Appendix C, Table 1.

Calculation of seawater fraction of un-ionized ammonia from Hampson (1977). Un-ionized ammonia criteria for salt water are from EPA 440/5-88-004.

Based on Lotus File NH3SALT.WK1 Revised 19-Oct-93

INPUT					
		Worst Case		Typical Case	
1. Temperature (deg C):		25.0		15.0	
2. pH:		8.5		8.0	
3. Salinity (g/Kg):		30.0		30.0	
OUTPUT					
1. Pressure (atm; EPA criteria assumes 1 atm):		1.0		1.0	
2. Molal Ionic Strength (not valid if >0.85):		0.616		0.616	
3. pKa8 at 25 deg C (Whitfield model "B"):		9.317		9.317	
4. Percent of Total Ammonia Present as Unionized:		13.234%		2.236%	
5. Unionized ammonia criteria (mg un-ionized NH3 per liter) from EPA 440/5-88-004			ug/L		ug/L
Acute:		0.233	233	0.233	233
Chronic:		0.035	35	0.035	35
6. Total Ammonia Criteria (mg/L as NH3)					
Acute:		1.76		10.42	
Chronic:		0.26		1.57	
7. Total Ammonia Criteria (mg/L as NH3-N)					
Acute:	EPA 440/5/88-004, Table 2	1.45	**1447.2**	8.56	**8564.4**
Chronic:	EPA 440/5/88-004, Table 3	0.22	**217.4**	1.29	**1286.5**

REASONABLE POTENTIAL CALCULATION

Appendix C, Table 2

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

CALCULATIONS

				State Water Quality Standard		Max concentration at edge of...												
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	**LIMIT REQ'D?**	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	
Parameter	Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*s*	*n*				COMMENTS
Ammonia (NH3 as N, Worst Case)				4162.0	625.0	105.55	57.32	**NO**	0.95	0.992	37400.00	0.60	0.55	365	0.66	233	429	
Ammonia (NH3 as N, Typical Case)				8564.0	1286.0	105.55	57.32	**NO**	0.95	0.992	37400.00	0.60	0.55	365	0.66	233	429	

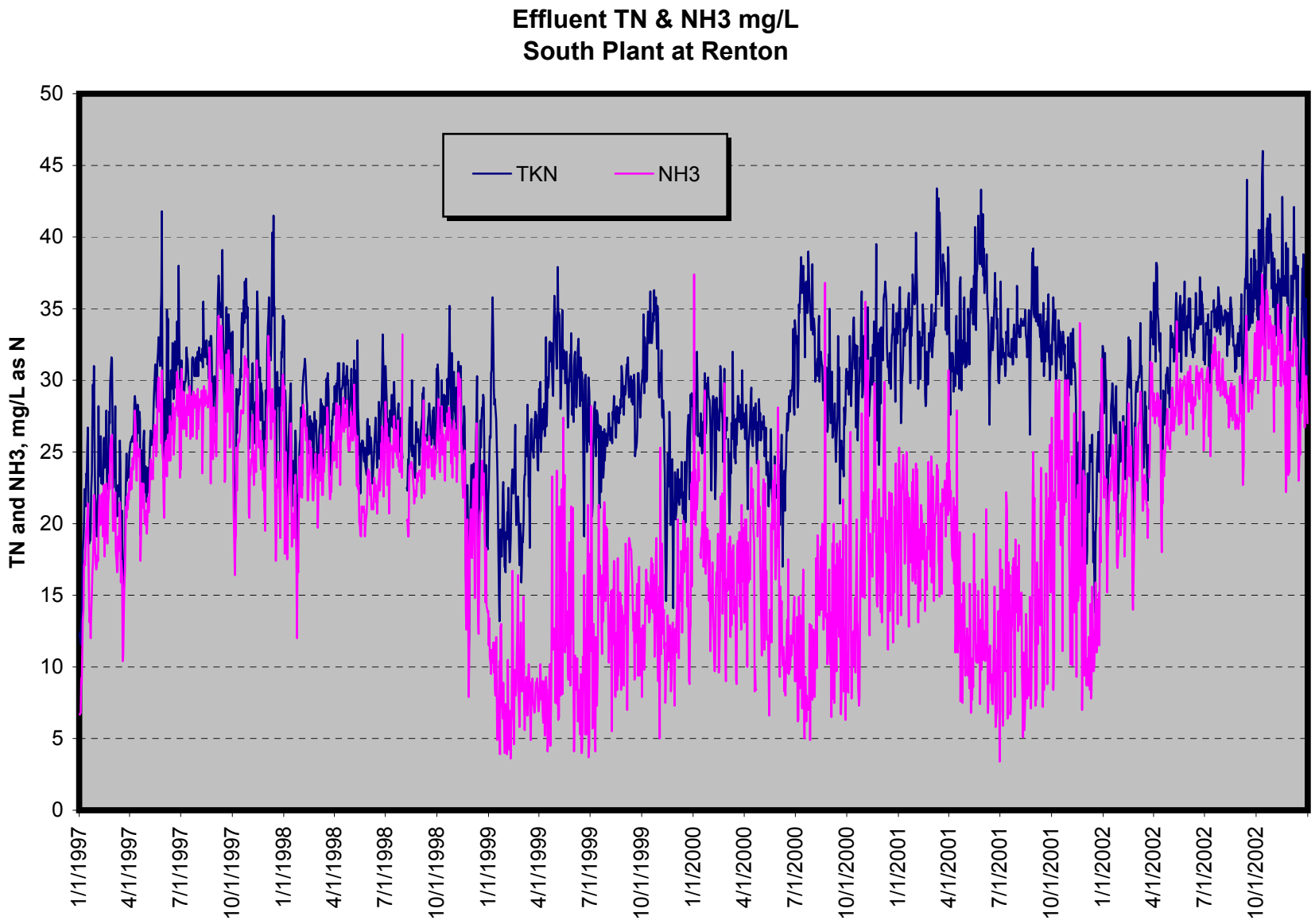
WATER QUALITY BASED
PERMIT LIMIT CALCULATIONS

Appendix C, Table 3

Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.

	Permit Limit Calculation Summary										**Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations**							Statistical variables for p calculation			
	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translat or	Metal Criteria Translat or	Ambient Concentr ation	Water Quality Standard Acute	Water Quality Standard Chronic	Average Monthly Limit (AML)	Maximum Daily Limit (MDL)	Comments	WLA Acute	WLA Chronic	LTA Acute	LTA Chronic	LTA Coeff. Var. (CV)	LTA Prob'y Basis	Limiting LTA	Coeff. Var. (CV)	AML Prob'y Basis	MDL Prob'y Basis	# Sar p M
PARAMETER			Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	ug/L	ug/L		*ug/L*	*ug/L*	*ug/L*	*ug/L*	*decimal*	*decimal*	*ug/L*	*decimal*	*decimal*	*decimal*	
Ammonia	233.0	429.00				8564.0	1286.0	**346180.5**	**906250.6**		1995412	551694.00	640693.3	290981.9	0.60	0.99	290981.9	0.60	0.95	0.99	30
								mg/L	**mg/L**												
								346.2	**906.3**												

This spreadsheet calculates water quality based permit limits based on the two value steady state model using the State Water Quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 99. Last revision date 9/98. Written by G. Shervey


Effluent TN & NH3 mg/L
South Plant at Renton
TKN
NH3
TN and NH3, mg/L as N
0
5
10
15
20
25
30
35
40
45
50
1/1/1997
4/1/1997
7/1/1997
10/1/1997
1/1/1998
4/1/1998
7/1/1998
10/1/1998
1/1/1999
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10/1/2000
1/1/2001
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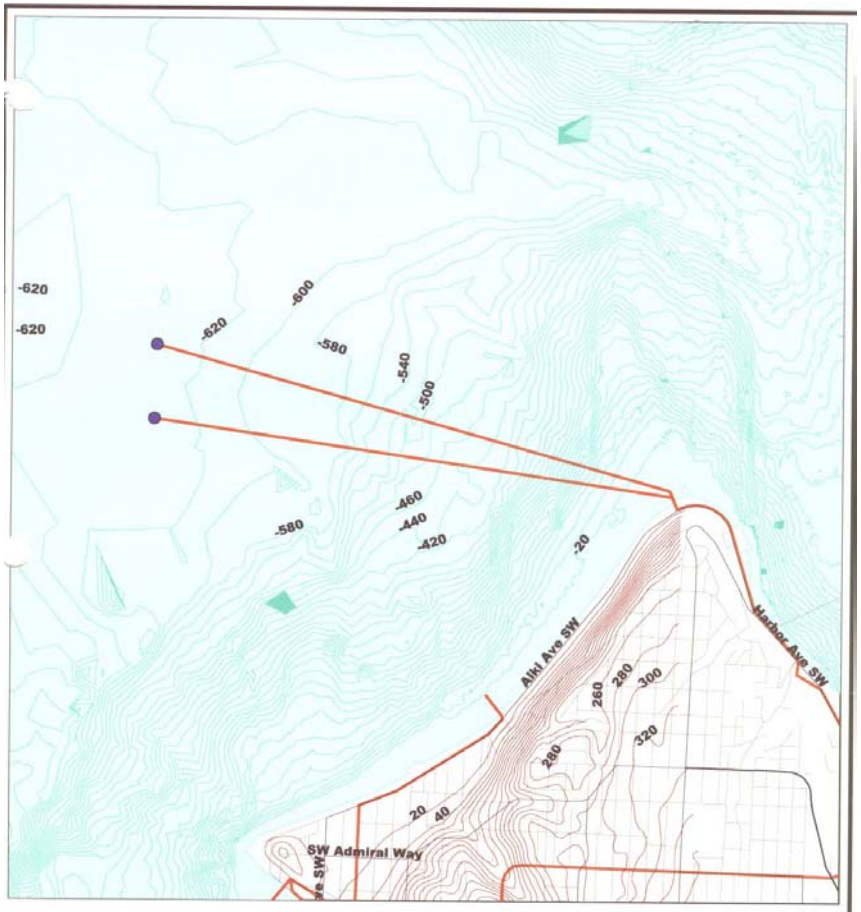
7/1/2002
10/1/2002

