

## DEPARTMENT OF ECOLOGY

WA-13-1010

August 18, 1994

TO: Bill Backous and Greg Cloud  
Water Quality Program, SWRO

THROUGH: Will Kendra *WK*  
EILS Program, Watershed Assessments Section

FROM: Tapas Das *TD*  
Watershed Assessments Section

SUBJECT: Pabst Brewing Company Basin Class II Inspection Summary

An announced Basin Class II inspection was conducted at the above facility on October 13-14, 1992. My original intent was to provide the usual inspection report. However, due to the recent reprogramming of Class II activities in EILS, it became necessary to abbreviate the reporting effort on some of my remaining projects. This transmittal memo summarizes the significant findings from my review of the inspection data (attached):

- Outfall 008, which discharges process and sanitary wastewater to LOTT, met permit limitations for flow, BOD<sub>5</sub>, TSS, and pH.
- Effluent from four outfalls discharging to the river (001 through 004) met permit requirements for flow, temperature, and pH. Outfall 003 had a total residual chlorine of 0.20 mg/L, but the permit in effect at the time had no chlorine limits for this particular discharge.
- Total phosphorus loading to the Deschutes River from the four Pabst outfalls was about 1.75 lbs/day, compared to 7.88 lbs/day in the river upstream of the outfalls. A more detailed evaluation of nutrient loading to the river and Capitol Lake was completed in 1992 by Thurston County (complete reference provided below).

I transferred to the Air Quality Program at Ecology HQ in June. If you have any questions concerning this memo, please contact Norm Glenn at 7-6683.

WK:blt  
Attachments

Reference: Thurston County Environmental Health Division, 1992. Budd Inlet/Deschutes River Report: Part II - Water Quality Characterization. Olympia, WA.

