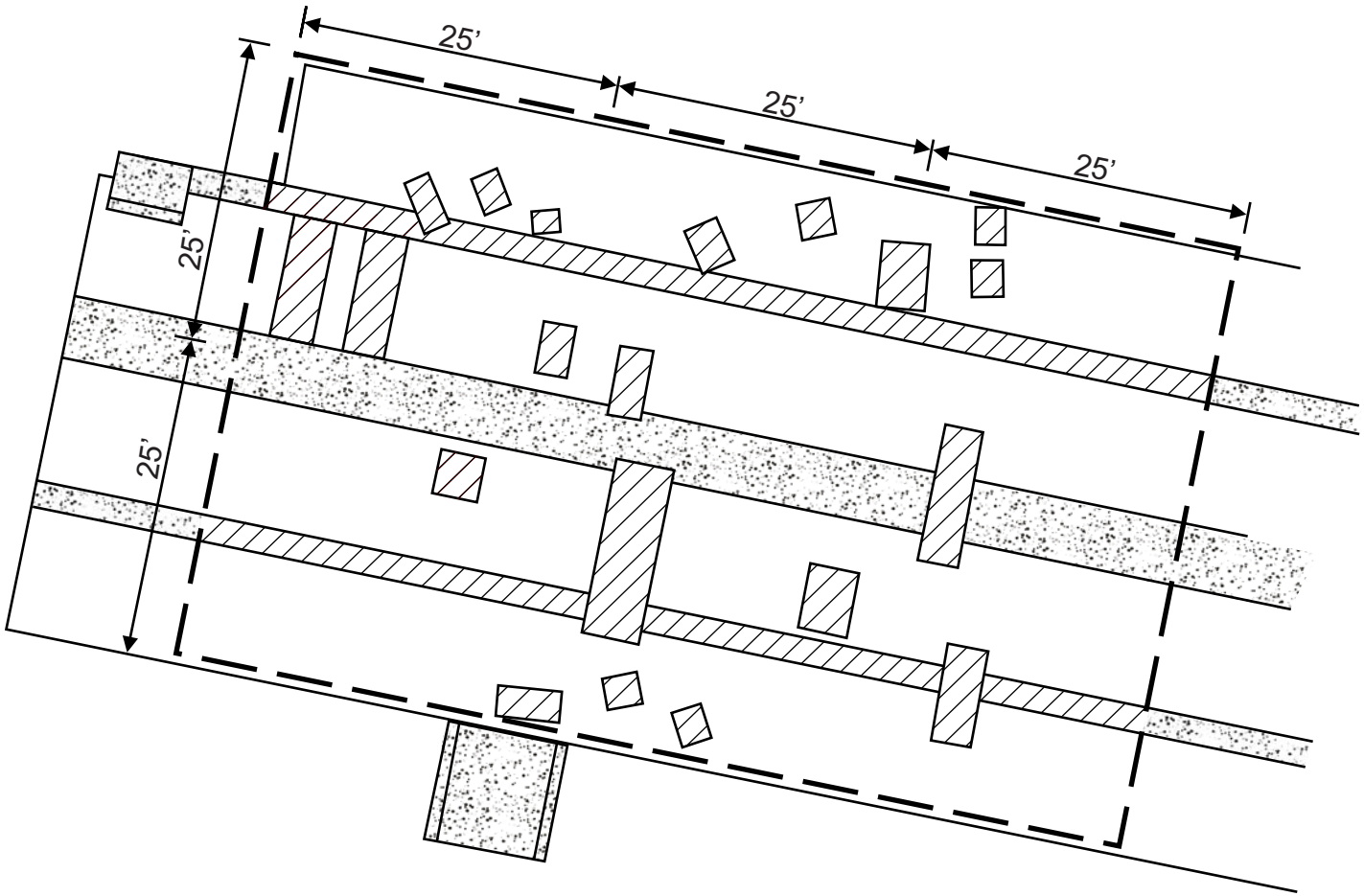


Figure 3-3. Approximate Excavation Boundaries for the Fuel Oil Tank No. 2 Area and the Hog Fuel Pile Area



LEGEND

- EXCAVATION BOUNDARY
- CONCRETE REMAINING
- CONCRETE REMOVED

N

0 7.5 15

SCALE IN FEET

Source: EPA ESI (E&E, 1998)