Appendix D. Outfall Diagrams



South Treatment Plant Outfalls

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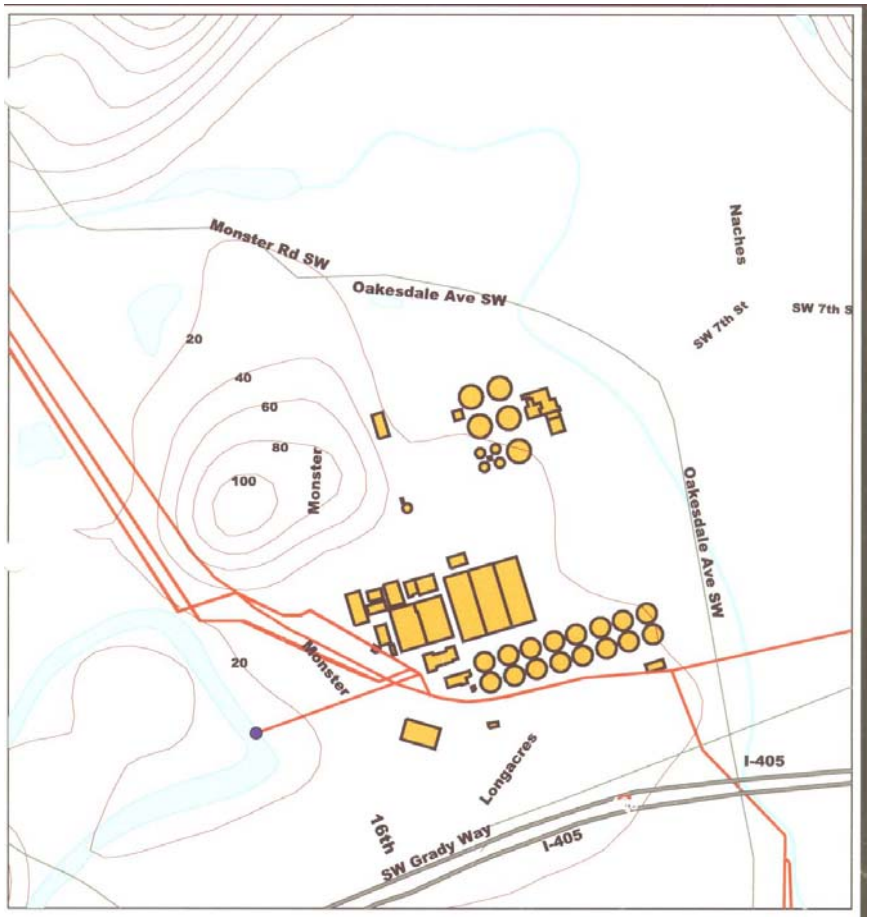
KING COUNTY

400 0 400 800 1200 1600 2000 Feet

November 9, 2001

Legend
- Bathymetry (20' Intervals)
- Topography (20' Intervals)
- South TP Discharge Points
- Streets
- Sewers
- Water Features



South Treatment Plant

Emergency Bypass Outfall

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KING COUNTY

0.02 0 0.02 0.04 0.06 0.08 0.1 Miles

November 9, 2001

Legend
- Freeways
- Streets
- Contour lines
- Emergency Discharge Point
- Sewers
- South Treatment Plant
- Water Features
- Streams and Rivers

Appendix E: DMR Data

Facility Metro Renton
Permit No. WA0029581D
Outfall 1

Parameter	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY PERCENT REMOVAL	CHLORINE, TOTAL RESIDUAL	CHLORINE, TOTAL RESIDUAL	CHLORINE, TOTAL RESIDUAL	COLIFORM, FECAL	COLIFORM, FECAL	PH	PH	SOLIDS, SUSPENDED, % REMOVAL	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED
Units	AVG	AVG	AVW	AVW	AVG	AVG	AVG	MAX	GEM	GM7	MAX	MIN	AVG	AVG	AVG	AVW	AVW
	LBS/DAY	MG/L	LBS/DAY	MG/L	PERCENT	LBS/DAY	MG/L	MG/L	#/100 ML	#/100 ML	S.U.	S.U.	PERCENT	LBS/DAY	MG/L	LBS/DAY	MG/L
Design Criteria																	
Limit	36000	30	54000	45	85	787	0.66	1.7	200	400	9	6	85	36000	30	54000	45
1-Aug-97	5800	11.5	7400	15.1	95.7	5.3	0.01	0.015	78	128	7.2	6.9	96.7	5900	11.6	7600	15.2
1-Sep-97	7000	12.1	8000	14.6	95.8	3	0.005	0.015	47	120	7.2	7	95.9	8100	14.2	11400	20.7
1-Oct-97	12500	19.7	16500	28	92.7	33	0.049	0.2	177	397	7.3	6.9	93.1	14800	23.1	21800	37.7
1-Nov-97	13600	20.1	18500	26.8	93.4	2.7	0.004	0.004	155	311	7.1	7	92.8	16200	23.9	25700	36.8
1-Dec-97	13900	21	15200	27	92.7	2.7	0.004	0.004	51	78	7.1	7	93.4	15700	23	21700	30
1-Jan-98	13300	15.2	16200	17.5	93.9	3.5	0.004	0.004	70	226	7.1	7	94.8	13700	15.6	17100	18.5
1-Feb-98	8200	10.5	8700	11.2	95.6	3.6	0.005	0.011	29	91	7.1	7	97.2	6400	8.2	6800	8.7
1-Mar-98	8100	10.3	8800	11.6	95.6	5.6	0.007	0.014	11	12	7.1	6.8	96.1	9100	11.5	11000	13.8
1-Apr-98	5500	8.4	8800	11.2	96.3	18.5	0.03	0.1	57	65	7.1	6.8	96.8	5900	8.9	9600	12.3
1-May-98	6800	11.9	8400	14.4	95.6	10.9	0.019	0.072	29	39	7.1	6.9	97.7	3800	6.7	4800	8.8
1-Jun-98	4500	7.4	5700	9.5	97.1	14.9	0.025	0.16	12	26	7.1	6.8	97.8	4200	7	4800	7.9
1-Jul-98	4800	8.6	5500	9.8	96.6	12.4	0.02	0.03	18	30	6.9	6.8	97.5	4400	7.7	5200	9.3
1-Aug-98	4100	7	5900	10.5	96.8	10.3	0.019	0.1	54	106	6.9	6.8	98.3	2800	5	2900	5.4
1-Sep-98	6100	11.1	8200	14.8	95.3	46.4	0.08	0.39	6	34	7.4	6.6	98.2	2700	4.9	3800	6.9
1-Oct-98	6200	10.7	7100	12.8	94.9	26	0.045	0.129	21	94	7	6.8	96.9	4800	8.3	5300	9.6
1-Nov-98	6700	9	7400	11.1	93.7	13.3	0.017	0.056	95	129	7.7	6.8	95	8800	11.4	13900	14.3
1-Dec-98	5600	6.7	9000	9.1	94.6	27	0.031	0.22	56	97	6.8	6.7	93.5	9400	10.9	15900	16.1
1-Jan-99	8500	9	9900	10.6	92.4	283	0.07	0.23	53	107	6.8	6.8	91	12700	13.2	16900	15.6
1-Feb-99	8300	8.3	10800	10.4	92.3	35.6	0.03	0.14	34	59	7.7	6.6	94	9300	9.1	10100	9.3
1-Mar-99	7300	8.2	9800	9.1	94.3	49	0.06	0.14	21	40	7.5	6.8	93.4	10500	11.9	13700	13
1-Apr-99	6100	8.9	7300	11.7	95	22.3	0.03	0.22	36	39	7.8	6.9	95.1	6700	9.8	7600	11.5
1-May-99	9100	14.6	10400	16	92.9	7.8	0.01	0.04	80	107	7.7	6.9	95.3	6200	9.8	8100	12.4
1-Jun-99	5300	9.1	8600	14.8	96.5	16.9	0.03	0.11	38	101	7.7	6.9	97.1	4400	7.6	5400	9.8
1-Jul-99	8200	14.3	11000	19	94.2	5.7	0.01	0.05	27	86	7.7	6.9	96.9	4100	7.1	5500	9.5
1-Aug-99	7000	12.2	7900	13.6	94.9	5.9	0.01	0.036	68	118	7.7	6.9	97	4800	8.4	5200	9.1
1-Sep-99	8500	14.3	9000	15.8	93.9	8.6	0.01	0.04	173	328	7.3	6.8	95.3	6200	10.4	7100	12.5
1-Oct-99	8000	14	8800	15.8	93	9.9	0.02	0.05	77	160	7.7	6.9	95	6100	10.6	6900	11.9
1-Nov-99	9900	12.1	11100	14.3	93.3	12.1	0.016	0.049	83	171	7.6	6.8	94.9	8900	10.4	11600	12.2
1-Dec-99	14100	16.1	18200	18.5	92	24	0.026	0.074	13	24	7.6	6.4	94.1	10000	11.3	12700	12.2
1-Jan-00	17200	20.7	20500	23.9	90.2	7.7	0.009	0.02	18	32	7.4	6.4	90.9	1400	17.1	16900	18.8
1-Feb-00	13190	15.4	14229	19.2	93	9.4	0.011	0.021	39	57	7.4	6.4	93	12110	13.9	13671	15.2