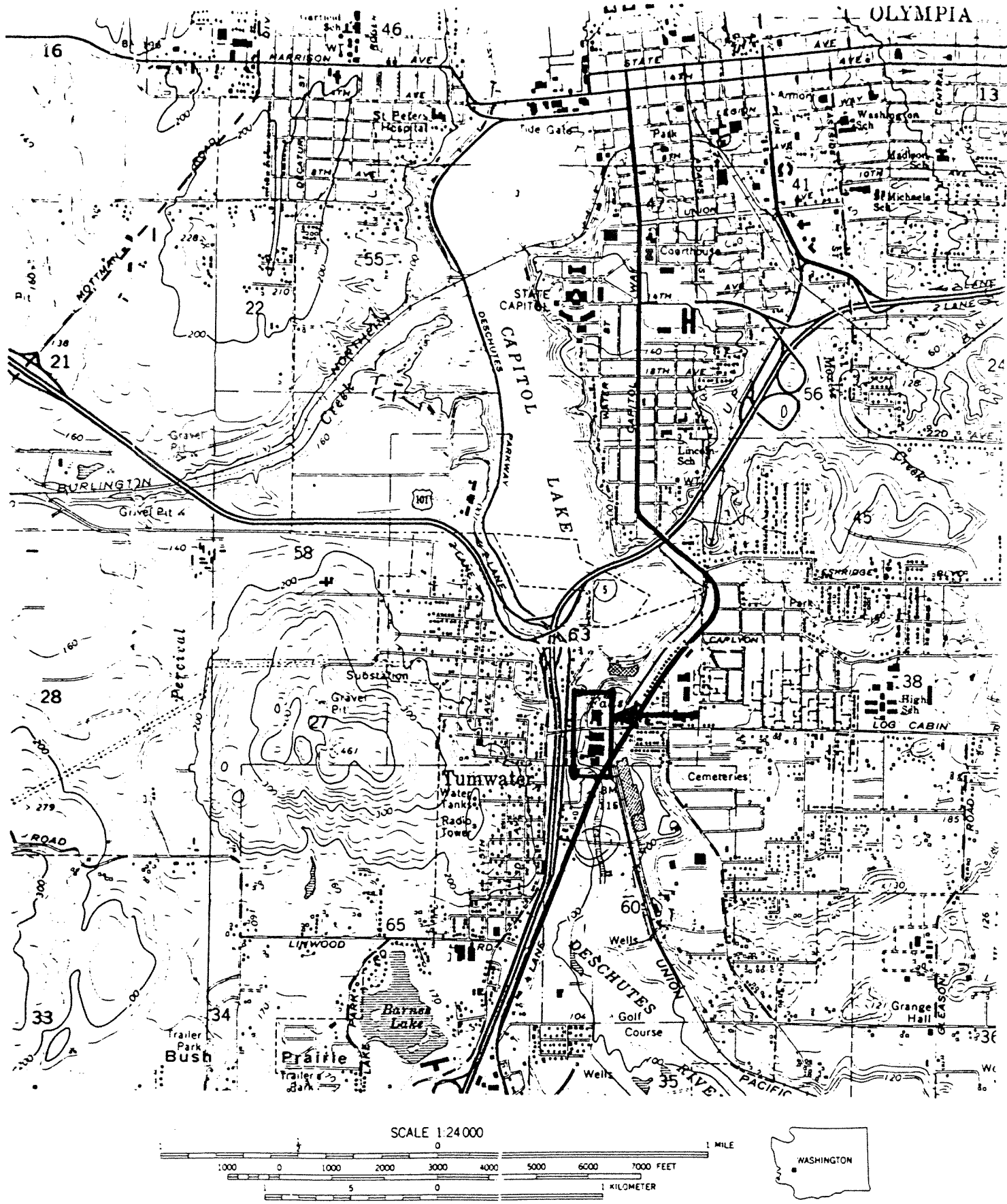


Figure 1. Location Map - Pabst Brewing Company Class II Inspection, 10/92