Figure 3-4. Approximate Excavation Boundary of Machine Shop

LEGEND

- ● Surface Sample Location
- ■ Surface and Subsurface Sample Location
- ◆ Subsurface Sample Location

Figure 3-5. Expanded Site Inspection Onsite Soil Sample Locations

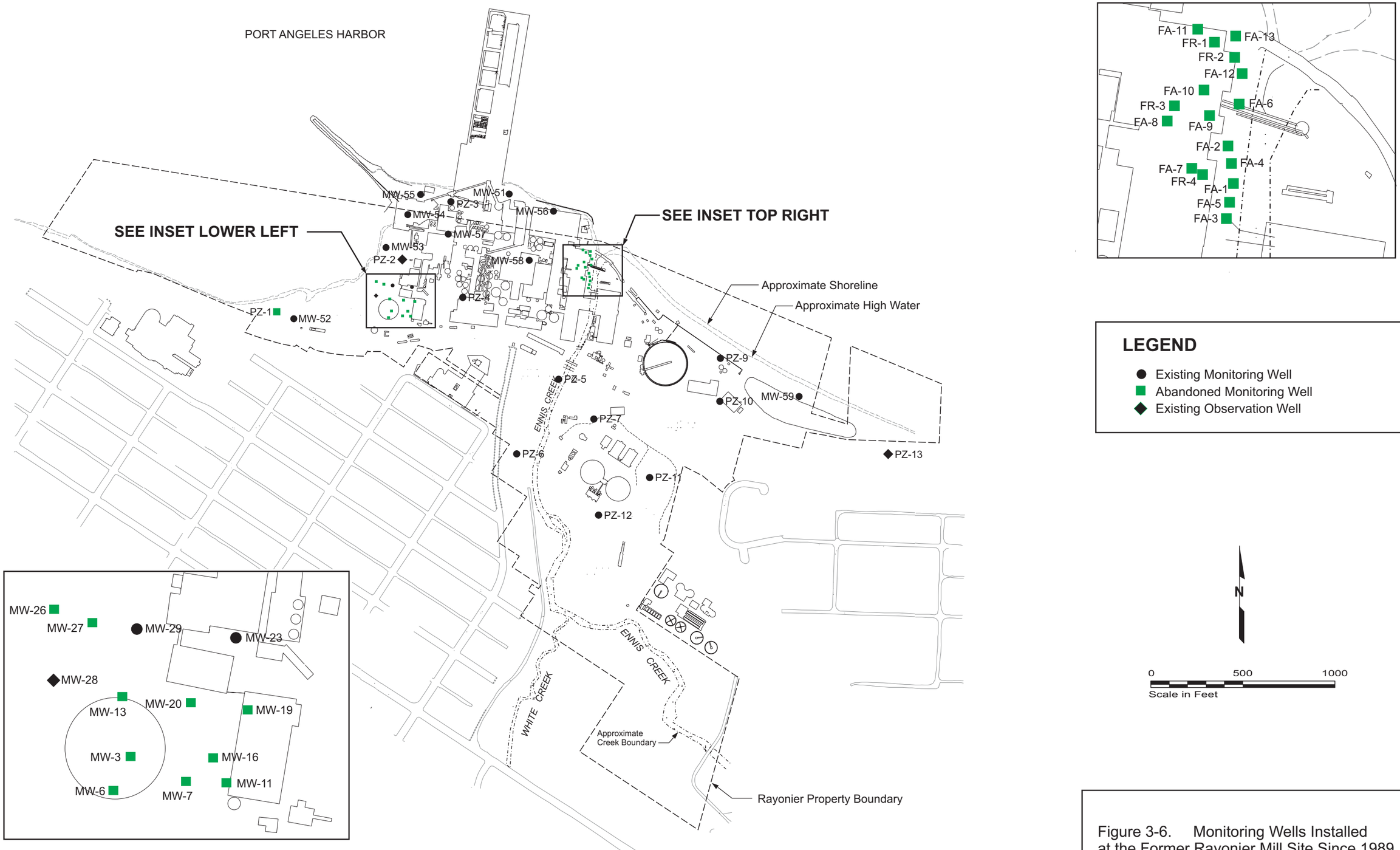


Figure 3-6. Monitoring Wells Installed at the Former Rayonier Mill Site Since 1989