1-Mar-00	13500	16	14500	16.8	92.8	8.8	0.01	0.03	8	12	7.4	6.5	95.2	8200	9.7	11900	12.4
1-Apr-00	12500	17.7	15400	22	92.5	22.2	0.03	0.05	52	117	7.9	6.5	95.5	6800	9.6	7600	10.5
1-May-00	12200	18.5	14000	20.5	92.3	42.4	0.07	0.09	57	74	7.9	6.9	96.2	5900	8.7	7600	10.3
1-Jun-00	7000	11.8	7200	12.3	94.5	21.9	0.04	0.09	74	97	7.9	6.9	96.6	4600	7.8	5600	10.4
1-Jul-00	5200	9.7	6400	11.9	95	12	0.02	0.03	56	242	8.2	6.9	96	4400	8.2	4900	9.2
1-Aug-00	8200	15	10000	18	93	14.9	0.027	0.043	97	224	8	6.7	96	5500	10	6500	12
1-Sep-00	7600	13	8700	14.8	94	20.7	0.04	0.08	55	98	8	6.8	96	6000	10.2	7000	11.8
1-Oct-00	9300	14.4	10600	15.6	93.2	16.7	0.026	0.055	177	324	7.9	7	93.9	9100	13.9	12800	18.4
1-Nov-00	12900	20.4	14400	22.7	90.5	18.5	0.03	0.07	200	356	7.9	6.8	91.9	11800	18.6	13500	19.9
1-Dec-00	10600	18.9	13000	22.4	91.6	23.2	0.04	0.15	60	82	8	6.9	93.3	9400	16.5	13300	22.4
1-Jan-01	12400	20.2	14400	22.1	91.3	15.3	0.025	0.061	93	330	8	7.1	91	12600	20.5	13300	23
1-Feb-01	11100	18.7	11700	19.4	92.2	13.4	0.023	0.036	30	53	7.4	6.8	92.2	11700	19.8	13500	21.8
1-Mar-01	10700	20.3	11700	21.7	91.9	13.7	0.03	0.05	33	93	7.6	7	92.6	10200	19.1	11100	20.4
1-Apr-01	8600	16.9	12600	22.5	92	12.7	0.03	0.05	30	65	7.2	6.9	94	6800	13.2	10700	18.9
1-May-01	5700	11.6	6500	12.6	94.2	13	0.026	0.047	88	166	7.4	6.8	94.9	5900	12.1	6300	13.2
1-Jun-01	5400	10.9	7100	14.2	95	23.5	0.05	0.3	128	278	7.8	7	94.2	7100	14.1	10400	20.6
1-Jul-01	7400	13.5	8600	16.1	94.5	18.5	0.03	0.09	92	130	7.4	7	96.5	5000	9.1	5900	11.1
1-Aug-01	6400	12.3	8800	17.4	95.3	11.4	0.02	0.03	43	94	7.5	6.9	96.3	5500	10.6	6900	13.8
1-Sep-01	7400	15.4	9000	18.2	94.3	9.4	0.02	0.03	26	106	7.6	6.9	96.3	4800	9.9	5500	11.3
1-Oct-01	11600	23.2	13700	26	90.8	10.5	0.02	0.04	51	182	7.6	7	95.4	6300	12.6	8800	16
1-Nov-01	13900	18.2	18200	21.1	91	20	0.03	0.07	93	140	7.4	6.8	92	13700	16.8	20200	21.4
1-Dec-01	12100	13.9	12471	17.4	91.1	26.7	0.029	0.045	72	138	7.1	6.8	91.8	12300	13.7	16014	15.5
1-Jan-02	14400	18	19600	24	91	18.8	0.023	0.029	25	52	7.1	6.6	90	16700	20	19500	23
1-Feb-02	12400	15	13600	17	91.3	17.6	0.022	0.027	29	41	7.8	6.8	92.9	13100	16	15900	17
1-Mar-02	12500	17	15600	18	91	19	0.025	0.049	28	52	7.6	7	89	19000	25	23800	28
1-Apr-02	10000	14	13000	20	91.8	15.3	0.021	0.03	56	130	7.6	6.9	92.6	13300	19	23900	38
1-May-02	7800	12	9700	14	94	17	0.026	0.064	45	94	7.6	7.2	95	10000	15	11300	18
1-Jun-02	5400	9	6700	11	95.4	13	0.022	0.029	46	77	7.8	7.2	94.9	7900	13	9300	15
1-Jul-02	3500	7	4300	9	96.7	10.6	0.02	0.02	3	5	7.4	7	96.9	4200	8	4400	9
1-Aug-02	5300	11	7328	14	94.6	11	0.023	0.62	21	60	7.4	7.1	96.3	4900	10	7042	15
1-Sep-02	6200	13	6700	14	93.7	10.4	0.022	0.03	57	129	7.3	7	96.5	4400	10	5000	11
1-Oct-02	8000	17	9700	20	92.7	10	0.02	0.03	40	192	7.3	6.9	91.2	11300	24.4	15100	34
1-Nov-02	8500	15	10700	19	93.6	14	0.02	0.05	100	160	7.2	7	95.5	7500	13	7700	14
1-Dec-02	6000	9	7000	12	95.2	15	0.023	0.039	41	78	7.1	6.8	94.9	9300	14	11200	16
1-Jan-03	11500	14	13900	18	92	41	0.05	0.05	52	84	7.1	6.6	92	14200	18	15600	21
1-Feb-03	11000	16	12700	18	91	0	0	0	72	144	7.1	6.8	91	13100	19	14500	21
1-Mar-03	15200	19	19600	21	91	0	0	0.1	108	182	7.1	6.8	89.7	16800	21	22500	24
1-Apr-03	9800	14	14000	20	93.5	0	0	0.05	111	372	7.1	6.8	93.7	11200	16	16400	23
1-May-03	5100	9	7000	12	96	0	0	0	70	103	7.2	6.9	95	6800	13	10600	18
1-Jun-03	8400	17	11000	23	92.8	0	0	0	65	110	7.4	7	96.3	4700	10	6300	13
1-Jul-03	9800	20	10700	22	92.9	0	0	0.02	165	429	7.3	6.9	93.8	8200	17	10600	22
1-Aug-03	6100	13	7700	16	94.9	0	0	0.05	47	125	7.3	7	95.4	5700	12	6400	14
1-Sep-03	9000	19	11400	24	92.5	0	0	0.19	97	144	7.4	7	94.5	7200	15	8600	18
1-Oct-03	12000	20	21700	25	90.5	0	0	0.23	91	127	7.3	6.8	93.8	8600	15	14500	18
1-Nov-03	12900	19	19100	25	90	0	0	0.05	74	130	7.3	6.7	91	13900	20	20900	23
1-Dec-03	10600	14.2	13600	17.2	91.8	3	0	0	100	164	7.1	6.8	92.8	12300	16.6	16400	20.7
Maximum	17200	23.2	21700	28	97.1	283	0.08	0.62	200	429	8.2	7.2	98.3	19000	25	25700	38
Minimum	3500	6.7	4300	9	90	0	0	0	3	5	6.8	6.4	89	1400	4.9	2900	5.4
Average	9045	14	11145	17	93	17	0	0	63	130	7	7	95	8546	13	11265	16