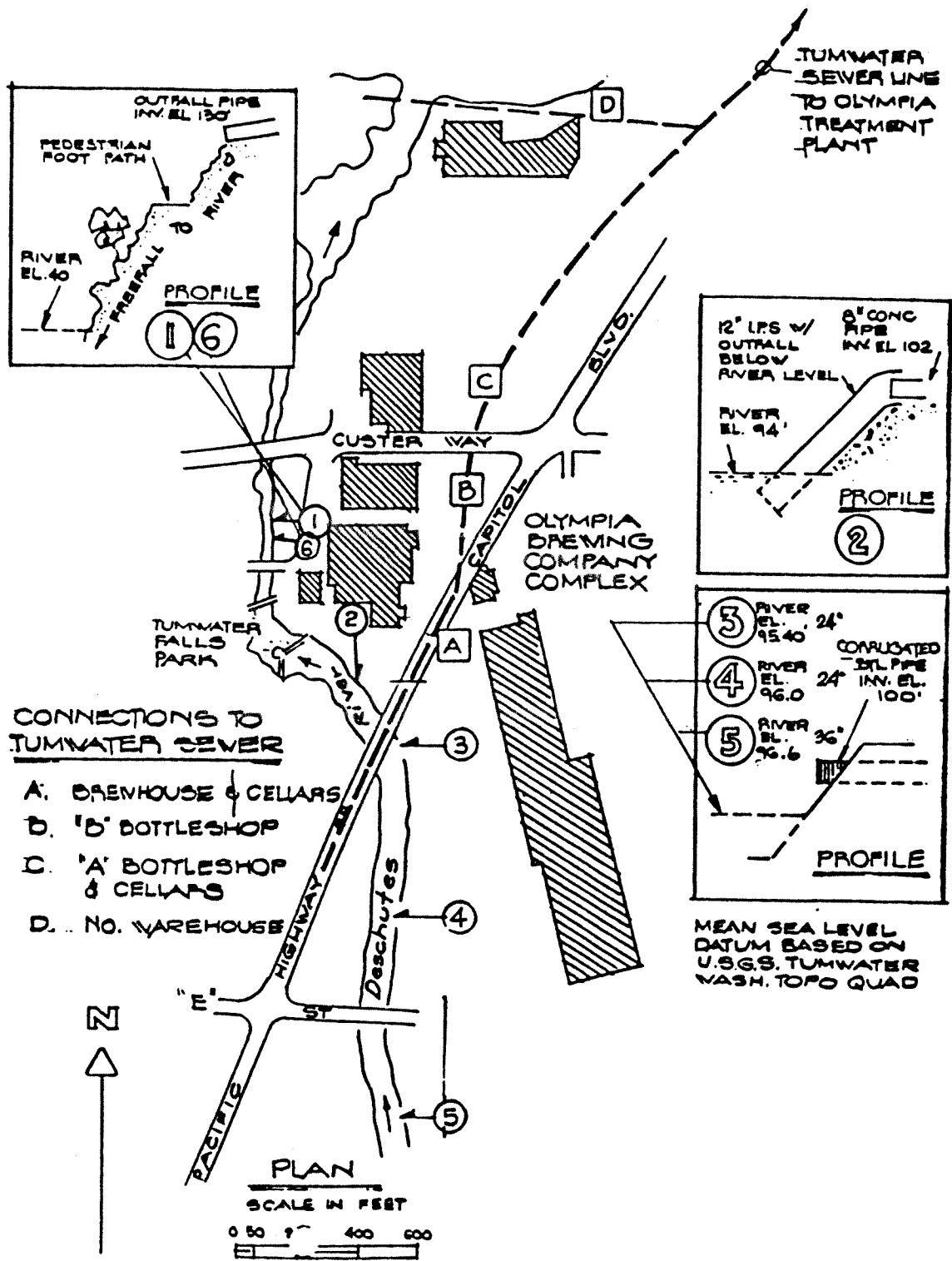


Figure 2. Map Showing Outfalls/Sampling Locations - Pabst Brewing Company Class II Inspection, 10/92

