



CITY OF PORTLAND ENVIRONMENTAL SERVICES

Larry Erickson



Columbia Blvd. Wastewater Treatment Plant, 5001 N. Columbia Blvd., Portland, OR 97203-2098
(503) 823-2400, FAX (503) 823-2409

12 July 1994

Lyle Christensen, DEQ Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland OR 97201-4959

Dear Mr. Christensen,

I have three topics to discuss for June: EPA preprints, additional NPDES data, and several NPDES-related problems.

Concerning EPA preprints, I stated in April that our EPA preprints had been fully corrected. While proofreading the May report, I found one remaining error. In the "summer" period preprints, the "weekly average mass loading, effluent total suspended solids" limit should read 2077 lbs instead of 3115 lbs. The mistake is quoting our "winter" period limit for the "summer" period. I notified Lucita Valiere (ATA contractor in Seattle). I expect next year's preprints to be fully corrected.

Concerning additional NPDES data, I am including second-quarter bioassay, semi-annual influent and effluent metals/toxics, and semi-annual digested sludge metals/nutrients.

And concerning the NPDES permit, we had two violations and two problems:

- 1) On June 5 we exceeded our permit limit (2769 pounds) for daily maximum TSS; the mass loading for June 5 was 6915 pounds.
- 2) On June 6 we exceeded our permit limit (2769 pounds) for daily maximum BOD; the mass loading for June 5 was 3395 pounds.

The cause for both violations was the loss of control of our biomass balance between aerators and final clarifiers. A filamentous bacteria bloom, the resulting high SVI, and higher plant flows shifting biomass to the finals caused hydraulic loss of biomass over the clarifier weirs for several hours late in the day on June 5.

We regained control of the biomass balance early June 6. We did not exceed the permitted weekly averages for BOD and TSS mass and concentration, despite this large skewing of the week's data.

I can't explain the one day delay between effluent TSS mass loading and the effluent BOD mass loading.

3) Our first problem was losing the use of our influent meter on June 1. For the period June 1 through June 27, we are reporting flow values taken from an auxiliary meter located after the final clarifiers. On June 27 a replacement circuit board was installed and calibrated.

4) Our second problem was overchlorination of our plant effluent on June 8. We are reporting the day's grab sample value of 0.46 mg/l. But a subsequent problem with RAS chlorination set-up took our effluent residual in excess of 1.8 mg/l for a three hour period.

While setting up RAS chlorination (to suppress the filament bloom that caused the June 5 TSS and June 6 BOD excursions), we had to change the water piping for the effluent chlorination. This piping change increased the water velocity, which created a venturi effect and partial vacuum, which boosted the delivery of hypochlorite from our storage tank through the effluent chlorination metering pump.

We did not detect this overdosing for one hour because we were still busy making RAS piping changes. The one hour overdose into the chlorine contact chamber caused a 3 hour elevation in residual out of the chlorine contact chamber.

It is obvious that we cannot use the original chlorination-piping installation as designed due to this vacuum phenomenon. To chlorinate RAS, we will either use hypochlorite without using solution water (to avoid the vacuum problem) or plan to replace major sections of existing solution water piping (to eliminate the vacuum problem).

Please call me at 823-2318 if you have questions.

Sincerely,



Larry Erickson
Operations Manager
Tryon Creek WWTP

CITY OF
PORTLAND OREGON
BUREAU OF ENVIRONMENTAL SERVICES
LABORATORY ANALYSIS REPORT
TRYON CREEK TREATMENT PLANT
DIGESTER NUMBER 2

5-Apr-94

PARAMETERS	UNITS	RESULTS
Ag	mg/kg	11.40
As	mg/kg	0.27
Cd	mg/kg	3.30
Cr	mg/kg	36.10
Cu	mg/kg	608.00
Hg	mg/kg	0.29
Ni	mg/kg	22.90
Pb	mg/kg	90.50
Zn	mg/kg	1080.00
K	%dry	3550.00
T-PO4	%dry	1.78
NH3-N	%dry	2.10
NO3-N	%dry	3.90
TKN-N	%dry	5.68
pH	SU	7.10
TOTAL SOLIDS	%dry	5.70
VOLATILE SOLIDS	%dry	52.90

CITY OF
PORTLAND OREGON
 BUREAU OF ENVIRONMENTAL SERVICES
LABORATORY ANALYSIS REPORT
 TRYON CREEK TREATMENT PLANT
INFLUENT - EFFLUENT TOXICS

4,5,6 April 1994

PARAMETERS	AVERAGE		UNITS	REMOVAL
	Influent	Effluent		
Ag	0.0100	0.0100	mg/l	0.00%
As	0.0005	0.0005	mg/l	0.00%
Cd	0.0100	0.0100	mg/l	0.00%
Cr	0.0100	0.0100	mg/l	0.00%
Cu	0.0833	0.0100	mg/l	88.00%
Hg	0.0005	0.0005	mg/l	0.00%
Ni	0.0100	0.0100	mg/l	0.00%
Pb	0.0200	0.0200	mg/l	0.00%
Zn	0.0933	0.0200	mg/l	78.57%
ACIDICS (PHENOLS)	0.0250	0.0250	mg/l	0.00%
CN-T	0.0100	0.0100	mg/l	0.00%

TRYON CREEK PLANT: CITY OF PORTLAND

CLACKAMAS COUNTY

PERMIT NO. 101012 (FILE 70735)