Calculations for determination of reduced sampling freqency

2 yr. Avg.	14.6	64.3	15.8
LTA/AML	49%	32%	53%
LTA	Long term average		
AML	average monthly limit		
STD	4	37	4
Coef. Variation	0.26	0.57	0.28

Appendix E: DMR Data

Facility Metro Renton
Permit No. WA0029581D
Outfall IN

Analysis	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED
Units	AVG	AVG	MAX	MAX	AVG	MAX	AVG	AVG	MAX	MAX
	LBS/DAY	MG/L	LBS/DAY	MG/L	MGD	MGD	LBS/DAY	MG/L	LBS/DAY	MG/L
Design Criteria	220000				144		201000			
85% Limit	187000	na	na	na	122	na	170850	na	na	na
1-Aug-97	135000	260	190000	352	60.75	73.3	180000	346	2450000	517
1-Sep-97	168000	284	241000	378	69.69	89.94	198000	336	297000	492
1-Oct-97	171000	261	244000	387	77.62	121.4	214000	326	360000	488
1-Nov-97	207000	306	448000	710	81.6	95.6	227000	334	275000	452
1-Dec-97	190000	278	337000	496	82	116	236000	343	458000	590
1-Jan-98	217000	248	488000	525	105.33	123.78	261000	298	403000	446
1-Feb-98	186000	237	248000	317	93.7	101.27	226000	652	307000	744
1-Mar-98	186000	233	264000	358	95.2	116.1	233000	562	445000	590
1-Apr-98	151000	229	206000	302	78.8	95.45	185000	279	240000	334
1-May-98	154000	261	206000	344	69.48	86.99	163000	610	212000	638
1-Jun-98	152000	250	213000	354	72.1	80.3	188000	310	323000	519
1-Jul-98	144000	252	211000	376	67.39	70.91	175000	308	259000	452
1-Aug-98	127000	227	199000	346	67.02	70.71	159000	284	253000	452
1-Sep-98	129000	231	280000	448	66.91	75.81	153000	274	214000	392
1-Oct-98	123000	208	182000	325	70.23	81.66	158000	267	286000	452
1-Nov-98	106000	148	223000	324	88.89	162.7	174000	234	502000	729
1-Dec-98	105000	125	599000	756	103.4	151.54	144000	173	828000	1045
1-Jan-99	112000	119	415000	461	117.05	159.65	140000	147	209000	223
1-Feb-99	107000	106	160000	176	121.82	151.57	154000	154	328000	319
1-Mar-99	128000	149	251000	215	104.05	143.24	160000	183	323000	349
1-Apr-99	120000	175	155000	212	82.65	100.96	136000	197	228000	310
1-May-99	129000	205	167000	273	74.93	90.79	133000	211	199000	337
1-Jun-99	153000	259	388000	675	70.48	96.74	152000	255	351000	435
1-Jul-99	141000	245	200000	326	68.86	73.46	130000	226	232000	379
1-Aug-99	137000	237	223000	370	68.26	75.55	162000	278	413000	683
1-Sep-99	139000	230	183000	290	71.6	86.4	132000	220	229000	404
1-Oct-99	114000	199	192000	328	68.66	83.45	121000	210	259000	442
1-Nov-99	148000	183	301000	340	100.65	168.04	174000	527	505000	622
1-Dec-99	177000	204	317000	401	105.91	137.89	169000	193	350000	361
1-Jan-00	176000	212	221000	280	100.02	116.2	156000	189	196000	262
1-Feb-00	179000	206	337000	347	104.49	143.67	163000	186	274000	317
1-Mar-00	186000	221	276000	337	101.61	138.51	170000	202	279000	324
1-Apr-00	167000	235	255000	366	85	89.5	150000	211	279000	401
1-May-00	159000	237	229000	308	80.36	97.35	156000	232	231000	346
1-Jun-00	135000	226	219000	364	71.81	98.51	134000	225	187000	318
1-Jul-00	105000	193	134000	236	65.18	70.39	120000	220	159000	280
1-Aug-00	121000	221	176000	317	65.64	68.92	131000	240	233000	420
1-Sep-00	127000	213	241000	388	70.87	80.91	153000	257	528000	850
1-Oct-00	136000	212	181000	316	78.08	113.08	149000	229	237000	330
1-Nov-00	136000	214	229000	348	76.62	100.04	146000	229	236000	369
1-Dec-00	126000	221	183000	354	68.11	81.1	140000	246	216000	398
1-Jan-01	143000	232	185000	316	73.6	94.64	140000	227	199000	302
1-Feb-01	141000	238	212000	381	71.14	88.39	151000	254	390000	700
1-Mar-01	133000	248	227000	423	63.46	71.13	137000	256	224000	416
1-Apr-01	109000	204	295000	321	60.99	75.34	112000	221	148000	269
1-May-01	99000	198	135000	267	59.76	69	116000	231	174000	302
1-Jun-01	108000	216	195000	408	60.49	86.79	123000	244	209000	459
1-Jul-01	135000	246	214000	387	65.51	74.73	141000	257	217000	392
1-Aug-01	136000	260	201000	357	62.9	84.98	150000	287	253000	477
1-Sep-01	131000	268	178000	345	58.54	63.47	130000	266	239000	488
1-Oct-01	126000	252	268000	549	60.18	76.57	137000	273	298000	525
1-Nov-01	155000	199	571000	376	93.57	182.05	171000	217	790000	520
1-Dec-01	137000	156	197000	225	108.6	164.26	149000	168	234000	225
1-Jan-02	160000	198	406000	514	98.03	147.97	172000	208	325000	320
1-Feb-02	142000	175	248000	228	98.35	149.14	186000	229	337000	404
1-Mar-02	132000	177	220000	245	90.36	122.59	175000	233	266000	287
1-Apr-02	122000	172	207000	313	86.47	129.26	179000	251	330000	500
1-May-02	132000	202	273000	413	78.37	83.87	199000	304	543000	821
1-Jun-02	118000	201	166000	271	70.69	78.18	155000	264	200000	326
1-Jul-02	107000	212	205000	387	60.84	76.32	135000	265	212000	407
1-Aug-02	98000	201	140000	277	58.71	61.53	134000	273	202000	400
1-Sep-02	97000	207	174000	368	56.37	60.71	126000	268	167000	354
1-Oct-02	109000	228	164000	318	56.4	66.3	129000	270	191000	412
1-Nov-02	133000	229	251000	424	69.53	81.76	165000	283	220000	374
1-Dec-02	123000	191	204000	312	78.58	120.66	182000	279	323000	449
1-Jan-03	143000	176	264000	314	99.58	137.72	182000	222	241000	290
1-Feb-03	126000	181	160000	240	84.01	108.72	149000	213	179000	246
1-Mar-03	168000	221	257000	395	94.59	143.55	164000	213	259000	256
1-Apr-03	150000	212	292000	410	84.51	105.39	178000	252	302000	414
1-May-03	119000	225	194000	381	63.43	83.29	134000	256	243000	477
1-Jun-03	117000	242	167000	355	57.8	62.3	126000	261	267000	566
1-Jul-03	139000	291	222000	444	57.46	61.24	133000	277	220000	448
1-Aug-03	119000	263	157000	338	54.27	60.6	124000	275	221000	500
1-Sep-03	119000	251	157000	339	57.21	60.72	132000	278	226000	496
1-Oct-03	126000	224	294000	307	68.64	166.43	139000	236	493000	464
1-Nov-03	134000	205	229000	395	84.19	159.49	158000	234	277000	408
1-Dec-03	129000	173	319000	392	88.99	107.39	170000	229	237000	309

Maximum	217000	306	599000	756	121.82	182.05	261000	652	2450000	1045
Minimum	97000	106	134000	176	54.27	60.6	112000	147	148000	223
Average	137974	217	242338	362	78	102	158286	265	320117	439

Appendix E: DMR Data

Facility Metro Renton
Permit No. WA0029581D
Outfall IN

Analysis	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	BOD, 5-DAY (20 DEG. C)	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED	SOLIDS, TOTAL SUSPENDED
Units	AVG	AVG	MAX	MAX	AVG	MAX	AVG	AVG	MAX	MAX
	LBS/DAY	MG/L	LBS/DAY	MG/L	MGD	MGD	LBS/DAY	MG/L	LBS/DAY	MG/L
Design Criteria	251000				144		235000			
85% Limit	213350	na	na	na	122	na	199750	na	na	na
1-Aug-97	135000	260	190000	352	60.75	73.3	180000	346	2450000	517
1-Sep-97	168000	284	241000	378	69.69	89.94	198000	336	297000	492
1-Oct-97	171000	261	244000	387	77.62	121.4	214000	326	360000	488
1-Nov-97	207000	306	448000	710	81.6	95.6	227000	334	275000	452
1-Dec-97	190000	278	337000	496	82	116	236000	343	458000	590
1-Jan-98	217000	248	488000	525	105.33	123.78	261000	298	403000	446
1-Feb-98	186000	237	248000	317	93.7	101.27	226000	652	307000	744
1-Mar-98	186000	233	264000	358	95.2	116.1	233000	562	445000	590
1-Apr-98	151000	229	206000	302	78.8	95.45	185000	279	240000	334
1-May-98	154000	261	206000	344	69.48	86.99	163000	610	212000	638
1-Jun-98	152000	250	213000	354	72.1	80.3	188000	310	323000	519
1-Jul-98	144000	252	211000	376	67.39	70.91	175000	308	259000	452
1-Aug-98	127000	227	199000	346	67.02	70.71	159000	284	253000	452
1-Sep-98	129000	231	280000	448	66.91	75.81	153000	274	214000	392
1-Oct-98	123000	208	182000	325	70.23	81.66	158000	267	286000	452
1-Nov-98	106000	148	223000	324	88.89	162.7	174000	234	502000	729
1-Dec-98	105000	125	599000	756	103.4	151.54	144000	173	828000	1045
1-Jan-99	112000	119	415000	461	117.05	159.65	140000	147	209000	223
1-Feb-99	107000	106	160000	176	121.82	151.57	154000	154	328000	319
1-Mar-99	128000	149	251000	215	104.05	143.24	160000	183	323000	349
1-Apr-99	120000	175	155000	212	82.65	100.96	136000	197	228000	310
1-May-99	129000	205	167000	273	74.93	90.79	133000	211	199000	337
1-Jun-99	153000	259	388000	675	70.48	96.74	152000	255	351000	435
1-Jul-99	141000	245	200000	326	68.86	73.46	130000	226	232000	379
1-Aug-99	137000	237	223000	370	68.26	75.55	162000	278	413000	683
1-Sep-99	139000	230	183000	290	71.6	86.4	132000	220	229000	404
1-Oct-99	114000	199	192000	328	68.66	83.45	121000	210	259000	442
1-Nov-99	148000	183	301000	340	100.65	168.04	174000	527	505000	622
1-Dec-99	177000	204	317000	401	105.91	137.89	169000	193	350000	361
1-Jan-00	176000	212	221000	280	100.02	116.2	156000	189	196000	262
1-Feb-00	179000	206	337000	347	104.49	143.67	163000	186	274000	317
1-Mar-00	186000	221	276000	337	101.61	138.51	170000	202	279000	324
1-Apr-00	167000	235	255000	366	85	89.5	150000	211	279000	401
1-May-00	159000	237	229000	308	80.36	97.35	156000	232	231000	346
1-Jun-00	135000	226	219000	364	71.81	98.51	134000	225	187000	318
1-Jul-00	105000	193	134000	236	65.18	70.39	120000	220	159000	280
1-Aug-00	121000	221	176000	317	65.64	68.92	131000	240	233000	420
1-Sep-00	127000	213	241000	388	70.87	80.91	153000	257	528000	850
1-Oct-00	136000	212	181000	316	78.08	113.08	149000	229	237000	330
1-Nov-00	136000	214	229000	348	76.62	100.04	146000	229	236000	369
1-Dec-00	126000	221	183000	354	68.11	81.1	140000	246	216000	398
1-Jan-01	143000	232	185000	316	73.6	94.64	140000	227	199000	302
1-Feb-01	141000	238	212000	381	71.14	88.39	151000	254	390000	700
1-Mar-01	133000	248	227000	423	63.46	71.13	137000	256	224000	416
1-Apr-01	109000	204	295000	321	60.99	75.34	112000	221	148000	269
1-May-01	99000	198	135000	267	59.76	69	116000	231	174000	302
1-Jun-01	108000	216	195000	408	60.49	86.79	123000	244	209000	459
1-Jul-01	135000	246	214000	387	65.51	74.73	141000	257	217000	392
1-Aug-01	136000	260	201000	357	62.9	84.98	150000	287	253000	477
1-Sep-01	131000	268	178000	345	58.54	63.47	130000	266	239000	488
1-Oct-01	126000	252	268000	549	60.18	76.57	137000	273	298000	525
1-Nov-01	155000	199	571000	376	93.57	182.05	171000	217	790000	520
1-Dec-01	137000	156	197000	225	108.6	164.26	149000	168	234000	225
1-Jan-02	160000	198	406000	514	98.03	147.97	172000	208	325000	320
1-Feb-02	142000	175	248000	228	98.35	149.14	186000	229	337000	404
1-Mar-02	132000	177	220000	245	90.36	122.59	175000	233	266000	287
1-Apr-02	122000	172	207000	313	86.47	129.26	179000	251	330000	500
1-May-02	132000	202	273000	413	78.37	83.87	199000	304	543000	821
1-Jun-02	118000	201	166000	271	70.69	78.18	155000	264	200000	326
1-Jul-02	107000	212	205000	387	60.84	76.32	135000	265	212000	407
1-Aug-02	98000	201	140000	277	58.71	61.53	134000	273	202000	400
1-Sep-02	97000	207	174000	368	56.37	60.71	126000	268	167000	354
1-Oct-02	109000	228	164000	318	56.4	66.3	129000	270	191000	412
1-Nov-02	133000	229	251000	424	69.53	81.76	165000	283	220000	374
1-Dec-02	123000	191	204000	312	78.58	120.66	182000	279	323000	449
1-Jan-03	143000	176	264000	314	99.58	137.72	182000	222	241000	290
1-Feb-03	126000	181	160000	240	84.01	108.72	149000	213	179000	246
1-Mar-03	168000	221	257000	395	94.59	143.55	164000	213	259000	256
1-Apr-03	150000	212	292000	410	84.51	105.39	178000	252	302000	414
1-May-03	119000	225	194000	381	63.43	83.29	134000	256	243000	477
1-Jun-03	117000	242	167000	355	57.8	62.3	126000	261	267000	566
1-Jul-03	139000	291	222000	444	57.46	61.24	133000	277	220000	448
1-Aug-03	119000	263	157000	338	54.27	60.6	124000	275	221000	500
1-Sep-03	119000	251	157000	339	57.21	60.72	132000	278	226000	496
1-Oct-03	126000	224	294000	307	68.64	166.43	139000	236	493000	464
1-Nov-03	134000	205	229000	395	84.19	159.49	158000	234	277000	408
1-Dec-03	129000	173	319000	392	88.99	107.39	170000	229	237000	309
Maximum	217000	306	599000	756	121.82	182.05	261000	652	2450000	1045
Minimum	97000	106	134000	176	54.27	60.6	112000	147	148000	223
Average	137974	217	242338	362	78	102	158286	265	320117	439