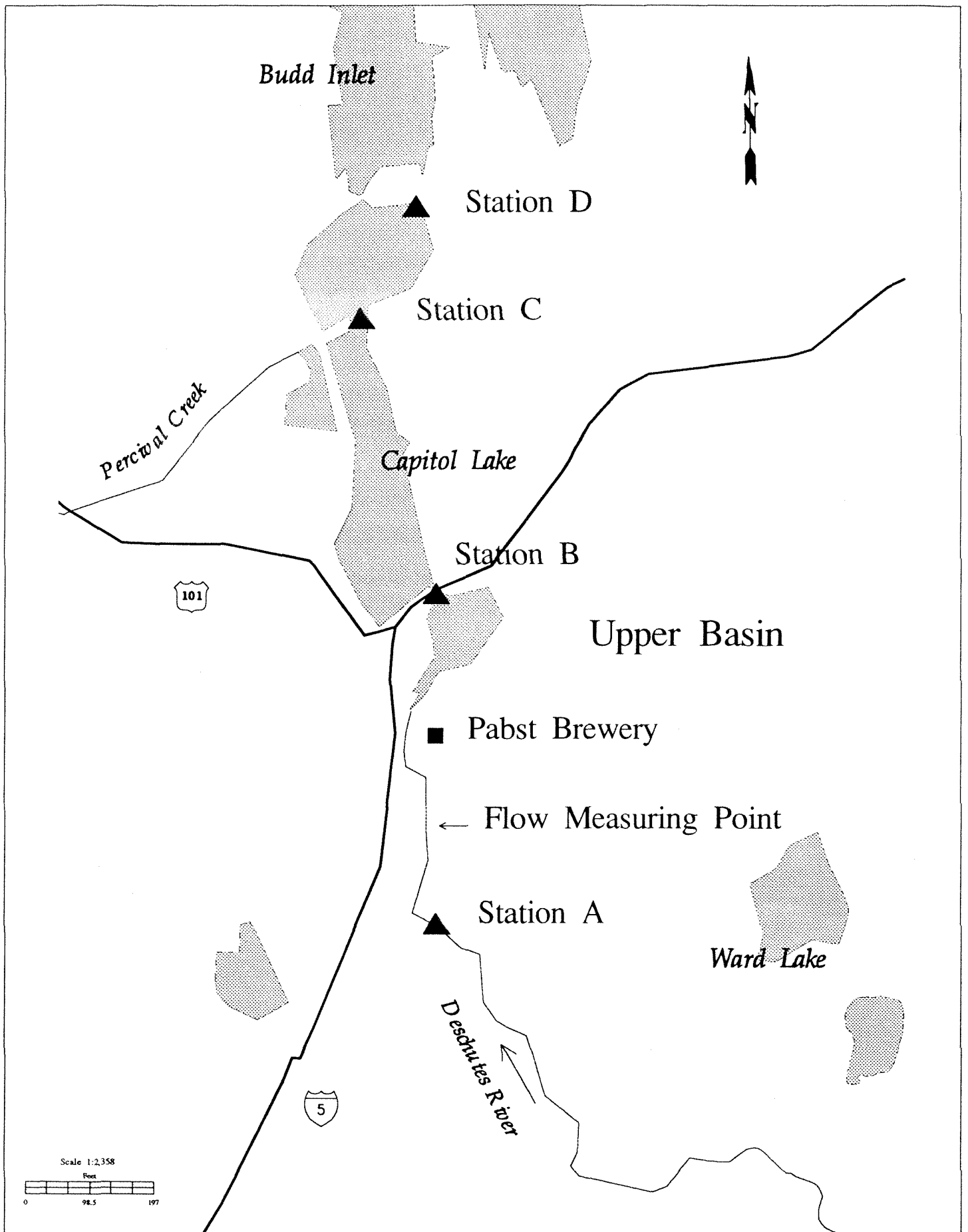


Figure 3. Deschutes River Sampling Stations – Pabst Brewery Class II Inspection, 10/92

Table 1. Analytical Methods and Laboratories - Pabst Brewing Company, 10/92

Parameter	Method*	Lab used
Conductivity	EPA, 1983: 120.1	Ecology; Manchester, WA
Turbidity	EPA, 1983: 180.1	Ecology; Manchester, WA
TSS	EPA, 1983: 160.2	Ecology; Manchester, WA
BOD5	EPA, 1983: 405.1	Water Management Laboratories Inc; Tacoma, WA
<b>NUTRIENTS</b>		
NH3-N	EPA, 1983: 350.1	Ecology; Manchester, WA
NO2+NO3-N	EPA, 1983: 353.2	Ecology; Manchester, WA
TKN	EPA, 1983: 351.1	Sound Analytical Services Inc; Tacoma, WA
Ortho phosphorus	EPA, 1983: 365.1	Sound Analytical Services Inc; Tacoma, WA
Total phosphorus	EPA, 1983: 365.1	Ecology; Manchester, WA
Fecal Coliform (MF)	APHA, 1989:9222D	Ecology; Manchester, WA

APHA, 1989. Standard Methods for the Examination of Water and Wastewater.

EPA, 1983. Methods for Chemical Analyses of Water and Waste.

TABLE 2. COMPARISON OF RESULTS TO NPDES PERMIT LIMITS -  
PABST BREWING COMPANY CLASS II INSPECTION, 10/92

Parameter	Daily Average*	Daily Maximum**	Inspection Data	
<b>OUTFALL 001</b>				
Flow, MGD	1.33	1.83	0.64	
Temperature, °C	22.2	25.5	19.5;20.5;20.5;20.5	
pH, S.U.	6.5≤pH≤8.5	6.5≤pH≤8.5	8.1;7.8;7.7;7.9	
T-Residual Chlorine, mg/L	NA	0.10	ND	
<b>OUTFALL 002</b>				
Flow, MGD	0.08	1.44	0.31	
Temperature, °C	23.9	48.8	19.5;19.9;19.3;19.9	
pH, S.U.	6.5≤pH≤8.5	6.5≤pH≤8.5	8.1;7.7;7.4;7.9	
T-Residual Chlorine, mg/L	NA	0.10	ND	
<b>OUTFALL 003</b>				
Flow, MGD	0.79	1.30	0.47	
Temperature, °C	25.0	32.2	29.1;28.6;19.3;20.9	
pH, S.U.	6.5≤pH≤8.5	6.5≤pH≤8.5	7.9;8.3;7.6;7.7	
T-Residual Chlorine, mg/L	NA	NA	0.20	
<b>OUTFALL 004</b>				
Flow, MGD	0.22	0.43	0.15	
Temperature, °C	25.0	32.2	19.7;24.2;23.9;24.8	
pH, S.U.	6.5≤pH≤8.5	6.5≤pH≤8.5	7.2;7.8;7.4;7.4	
T-Residual Chlorine, mg/L	NA	NA	ND	
			Inspection Data & Derived Loading	
<b>OUTFALL 008 (LOTT)</b>	Daily Average*	Daily Maximum**	Ecology Composite	Derived Loading
Flow, MGD	1.92	3.51	1.0	
BOD5 (mg/L)	NA	NA	900	
(lbs/day)	NA	18,000		7,500
TSS (mg/L)	NA	NA	152	
(lbs/day)	NA	3,300		1,270
pH, S.U.	6.0≤pH≤12.0	6.0≤pH≤12.0	6.2+	

\* The daily average is defined as the arithmetic average of the measured values obtained over a calendar month.

