

shipyards was 0.34 and 0.49 parts per million, respectively.

Laboratory analysis of total and dissolved fractions (passing 0.45 micron filter) of field samples confirmed that the highest percentage of metal contamination in wastewater was contributed by suspended solids. Dissolved metal contamination was relatively low. Based on the average values for total and dissolved metals in boatyard wastewater, analysis showed that suspended solids accounted for 97 percent of the copper, 94 percent of the lead and 83 percent of the zinc. A similar analysis for shipyard wastewater indicated that suspended solids accounted for 94 percent of the copper, 80 percent of the lead and 91 percent of the zinc.

Chemical oxygen demand (COD) was used as a rough measure of the biodegradable organic content in the wastewater. The survey data showed the average values of COD in hull-washing wastewater to be of the same magnitude as COD in a dilute sewage

wastewater. This COD concentration can produce low oxygen conditions and decay odors and gases in the wastewater that is not treated. This result was confirmed in the field. As with metals, COD is contributed mostly by wastewater suspended solids, comprising 80 percent of shipyard wastewater COD and 90 percent of boatyard wastewater COD.

Two particle-size/settling experiments were performed on boatyard and shipyard composite samples. The experiments related particle size, as a function of settling time, to the concentration of metals in wastewater. Figure 2-1 illustrates that particles less than 60 microns in diameter contribute 80 to 90 percent of the copper contamination in suspended solids. Particles less than 20 microns in diameter contribute about 50 percent of the copper. This finding is important since particles of this size settle out of solution slowly, making simple settling an ineffective means of treatment.

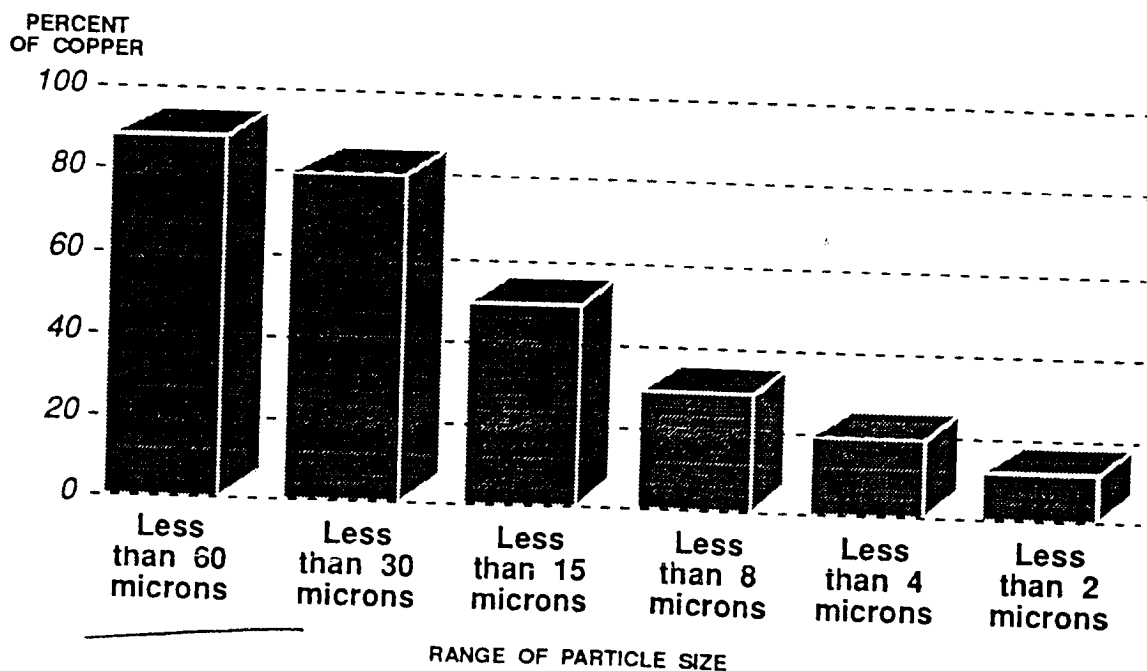


Figure 2-1: Percent of Copper Versus Particle Size – Boatyard Pressure-washing Wastewater Sample

BOATYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	pH	CONDUCTIVITY (umhos/cm) (ntu)	TURBIDITY (ntu)	SUSPENDED SOLIDS (mg/l)	SETTLED SOLIDS (ml/l)	COD TOTAL (mg/l)	COD DISS. (mg/l)
NORTHWEST YACHT REPAIR	08/06/91	9101552	Raw (Settled)	6.46	700	380	420			
NORTHWEST YACHT REPAIR	08/30/91	9101774	Raw (Settled)	6.04	209	348				
NORTHWEST YACHT REPAIR	09/11/91	9101775	Raw (Settled)	6.84	171	288				
NORTHWEST YACHT REPAIR	09/12/91	9101776	Raw (Settled)	6.90	151	29				
NORTHWEST YACHT REPAIR	09/17/91	9101777	Raw (Settled)	6.88	181	46				
NORTHWEST YACHT REPAIR	09/20/91	9101778	Raw (Settled)	6.93	214	40				
NORTHWEST YACHT REPAIR	09/30/91	9101779	Raw (Settled)	7.2	272	76				
PORT OF PORT TOWNSEND	06/05/91	9101222	Raw Composite (total)	6.77	1829	175	520	12	440	
SEAVIEW BOATYARD (East)	07/24/91	9101491	Raw Wash (total)	6.83	200	23	34			
Suldans Boat Works, Inc.	04/26/91	9100885	Raw Wash (total)	8.16	520	64	107	<0.5	140	
Suldans Boat Works, Inc.	04/30/91	9101036	Raw Wash (total)	7.4	1068	360	470			
Suldans Boat Works, Inc.	05/01/91	9101038	Raw Wash (total)	7.1	27000	560	695			
Suldans Boat Works, Inc.	05/01/91	9101037	Raw Wash (total)	7.9	766	2300	2220			
Suldans Boat Works, Inc.	05/02/91	9101039	Raw Wash (total)	7.1	6480	340	450			
Suldans Boat Works, Inc.	05/10/91	9101040	Raw Composite (total)	7.3	10850	840	800	12	710	
University Boat Service Inc.	05/16/91	9101075	Raw Wash (total)	7.0	70	35	770	6.5	270	