Appendix E: DMR Data

Facility Metro Renton
Permit No. WA0029581D
Monitoring Poin 2 Reuse Water

Analysis	COLIFORM, TOTAL	COLIFORM, TOTAL	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	FLOW, IN CONDUIT OR THRU TREATMENT PLANT	NITROGEN, NITRATE TOTAL (AS N)	PH	PH	TURBIDITY	TURBIDITY
Units	AVW	MAX	AVG	AVG	MAX	MAX	MAX	MAX	MIN	AVM	MAX
	#/100 ML	#/100 ML	GPD	GPD	GPD	GPD	MG/L	S.U.	S.U.	NTU	NTU
Design Criteria											
Limit	2.2	23	na	na	na	na	na	9	6	2	5
1-Aug-97	2.6	20		0		0	0.24	7.29	6.7	1.9	2
1-Sep-97											
1-Oct-97											
1-Nov-97											
1-Dec-97											
1-Jan-98											
1-Feb-98											
1-Mar-98											
1-Apr-98											
1-May-98	5.17	22		24869		39000	0.45	7.3	6.4	0.3	0.54
1-Jun-98	0.28	7		38581		457059	0.32	7.22	6.47	0.5	1.8
1-Jul-98	1.26	21		46416		60575	0.26	6.7	6.1	0.66	1.45
1-Aug-98	1.39	10.2		49156		225201	1.6	7.2	6.1	0.53	1.8
1-Sep-98	0.31	6		42803		99741	1.1	7.04	6.18	0.57	1.44
1-Oct-98	0.07	1		28993		29757	0.14	6.58	6.27	0.67	1.25
1-Nov-98											
1-Dec-98											
1-Jan-99											
1-Feb-99											
1-Mar-99											
1-Apr-99											
1-May-99	0.4	1		10354		32400	0.13	6.72	6.38	1.21	1.6
1-Jun-99	0.7	36		49328		194002	1.01	6.71	5.83	0.99	1.8
1-Jul-99	0.47	3.5		39523		120000	2.6	7.1	6.03	0.85	1.8
1-Aug-99	1.21	6		46327		191035	0.52	7.22	6.25	0.62	1.8
1-Sep-99	1.21	24		32322		76901	0.1	6.96	6.23	0.78	1.8
1-Oct-99											
1-Nov-99											
1-Dec-99											
1-Jan-00											
1-Feb-00											
1-Mar-00											
1-Apr-00	1	8.5		32172		36492	0.13	7.52	6.25	1.01	2.51
1-May-00	0.39	2		25739		31318	0.7	7.89	6.7	1.1	1.64
1-Jun-00	0.15	2		26192		33758	1.28	7.28	6.6	1.54	3
1-Jul-00	0.12	7		33678		39765	0.09	7.15	6.54	1.26	3
1-Aug-00	0.04	1		34198		39151	0.14	7.4	6.6	0.83	3
1-Sep-00	0.24	15		26556		68019	0.64	7.4	6.8	0.72	3
1-Oct-00	0.69	6		35303		69663	0.17	7.28	6.69	1.06	3
1-Nov-00	0.05	1.5		14329		18000	0.14	7.86	6.86	1.45	3
1-Dec-00											
1-Jan-01											
1-Feb-01											
1-Mar-01											
1-Apr-01	0.03	11		13283		26725	0.07	6.9	6.5	1.86	3
1-May-01	0.2	2		30923		75253	0.14	7.3	6.4	2	3
1-Jun-01	0.3	10		27330		45250	0.15	7	6.4	2	3
1-Jul-01	0.7	30		68780		152000	0.2	7.3	6.4	2	3
1-Aug-01	1.7	200		72380		80289	0.03	7.5	6.6	2	3
1-Sep-01	0.4	5		36506		71000	0.06	7.1	6.4	2	3
1-Oct-01	0.5	10.5		1546		7000	0.23	7.37	6.57	1	3
1-Nov-01	0.02	2		388		925	0.08	7	6.8	1	2
1-Dec-01											
1-Jan-02											
1-Feb-02											
1-Mar-02											
1-Apr-02	1	5		9235		37571	0.01	7.4	6.6	2	3
1-May-02	0	1		30923		75000	0.02	7.6	6.7	2	3
1-Jun-02	1	7		47734		52000	0.07	7.7	6.8	2	3
1-Jul-02	3	43		66259		130000	0.07	7.2	6.7	2	2
1-Aug-02	1	87		77180		129001	1.04	7	6.6	2	3
1-Sep-02	1	30		54029		152878		6.8	6.5	2	2
1-Oct-02	1	3		5485		16608	0.07	6.9	6.3	1	2
1-Nov-02											
1-Dec-02											
1-Jan-03											
1-Feb-03											
1-Mar-03											
1-Apr-03	1	3		2530		30213	0.03	7	6.4	2	3
1-May-03	1	3		42113		59033	0.09	6.9	6.5	2	3
1-Jun-03	1	3	73990		101456		0.11	7	6.6	2	3
1-Jul-03	1	43	76555		119390		0.11	6.9	6.5	2	3
1-Aug-03	3	108	60973		76441		0.08	7	6.5	2	3
1-Sep-03	37	404	39910		102958		0.12	7.2	6.3	2	3
1-Oct-03	4	40	15917		32571		0.01	7.2	7	0.6	1
1-Nov-03											
1-Dec-03											

Maximum	37.0	404.0	76555.0	77180.0	119390.0	457059.0	2.6	7.9	7.0	2.0	3.0
Minimum	0.0	1.0	15917.0	0.0	32571.0	0.0	0.0	6.6	5.8	0.3	0.5
Average	1.8	29.8	53469.0	33066.6	86563.2	81150.9	0.4	7.2	6.5	1.4	2.4

King County, South Plant, Permit No. WA-0002958-1

Table A: 'WATER QUALITY CRITERIA (in ug/L unless otherwise noted)

FILENAME: King County - South Treatment Plant
RUN DATE: 10/01/04
PREPARED BY: Karen Burgess

	PRIORITY	CARCIN	Water Quality Criteria				Human Health Criteria		Organoleptic Effects	Metals Translators			
			Fresh		Marine					Freshwater		Marine	
Pollutant, CAS No. & Application Ref. No.	PLTNT?	GEN?	acute	chronic	acute	chronic	Fresh	Marine		Acute	Chronic	Acute	Chronic
ANTIMONY (INORGANIC) 7440360 1M	Y	N					14	4300					
ARSENIC (dissolved) 7440382 2M	Y	Y	360	190	69	36				1.00	1.00	1.00	
BIS(2-ETHYLHEXYL) PHTHALATE 117817 13B	Y	Y					1.8	5.9					
BUTYLBENZYL PHTHALATE 85687	N	N					1500.0	1900					
CADMIUM - 7440439 4M Hardness dependent	Y	N	0.72	0.34	42.00	9.3				0.943	0.943	0.994	0.994
CHLORINE (Total Residual) 7782505	N	N	19	11	13	7.50							
CHLOROFORM 67663 11V	Y	Y					5.70	470					
CHLORPYRIFOS 2921882	N	N	0.083	0.041	0.011	0.0056							
CHROMIUM(HEX) 18540299	Y	N	15	10	1100	50				0.982	0.962	0.993	0.993
COPPER - 744058 6M Hardness dependent	Y	N	4.12	3.14	4.80	3.10			1000.00	0.996	0.996	0.83	0.83
CYANIDE 57125 14M	Y	N	22	5.20	1.00	1.00	700	220000					
1,4 DICHLOROBENZENE 106467 22B	Y	N					400	2600					
2,3 DICHLOROPHENOL									0.04				
DIETHYLPHTHALATE 84662 24B	Y	N					23000	120000					
DIMETHYLPHTHALATE 131113 25B	Y	N					313000	2900000					
DI-n-BUTYL PHTHALATE 84742 26B	Y	N					2700	12000					
LEAD - 7439921 7M Dependent on hardness	Y	N	12.14	0.47	210.00	8.10				0.466	0.466	0.951	0.95
METHYLENE CHLORIDE 75092 22V	Y	Y					4.7	1600					
NICKEL - 7440020 9M - Dependent on hardness	Y	N	396.18	44.00	74.00	8.20	610	4600		0.998	0.997	0.99	0.99
PHENOL 108952 10A	Y	N					21000.00	4600000.00	300.00				
SILVER - 7740224 11M dependent on hardness.	Y	N	0	NA	2	NA				0.85		0.85	
THALLIUM 7440280 12M	Y	N					1.70	6.30					
TOLUENE 108883 25V	Y	N					6800.00	200000.00					
TRICHLOROETHANE 1,1,1 71556 27V	Y	N					200						
ZINC- 7440666 13M hardness dependent	Y	N	31.97	29.20	90	81.00			5000.00	1.00	1.00	0.95	0.95