\*\* The daily maximum is defined as the greatest allowable value for any calendar day.

+ Iced composite sample.

NA - Not applicable.

ND - Not detected.

TABLE 3A. GENERAL CHEMISTRY RESULTS (OCTOBER 13TH MORNING) - PABST BREWING COMPANY CLASS II INSPECTION, 10/92

Parameter	Station:	005	004	003	002	001	001-T	RiverA	RiverB	RiverC	RiverD
	Type:	grab	grab	grab	grab	grab	grab	grab	grab	grab	grab
	Date:	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13
	Time:	1030	1050	1110	1130	1205	1205	0940	1020	1030	1040
	Lab ID#4282:	-80	-81	-82	-83	-84	-85	-88	-89	-90	-91
Turbidity, NTU		1.4	1.3	0.70	1.50	1.40	1.40	--	--	--	--
Conductivity, $\mu$ mhos/cm		135	160	168	127	127	128	--	--	--	--
TSS, mg/L		2	<1	<1	<1	<1	1	--	--	--	--
BOD5, mg/L		<2	3	3	2	<2	<2	--	--	--	--
NH3-N, mg/L		0.016	0.061	0.032	0.317	0.162	0.152	0.016	0.028	0.026	0.020
NO2+NO3-N, mg/L		0.667	0.107	0.287	0.009	0.118	0.117	0.664	0.615	0.173	0.127
TKN, mg/L		0.27	0.23	0.23	0.47	0.37	0.31	0.16	0.17	0.38	0.28
Ortho phosphorus, mg/L		0.01	0.09	0.08	0.12	0.11	0.10	0.01	0.01	0.01	<0.01
Total phosphorus, mg/L		0.030	0.133	0.112	0.150	0.136	0.137	0.024	0.030	0.083	0.051
F-Coliform (MF), #/100 mL		31 S									
<b>FIELD OBSERVATIONS</b>											
Flow, MGD		0.03*	0.15*	0.47*	0.31*	0.64*	0.64*	39.38	--	--	--
Temperature, °C		9.4	19.7	29.1	19.5	19.5	19.6	12.2	12.9	13.6	14.0
pH, S.U.		7.6	7.2	7.9	8.1	8.1	8.0	6.9	7.4	7.3	8.6
Conductivity, $\mu$ mhos/cm		110	160	190	130	130	125	95	120	150	230
Chlorine											
Free, mg/L		ND	ND	0.2	ND	ND	ND	--	--	--	--
Total, mg/L		ND	ND	0.2	ND	ND	ND	--	--	--	--

T - Replicate sample from outfall 001.

S - Spreader (middle colony that covered part of the plate).

ND - Not detected.

\* Estimated average.

TABLE 3B. GENERAL CHEMISTRY RESULTS (OCTOBER 13TH AFTERNOON) - PABST BREWING COMPANY CLASS II INSPECTION, 10/92

Parameter	Station:	005	004	003	002	001	001-T	RiverA	RiverB	RiverC	RiverD
	Type:	grab	grab	grab	grab	grab	grab	grab	grab	grab	grab
	Date:	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13	10/13
	Time:	1400	1420	1500	1520	1545	1555	1350	1405	1420	1430
	Lab ID#4282:	-92	-93	-94	-95	-96	-97	428300	-01	-02	-03
Turbidity, NTU		1.2	1.3	0.70	2.4	2.1	2.1	--	--	--	--
Conductivity, $\mu$ mhos/cm		134	163	174	139	133	131	--	--	--	--
TSS, mg/L		1	<1	1	<1	<1	<1	--	--	--	--
BOD5, mg/L		2	5	4	3	<2	2	--	--	--	--
NH3-N, mg/L		0.017	0.057	0.040	0.278	0.189	0.184	0.015	0.037	0.015	0.031
NO2+NO3-N, mg/L		0.656	0.067	0.277	0.081	0.048	0.056	0.661	0.592	0.035	0.117
TKN, mg/L		0.19	0.20	0.18	0.27	0.17	0.21	0.12	0.17	0.45	0.36
Ortho phosphorus, mg/L		<0.01	0.01	0.06	0.07	0.11	0.10	0.01	0.01	0.01	<0.01
Total phosphorus, mg/L		0.028	0.162	0.093	0.114	0.136	0.143	0.027	0.037	0.070	0.050
F-Coliform (MF), #/100 mL		11 S									
FIELD OBSERVATIONS											
Flow, MGD		0.03*	0.15*	0.47*	0.31*	0.64*	0.64*	39.38	--	--	--
Temperature, °C		12.5	24.2	28.6	19.9	20.5	21.2	14.3	14.0	14.5	14.6
pH, S.U.		7.8	7.8	8.3	7.7	7.8	8.0	7.9	7.9	8.3	9.1
Conductivity, $\mu$ mhos/cm		120	175	200	140	140	145	125	125	175	230
Chlorine											
Free, mg/L		0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--
Total, mg/L		0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	--