High Cu
 High Pb
 High Zn
 0.22-33
 62-82
 AA
 -22

PRESSURE WASHING CHARACTERIZATION DATA
 BOATYARD METALS PARAMETERS

BOATYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	CADMIUM	CHROME	COPPER	NICKEL	LEAD	ZINC	TIN	ARSENIC
CSR	05/09/91	9101033	Raw Settled	<0.01	<0.03	13	<0.05	<0.2	2.4	0.3	<0.3
CSR	05/09/91	9101034	Raw Settled (filter)	<0.002	<0.005	1.1	<0.01	<0.03	1.0	<0.05	<0.05
CSR	05/21/91	9101098	Raw Settled	0.004	0.01	5.6	0.05	0.31	1.5	0.1	<0.05
FISHERMEN'S BOAT SHOP INC.	05/03/91	9101015	Raw Settled	0.004	<0.005	0.23	<0.01	<0.03	0.81		<0.05
FISHERMEN'S BOAT SHOP INC.	05/03/91	9101016	Raw Settled (filter)	0.004	<0.005	0.19	<0.01	<0.03	0.83		<0.05
FISHERMEN'S BOAT SHOP INC.	05/09/91	9101035	Raw Settled	<0.003	<0.005	0.65	<0.01	<0.03	2.4		<0.05
FISHERMEN'S BOAT SHOP INC.	07/03/91	9101389	Raw Wash (total)	0.076	0.01	35	0.03	0.1	3.7	<0.05	<0.05
GIG HARBOR MARINA	05/01/91	9101042	Raw Composite (total)	0.009	0.18	72	0.06	0.97	4.5	0.5	<0.05
GIG HARBOR MARINA	05/01/91	9101043	Raw Composite (filter)	<0.002	<0.005	1.5	<0.01	<0.03	0.59	0.05	<0.05
GIG HARBOR MARINA	05/31/91	9101195	Raw Composite (total)	0.0202	0.0205	72	0.03	0.35	7.4	0.78	<0.05
GIG HARBOR MARINA	05/31/91	9101196	Raw Composite (filter)	0.0042	<0.005	1.6	<0.01	<0.03	0.86	<0.05	<0.05
KITSAP MARINA	05/10/91	9101044	Raw Composite (total)	0.005	2.7	11	<0.02	14	4.0	1.4	<0.05
KITSAP MARINA	05/10/91	9101045	Raw Composite (filter)	<0.002	0.081	2.0	<0.01	0.1	0.61	0.1	<0.05
MILLER AND MILLER BOATYARD	05/23/91	9101103	Raw Wash (total)	<0.004	0.053	95	0.05	3.5	6.5	0.09	0.07
MILLER AND MILLER BOATYARD	05/23/91	9101104	Raw Wash (filter)	<0.002	<0.005	1.0	<0.01	<0.03	0.081	<0.05	<0.05
MILLER AND MILLER BOATYARD	05/24/91	9101105	Raw Settled	<0.002	0.009	36	0.02	0.69	2.2	<0.05	<0.05
MILLER AND MILLER BOATYARD	05/24/91	9101106	Raw Settled	0.002	0.03	23	0.12	0.67	5.0	0.73	<0.05
MILLER AND MILLER BOATYARD	06/05/91	9101226	Raw Wash (total)	0.004	0.16	190	0.09	3.4	6.9	0.2	0.07
MILLER AND MILLER BOATYARD	06/26/91	9101352	Raw Wash (total)	0.004	0.03	7.7	<0.01	0.46	1.7	<0.05	<0.05
MILLER AND MILLER BOATYARD	08/23/91	9101615	Raw Wash (total)	0.01	0.054	77	0.06	2.2	9.6	0.58	<0.05

PRESSURE WASHING WASTEWATER CHARACTERISTICS DATA
SHIPYARD CONVENTIONAL PARAMETERS

SHIPYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	PH	CONDUCTIVITY (umhos/cm (ntu))	TURBIDITY (ntu)	SUSPENDED SOLIDS (mg/l)	SETTLABLE SOLIDS (mL/l)	TOTAL COD (mg/l)	COD DISSOLVED (mg/l)	OIL & GREASE (mg/l)
DUWAMISH SHIPYARD INC	07/24/91	9101489	Raw Wash (total)	7.35	29,100	17	26				31.0
DUWAMISH SHIPYARD INC	07/31/91	9101520	Raw Wash (total)	7.12	29,800	52	200				
FOSS SHIPYARD	05/06/91	9101017	Raw Wash (total)	7.15	139	53	144	6.5	180	36	
FOSS SHIPYARD	06/10/91	9101245	Raw Wash (total)	7.75	147	105	240				
FOSS SHIPYARD	01/08/91	9101265	Raw Wash (total)	7.44	243	66	300				
FOSS SHIPYARD	06/25/91	9101346	Raw Wash (total)	7.12	396	132	440				
FOSS SHIPYARD	06/26/91	9101348	Raw Wash (total)	7.09	421	210	530				
LAKE UNION DRYDOCK COMPANY	11/29/90	9011986	Raw Wash (total)	7.0			36	<0.2	145		9.9
LAKE UNION DRYDOCK COMPANY	12/12/90	9011991	Raw Wash (total)	7.43			140	<0.2	320		29
LAKE UNION DRYDOCK COMPANY	03/05/91	9105963	Raw Wash (total)	7.02	96	198	173	<0.5	220		
LAKE UNION DRYDOCK COMPANY	03/13/91	9105965	Raw Wash (total)	7.51	110	198	225	<0.5	240		
LAKE UNION DRYDOCK COMPANY	06/05/91	9101224	Raw Wash (total)	8.68	143	840	390				
LAKE UNION DRYDOCK COMPANY	08/08/91	9101555	Raw Wash (total)	7.57	270	320	360				
MARCO SEATTLE, INC.	02/12/91	9100104	Raw Wash (total)	7.41	415	76	58	<0.5	242	200	
MARCO SEATTLE, INC.	04/04/91	9105969	Raw Wash (total)	7.80	499	100	140	<0.5	740	67	
MARCO SEATTLE, INC.	04/08/91	9105973	Raw Wash (total)	7.78	134	264	640	2.5	510	41	
MARCO SEATTLE, INC.	04/16/91	9100742	Raw Wash (total)	7.27	192	330	200	<0.5	240	36	

SHIPYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	PH	CONDUC- TIVITY (umhos/cm (ntu))	TURBIDITY (ntu)	SUSPENDED SOLIDS (mg/l)	SETTLABLE SOLIDS (ml/l)	TOTAL COD (mg/l)	COD DISSOLVED (mg/l)	OIL & GREASE (mg/l)
MARCO SEATTLE, INC.	04/23/91	9100877	Raw Wash (total)	7.14	272	185	192	<0.5	540		
MARCO SEATTLE, INC.	07/01/91	9101383	Raw Wash (total)	7.58	166	30	22				
MARCO SEATTLE, INC.	07/02/91	9101391	Raw Wash (total)	6.95	220	320	520				
TODD SHIPYARD CORP.	04/19/91	9100745	Raw Wash (total)	7.26	854	37	96				
TODD SHIPYARD CORP.	04/28/91	9100888	Raw Wash (total)	7.29	155	168	356				
TODD SHIPYARD CORP.	05/01/91	9100972	Raw Wash (total)	8.04	465	290	630	10.0	480	86	
TODD SHIPYARD CORP.	05/21/91	9101099	Raw Wash (total)	7.28	1138	730	420		440	19	
TODD SHIPYARD CORP.	08/02/91	9101538	Raw Wash (total)	7.34	16340	126	270				
TODD SHIPYARD CORP.	08/02/91	9101534	Raw Wash (total)	7.46	11880	3.0	22				
TODD SHIPYARD CORP.	08/02/91	9101536	Raw Wash (total)	7.25	16240	126	370				11.0
TODD SHIPYARD CORP.	09/19/91	9101733	Raw Wash (total)	7.07	22500	67					
TODD SHIPYARD CORP.	09/19/91	9101741	Raw Wash (total)	7.09	14600	38					
TODD SHIPYARD CORP.	09/19/91	9101731	Raw Wash (total)	7.11	15800	90	48		5.5		
TODD SHIPYARD CORP.	09/19/91	9101736	Raw Wash (total)	7.20	18900	53					
TODD SHIPYARD CORP.	09/19/91	9101738	Raw Wash (total)	6.85	23200	144			10		
TODD SHIPYARD CORP.	10/01/91	9101782	Raw Wash (total)	7.85	1650	76					
UNITED MARINE	11/16/90	9011984	Raw Wash (total)								
UNITED MARINE	02/11/91	9100119	Raw Wash (total)	7.16	408	69	227		160	40	
UNITED MARINE	02/21/91	9100154	Raw Wash (total)	7.08	108	62		3.5	150	40	<5.0
UNITED MARINE	02/25/91	9105961	Raw Wash (total)	6.87	121	93	104	1.25	200	20	

SHIPYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	PH	CONDUCTIVITY (umhos/cm (ntu))	TURBIDITY (ntu)	SUSPENDED SOLIDS (mg/l)	SETTLABLE SOLIDS (mL/l)	COD TOTAL (mg/l)	COD DISSOLVED (mg/l)	OIL & GREASE (mg/l)
UNITED MARINE	03/20/91	9105967	Raw Wash (total)	6.9	438	68	116	0.7	140	40	
UNITED MARINE	04/05/91	9105971	Raw Wash (total)	6.08	150	110	693	50	190	58	
UNITED MARINE	05/28/91	9101123	Raw Wash (total)	8.02	957	84	80	<0.5			
UNITED MARINE	06/12/91	9101276	Raw Wash (total)	7.67	120	54	140				
UNITED MARINE	06/25/91	9101329	Raw Wash (total)	7.02	453	21	57				
UNITED MARINE	06/27/91	9101357	Raw Wash (total)	7.76	150	120	57				
UNITED MARINE	07/03/91	9101393	Raw Wash (total)	7.03	160	200	85				
UNITED MARINE	07/12/91	9101448	Raw Wash (total)	7.15	190	6.0					

PRESSURE-WASHING WASTEWATER CHARACTERISTICS DATA
SHIPYARD METALS PARAMETERS

SHIPYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	CADMIUM (mg/l)	CHROME (mg/l)	COPPER (mg/l)	NICKEL (mg/l)	LEAD (mg/l)	ZINC (mg/l)	TIN (mg/l)	ARSENIC (mg/l)
DUMAMISH SHIPYARD INC	07/24/91	9101489	Raw Wash (total)	0.003	<0.005	0.93	0.01	<0.03	0.93	<0.05	<0.05
DUMAMISH SHIPYARD INC	07/31/91	9101520	Raw Wash (total)	0.01	<0.005	2.6	<0.02	<0.04	4.1	<0.05	<0.05
FOSS SHIPYARD	05/06/91	9101018	Raw Wash (filter)	<0.002	<0.005	0.43	<0.01	<0.03	0.51	<0.05	<0.05
FOSS SHIPYARD	05/06/91	9101017	Raw Wash (total)	0.004	0.03	10	0.03	0.3	3.2	<0.05	<0.05
FOSS SHIPYARD	06/10/91	9101245	Raw Wash (total)	0.002	0.04	9.4	0.04	0.2	4.7	0.1	<0.05
FOSS SHIPYARD	06/11/91	9101265	Raw Wash (total)	0.005	0.02	5.5	0.02	0.08	3.2	0.07	<0.05
FOSS SHIPYARD	06/25/91	9101346	Raw Wash (total)	0.01	0.10	10	0.03	0.32	9.8	0.1	<0.05
FOSS SHIPYARD	06/26/91	9101348	Raw Wash (total)	0.01	0.091	19	0.04	0.39	11	0.1	<0.05
LAKE UNION DRYDOCK COMPANY	11/20/90	9011990	Raw Wash (total)	0.003	0.006	0.59	<0.02	0.03	1.1	<0.05	<0.05
LAKE UNION DRYDOCK COMPANY	11/29/91	9011987	Raw Wash (filter)	<0.002	<0.005	0.23	<0.01	<0.03	0.37	<0.05	<0.05
LAKE UNION DRYDOCK COMPANY	11/29/91	9011986	Raw Wash (total)	0.002	0.016	1.0	0.01	0.06	1.3	<0.05	<0.05
LAKE UNION DRYDOCK COMPANY	12/12/90	9011993	Raw Wash (filter)	0.003	0.007	3.6	<0.01	0.04	0.32	<0.05	<0.05
LAKE UNION DRYDOCK COMPANY	12/12/90	9011991	Raw Wash (total)	0.01	0.05	19	0.03	1.7	5.5	0.2	<0.05
LAKE UNION DRYDOCK COMPANY	03/05/91	9105963	Raw Wash (total)	0.01	0.03	23	0.08	0.2	2.8	<0.05	<0.05
LAKE UNION DRYDOCK COMPANY	03/13/91	9105965	Raw Wash (total)	<0.002	0.01	14	0.01	0.31	1.2	<0.05	<0.05
LAKE UNION DRYDOCK COMPANY	06/05/91	9101224	Raw Wash (total)	0.006	0.18	17	0.051	0.953	32	0.1	<0.05
LAKE UNION DRYDOCK COMPANY	08/08/91	9101555	Raw Wash (total)	0.022	0.065	21	0.07	0.44	13	0.3	0.2
MARCO SEATTLE, INC.	02/12/91	9100105	Raw Wash (filter)	<0.002	<0.005	0.23	<0.01	<0.03	0.51	<0.05	<0.05

SHIPYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	CADMIUM (mg/l)	CHROME (mg/l)	COPPER (mg/l)	NICKEL (mg/l)	LEAD (mg/l)	ZINC (mg/l)	TIN (mg/l)	ARSENIC (mg/l)
MARCO SEATTLE, INC.	02/12/91	9100104	Raw Wash (total)	<0.002	0.01	2.9	0.01	0.07	2.3		<0.05
MARCO SEATTLE, INC.	04/04/91	9105969	Raw Wash (total)	0.01	0.01	5.5	0.01	0.06	2.4		<0.05
MARCO SEATTLE, INC.	04/04/91	9105970	Raw Wash (filter)	0.003	<0.005	1.3	<0.01	<0.03	0.26		<0.05
MARCO SEATTLE, INC.	04/08/91	9105973	Raw Wash (total)	0.0212	0.44	17	0.11	1.2	33		0.3
MARCO SEATTLE, INC.	04/08/91	9105974	Raw Wash (filter)	<0.002	<0.005	0.41	<0.01	<0.03	1.1		<0.05
MARCO SEATTLE, INC.	04/16/91	9100742	Raw Wash (total)	0.003	0.01	10.0	0.02	0.08	6.6		<0.05
MARCO SEATTLE, INC.	04/16/91	9100743	Raw Wash (filter)	<0.002	<0.005	0.50	<0.01	<0.03	2.1		<0.05
MARCO SEATTLE, INC.	04/23/91	9100877	Raw Wash (total)	0.007	0.057	7.8	0.02	0.1	6.6		<0.05
MARCO SEATTLE, INC.	07/01/91	9101383	Raw Wash (total)	<0.002	<0.005	0.12	0.01	<0.03	1.2	<0.05	<0.05
MARCO SEATTLE, INC.	07/02/91	9101391	Raw Wash (total)	0.006	0.072	6.6	0.05	0.2	9.8	0.07	0.07
TODD SHIPYARD CORP.	04/19/91	9100745	Raw Wash (total)	0.003	0.02	20	0.03	0.1	6.0		<0.05
TODD SHIPYARD CORP.	04/28/91	9100888	Raw Wash (total)	0.005	0.065	17	0.42	0.2	13.	1.0	<0.05
TODD SHIPYARD CORP.	05/01/91	9100973	Raw Wash (filter)	<0.002	<0.005	2.9	<0.01	<0.03	0.17		<0.05
TODD SHIPYARD CORP.	05/01/91	9100972	Raw Wash (total)	0.049	0.04	45	0.1	0.2	10		<0.05
TODD SHIPYARD CORP.	05/21/91	9101100	Raw Wash (filter)	<0.002	<0.005	0.53	<0.01	<0.03	0.60	0.1	<0.05
TODD SHIPYARD CORP.	05/21/91	9101099	Raw Wash (total)	0.004	0.02	49	0.05	0.06	6.6	1.6	<0.05
TODD SHIPYARD CORP.	08/02/91	9101538	Raw Wash (total)	<0.003	<0.02	4.7	0.06	0.03	0.79	<0.05	<0.06
TODD SHIPYARD CORP.	08/02/91	9101534	Raw Wash (total)	<0.003	<0.01	0.24	0.01	<0.03	0.22	<0.05	<0.05
TODD SHIPYARD CORP.	08/02/91	9101536	Raw Wash (total)	0.0033	0.007	4.4	0.05	<0.05	0.83	<0.05	<0.05
TODD SHIPYARD CORP.	09/19/91	9101733	Raw Wash (total)	<0.02	<0.005	0.71	<0.1	<0.3	0.52	<0.5	<0.5
TODD SHIPYARD CORP.	09/19/91	9101743	Raw Wash (filter)	<0.02	<0.05	0.03	<0.1	<0.3	0.2	<0.5	<0.5
TODD SHIPYARD CORP.	09/19/91	9101740	Raw Wash (filter)	<0.02	<0.05	0.62	<0.1	<0.3	0.4	<0.5	<0.5
TODD SHIPYARD CORP.	09/19/91	9101741	Raw Wash (total)	<0.02	<0.05	0.36	<0.1	<0.3	0.43	<0.5	<0.5
TODD SHIPYARD CORP.	09/19/91	9101731	Raw Wash (total)	<0.003	<0.005	.99	0.02	<0.03	0.45	<0.05	<0.05