King County, South Plant, Permit No. WA-0002958-1

Table B: Resonable Potential to Exceed Water Quality Standards

Marine Outfall

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

				State Water Quality Standard		Max concentration at edge of...			CALCULATIONS									
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D?	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	
Parameter	Acute	Chronic	*ug/L*	*ug/L*	*ug/L*	*ug/L*	*ug/L*			*Pn*	*ug/L*	*CV*	*s*	*n*				COMMENTS
ARSENIC (dissolved) 7440382 :	1.00			69	36	0.011	0.006	NO	0.95	0.899	2.00	0.60	0.55	28	1.23	233	429	
CADMIUM - 7440439 4M	0.994	0.994		42.00	9.3	0.002	0.001	NO	1.95	0.899	0.30	1.60	1.13	28	1.52	233	429	
CHLORINE (Total Residual) 7782505				13	7.50	0.436	0.237	NO	2.95	0.992	300.00	2.60	1.43	365	0.34	233	429	
CHLORPYRIFOS 2921882				0.011	0.0056	0.000	0.000	NO	3.95	0.652	0.01	3.60	1.62	7	7.67	233	429	
CHROMIUM(HEX) 18540299	0.993	0.993		1100	50	0.011	0.006	NO	4.95	0.899	1.30	4.60	1.76	28	1.92	233	429	
COPPER - 744058 6M	0.83	0.83		4.80	3.10	0.150	0.081	NO	5.95	0.899	21.00	5.60	1.86	28	2.00	233	429	
CYANIDE 57125 14M				1.00	1.00	0.095	0.051	NO	6.95	0.926	15.00	6.60	1.95	39	1.47	233	429	
LEAD - 7439921 7M	0.951	0.95		210.00	8.10	0.011	0.006	NO	7.95	0.899	1.30	7.60	2.02	28	2.12	233	429	
NICKEL - 7440020 9M	0.99	0.99		74.00	8.20	0.037	0.020	NO	8.95	0.899	4.00	8.60	2.08	28	2.16	233	429	
SILVER - 7740224 11M	0.85			2	NA	0.009	0.006	NO	9.95	0.899	1.10	9.60	2.13	28	2.21	233	429	
ZINC- 7440666 13M	0.95	0.95		90	81.00	0.365	0.198	NO	10.95	0.899	40.00	10.60	2.17	28	2.24	233	429	

King County, South Plant, Permit No. WA-0002958-1
Table C: Limits for Marine Outfall

This spreadsheet calculates water quality based permit limits based on the two value steady state model using the State Water Quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 99.

Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.

					Permit Limit Calculation Summary						**Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations**							Statistical variables for permit limit calculation				
PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator Acute	Metal Criteria Translator Chronic	Ambient Concentration *ug/L*	Water Quality Standard Acute *ug/L*	Water Quality Standard Chronic *ug/L*	Average Monthly Limit (AML) ug/L	Maximum Daily Limit (MDL) ug/L	Comments	WLA Acute *ug/L*	WLA Chronic *ug/L*	LTA Acute *ug/L*	LTA Chronic *ug/L*	LTA Coeff. Var. (CV) *decimal*	LTA Prob'y Basis *decimal*	Limiting LTA *ug/L*	Coeff. Var. (CV) *decimal*	AML Prob'y Basis *decimal*	MDL Prob'y Basis *decimal*	# of Samples per Month *n*	
Chlorine	233.0	429.00				13.0000	7.50	**1157.1**	**3029.0**		3029	3217.50	972.6	1697.0	0.60	0.99	972.6	0.60	0.95	0.99	30.00	1.00

King County, South Plant, Permit No. WA-0002958-1

Table D: Reasonabe Potential to Exceed Human Health Criteria

Parameter	Ambient Concentration (Geometric Mean)	Water Quality Criteria for Protection of Human Health	Max concentration at edge of chronic mixing zone.	LIMIT REQ'D?	Expected Number of Compliance Samples per Month	AVERAGE MONTHLY EFFLUENT LIMIT	MAXIMUM DAILY EFFLUENT LIMIT	Estimated Percentile at 95% Confidence		Max effluent conc. measured	Coeff Variation		# of samples from which # in col. K was taken	Multiplier	Calculated 50th percentile Effluent Conc. (When n>10)	Dilution Factor
	ug/L	*ug/L*	*ug/L*			*ug/L*	*ug/L*		*Pn*	*ug/L*	*CV*	**S**	*n*			
ANTIMONY (INORGANIC) 7440360 1M	0.00	4300	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.90	0.70	0.60	0.6	28	0.49	0.00	429.0
BIS(2-ETHYLHEXYL) PHTHALATE 117817 13B	0.00	5.9	0.02	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	23.00	0.60	0.6	35	0.46	0.00	429.0
BUTYLBENZYL PHTHALATE 85687	0.00	1900	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	0.63	0.60	0.6	35	0.46	0.00	429.0
CHLOROFORM 67663 11V	0.00	470	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	3.44	0.60	0.6	53	0.41	0.00	429.0
CYANIDE 57125 14M	0.00	220000	0.02	**NO**	**1**	**NONE**	**NONE**	0.50	0.93	15.00	0.60	0.6	39	0.45	0.00	429.0
1,4 DICHLOROBENZENE 106467 22B	0.00	2600	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	3.22	0.60	0.6	35	0.46	0.00	429.0
DIETHYLPHTHALATE 84662 24B	0.00	120000	0.11	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	103.00	0.60	0.6	35	0.46	0.00	429.0
DIMETHYLPHTHALATE 131113 25B	0.00	2900000	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	0.60	0.60	0.6	35	0.46	0.00	429.0
DI-n-BUTYL PHTHALATE 84742 26B	0.00	12000	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.92		0.60	0.6	35	0.46	0.00	429.0
METHYLENE CHLORIDE 75092 22V	0.00	1600	0.02	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	25.00	0.60	0.6	53	0.41	0.00	429.0
NICKEL - 7440020 9M - Dependent on hardness	0.00	4600	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.90	4.00	0.60	0.6	28	0.49	0.00	429.0
PHENOL 108952 10A	0.00	4600000	0.01	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	13.90	0.60	0.6	53	0.41	0.00	429.0
THALLIUM 7440280 12M	0.00	6.30	0.00	**NO**	**1**	**NONE**	**NONE**	0.50	0.90	0.30	0.60	0.6	28	0.49	0.00	429.0
TOLUENE 108883 25V	0.00	200000.00	0.01	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	6.93	0.60	0.6	53	0.41	0.00	429.0

King County, South Plant, Permit No. WA-0002958-1

Table E: WATER QUALITY CRITERIA (in ug/L unless otherwise noted)
Green River Outfall

FILENAME:	King County - South Treatment Plant
RUN DATE:	10/01/04
PREPARED BY:	Karen Burgess

	PRIOR	CAR	Water Quality Criteria

King County, South Plant, Permit No. WA-0002958-1

Table F: Resonable Potential to Exceed Water Quality Standards

Green River Outfall

This spreadsheet calculates the reasonable potential to exceed state water quality standards for a small number of samples. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 56. User input columns are shown with red headings. Corrected formulas in col G and H on 5/98 (GB)

				State Water Quality Standard		Max concentration at edge of...			CALCULATIONS									
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Concentration (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D?	Effluent percentile value		Max effluent conc. measured (metals as total recoverable)	Coeff Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor	
Parameter	Acute	Chronic	ug/L	ug/L	ug/L	ug/L	ug/L			Pn	ug/L	CV	s	n				COMMENTS
ARSENIC (dissolved) 7440382 2M	1.00	1.00		360.0000	190.00	0.011	0.006	NO	0.95	0.899	2.00	0.60	0.55	28	1.23	233	429	
CADMIUM - 7440439 4M Hardn	0.94	0.94		0.7231	0.34	0.001	0.001	NO	0.95	0.899	0.30	0.60	0.55	28	1.23	233	429	
CHLORINE (Total Residual) 7782505				19.0000	11.00	0.847	0.460	NO	0.95	0.992	300.00	0.60	0.55	365	0.66	233	429	
CHLORPYRIFOS 2921882				0.0830	0.04	0.000	0.000	NO	0.95	0.652	0.01	0.60	0.55	7	2.01	233	429	
CHROMIUM(HEX) 18540299	0.98	0.96		15.0000	10.00	0.007	0.004	NO	0.95	0.899	1.30	0.60	0.55	28	1.23	233	429	
COPPER - 744058 6M Hardness de	1.00	1.00		4.1210	3.14	0.110	0.060	NO	0.95	0.899	21.00	0.60	0.55	28	1.23	233	429	
CYANIDE 57125 14M				22.0000	5.20	0.072	0.039	NO	0.95	0.926	15.00	0.60	0.55	39	1.12	233	429	
LEAD - 7439921 7M Dependent on	0.47	0.47		12.142	0.4732	0.00320	0.00174	NO	1.95	0.899	1.300	0.60	0.55	28	1.23	233	429	
NICKEL - 7440020 9M - Depende	1.00	1.00		396.1829	44.00	0.021	0.011	NO	0.95	0.899	4.00	0.60	0.55	28	1.23	233	429	
SILVER - 7740224 11M dependent	0.85			0.2591	NA	0.005	0.003	NO	0.95	0.899	1.10	0.60	0.55	28	1.23	233	429	
ZINC- 7440666 13M hardness depe	1.00	1.00		31.9721	29.20	0.210	0.114	NO	0.95	0.899	40.00	0.60	0.55	28	1.23	233	429	

King County, South Plant, Permit No. WA-0002958-1
Table G: Limits for Green River Outfall

This spreadsheet calculates water quality based permit limits based on the two value steady state model using the State Water Quality standards contained in WAC 173-201A. The procedure and calculations are done per the procedure in Technical Support Document for Water Quality-based Toxics Control, U.S. EPA, March, 1991 (EPA/505/2-90-001) on page 99.

Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.