POPULATION SERVED: 31000

PLANT TYPE: ACTIVATED SLUDGE

RECEIVING STREAM: WILLAMETTE RIVER

WASTEWATER TREATMENT PLANT MONITORING REPORT

WASTEWATER TREATMENT PROCESS CONTROL

NUTRIENTS

Date	FLOW		PLANT INFLUENT				PLANT EFFLUENT														ANAEROBIC				AERATION			Sldg Disp to CL2	Flow to Str	PLANT EFFLUENT					
																					DIGESTER				BASIN										
																					Vol. Sol. Red. (%) 70.4				Sus									Pre cip "	Off Site mgd
																					pH	CO2 %	Alk mg/l	Temp oF	SVI	Sol mg/l	DO mg/l								
Jul-94	INF	EFF	pH	BOD mg/l	Sol mg/l	Temp oC	pH	DO mg/l	BOD mg/l	Rem %	Dis lbs	TSS mg/l	Rem %	Dis lbs	CL2 lbs	CL2 Res mg/l	Fec Coli / 100ml	Wk G.M.							Total P mg/l	TKN mg/l	NH3 N mg/l	NO3+ NO2-N mg/l							
	mgd	mgd																																	
1	4.62	4.61	7.4	240	246	18	7.4	7.4	8	97	308	5	98	192	70	0.46																			
2	4.38	4.38	7.3	240	236		7.3		6	98	219	5	98	183	70	0.39		7																	
3	4.24	4.23	7.2	235	237		7.4		5	98	177	10	96	353	50	0.39																			
4	4.46	4.44	7.5	230	255	17	7.4	7.1	6	97	222	4	98	148	30	0.53	5																		
5	4.60	4.58	7.4	215	219	18	7.4	7.0	8	96	306	4	98	153	70	0.40	2																		
6	4.57	4.55	8.0	195	200	18	7.4	7.2	9	95	341	3	99	114	70	0.46	23																		
7	4.35	4.33	7.7	210	207	18	7.4	7.0	7	97	253	3	99	108	40	0.31	15																		
8	4.70	4.69	7.0	215	194	19	7.0	6.7	10	95	391	6	97	235	60	0.44	52																		
9	4.50	4.50	7.3	230	297	19	7.3	6.6	9	96	338	6	98	225	60	0.44		11																	
10	4.65	4.64	7.3	220	218	17	7.2	6.9	9	96	349	7	97	271	60	0.51																			
11	4.58	4.56	7.6	225	196	18	7.3	6.6	11	95	418	4	98	152	70	0.39	14																		
12	4.56	4.54	7.3	185	201	18	7.3	7.0	12	94	455	6	97	227	40	0.44	1430																		
13	4.51	4.50	7.3	220	206		7.4		11	95	412	6	97	225	70	0.66	2																		
14	4.57	4.55	7.6	205	199	19	7.4	7.0	11	95	418	6	97	228	50	0.55																			
15	4.51	4.50	7.4	205	194	18	7.4	6.8	13	94	488	1	99	38	50	0.55																			
16	4.40	4.40	7.4	215	196		7.4		11	95	404	5	97	183	120	0.47		34																	
17	4.44	4.43	7.5	220	260		7.4		6	97	222	8	97	296	50	0.45																			
18	4.65	4.63	7.4	200	207		7.4		16	92	617	6	97	232	100	0.62	8																		
19	4.87	4.85	7.4	200	236	19	7.4	5.9	14	93	567	4	98	162	80	0.53	7																		
20	5.02	5.01	7.5	190	194		7.4		15	92	627	6	97	251	10	0.52	15																		
21	4.44	4.44	7.4	190	233	20	7.4	6.0							90	0.53																			
22	4.62	4.60	7.3	215	198		7.5		10	95	384	6	97	230	190	0.52																			
23	4.62	4.62	7.2	235	204		7.4		14	94	539	5	98	193	100	0.46		9																	
24	4.67	4.66	7.3	220	229		7.4								60	0.57																			
25	4.66	4.65	7.4	195	241	19	7.4	7.2	12	94	465	7	97	271	200	0.58	10																		
26	4.45	4.42	7.3	205	227	19	7.4	7.2	12	94	443	5	98	184	150	0.48	2																		
27	4.54	4.54	7.4	200	229	20	7.4	6.4	15	93	568	6	97	227	170	0.63	2																		
28	4.79	4.70	7.4	220	227		7.4		11	95	432	5	98	196	140	0.57																			
29	4.36	4.34	7.4	240	218	20	7.3	6.8	11	95	398	4	98	145	150	0.51																			
30	4.73	4.71	7.3	210	229		7.2		9	96	353	4	98	157	200	0.45		3																	
31	4.53	4.51	7.4	255	218		7.6		9	96	338	4	98	150	170	0.62																			
Max	5.02	5.01	8.0	240	297	20	7.5	7.4	16	98	627	10	99	353	200	0.7	1430	34	7.3	0	4814	99	318	1656	2.2	0.00	0.086	0.00	3.20	17.50	17.20	9.78			
Min	4.24	4.23	7.0	185	194	17	7.0	5.9	5	92	177	1	96	38	10	0.3	2	3	7.1	0	4310	97	189	1202	0.2	0.00	0.000	0.00	2.36	15.00	11.70	1.71			
Avg	4.57	4.55		214	221	19		6.8	10	95	397	5	98	199	89	0.5	11	13	7.2	####	4528	99	246	1426	1.1	0.00	0.015	0.00	2.79	16.18	14.75	4.02			
Sum	137.06	136.62													2670																				

PLANT EFFLUENT PERMIT STANDARDS: pH 6.0-9.0; Fecal Coli 200/100 CL2 Res. 1.0 (Daily Max)

*Sus Sol 20/ 30 mg/l Sus Sol Discharged 1384/ 2077 lbs

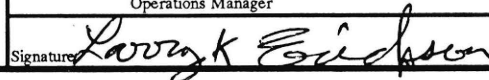
*BOD 20/ 30 mg/l BOD Discharged 1384/ 2077 lbs

*May 1 - October 31 / November 1 - April 30

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true and complete.

Name and Title: Larry K. Erickson
Operations Manager

Signature



Remarks: (Improvements, Operational Changes, Weed Control Programs, Etc.)

Influent BOD5 is a Blended Sample Sludge Hauled to Columbia Blvd WTP

All Test Data Subject to Variability of Test

Page 1									
Date	Plant Effluent Nutrients				Flow		Weather		
Jul-94	Total P	NH3-N	NO3 + NO2-N	TKN	Portland	Lake Oswego	Temperature Max	Min	Precip
	mg/l	mg/l	mg/l	mg/l	mgd	mgd	o F	o F	"
7/1/94					2.14	2.48			0.00
7/2/94					2.06	2.32	62	52	0.00
7/3/94					1.98	2.26	80	51	0.00
7/4/94					2.09	2.37	73	48	0.00
7/5/94	2.80	17.20	1.71	17.50	2.11	2.49	84	52	0.00
7/6/94					2.10	2.47	89	49	0.00
7/7/94					2.01	2.34	95	55	0.00
7/8/94					2.14	2.56	92	56	0.00
7/9/94					2.08	2.42	92	50	0.00
7/10/94					2.13	2.52	93	49	0.00
7/11/94					2.13	2.45	93	50	0.00
7/12/94	3.20	15.10	9.78	15.70	2.12	2.44			0.00
7/13/94					2.07	2.44	93	53	0.00
7/14/94					2.09	2.48	85	52	0.00
7/15/94					2.07	2.44	89	58	0.00
7/16/94					2.04	2.36	99	58	0.00
7/17/94					2.08	2.36	96	55	0.00
7/18/94					2.12	2.53	89	58	0.00
7/19/94	2.78	11.70	2.66	15.00	2.34	2.53	94	75	0.00
7/20/94					2.44	2.58	112	62	0.00
7/21/94					2.04	2.40	105	64	0.00
7/22/94					2.13	2.49	105	61	0.00
7/23/94					2.16	2.46	101	65	0.00
7/24/94					2.20	2.47	84	60	0.00
7/25/94					2.16	2.50	93	58	0.00
7/26/94	2.36	15.00	1.91	16.50	2.06	2.39	94	55	0.00
7/27/94					2.09	2.45	100	57	0.00
7/28/94					2.19	2.60	95	59	0.00
7/29/94					1.99	2.37	85	60	0.00
7/30/94					2.21	2.52	81	53	0.00
7/31/94					2.13	2.40	96	52	0.00
Max	3.20	17.20	9.78	17.50	2.44	2.60	112	75	0.00
Min	2.36	11.70	1.71	15.00	1.98	2.26	62	48	0.00
Avg	2.79	14.75	4.02	16.18	2.12	2.45	91	56	0.00
Sum					63.57	73.49			0.00