SHIPYARD_SITE	SAMPLE_DATE	SAMPLE_NUMBER	SAMPLE_TYPE	CADMIUM (mg/L)	CHROME (mg/L)	COPPER (mg/L)	NICKEL (mg/L)	LEAD (mg/L)	ZINC (mg/L)	TIN (mg/L)	ARSENIC (mg/L)
TODD SHIPYARD CORP.	09/19/91	9101736	Raw Wash (total)	<0.02	<0.05	0.52	<0.1	<0.3	0.63	<0.5	<0.5
TODD SHIPYARD CORP.	09/19/91	9101738	Raw Wash (total)	<0.02	<0.05	1.8	<0.1	<0.3	0.71	<0.5	<0.5
TODD SHIPYARD CORP.	09/19/91	9101735	Raw Wash (filter)	<0.02	<0.05	0.45	<0.1	<0.3	0.41	<0.5	<0.5
TODD SHIPYARD CORP.	10/01/91	9101782	Raw Wash (total)	<0.002	<0.005	0.66	<0.01	<0.03	0.37	<0.05	<0.05
UNITED MARINE SHIPBUILDING	11/16/90	9011984	Raw Wash (total)	0.005	0.008	0.67	<0.01	<0.03	0.86	<0.05	<0.05
UNITED MARINE SHIPBUILDING	02/11/91	9100120	Raw Wash (filter)	<0.002	<0.005	0.14	<0.01	0.1	0.045	<0.05	<0.05
UNITED MARINE SHIPBUILDING	02/11/91	9100119	Raw Wash (total)	<0.002	0.03	3.2	0.04	1.6	0.27	<0.05	<0.05
UNITED MARINE SHIPBUILDING	02/21/91	9100155	Raw Wash (filter)	<0.002	<0.005	0.11	<0.01	<0.03	0.24	<0.05	<0.05
UNITED MARINE SHIPBUILDING	02/21/91	9100154	Raw Wash (total)	0.007	0.13	27	0.14	0.32	12	0.06	<0.05
UNITED MARINE SHIPBUILDING	02/25/91	9105962	Raw Wash (filter)	<0.002	<0.005	0.43	<0.01	<0.03	0.89	<0.05	<0.05
UNITED MARINE SHIPBUILDING	02/25/91	9105961	Raw Wash (total)	0.004	0.02	12	0.02	0.09	4.1	<0.05	<0.05
UNITED MARINE SHIPBUILDING	03/20/91	9105967	Raw Wash (total)	0.01	0.01	2.3	0.01	0.04	1.5	<0.05	<0.05
UNITED MARINE SHIPBUILDING	03/20/91	9105968	Raw Wash (filter)	0.006	<0.005	0.57	<0.01	<0.03	0.6	<0.05	<0.05
UNITED MARINE SHIPBUILDING	04/05/91	9105971	Raw Wash (total)	0.047	0.058	36	0.1	0.31	13	0.07	0.07
UNITED MARINE SHIPBUILDING	04/05/91	9105972	Raw Wash (filter)	0.003	<0.005	0.95	0.01	<0.03	0.41	<0.05	<0.05
UNITED MARINE SHIPBUILDING	5/28/91	9101124	Raw Wash (filter)								
UNITED MARINE SHIPBUILDING	5/28/91	9101123	Raw Wash (total)								
UNITED MARINE SHIPBUILDING	6/12/91	9101276	Raw Wash (total)	0.007	0.056	19	0.03	0.61	4.8	<0.05	0.1
UNITED MARINE SHIPBUILDING	6/25/91	9101329	Raw Wash (total)	<0.002	0.01	1.9	<0.01	0.07	0.54	<0.05	<0.05
UNITED MARINE SHIPBUILDING	6/27/91	9101357	Raw Wash (total)	0.003	0.006	2.1	<0.01	0.07	1.6	0.10	<0.05
UNITED MARINE SHIPBUILDING	7/03/91	9101393	Raw Wash (total)	<0.004	0.009	3.5	0.01	0.1	1.9	0.3	<0.05
UNITED MARINE SHIPBUILDING	7/12/91	9101448	Raw Wash (total)	<0.002	<0.005	0.16	<0.01	<0.03	0.23	<0.05	<0.05