					Permit Limit Calculation Summary						**Waste Load Allocation (WLA) and Long Term Average (LTA) Calculations**							Statistical variables for permit limit calculation				
PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator Acute	Metal Criteria Translator Chronic	Ambient Concentration *ug/L*	Water Quality Standard Acute *ug/L*	Water Quality Standard Chronic *ug/L*	Average Monthly Limit (AML) ug/L	Maximum Daily Limit (MDL) ug/L	Comments	WLA Acute *ug/L*	WLA Chronic *ug/L*	LTA Acute *ug/L*	LTA Chronic *ug/L*	LTA Coeff. Var. (CV) *decimal*	LTA Prob'y Basis *decimal*	Limiting LTA *ug/L*	Coeff. Var. (CV) *decimal*	AML Prob'y Basis *decimal*	MDL Prob'y Basis *decimal*	# of Samples per Month *n*	
Chlorine	9.0	31.00				19.0000	11.00	**117.2**	**171.0**		171	341.00	54.9	179.9	0.60	0.99	54.9	0.60	0.95	0.99	1.00	1.00

King County, South Plant, Permit No. WA-0002958-1

Table H: Reasonabe Potential to Exceed Human Health Criteria

Parameter	Ambient Concentration (Geometric Mean)	Water Quality Criteria for Protection of Human Health	Max concentration at edge of chronic mixing zone.	LIMIT REQ'D?	Expected Number of Compliance Samples per Month	AVERAGE MONTHLY EFFLUENT LIMIT	MAXIMUM DAILY EFFLUENT LIMIT	Estimated Percentile at 95% Confidence	Pn	Max effluent conc. measured	Coeff Variation	S	# of samples from which # in col. K was taken	Multiplier	Calculated 50th percentile Effluent Conc. (When n>10)	Dilution Factor
	ug/L	*ug/L*	*ug/L*			*ug/L*	*ug/L*		*Pn*	*ug/L*	*CV*	**S**	*n*			
ANTIMONY (INORGANIC) 7440360 1M	0.00	14	0.04	**NO**	**1**	**NONE**	**NONE**	0.50	0.90	0.70	0.60	0.6	28	0.49	0.00	9.0
BIS(2-ETHYLHEXYL) PHTHALATE 117817 13B	0.00	1.8	1.18	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	23.00	0.60	0.6	35	0.46	0.00	9.0
BUTYLBENZYL PHTHALATE 85687	0.00	1500	0.03	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	0.63	0.60	0.6	35	0.46	0.00	9.0
CHLOROFORM 67663 11V	0.00	6	0.16	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	3.44	0.60	0.6	53	0.41	0.00	9.0
CYANIDE 57125 14M	0.00	700	0.75	**NO**	**1**	**NONE**	**NONE**	0.50	0.93	15.00	0.60	0.6	39	0.45	0.00	9.0
1,4 DICHLOROBENZENE 106467 22B	0.00	400	0.17	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	3.22	0.60	0.6	35	0.46	0.00	9.0
DIETHYLPHTHALATE 84662 24B	0.00	23000	5.29	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	103.00	0.60	0.6	35	0.46	0.00	9.0
DIMETHYLPHTHALATE 131113 25B	0.00	313000	0.03	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	0.60	0.60	0.6	35	0.46	0.00	9.0
DI-n-BUTYL PHTHALATE 84742 26B	0.00	2700	0.15	**NO**	**1**	**NONE**	**NONE**	0.50	0.92	2.90	0.60	0.6	35	0.46	0.00	9.0
METHYLENE CHLORIDE 75092 22V	0.00	5	1.14	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	25.00	0.60	0.6	53	0.41	0.00	9.0
NICKEL - 7440020 9M - Dependent on hardness	0.00	610	0.22	**NO**	**1**	**NONE**	**NONE**	0.50	0.90	4.00	0.60	0.6	28	0.49	0.00	9.0
PHENOL 108952 10A	0.00	21000	0.64	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	13.90	0.60	0.6	53	0.41	0.00	9.0
THALLIUM 7440280 12M	0.00	1.70	0.02	**NO**	**1**	**NONE**	**NONE**	0.50	0.90	0.30	0.60	0.6	28	0.49	0.00	9.0
TOLUENE 108883 25V	0.00	6800.00	0.32	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	6.93	0.60	0.6	53	0.41	0.00	9.0
TRICHLOROETHANE 1,1,1 71556 27V	0.00	200	0.27	**NO**	**1**	**NONE**	**NONE**	0.50	0.95	5.80	0.60	0.6	53	0.41	0.00	9.0

King County - South Plant
Green River Outfall

Calculation of pH of a mixture of two flows. Based on the procedure in EPA's DESCON program (EPA, 1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington D.C.)

Based on Lotus File PHMIX2.WK1 Revised 19-Oct-93

INPUT		
1. DILUTION FACTOR AT MIXING ZONE BOUNDARY	9.000	9.000
1. UPSTREAM/BACKGROUND CHARACTERISTICS		
Temperature (deg C):	17.20	17.20
pH:	7.50	7.50
Alkalinity (mg CaCO3/L):	50.00	50.00
2. EFFLUENT CHARACTERISTICS		
Temperature (deg C):	20.00	20.00
pH:	6.00	9.00
Alkalinity (mg CaCO3/L):	68.80	68.80

OUTPUT		
1. IONIZATION CONSTANTS		
Upstream/Background pKa:	6.40	6.40
Effluent pKa:	6.38	6.38
2. IONIZATION FRACTIONS		
Upstream/Background Ionization Fraction:	0.93	0.93
Effluent Ionization Fraction:	0.29	1.00
3. TOTAL INORGANIC CARBON		
Upstream/Background Total Inorganic Carbon (mg CaCO3/L):	53.99	53.99
Effluent Total Inorganic Carbon (mg CaCO3/L):	234.60	68.97
4. CONDITIONS AT MIXING ZONE BOUNDARY		
Temperature (deg C):	17.51	17.51
Alkalinity (mg CaCO3/L):	52.09	52.09
Total Inorganic Carbon (mg CaCO3/L):	74.06	55.66
pKa:	6.40	6.40
pH at Mixing Zone Boundary:	6.78	7.56

EPA Form 2A. Expanded Effluent Testing Data

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
METALS (TOTAL RECOVERABLE), CYANIDE, PHENOLS, AND HARDNESS.											
ANTIMONY	0.0007	mg/L	0.67	lbs.	0.0006	mg/L	0.4	lbs.	28	EPA 200.8	0.0005
ARSENIC	0.002	mg/L	1.93	lbs.	0.0015	mg/L	1	lbs.	28	EPA 200.8	0.0005
BERYLLIUM	<0.0002	mg/L	<0.30	lbs.	<0.0002	mg/L	<0.13	lbs.	28	EPA 200.8	0.0002
CADMIUM	0.0003	mg/L	0.19	lbs.	0.00018	mg/L	0.11	lbs.	28	EPA 200.8	0.0001
CHROMIUM	0.0013	mg/L	0.76	lbs.	0.0005	mg/L	0.33	lbs.	28	EPA 200.8	0.0004
COPPER	0.021	mg/L	11.4	lbs.	0.014	mg/L	9.3	lbs.	28	EPA 200.8	0.0004
LEAD	0.0013	mg/L	0.75	lbs.	0.0007	mg/L	0.46	lbs.	28	EPA 200.8	0.0002
MERCURY	<0.0002	mg/L	<0.3	lbs.	<0.0002	mg/L	<0.13	lbs.	28	EPA 245.2	0.0002
NICKEL	0.004	mg/L	2.53	lbs.	0.003	mg/L	2.08	lbs.	28	EPA 200.8	0.0003
SELENIUM	<0.0015	mg/L	<2.2	lbs.	<0.0015	mg/L	<0.99	lbs.	28	EPA 200.8	0.0015
SILVER	0.0011	mg/L	6.23	lbs.	0.001	mg/L	0.66	lbs.	28	EPA 200.8	0.0002
THALLIUM	0.0003	mg/L	0.14	lbs.	0.00022	mg/L	0.13	lbs.	28	EPA 200.8	0.0002
ZINC	0.04	mg/L	32.42	lbs.	0.03	mg/L	20	lbs.	28	EPA 200.8	0.0005
CYANIDE	0.015	mg/L	7.77	lbs.	0.01	mg/L	6.64	lbs.	39	SM 45008	0.005
TOTAL PHENOLIC COMPOUNDS	0.14	mg/L	81.65	lbs.	0.04	mg/L	23.3	lbs.	28	EPA 420.1	0.05
HARDNESS (AS CaCO3)	22.2	mg/L	12.38	lbs.	18.5	mg/L	10198	lbs.	48	SM2340 C	1
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											
VOLATILE ORGANIC COMPOUNDS											
ACROLEIN	<5	ug/L	<7.46	LBS	<5	ug/L	<3.32	LBS	53	EPA 624	5 ug/L
ACRYLONITRILE	<5	ug/L	<7.46	LBS	<5	ug/L	<3.32	LBS	53	EPA 624	5 ug/L
BENZENE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
BROMOFORM	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
CARBON TETRACHLORIDE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
COLORBENZEN	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
CHLOROBIDBROMO-METHANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
CHLOROETHANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
2-CHLORO-ETHYLVINYL ETHER	<1	ug/L	<1.49	LBS	2.333	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
CHOLOROFORM	3.44	ug/L	2.64	LBS	1.5	ug/L	0.99	LBS	53	EPA 624	1ug/L
DICHLOROBROMO-METHANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1ug/L
1,1-DICHLOROETHANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
TRANS-1,2-DICHLORO-ETHYLENE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
1,1-DICHLOROPROPANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
ETHYLBENZEN	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
METHYL BROMIDE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1ug/L
METHYL CHLORIDE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1ug/L
METHYLENE CHLORIDE	25	ug/L	13.5	LBS	3	ug/L	1.99	LBS	53	EPA 624	1 ug/L
1,1,2,2-TETRACHLORO-ETHANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
TETRACHLORO-ETHYLENE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
TOLUNE	6.93	ug/L	5.49	LBS	2.71	ug/L	1.8	LBS	53	EPA 624	1 ug/L
1,1,1-TRICHLOROETHANE	5.8	ug/L	4.6	LBS	2.8	ug/L	1.88	LBS	53	EPA 624	1 ug/L
1,1,2-TRICHLOROETHANE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
TRICH LORETHYLENE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
VINYL CHLORIDE	<1	ug/L	<1.49	LBS	<1	ug/L	<0.6	LBS	53	EPA 624	1 ug/L
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											
ACID-EXTRACTABLE COMPOUNDS											
P-CHLORO-M-CRESOL	<1.9	ug/L	<2.8	LBS	<1.9	ug/L	<1.261	LBS	53	EPA 625	1.9 ug/L