PRIMARY TREATMENT

INFLUENT									EFFLUENT					
Date Jul-94	Flow mgd	Susp Sol.		BOD5		Pop Equiv	Temp oC	pH	Susp Sol.		BOD5		Det Time hrs	No. Basins On
		mg/l	lbs	mg/l	lbs				mg/l	lbs	mg/l	lbs		
7/1/94	4.62	246	9479	240	9247	54396	18	7.4					3.7	3
7/2/94	4.38	236	8621	240	8767	51571		7.3					3.9	3
7/3/94	4.24	237	8381	235	8310	48882		7.2					4.0	3
7/4/94	4.46	255	9485	230	8555	50325	17	7.5					3.8	3
7/5/94	4.60	219	8402	215	8248	48519	18	7.4					3.7	3
7/6/94	4.57	200	7623	195	7432	43719	18	8.0					3.7	3
7/7/94	4.35	207	7510	210	7619	44815	18	7.7					3.9	3
7/8/94	4.70	194	7604	215	8428	49574	19	7.0					3.6	3
7/9/94	4.50	297	11146	230	8632	50776	19	7.3					3.8	3
7/10/94	4.65	218	8454	220	8532	50187	17	7.3					3.6	3
7/11/94	4.58	196	7487	225	8594	50555	18	7.6					3.7	3
7/12/94	4.56	201	7644	185	7036	41386	18	7.3					3.7	3
7/13/94	4.51	206	7748	220	8275	48676		7.3					3.8	3
7/14/94	4.57	199	7585	205	7813	45961	19	7.6					3.7	3
7/15/94	4.51	194	7297	205	7711	45357	18	7.4					3.8	3
7/16/94	4.40	196	7192	215	7890	46410		7.4					3.9	3
7/17/94	4.44	260	9628	220	8147	47921		7.5					3.8	3
7/18/94	4.65	207	8028	200	7756	45625		7.4					3.6	3
7/19/94	4.87	236	9585	200	8123	47783	19	7.4					3.5	3
7/20/94	5.02	194	8122	190	7955	46792		7.5					3.4	3
7/21/94	4.44	233	8628	190	7036	41386	20	7.4					3.8	3
7/22/94	4.62	198	7629	215	8284	48730		7.3					3.7	3
7/23/94	4.62	204	7860	235	9055	53263		7.2					3.7	3
7/24/94	4.67	229	8919	220	8569	50403		7.3					3.6	3
7/25/94	4.66	241	9366	195	7579	44580	19	7.4					3.6	3
7/26/94	4.45	227	8425	205	7608	44754	19	7.3					3.8	3
7/27/94	4.54	229	8671	200	7573	44545	20	7.4					3.7	3
7/28/94	4.79	227	9068	220	8789	51698		7.4					3.5	3
7/29/94	4.36	218	7927	240	8727	51335	20	7.4					3.9	3
7/30/94	4.73	229	9034	210	8284	48730		7.3					3.6	3
7/31/94	4.53	218	8236	255	9634	56670		7.4					3.8	3
Max	5.02	297	11146	240	9247	54396	20	8.0	0	0	0	0	4.0	3
Min	4.24	194	7192	185	7036	41386	17	7.0	0	0	0	0	3.4	3
Avg	4.57	221	8418	214	8152	47955	19		####	####	####	####	3.7	3
Sum	137.06		252548		244571				0		0			

SECONDARY EFFLUENT

Date Jul-94	Flow mgd	Susp Sol.		BOD5		FCSS		SBD	RSSS	Ovr-flow Rate gpd / ft2	pH	No. Basins On
		mg/l	lbs	mg/l	lbs	mg/l	lbs	ft	mg/l			
7/1/94	4.61	8	308	8	308	1486	22557	3.8		306		2
7/2/94	4.38	10	365	11	402	1645	24971	3.6		290		2
7/3/94	4.23	10	353	14	494	1724	26170	4.1		281		2
7/4/94	4.44	13	481	11	407	1773	26914	3.6		294		2
7/5/94	4.58	11	420	18	687	1512	22952	2.3		304		2
7/6/94	4.55	13	493	22	835	1911	29009	3.0		302		2
7/7/94	4.33	11	397	20	722	1260	19127	2.5		287		2
7/8/94	4.69	20	782	25	977	1561	23696	2.6		311		2
7/9/94	4.50	36	1351	24	901	1759	26702	2.7		298		2
7/10/94	4.64	39	1511	40	1549	1731	26277	3.1		308		2
7/11/94	4.56	25	950	41	1558	1648	25017	3.0		302		2
7/12/94	4.54	22	834	41	1554	1434	21768	2.8		301		2
7/13/94	4.50	38	1425	40	1500	1345	20417	2.1		298		2
7/14/94	4.55	45	1708	40	1518	1309	19871	2.5		302		2
7/15/94	4.50	31	1163	41	1538	1270	19279	2.3		298		2
7/16/94	4.40	72	2642	42	1541	1425	21632	2.6		292		2
7/17/94	4.43	52	1923	78	2884	1413	21449	2.8		294		2
7/18/94	4.63	62	2393	77	2972	1388	21070	1.8		307		2
7/19/94	4.85	70	2834	74	2996	1299	19719	2.8		322		2
7/20/94	5.01	70	2927	73	3053	1264	19188	2.4		333		2
7/21/94	4.44	98	3629	74	2740	1535	23301	2.9		294		2
7/22/94	4.60	87	3339	152	5834	1557	23635	2.8		305		2
7/23/94	4.62	12	462	40	1541	1377	20903	3.2		306		2
7/24/94	4.66	10	389	40	1556	1449	21996	3.2		309		2
7/25/94	4.65	16	620	40	1551	1622	24622	3.3		308		2
7/26/94	4.42	17	627	40	1476	1489	22603	3.4		293		2
7/27/94	4.54					1755	26641	3.3		301		2
7/28/94	4.70	23	902	30	1177	1748	26535	3.3		312		2
7/29/94	4.34	10	362	20	724	1376	20888	3.8		288		2
7/30/94	4.71	15	589	20	785	1916	29085	4.6		312		2
7/31/94	4.51	11	413	20	752	2089	31711	4.6		299		2
Max	5.01	98	3629	152	5834	1916	29085	4.6	0	333		2
Min	4.23	8	308	8	308	1260	19127	1.8	0	281		2
Avg	4.55	33	1248	41	1579	1533	23266	3.0	#DIV/0!	302		2
Sum	136.62		36180		45781							

Page 4											Fecal Coliform Count G Ave				
PLANT EFFLUENT											146	15			
Date	Flow	Susp Sol.			BOD5			Cl2 Cntct	Cl2	Cl2	8	15	DO	pH	Flow to
Jul-94	mgd	mg/l	lbs	% Rem	mg/l	lbs	% Rem	Time	Feed	Res	5	3	mg/l		Cl2 Str
								hrs	lbs/day	mg/l					mgd
7/1/94	4.61	5	192	98	8	308	97	3.7	70	0.5			7.4	7.4	0.00
7/2/94	4.38	5	183	98	6	219	98	3.8	70	0.4				7.3	0.00
7/3/94	4.23	10	353	96	5	177	98	4.0	50	0.4				7.4	0.00
7/4/94	4.44	4	148	98	6	222	97	3.8	30	0.5	5		7.1	7.4	0.00
7/5/94	4.58	4	153	98	8	306	96	3.7	70	0.4	2		7.0	7.4	0.00
7/6/94	4.55	3	114	99	9	341	95	3.7	70	0.5	23		7.2	7.4	0.00
7/7/94	4.33	3	108	99	7	253	97	3.9	40	0.3	15		7.0	7.4	0.00
7/8/94	4.69	6	235	97	10	391	95	3.6	60	0.4	52		6.7	7.0	0.00
7/9/94	4.50	6	225	98	9	338	96	3.7	60	0.4			6.6	7.3	0.00
7/10/94	4.64	7	271	97	9	349	96	3.6	60	0.5			6.9	7.2	0.00
7/11/94	4.56	4	152	98	11	418	95	3.7	70	0.4	14		6.6	7.3	0.00
7/12/94	4.54	6	227	97	12	455	94	3.7	40	0.4	1430		7.0	7.3	0.00
7/13/94	4.50	6	225	97	11	412	95	3.7	70	0.7	2			7.4	0.00
7/14/94	4.55	6	228	97	11	418	95	3.7	50	0.6			7.0	7.4	0.00
7/15/94	4.50	1	38	99	13	488	94	3.7	50	0.6			6.8	7.4	0.00
7/16/94	4.40	5	183	97	11	404	95	3.8	120	0.5				7.4	0.00
7/17/94	4.43	8	296	97	6	222	97	3.8	50	0.5				7.4	0.00
7/18/94	4.63	6	232	97	16	617	92	3.6	100	0.6	8			7.4	0.00
7/19/94	4.85	4	162	98	14	567	93	3.5	80	0.5	7		5.9	7.4	0.00
7/20/94	5.01	6	251	97	15	627	92	3.4	10	0.5	15			7.4	0.00
7/21/94	4.44							3.8	90	0.5			6.0	7.4	0.00
7/22/94	4.60	6	230	97	10	384	95	3.7	190	0.5				7.5	0.00
7/23/94	4.62	5	193	98	14	539	94	3.6	100	0.5				7.4	0.00
7/24/94	4.66							3.6	60	0.6				7.4	0.00
7/25/94	4.65	7	271	97	12	465	94	3.6	200	0.6	10		7.2	7.4	0.00
7/26/94	4.42	5	184	98	12	443	94	3.8	150	0.5	2		7.2	7.4	0.00
7/27/94	4.54	6	227	97	15	568	93	3.7	170	0.6	2		6.4	7.4	0.00
7/28/94	4.70	5	196	98	11	432	95	3.6	140	0.6				7.4	0.00
7/29/94	4.34	4	145	98	11	398	95	3.9	150	0.5			6.8	7.3	0.00
7/30/94	4.71	4	157	98	9	353	96	3.6	200	0.5				7.2	0.00
7/31/94	4.51	4	150	98	9	338	96	3.7	170	0.6				7.6	0.00
Max	5.01	10	353	99	16	627	98	4.0	200	0.7	1430.0	34.2	7.4	7.5	0.00
Min	4.23	1	38	96	5	177	92	3.4	10	0.3	2.0	3.4	5.9	7.0	0.00
Avg	4.55	5	199	98	10	397	95	3.7	89	0.5	10.6	13.0	6.8		0.00
Sum	136.62		5579			11112			2670						0.00