T - Replicate samples from 001 outfall.

S - Spreader (modile colony that covered part of the plate).

ND - Not detected.

\* Estimated average.



TABLE 3C. GENERAL CHEMISTRY RESULTS (OCTOBER 14TH MORNING) - PABST BREWING COMPANY CLASS II INSPECTION, 10/92

Parameter	Lab ID#4283:	004	005	004	003	002	001	LOTT-E	LOTT-WWTP	006	RiverA	RiverB	RiverC	RiverD
Type:		grab	grab	grab	grab	grab	grab	comp	comp	grab	grab	grab	grab	grab
Date:		10/14	10/14	10/14	10/14	10/14	10/14	10/13-14	10/13-14	10/14	10/14	10/14	10/14	10/14
Time:		0930	0955	1015	1040	1110	0900-0900	0900-0900	0900-0900	1140	0930	0950	1000	1010
		-04	-05	-06	-07	-08	-09	-10	-11	-13	-14	-15	-16	
Turbidity, NTU		0.95	2.6	0.95	3.9	5.7	65	72	1.4	--	--	--	--	--
Conductivity, $\mu$ mhos/cm		136	169	142	147	144	538	535	136	--	--	--	--	--
TSS, mg/L		3	2	2	1	1	152	205	2	--	--	--	--	--
BOD5, mg/L		<2	<2	5	<2	<2	900	960	<2	--	--	--	--	--
NH3-N, mg/L		0.020	0.052	0.075	0.301	0.179	1.52	0.312	0.022	0.011	0.038	0.021	0.013	0.013
NO2+NO3-N, mg/L		0.669	0.117	0.190	0.088	0.042	0.090	0.106	0.609	0.648	0.584	0.134	0.134	0.117
TKN, mg/L		0.23	0.24	0.22	0.40	0.27	22	20	0.29	0.27	0.49	0.74	0.74	0.56
Ortho phosphorus, mg/L		0.02	0.12	0.17	0.08	0.04	2.7	0.87	0.11	0.02	0.01	<0.01	<0.01	<0.01
Total phosphorus, mg/L		0.030	0.149	0.368	0.033	0.032	6.58	4.31	0.047	0.024	0.040	0.084	0.084	0.046
F-Colliform (MF), #/100 mL														
														33
FIELD OBSERVATIONS														
Flow, MGD		0.03*	0.15*	0.47*	0.31*	0.64*	1.0	1.0	0.05*	39.38	--	--	--	--
Temperature, °C		9.5	23.9	19.3	19.3	20.5	3.1	8.0	10.8	10.3	11.8	12.5	12.5	13.2
pH, S.U.		7.0	7.4	7.6	7.4	7.7	6.2	6.3	7.6	7.7	7.7	8.7	8.7	8.7
Conductivity, $\mu$ mhos/cm		130	175	150	175	150	560	550	140	130	140	190	190	235
Chlorine														
Free, mg/L		ND	ND	ND	ND	ND	--	--	ND	--	--	--	--	--
Total, mg/L		ND	ND	ND	ND	ND	--	--	ND	--	--	--	--	--

LOTT - Lacey, Olympia, Tumwater, and Thurston County.

E - Ecology sample.

WWTP - Wastewater treatment plant.

ND - Not detected.

\* Estimated average.