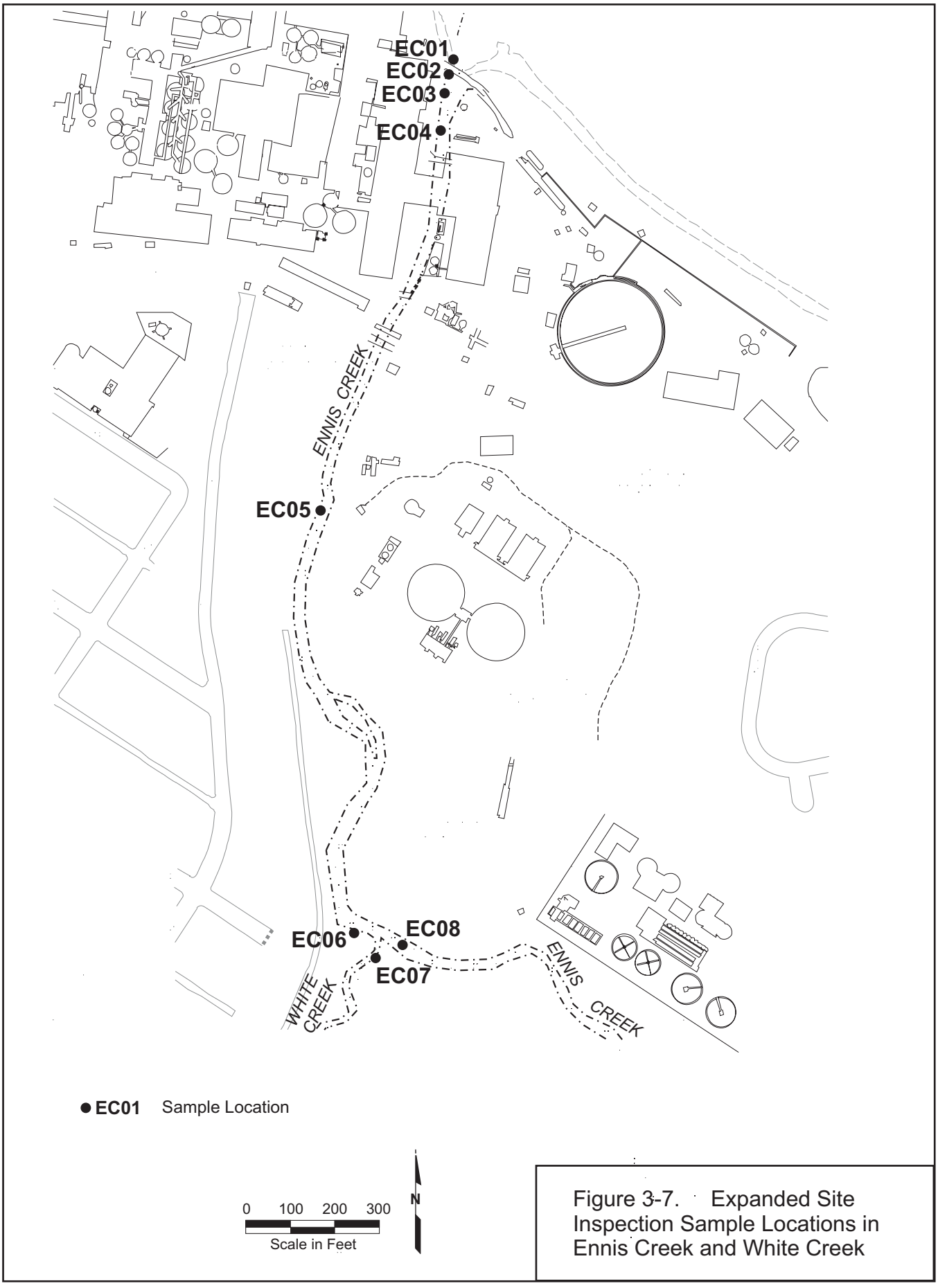


Figure 3-7. Expanded Site Inspection Sample Locations in Ennis Creek and White Creek