[illegible]

[illegible]

SLUDGE PROCESSING

Date Jul-94	Thickened Primary Sludge				WAS			Gravity Belt			TWAS			TPS + Twa Sludge Disp Off Site MGD
	Flow gal	Tot Sol %	Vol Sol %	Vol Content %	Flow mgd	Susp. mg/l	Sols lbs	Capture %	Filtrate mg/l	Poly lbs	Total Sols. %	lbs	Gal Hauled	
7/1/94	16380				0.041	12187	4117				5.95	5161	10400	0.0104
7/2/94	15320				0.000		0					0	0	0.0000
7/3/94	15830	5.92	4.85	81.9	0.000		0					0	0	0.0060
7/4/94	15220				0.076	9993	6368				5.33	6574	14790	0.0208
7/5/94	15580				0.052	16130	6958				5.51	6746	14680	0.0207
7/6/94	15680				0.057	14640	6945				6.12	8029	15730	0.0217
7/7/94	14920				0.050	13750	5734				5.41	6768	15000	0.0210
7/8/94	15880				0.039	13020	4203				5.81	6110	12610	0.0126
7/9/94	15460				0.000		0					0	0	0.0000
7/10/94	15560				0.000		0					0	0	0.0060
7/11/94	15340				0.062	13287	6921				6.21	8654	16710	0.0227
7/12/94	16170	6.06	5.01	82.7	0.060	14690	7359				6.34	8196	15500	0.0155
7/13/94	17660				0.046	14100	5425				5.91	6891	13980	0.0140
7/14/94	11790				0.085	9944	7090				5.55	8702	18800	0.0188
7/15/94	8070				0.040	10933	3603				5.77	5144	10690	0.0107
7/16/94	13440				0.000		0					0	0	0.0000
7/17/94	13910				0.000		0					0	0	0.0060
7/18/94	14000	8.03	6.72	83.7	0.085	12424	8842				5.91	8157	16550	0.0226
7/19/94	12390				0.057	10000	4779				5.50	4289	9350	0.0154
7/20/94	12430				0.000	8500	0				5.61	0	0	0.0060
7/21/94	13210				0.000		0					0	0	0.0000
7/22/94	13950				0.069	9420	5456				5.80	8750	18090	0.0181
7/23/94	13900				0.000		0					0	0	0.0000
7/24/94	14090				0.000		0					0	0	0.0060
7/25/94	14060	6.56	5.50	83.9	0.053	13100	5805				5.68	5433	11470	0.0115
7/26/94	12150				0.044	13280	4830				5.79	7229	14970	0.0270
7/27/94					0.000		0					0	0	0.0000
7/28/94					0.056	9456	4442				5.50	31288	68210	0.0862
7/29/94					0.079	10300	6785				5.30	7837	17730	0.0177
7/30/94					0.000		0					0	0	0.0240
7/31/94		5.71	4.76	83.4	0.000		0					0	0	0.0240
Max	17660	8.03	6.72	83.9	.085	16130	8842	0.00	0		6.34	31288	68210	0.086
Min	8070	5.92	4.85	81.9	.000	8500	0	0.00	0		5.30	0	0	0.000
Avg	14323	6.64	5.52	83.1	.035	12061	3522	#DIV/0!	#DIV/0!		5.74	4999	10509	0.015
Sum	372390				1.052		105661					149959	315260	0.441

PRIMARY TREATMENT

PRIMARY TREATMENT									
	Influent mg/l	lbs/ day	Effluent mg/l	lbs/ day	Rem %	Primary	Feed Sludge		
S S	221	8418	#DIV/O!	#DIV/O!	#DIV/O!	Flow gal/ day	Total Solids %	Volatile Content %	
BOD5	214	8152	#DIV/O!	#DIV/O!	#DIV/O!	14323	6.64	83.1	
	Detent Time hrs		Population Equivalent	Flow mgd	Precip "				
	3.7		47955	4.57	0	Detention Time days	Loading lbs VS / ft3 /day		
SECONDARY TREATMENT						25	0.14		
	Influent mg/l	lbs/ day	Effluent mg/l	lbs/ day	Rem %	Total Solids %	Volatile Content %		Vol Sol Reduct %
S S	221	8418	5	199	98				
BOD5	214	8152	10	397	95	4.27	59.2		70.4
F/M		SVI	SRT days		MLSS mg/l				
#DIV/O!		246	10.9		1426	Total Solids (TWS) %	Capture %		Filtrate Solids mg/l
	RAS Flow mgd		CL2 Res mg/l		CL2 Feed lbs/day	5.74	#DIV/O!		#DIV/O!
	0.58		0.5		89		Sludge Hauled		
			Aerator				gal/day	lbs /day	lbs/mo
	WAS Flow mgd		Detention Time hrs		Aerator DO mg/l	Digst	4200	1496	0
	.035		6.8		1.1	TWS	10509	5028	0
						Total	14709	6524	0



CITY OF PORTLAND ENVIRONMENTAL SERVICES

Larry Erickson



Columbia Blvd. Wastewater Treatment Plant, 5001 N. Columbia Blvd., Portland, OR 97203-2098
(503) 823-2400, FAX (503) 823-2409

12 July 1994

Lyle Christensen, DEQ Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland OR 97201-4959

Dear Mr. Christensen,

I have three topics to discuss for June: EPA preprints, additional NPDES data, and several NPDES-related problems.

Concerning EPA preprints, I stated in April that our EPA preprints had been fully corrected. While proofreading the May report, I found one remaining error. In the "summer" period preprints, the "weekly average mass loading, effluent total suspended solids" limit should read 2077 lbs instead of 3115 lbs. The mistake is quoting our "winter" period limit for the "summer" period. I notified Lucita Valiere (ATA contractor in Seattle). I expect next year's preprints to be fully corrected.

Concerning additional NPDES data, I am including second-quarter bioassay, semi-annual influent and effluent metals/toxics, and semi-annual digested sludge metals/nutrients.