TABLE 3D. GENERAL CHEMISTRY RESULTS (OCTOBER 14TH AFTERNOON) - PABST BREWING COMPANY CLASS II INSPECTION, 10/92

Station:	005	004	003	002	001	006	RiverA	RiverB	RiverC	RiverD
Type:	grab	grab	grab	grab	grab	grab	grab	grab	grab	grab
Date:	10/14	10/14	10/14	10/14	10/14	10/14	10/14	10/14	10/14	10/14
Time:	1300	1320	1350	1425	1440	1450	1320	1330	1340	1350
Parameter	-17	-18	-19	-20	-21	-22	-24	-25	-26	-27
Lab ID#4283:										
Turbidity, NTU	1.1	2.9	0.95	4.2	5.6	1.0	--	--	--	--
Conductivity, $\mu$ mhos/cm	134	169	148	147	145	136	--	--	--	--
TSS, mg/L	3	1	2	1	1	1	--	--	--	--
BOD5, mg/L	<2	4	6	<2	<2	2	--	--	--	--
NH3-N, mg/L	0.014	0.045	0.054	0.324	0.178	0.019	0.011	0.017	0.013	0.023
NO2+NO3-N, mg/L	0.630	0.050	0.200	0.082	0.035	0.583	0.629	0.458	0.158	0.142
TKN, mg/L	0.23	0.22	0.29	0.48	0.37	0.21	0.20	0.38	0.59	0.41
Ortho phosphorus, mg/L	<0.01	0.09	0.18	0.07	0.07	0.02	<0.01	<0.01	<0.01	<0.01
Total phosphorus, mg/L	0.025	0.098	0.334	0.047	0.031	0.030	0.021	0.059	0.086	0.046
F-Collform (MF), #/100 mL						16				
FIELD OBSERVATIONS										
Flow, MGD	0.03*	0.15*	0.47*	0.31*	0.64*	0.05**	39.38	--	--	--
Temperature, °C	10.8	24.8	20.9	19.9	20.5	12.3	13.3	13.6	14.6	14.3
pH, S.U.	7.7	7.4	7.7	7.9	7.9	7.8	7.5	7.9	8.4	8.9
Conductivity, $\mu$ mhos/cm	140	180	150	175	170	180	130	160	220	280
Chlorine										
Free, mg/L	ND	ND	ND	ND	ND	ND	--	--	--	--
Total, mg/L	ND	ND	ND	ND	ND	ND	--	--	--	--

ND - Not detected.

\* Estimated average.

**TABLE 4. NUTRIENTS CONTENT IN PABST BREWERY OUTFALL DISCHARGES TO THE  
DESCHUTES RIVER - PABST BREWING COMPANY CLASS II INSPECTION, 10/92**

Parameter	Outfall:	001	002	003	004	005	006	Total
<b>Ammonia</b>								
(mg/L*)		0.177	0.305	0.053	0.054	0.017	0.025**	
(lbs/day*)		0.945	0.789	0.208	0.068	0.004	0.010	2.02
<b>NO<sub>2</sub>+NO<sub>3</sub>-N</b>								
(mg/L*)		0.067	0.092	0.239	0.085	0.656	0.596**	
(lbs/day*)		0.358	0.238	0.937	0.106	0.164	0.248	2.05
<b>Orthophosphorus</b>								
(mg/L*)		0.082	0.085	0.123	0.078	0.010	0.065**	
(lbs/day*)		0.437	0.220	0.482	0.098	0.003	0.027	1.27
<b>Total Phosphorus</b>								
(mg/L*)		0.084	0.086	0.227	0.136	0.028	0.039**	
(lbs/day*)		0.448	0.222	0.889	0.170	0.007	0.016	1.75
<b>Flow</b>								
(MGD)		0.64	0.31	0.47	0.15	0.03	0.05	1.65

\* The arithmetic average of four data collected during the inspection.

\*\* The arithmetic average of two data collected on 10/14.

TABLE 5. NUTRIENT LOADINGS FROM PABST BREWING COMPANY RELATIVE TO THE DESCHUTES RIVER UPSTREAM OF THE FACILITY, 10/92.

Parameter	PABST BREWING CO.	DESCHUTES RIVER STATION A
NH <sub>3</sub> +NO <sub>2</sub> +NO <sub>3</sub> -N*, lbs/day	4.07	218
Total phosphorus*, lbs/day	1.75	7.88
Flow, MGD	1.65	39.38

\* Arithmetic average concentration based on four data collected during the inspection.