EPA Form 2A. Expanded Effluent Testing Data

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
2-CHLOROPHENOL	<1.9	ug/L	<2.8	LBS	<1.9	ug/L	<1.261	LBS	53	EPA 625	1.9 ug/L
2,4-DIMETHYLPHENOL	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	53	EPA 625	.94 ug/L
4,6-DINITRO-O-CRESOL	<1.9	ug/L	<2.8	LBS	<1.9	ug/L	<1.261	LBS	53	EPA 625	1.9 ug/L
2-NITROPHENOL	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	53	EPA 625	.94 ug/L
4-NITROPHENOL	<1.9	ug/L	<2.8	LBS	<1.9	ug/L	<1.261	LBS	53	EPA 625	1.9 ug/L
PENTA CHLOROPHENOL	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	53	EPA 625	.94 ug/L
PHENOL	13.9	ug/L	11	LBS	5.6	ug/L	32.7	LBS	53	EPA 625	3.8 ug/L
2,4,6-TRICHLORO PHENOL	<3.8	ug/L	<5.7	LBS	<3.8	ug/L	<2.5	LBS	53	EPA 625	3.8 ug/L
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											
BASE-NEUTRAL COMPOUNDS											
ACENAPHTHENE	<0.38	ug/L	<0.6	LBS	<0.38	ug/L	<0.2	LBS	35	EPA 625	.38 ug/L
ACENAPHTYLENE	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
ANTHRACENE	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
BENZIDINE	<23	ug/L	<34	LBS	<23	ug/L	<15	LBS	35	EPA 625	23 ug/L
BENZO(A) ANTHRACENE	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
BENZO(A)PYRENE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
3.4 BENZO-FLUORANTHENE	<1.5	ug/L	<2.2	LBS	<1.5	ug/L	<1.0	LBS	35	EPA 625	1.5 ug/L
BENZO(GHI)PERYLENE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
BENZO(K)FLOURANTHENE	<1.5	ug/L	<2.2	LBS	<1.5	ug/L	<1.0	LBS	35	EPA 625	1.5 ug/L
BIS (2-CHLORO ETHOXY) METHANE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
BIS (2-CHLOROETHYL)-ETHER	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
BIS (2-CHLOROISO-PROPYL) ETHER	<1.9	ug/L	<2.8	LBS	<1.9	ug/L	<1.26	LBS	35	EPA 625	1.9 ug/L
BIS (2-ETHYLHEXYL) PHTHALATE	23	ug/L	18.4	LBS	11	ug/L	7.3	LBS	35	EPA 625	.57 ug/L
4-BROMOPHENYL PHENYL ETHER	<0.38	ug/L	<0.6	LBS	<0.38	ug/L	<0.2	LBS	35	EPA 625	.38 ug/L
BUTYL BENZYL PHTHALATE	0.63	ug/L	0.5	LBS	0.5	ug/L	0.33	LBS	35	EPA 625	.57ug/L
2-CHLORO NAPHTHALENE	<1.5	ug/L	<2.2	LBS	<1.5	ug/L	<1.0	LBS	35	EPA 625	1.5 ug/l
4-CHLORPHENYL PHENYL ETHER	<.57	ug/L	<0.8	LBS	<0.57	ug/L	,0.4	LBS	35	EPA 625	.57 ug/L
CHRYSENE	<.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
DI-N-BUTYL PHTHALATE	2.9	ug/L	1.6	LBS	1.5	ug/L	1	LBS	35	EPA 625	.94 ug/L
DI-N-OCTYL PHTHALATE	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
DIBENZO(A,H) ANTHRACENE	<1.5	ug/L	<2.2	LBS	<1.5	ug/L	<1.0	LBS	35	EPA 625	1.5 ug/L
1,2-DICHLORO BENZENE	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
1,3-DICHLORO BENZENE	<0.57	ug/L	<0.8	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
1,4-DICHLORO BENZENE	3.22	ug/L	2.6	LBS	0.76	ug/L	0.5	LBS	35	EPA 625	.57 ug/L
3,3-DICHLORO BENZIDINE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
DIETHYL PHTHALATE	103	ug/L	98.8	LBS	7.3	ug/L	4.8	LBS	35	EPA 625	.94 ug/L
DIMETHYL PHTHALATE	0.6	ug/L	0.6	LBS	0.4	ug/L	0.26	LBS	35	EPA 625	.38 ug/L
2,4-DINITROTOLUENE	<0.38	ug/L	<0.6	LBS	<0.38	ug/L	<0.2	LBS	35	EPA 625	.38 ug/L
2,6-DINITROTOLUENE	<0.38	ug/L	<0.6	LBS	<0.38	ug/L	<0.2	LBS	35	EPA 625	.38 ug/L
1,2-DIPHENYLHYDRAZINE	<1.9	ug/L	<2.8	LBS	<1.9	ug/L	<1.26	LBS	35	EPA 625	1.9 ug/L
FLUORANTHENE	<0.57	ug/L	<0.85	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L

EPA Form 2A. Expanded Effluent Testing Data

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					ANALYTICAL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of Samples		
FLUORENE	<0.57	ug/L	<0.85	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
HEXACHLORO BENZENE	<0.57	ug/L	<0.85	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
HEXACHLOROBUTADIENE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
HEXACHLOROCYCLO-PENTADIENE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
HEXA CHLOROETHANE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
INDENO(1,2,3-CD) PYRENE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
ISOPHORONE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
NAPHTHALENE	<1.5	ug/L	<2.2	LBS	<1.5	ug/L	<1.0	LBS	35	EPA 625	1.5 ug/L
NITROBENZENE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
N-NITROSODI-N-PROPYLAMINE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	.94 ug/L
N-NITROSODI-METHYLAMINE	<3.8	ug/L	<5.7	LBS	<3.8	ug/L	<2.5	LBS	35	EPA 625	3.8 ug/L
N-NITROSODI-PHENYLAMINE	<0.94	ug/L	<1.4	LBS	<0.94	ug/L	<0.6	LBS	35	EPA 625	0.94 ug/l
PHENANTHRENE	<0.57	ug/L	<0.85	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
PYRENE	<0.57	ug/L	<0.85	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
1,2,4-TRICHLOROBENZENE	<0.57	ug/L	<0.85	LBS	<0.57	ug/L	<0.4	LBS	35	EPA 625	.57 ug/L
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											
Use this space (or a separate sheet) to provide information on other metals requested by the permit writer											

POLLUTANT	MAXIMUM DAILY DISCHARGE				AVERAGE DAILY DISCHARGE					AL METHOD	ML/MDL
	Conc.	Units	Mass	Units	Conc.	Units	Mass	Units	Number of		
Chlorpyrifos	0.014	ug/L			0.0063	ug/L			7	EPA 3520C/608 (7-3-03-002)	.57 ug/L
PCBs	<MDL										.1 ug/L
Toxaphene	<MDL										.1 ug/L

APPENDIX H
EPA "PART D" NPDES APPLICATION TESTING REQUIREMENTS

The following pollutant scan data are required at time of NPDES permit application for municipal treatment facilities with design flow greater than 1.0 mgd. At least three scans are required, conducted during the term of the previous permit.

METALS & MISC.	**VOL. ORGANICS (Cont.)**	**BASE NEUTRALS (Cont.)**
Antimony	Ethylbenzene	Bis (2-Chloroethyl)-Ether
Arsenic	Methyl Bromide	Bis (2-Chloroiso-Propyl) Ether
Beryllium	Methyl Chloride	Bis (2-Ethylhexyl) Phthalate
Cadmium	Methylene Chloride	4-Bromophenyl Phenyl Ether
Chromium	1,1,2,2-Tetrachloro-Ethane	Butyl Benzyl Phthalate
Copper	Tetrachloro-Ethylene	2-Chloronaphthalene
Lead	Toluene	4-Chlorphenyl Phenyl Ether
Mercury	1,1,1-Trichloroethane	Chrysene
Nickel	1,1,2-Trichloroethane	Di-N-Butyl Phthalate
Selenium	Trichlorethylene	Di-N-Octyl Phthalate
Silver	Vinyl Chloride	Dibenzo(A,H) Anthracene
Thallium		1,2-Dichlorobenzene
Zinc	**ACID EXTRACTABLES**	1,3-Dichlorobenzene
Cyanide	P-Chloro-M-Cresol	1,4-Dichlorobenzene
Total Phenolic Compounds	2-Chlorophenol	3,3-Dichlorobenzidine
Hardness (As $CaCO_3$)	2,4-Dichlorophenol	Diethyl Phthalate
	2,4-Dimethylphenol	Dimethyl Phthalate
VOLATILE ORGANICS	4,6-Dinitro-O-Cresol	2,4-Dinitrotoluene
Acrolein	2,4-Dinitrophenol	2,6-Dinitrotoluene
Acrylonitrile	2-Nitrophenol	Fluoranthene
Benzene	4-Nitrophenol	Fluorene
Bromoform	Pentachlorophenol	Hexachlorobenzene
Carbon Tetrachloride	Phenol	Hexachlorobutadiene
Clorobenzene	2,4,6-Trichlorophenol	Hexachlorocyclo-Pentadiene
Chlorodibromo-Methane		Hexachloroethane
Chloroethane	**BASE NEUTRALS**	Indeno(1,2,3-CD)Pyrene
2-Chloro-Ethylvinyl Ether	Acenaphthene	Isophorone
Chloroform	Acenaphthylene	Naphthalene
Dichlorobromo-Methane	Anthracene	Nitrobenzene
1,1-Dichloroethane	Benzidine	N-Nitrosodi-N-Propylamine
1,2-Dichloroethane	Benzo(A)Anthracene	N-Nitrosodi-Methylamine
Trans-1,2-Dichloro Ethylene	3,4 Benzo-Fluoranthene	N-Nitrosodi-Phenylamine
1,1-Dichloroethylene	Benzo(Ghi)Perylene	Phenanthrene
1,2-Dichloropropane	Benzo(K)Fluoranthene	Pyrene
1,3-Dichloro-Propylene	Bis (2-Chloroethoxy) Methane	1,2,4-Trichlorobenzene