And concerning the NPDES permit, we had two violations and two problems:

- 1) On June 5 we exceeded our permit limit (2769 pounds) for daily maximum TSS; the mass loading for June 5 was 6915 pounds.
- 2) On June 6 we exceeded our permit limit (2769 pounds) for daily maximum BOD; the mass loading for June 5 was 3395 pounds.

The cause for both violations was the loss of control of our biomass balance between aerators and final clarifiers. A filamentous bacteria bloom, the resulting high SVI, and higher plant flows shifting biomass to the finals caused hydraulic loss of biomass over the clarifier weirs for several hours late in the day on June 5.

We regained control of the biomass balance early June 6. We did not exceed the permitted weekly averages for BOD and TSS mass and concentration, despite this large skewing of the week's data.

I can't explain the one day delay between effluent TSS mass loading and the effluent BOD mass loading.

3) Our first problem was losing the use of our influent meter on June 1. For the period June 1 through June 27, we are reporting flow values taken from an auxiliary meter located after the final clarifiers. On June 27 a replacement circuit board was installed and calibrated.

4) Our second problem was overchlorination of our plant effluent on June 8. We are reporting the day's grab sample value of 0.46 mg/l. But a subsequent problem with RAS chlorination set-up took our effluent residual in excess of 1.8 mg/l for a three hour period.

While setting up RAS chlorination (to suppress the filament bloom that caused the June 5 TSS and June 6 BOD excursions), we had to change the water piping for the effluent chlorination. This piping change increased the water velocity, which created a venturi effect and partial vacuum, which boosted the delivery of hypochlorite from our storage tank through the effluent chlorination metering pump.

We did not detect this overdosing for one hour because we were still busy making RAS piping changes. The one hour overdose into the chlorine contact chamber caused a 3 hour elevation in residual out of the chlorine contact chamber.

It is obvious that we cannot use the original chlorination-piping installation as designed due to this vacuum phenomenon. To chlorinate RAS, we will either use hypochlorite without using solution water (to avoid the vacuum problem) or plan to replace major sections of existing solution water piping (to eliminate the vacuum problem).

Please call me at 823-2318 if you have questions.

Sincerely,



Larry Erickson
Operations Manager
Tryon Creek WWTP

CITY OF
PORTLAND OREGON
BUREAU OF ENVIRONMENTAL SERVICES
LABORATORY ANALYSIS REPORT
TRYON CREEK TREATMENT PLANT
DIGESTER NUMBER 2

5-Apr-94

PARAMETERS	UNITS	RESULTS
Ag	mg/kg	11.40
As	mg/kg	0.27
Cd	mg/kg	3.30
Cr	mg/kg	36.10
Cu	mg/kg	608.00
Hg	mg/kg	0.29
Ni	mg/kg	22.90
Pb	mg/kg	90.50
Zn	mg/kg	1080.00
K	%dry	3550.00
T-PO4	%dry	1.78
NH3-N	%dry	2.10
NO3-N	%dry	3.90
TKN-N	%dry	5.68
pH	SU	7.10
TOTAL SOLIDS	%dry	5.70
VOLATILE SOLIDS	%dry	52.90

CITY OF
PORTLAND OREGON
 BUREAU OF ENVIRONMENTAL SERVICES
LABORATORY ANALYSIS REPORT
 TRYON CREEK TREATMENT PLANT
INFLUENT - EFFLUENT TOXICS

4,5,6 April 1994

PARAMETERS	AVERAGE		UNITS	REMOVAL
	Influent	Effluent		
Ag	0.0100	0.0100	mg/l	0.00%
As	0.0005	0.0005	mg/l	0.00%
Cd	0.0100	0.0100	mg/l	0.00%
Cr	0.0100	0.0100	mg/l	0.00%
Cu	0.0833	0.0100	mg/l	88.00%
Hg	0.0005	0.0005	mg/l	0.00%
Ni	0.0100	0.0100	mg/l	0.00%
Pb	0.0200	0.0200	mg/l	0.00%
Zn	0.0933	0.0200	mg/l	78.57%
ACIDICS (PHENOLS)	0.0250	0.0250	mg/l	0.00%
CN-T	0.0100	0.0100	mg/l	0.00%

TRYON CREEK PLANT: CITY OF PORTLAND CLACKAMAS COUNTY
PLANT TYPE: ACTIVATED SLUDGE

PERMIT NO. 101012 (FILE 70735)