PRESSURE-WASHING WASTEWATER CHARACTERIZATION DATA
BOATYARD CONVENTIONAL PARAMETERS

BOATYARD SITE	SAMPLE DATE	SAMPLE NUMBER	SAMPLE TYPE	pH	CONDUCTIVITY (umhos/cm)(ntu)	TURBIDITY (ntu)	SUSPENDED SOLIDS (mg/l)	SETTLED SOLIDS (ml/l)	COD TOTAL (mg/l)	COD DISS. (mg/l)
CSR	05/09/91	9101033	Raw (Settled)	7.129	104	45	100		190	30
CSR	05/21/91	9101098	Raw (Settled)	8.3	130	136	360		520	
FISHERMEN'S BOAT SHOP INC.	05/03/91	9101015	Raw (Settled)	6.60	86	13	10		60	40
FISHERMEN'S BOAT SHOP INC.	05/09/91	9101035	Raw (Settled)	7.6	355	13	21		41	
FISHERMEN'S BOAT SHOP INC.	07/03/91	9101389	Raw Wash (total)	7.15	4780	560	700	7	560	
GIG HARBOR MARINA	05/01/91	9101042	Raw Composite (total)	7.4	1442	560	840		31	
GIG HARBOR MARINA	05/31/91	9101195	Raw Composite (total)	7.26	978	540	240		1300	
KITSAP MARINA	05/10/91	9101044	Raw Composite (total)	7.7	452	66	278	8		
MILLER AND MILLER BOATYARD	05/23/91	9101103	Raw Wash (total)	7.4	93.4	530	1280	24		
MILLER AND MILLER BOATYARD	05/24/91	9101106	Raw (Settled)	7.6	373	1375	230			
MILLER AND MILLER BOATYARD	05/24/91	9101105	Raw (Settled)	7.4	96	270	400			
MILLER AND MILLER BOATYARD	06/05/91	9101226	Raw Wash (total)	6.69	132	840	1400			
MILLER AND MILLER BOATYARD	06/26/91	9101352	Raw Wash (total)	7.11	87	110	260			
MILLER AND MILLER BOATYARD	08/23/91	9101615	Raw Wash (total)	7.5	170	280	570			
MILLER AND MILLER BOATYARD	09/26/91	9101780	Raw Wash (total)	5.81	252	192				