POPULATION SERVED: 31000

RECEIVING STREAM: WILLAMETTE RIVER

WASTEWATER TREATMENT PLANT MONITORING REPORT

WASTEWATER TREATMENT PROCESS CONTROL

NUTRIENTS

Date	FLOW		PLANT INFLUENT				PLANT EFFLUENT														ANAEROBIC				AERATION			Sldg Disp to CL2	Flow to Str	PLANT EFFLUENT						
																					DIGESTER				BASIN											
																					Vol. Sol. Red. (%)				Sus									Pre cip "	Off Site mgd	CL2 mgd
																					pH	CO2 %	Alk mg/l	Temp oF	SVI	Sol mg/l	DO mg/l									
Jul-94	INF	EFF	pH	BOD mg/l	Sol mg/l	Temp oC	pH	DO mg/l	BOD mg/l	Rem %	Dis lbs	TSS mg/l	Rem %	Dis lbs	CL2 Fed mg/l	CL2 Res mg/l	Coli / 100ml	Fec G.M.	pH	CO2 %	Alk mg/l	Temp oF	SVI	Sol mg/l	DO mg/l	Pre cip "	Off Site mgd	CL2 mgd	Total P mg/l	TKN mg/l	NH3 N mg/l	NO3+ NO2-N mg/l				
	mgd	mgd																																		
1	4.62	4.61	7.4	240	246	18	7.4	7.4	8	97	308	5	98	192	70	0.46						99	289	1490	1.9	0.00	0.010	0.00								
2	4.38	4.38	7.3	240	236		7.3		6	98	219	5	98	183	70	0.39		7				99	262	1534	1.7	0.00	0.000	0.00								
3	4.24	4.23	7.2	235	237		7.4		5	98	177	10	96	353	50	0.39						98	221	1656	0.7	0.00	0.006	0.00								
4	4.46	4.44	7.5	230	255	17	7.4	7.1	6	97	222	4	98	148	30	0.53	5					99	285	1584	1.2	0.00	0.021	0.00								
5	4.60	4.58	7.4	215	219	18	7.4	7.0	8	96	306	4	98	153	70	0.40	2					99	223	1512	1.1	0.00	0.021	0.00	2.80	17.50	17.20	1.71				
6	4.57	4.55	8.0	195	200	18	7.4	7.2	9	95	341	3	99	114	70	0.46	23					99	219	1395	2.0	0.00	0.022	0.00								
7	4.35	4.33	7.7	210	207	18	7.4	7.0	7	97	253	3	99	108	40	0.31	15					99	217	1505	1.2	0.00	0.021	0.00								
8	4.70	4.69	7.0	215	194	19	7.0	6.7	10	95	391	6	97	235	60	0.44	52					99	208	1558	1.0	0.00	0.013	0.00								
9	4.50	4.50	7.3	230	297	19	7.3	6.6	9	96	338	6	98	225	60	0.44		11				99	222	1538	1.1	0.00	0.000	0.00								
10	4.65	4.64	7.3	220	218	17	7.2	6.9	9	96	349	7	97	271	60	0.51						99	192	1655	1.0	0.00	0.006	0.00								
11	4.58	4.56	7.6	225	196	18	7.3	6.6	11	95	418	4	98	152	70	0.39	14					99	189	1458	1.0	0.00	0.023	0.00								
12	4.56	4.54	7.3	185	201	18	7.3	7.0	12	94	455	6	97	227	40	0.44	1430					99	208	1299	1.7	0.00	0.016	0.00	3.20	15.70	15.10	9.78				
13	4.51	4.50	7.3	220	206		7.4		11	95	412	6	97	225	70	0.66	2					99	196	1469	1.6	0.00	0.014	0.00								
14	4.57	4.55	7.6	205	199	19	7.4	7.0	11	95	418	6	97	228	50	0.55						99	195	1400	1.4	0.00	0.019	0.00								
15	4.51	4.50	7.4	205	194	18	7.4	6.8	13	94	488	1	99	38	50	0.55						98	189	1408	1.5	0.00	0.011	0.00								
16	4.40	4.40	7.4	215	196		7.4		11	95	404	5	97	183	120	0.47		34				98	196	1502	0.5	0.00	0.000	0.00								
17	4.44	4.43	7.5	220	260		7.4		6	97	222	8	97	296	50	0.45						99	222	1420	0.5	0.00	0.006	0.00								
18	4.65	4.63	7.4	200	207		7.4		16	92	617	6	97	232	100	0.62	8					99	236	1264	0.3	0.00	0.023	0.00								
19	4.87	4.85	7.4	200	236	19	7.4	5.9	14	93	567	4	98	162	80	0.53	7					99	245	1202	1.8	0.00	0.015	0.00	2.78	15.00	11.70	2.66				
20	5.02	5.01	7.5	190	194		7.4		15	92	627	6	97	251	10	0.52	15					99	313	1266		0.00	0.006	0.00								
21	4.44	4.44	7.4	190	233	20	7.4	6.0							90	0.53						99	318	1402	1.0	0.00	0.000	0.00								
22	4.62	4.60	7.3	215	198		7.5		10	95	384	6	97	230	190	0.52						99	252	1333	0.3	0.00	0.018	0.00								
23	4.62	4.62	7.2	235	204		7.4		14	94	539	5	98	193	100	0.46		9				99	282	1321	0.8	0.00	0.000	0.00								
24	4.67	4.66	7.3	220	229		7.4								60	0.57						99	302	1332	0.9	0.00	0.006	0.00								
25	4.66	4.65	7.4	195	241	19	7.4	7.2	12	94	465	7	97	271	200	0.58	10					98	286	1208	2.2	0.00	0.011	0.00								
26	4.45	4.42	7.3	205	227	19	7.4	7.2	12	94	443	5	98	184	150	0.48	2					97	306	1253	2.0	0.00	0.027	0.00	2.36	16.50	15.00	1.91				
27	4.54	4.54	7.4	200	229	20	7.4	6.4	15	93	568	6	97	227	170	0.63	2					99	297	1332	1.0	0.00	0.000	0.00								
28	4.79	4.70	7.4	220	227		7.4		11	95	432	5	98	196	140	0.57						99	287	1499	0.6	0.00	0.086	0.00								
29	4.36	4.34	7.4	240	218	20	7.3	6.8	11	95	398	4	98	145	150	0.51						99	291	1519		0.00	0.018	0.00								
30	4.73	4.71	7.3	210	229		7.2		9	96	353	4	98	157	200	0.45		3				99	240	1470	0.2	0.00	0.024	0.00								
31	4.53	4.51	7.4	255	218		7.6		9	96	338	4	98	150	170	0.62						94	258	1221	0.4	0.00	0.024	0.00								
Max	5.02	5.01	8.0	240	297	20	7.5	7.4	16	98	627	10	99	353	200	0.7	1430	34	7.3	0	4814	99	318	1656	2.2	0.00	0.086	0.00	3.20	17.50	17.20	9.78				
Min	4.24	4.23	7.0	185	194	17	7.0	5.9	5	92	177	1	96	38	10	0.3	2	3	7.1	0	4310	97	189	1202	0.2	0.00	0.000	0.00	2.36	15.00	11.70	1.71				
Avg	4.57	4.55		214	221	19		6.8	10	95	397	5	98	199	89	0.5	11	13	7.2	#####	4528	99	246	1426	1.1	0.00	0.015	0.00	2.79	16.18	14.75	4.02				
Sum	137.06	136.62													2670											0.00	0.465	0.00								

PLANT EFFLUENT PERMIT STANDARDS: pH 6.0-9.0; Fecal Coli 200/100 CL2 Res. 1.0 (Daily Max)

*Sus Sol 20/ 30 mg/l Sus Sol Discharged 1384/ 2077 lbs

*BOD 20/ 30 mg/l BOD Discharged 1384/ 2077 lbs

*May 1 - October 31 / November 1 - April 30

I certify that I am familiar with the information contained in this report and that to the best of my knowledge such information is true and complete.

Name and Title: Larry K. Erickson
Operations Manager

Signature: *Larry K. Erickson*

Remarks: (Improvements, Operational Changes, Weed Control Programs, Etc.)

Influent BOD5 is a Blended Sample Sludge Hauled to Columbia Blvd WTP

All Test Data Subject to Variability of Test

Page 1									
Date	Plant Effluent Nutrients				Flow		Weather		
Jul-94	Total P	NH3-N	NO3 + NO2-N	TKN	Portland	Lake Oswego	Temperature Max	Min	Precip
	mg/l	mg/l	mg/l	mg/l	mgd	mgd	o F	o F	"
7/1/94					2.14	2.48			0.00
7/2/94					2.06	2.32	62	52	0.00
7/3/94					1.98	2.26	80	51	0.00
7/4/94					2.09	2.37	73	48	0.00
7/5/94	2.80	17.20	1.71	17.50	2.11	2.49	84	52	0.00
7/6/94					2.10	2.47	89	49	0.00
7/7/94					2.01	2.34	95	55	0.00
7/8/94					2.14	2.56	92	56	0.00
7/9/94					2.08	2.42	92	50	0.00
7/10/94					2.13	2.52	93	49	0.00
7/11/94					2.13	2.45	93	50	0.00
7/12/94	3.20	15.10	9.78	15.70	2.12	2.44			0.00
7/13/94					2.07	2.44	93	53	0.00
7/14/94					2.09	2.48	85	52	0.00
7/15/94					2.07	2.44	89	58	0.00
7/16/94					2.04	2.36	99	58	0.00
7/17/94					2.08	2.36	96	55	0.00
7/18/94					2.12	2.53	89	58	0.00
7/19/94	2.78	11.70	2.66	15.00	2.34	2.53	94	75	0.00
7/20/94					2.44	2.58	112	62	0.00
7/21/94					2.04	2.40	105	64	0.00
7/22/94					2.13	2.49	105	61	0.00
7/23/94					2.16	2.46	101	65	0.00
7/24/94					2.20	2.47	84	60	0.00
7/25/94					2.16	2.50	93	58	0.00
7/26/94	2.36	15.00	1.91	16.50	2.06	2.39	94	55	0.00
7/27/94					2.09	2.45	100	57	0.00
7/28/94					2.19	2.60	95	59	0.00
7/29/94					1.99	2.37	85	60	0.00
7/30/94					2.21	2.52	81	53	0.00
7/31/94					2.13	2.40	96	52	0.00
Max	3.20	17.20	9.78	17.50	2.44	2.60	112	75	0.00
Min	2.36	11.70	1.71	15.00	1.98	2.26	62	48	0.00
Avg	2.79	14.75	4.02	16.18	2.12	2.45	91	56	0.00
Sum					63.57	73.49			0.00

PRIMARY TREATMENT

INFLUENT									EFFLUENT					
Date Jul-94	Flow mgd	Susp Sol.		BOD5		Pop Equiv	Temp oC	pH	Susp Sol.		BOD5		Det Time hrs	No. Basins On
		mg/l	lbs	mg/l	lbs				mg/l	lbs	mg/l	lbs		
7/1/94	4.62	246	9479	240	9247	54396	18	7.4					3.7	3
7/2/94	4.38	236	8621	240	8767	51571		7.3					3.9	3
7/3/94	4.24	237	8381	235	8310	48882		7.2					4.0	3
7/4/94	4.46	255	9485	230	8555	50325	17	7.5					3.8	3
7/5/94	4.60	219	8402	215	8248	48519	18	7.4					3.7	3
7/6/94	4.57	200	7623	195	7432	43719	18	8.0					3.7	3
7/7/94	4.35	207	7510	210	7619	44815	18	7.7					3.9	3
7/8/94	4.70	194	7604	215	8428	49574	19	7.0					3.6	3
7/9/94	4.50	297	11146	230	8632	50776	19	7.3					3.8	3
7/10/94	4.65	218	8454	220	8532	50187	17	7.3					3.6	3
7/11/94	4.58	196	7487	225	8594	50555	18	7.6					3.7	3
7/12/94	4.56	201	7644	185	7036	41386	18	7.3					3.7	3
7/13/94	4.51	206	7748	220	8275	48676		7.3					3.8	3
7/14/94	4.57	199	7585	205	7813	45961	19	7.6					3.7	3
7/15/94	4.51	194	7297	205	7711	45357	18	7.4					3.8	3
7/16/94	4.40	196	7192	215	7890	46410		7.4					3.9	3
7/17/94	4.44	260	9628	220	8147	47921		7.5					3.8	3
7/18/94	4.65	207	8028	200	7756	45625		7.4					3.6	3
7/19/94	4.87	236	9585	200	8123	47783	19	7.4					3.5	3
7/20/94	5.02	194	8122	190	7955	46792		7.5					3.4	3
7/21/94	4.44	233	8628	190	7036	41386	20	7.4					3.8	3
7/22/94	4.62	198	7629	215	8284	48730		7.3					3.7	3
7/23/94	4.62	204	7860	235	9055	53263		7.2					3.7	3
7/24/94	4.67	229	8919	220	8569	50403		7.3					3.6	3
7/25/94	4.66	241	9366	195	7579	44580	19	7.4					3.6	3
7/26/94	4.45	227	8425	205	7608	44754	19	7.3					3.8	3
7/27/94	4.54	229	8671	200	7573	44545	20	7.4					3.7	3
7/28/94	4.79	227	9068	220	8789	51698		7.4					3.5	3
7/29/94	4.36	218	7927	240	8727	51335	20	7.4					3.9	3
7/30/94	4.73	229	9034	210	8284	48730		7.3					3.6	3
7/31/94	4.53	218	8236	255	9634	56670		7.4					3.8	3
Max	5.02	297	11146	240	9247	54396	20	8.0	0	0	0	0	4.0	3
Min	4.24	194	7192	185	7036	41386	17	7.0	0	0	0	0	3.4	3
Avg	4.57	221	8418	214	8152	47955	19		####	####	####	####	3.7	3
Sum	137.06		252548		244571				0		0			

SECONDARY EFFLUENT

Date Jul-94	Flow mgd	Susp Sol.		BOD5		FCSS		SBD	RSSS	Ovr-flow Rate gpd / ft2	pH	No. Basins On
		mg/l	lbs	mg/l	lbs	mg/l	lbs	ft	mg/l			
7/1/94	4.61	8	308	8	308	1486	22557	3.8		306		2
7/2/94	4.38	10	365	11	402	1645	24971	3.6		290		2
7/3/94	4.23	10	353	14	494	1724	26170	4.1		281		2
7/4/94	4.44	13	481	11	407	1773	26914	3.6		294		2
7/5/94	4.58	11	420	18	687	1512	22952	2.3		304		2
7/6/94	4.55	13	493	22	835	1911	29009	3.0		302		2
7/7/94	4.33	11	397	20	722	1260	19127	2.5		287		2
7/8/94	4.69	20	782	25	977	1561	23696	2.6		311		2
7/9/94	4.50	36	1351	24	901	1759	26702	2.7		298		2
7/10/94	4.64	39	1511	40	1549	1731	26277	3.1		308		2
7/11/94	4.56	25	950	41	1558	1648	25017	3.0		302		2
7/12/94	4.54	22	834	41	1554	1434	21768	2.8		301		2
7/13/94	4.50	38	1425	40	1500	1345	20417	2.1		298		2
7/14/94	4.55	45	1708	40	1518	1309	19871	2.5		302		2
7/15/94	4.50	31	1163	41	1538	1270	19279	2.3		298		2
7/16/94	4.40	72	2642	42	1541	1425	21632	2.6		292		2
7/17/94	4.43	52	1923	78	2884	1413	21449	2.8		294		2
7/18/94	4.63	62	2393	77	2972	1388	21070	1.8		307		2
7/19/94	4.85	70	2834	74	2996	1299	19719	2.8		322		2
7/20/94	5.01	70	2927	73	3053	1264	19188	2.4		333		2
7/21/94	4.44	98	3629	74	2740	1535	23301	2.9		294		2
7/22/94	4.60	87	3339	152	5834	1557	23635	2.8		305		2
7/23/94	4.62	12	462	40	1541	1377	20903	3.2		306		2
7/24/94	4.66	10	389	40	1556	1449	21996	3.2		309		2
7/25/94	4.65	16	620	40	1551	1622	24622	3.3		308		2
7/26/94	4.42	17	627	40	1476	1489	22603	3.4		293		2
7/27/94	4.54					1755	26641	3.3		301		2
7/28/94	4.70	23	902	30	1177	1748	26535	3.3		312		2
7/29/94	4.34	10	362	20	724	1376	20888	3.8		288		2
7/30/94	4.71	15	589	20	785	1916	29085	4.6		312		2
7/31/94	4.51	11	413	20	752	2089	31711	4.6		299		2
Max	5.01	98	3629	152	5834	1916	29085	4.6	0	333		2
Min	4.23	8	308	8	308	1260	19127	1.8	0	281		2
Avg	4.55	33	1248	41	1579	1533	23266	3.0	#DIV/0!	302		2
Sum	136.62		36180		45781							

Page 4											Fecal Coliform Count G Ave					
PLANT EFFLUENT											148	16				
Date	Flow	Susp Sol.			BOD5			Cl2 Cntct	Cl2	Cl2	5	15	DO	pH	Flow to Cl2 Str	
Jul-94	mgd	mg/l	lbs	% Rem	mg/l	lbs	% Rem	Time hrs	Feed lbs/day	Res mg/l	5	3				
7/1/94	4.61	5	192	98	8	308	97	3.7	70	0.5			7.4	7.4	0.00	
7/2/94	4.38	5	183	98	6	219	98	3.8	70	0.4		7		7.3	0.00	
7/3/94	4.23	10	353	96	5	177	98	4.0	50	0.4				7.4	0.00	
7/4/94	4.44	4	148	98	6	222	97	3.8	30	0.5	5		7.1	7.4	0.00	
7/5/94	4.58	4	153	98	8	306	96	3.7	70	0.4	2		7.0	7.4	0.00	
7/6/94	4.55	3	114	99	9	341	95	3.7	70	0.5	23		7.2	7.4	0.00	
7/7/94	4.33	3	108	99	7	253	97	3.9	40	0.3	15		7.0	7.4	0.00	
7/8/94	4.69	6	235	97	10	391	95	3.6	60	0.4	52		6.7	7.0	0.00	
7/9/94	4.50	6	225	98	9	338	96	3.7	60	0.4		11	6.6	7.3	0.00	
7/10/94	4.64	7	271	97	9	349	96	3.6	60	0.5			6.9	7.2	0.00	
7/11/94	4.56	4	152	98	11	418	95	3.7	70	0.4	14		6.6	7.3	0.00	
7/12/94	4.54	6	227	97	12	455	94	3.7	40	0.4	1430		7.0	7.3	0.00	
7/13/94	4.50	6	225	97	11	412	95	3.7	70	0.7	2			7.4	0.00	
7/14/94	4.55	6	228	97	11	418	95	3.7	50	0.6			7.0	7.4	0.00	
7/15/94	4.50	1	38	99	13	488	94	3.7	50	0.6			6.8	7.4	0.00	
7/16/94	4.40	5	183	97	11	404	95	3.8	120	0.5		34		7.4	0.00	
7/17/94	4.43	8	296	97	6	222	97	3.8	50	0.5				7.4	0.00	
7/18/94	4.63	6	232	97	16	617	92	3.6	100	0.6	8			7.4	0.00	
7/19/94	4.85	4	162	98	14	567	93	3.5	80	0.5	7		5.9	7.4	0.00	
7/20/94	5.01	6	251	97	15	627	92	3.4	10	0.5	15			7.4	0.00	
7/21/94	4.44							3.8	90	0.5			6.0	7.4	0.00	
7/22/94	4.60	6	230	97	10	384	95	3.7	190	0.5				7.5	0.00	
7/23/94	4.62	5	193	98	14	539	94	3.6	100	0.5		9		7.4	0.00	
7/24/94	4.66							3.6	60	0.6				7.4	0.00	
7/25/94	4.65	7	271	97	12	465	94	3.6	200	0.6	10		7.2	7.4	0.00	
7/26/94	4.42	5	184	98	12	443	94	3.8	150	0.5	2		7.2	7.4	0.00	
7/27/94	4.54	6	227	97	15	568	93	3.7	170	0.6	2		6.4	7.4	0.00	
7/28/94	4.70	5	196	98	11	432	95	3.6	140	0.6				7.4	0.00	
7/29/94	4.34	4	145	98	11	398	95	3.9	150	0.5			6.8	7.3	0.00	
7/30/94	4.71	4	157	98	9	353	96	3.6	200	0.5		3		7.2	0.00	
7/31/94	4.51	4	150	98	9	338	96	3.7	170	0.6				7.6	0.00	
Max	5.01	10	353	99	16	627	98	4.0	200	0.7	1430.0	34.2	7.4	7.5	0.00	
Min	4.23	1	38	96	5	177	92	3.4	10	0.3	2.0	3.4	5.9	7.0	0.00	
Avg	4.55	5	199	98	10	397	95	3.7	89	0.5	10.6	13.0	6.8		0.00	
Sum	136.62		5579			11112			2670						0.00	

[illegible]

[illegible]

SLUDGE PROCESSING

Date Jul-94	Thickened Primary Sludge				WAS			Gravity Belt			TWAS			TPS + Twa Sludge Disp Off Site MGD
	Flow gal	Tot Sol %	Vol Sol %	Vol Content %	Flow mgd	Susp. mg/l	Sols lbs	Capture %	Filtrate mg/l	Poly lbs	Total Sols. %	lbs	Gal Hauled	
7/1/94	16380				0.041	12187	4117				5.95	5161	10400	0.0104
7/2/94	15320				0.000		0					0	0	0.0000
7/3/94	15830	5.92	4.85	81.9	0.000		0					0	0	0.0060
7/4/94	15220				0.076	9993	6368				5.33	6574	14790	0.0208
7/5/94	15580				0.052	16130	6958				5.51	6746	14680	0.0207
7/6/94	15680				0.057	14640	6945				6.12	8029	15730	0.0217
7/7/94	14920				0.050	13750	5734				5.41	6768	15000	0.0210
7/8/94	15880				0.039	13020	4203				5.81	6110	12610	0.0126
7/9/94	15460				0.000		0					0	0	0.0000
7/10/94	15560				0.000		0					0	0	0.0060
7/11/94	15340				0.062	13287	6921				6.21	8654	16710	0.0227
7/12/94	16170	6.06	5.01	82.7	0.060	14690	7359				6.34	8196	15500	0.0155
7/13/94	17660				0.046	14100	5425				5.91	6891	13980	0.0140
7/14/94	11790				0.085	9944	7090				5.55	8702	18800	0.0188
7/15/94	8070				0.040	10933	3603				5.77	5144	10690	0.0107
7/16/94	13440				0.000		0					0	0	0.0000
7/17/94	13910				0.000		0					0	0	0.0060
7/18/94	14000	8.03	6.72	83.7	0.085	12424	8842				5.91	8157	16550	0.0226
7/19/94	12390				0.057	10000	4779				5.50	4289	9350	0.0154
7/20/94	12430				0.000	8500	0				5.61	0	0	0.0060
7/21/94	13210				0.000		0					0	0	0.0000
7/22/94	13950				0.069	9420	5456				5.80	8750	18090	0.0181
7/23/94	13900				0.000		0					0	0	0.0000
7/24/94	14090				0.000		0					0	0	0.0060
7/25/94	14060	6.56	5.50	83.9	0.053	13100	5805				5.68	5433	11470	0.0115
7/26/94	12150				0.044	13280	4830				5.79	7229	14970	0.0270
7/27/94					0.000		0					0	0	0.0000
7/28/94					0.056	9456	4442				5.50	31288	68210	0.0862
7/29/94					0.079	10300	6785				5.30	7837	17730	0.0177
7/30/94					0.000		0					0	0	0.0240
7/31/94		5.71	4.76	83.4	0.000		0					0	0	0.0240
Max	17660	8.03	6.72	83.9	.085	16130	8842	0.00	0		6.34	31288	68210	0.086
Min	8070	5.92	4.85	81.9	.000	8500	0	0.00	0		5.30	0	0	0.000
Avg	14323	6.64	5.52	83.1	.035	12061	3522	#DIV/0!	#DIV/0!		5.74	4999	10509	0.015
Sum	372390				1.052		105661					149959	315260	0.441

PRIMARY TREATMENT

PRIMARY TREATMENT									
	Influent mg/l	lbs/ day		Effluent mg/l	lbs/ day	Rem %	Primary		
S S	221	8418		#DIV/O!	#DIV/O!	#DIV/O!	Flow gal/ day	Total Solids %	Volatile Content %
BOD5	214	8152		#DIV/O!	#DIV/O!	#DIV/O!	14323	6.64	83.1
	Detent Time hrs		Population Equivalent		Flow mgd	Precip "			
	3.7		47955		4.57	0	Detention Time days	Loading lbs VS / ft3 /day	
SECONDARY TREATMENT							25	0.14	
	Influent mg/l	lbs/ day		Effluent mg/l	lbs/ day	Rem %	Total Solids %	Volatile Content %	Vol Sol Reduct %
S S	221	8418		5	199	98			
BOD5	214	8152		10	397	95	4.27	59.2	70.4
F/M		SVI		SRT days		MLSS mg/l			
#DIV/O!		246		10.9		1426	Total Solids (TWS) %	Capture %	Filtrate Solids mg/l
	RAS Flow mgd		CL2 Res mg/l		CL2 Feed lbs/day		5.74	#DIV/O!	#DIV/O!
	0.58		0.5		89		Sludge Hauled gal/day lbs /day lbs/mo		
	WAS Flow mgd		Aerator Detention Time hrs		Aerator DO mg/l		Digst	4200	1496 0
	.035		6.8		1.1		TWS	10509	5028 0
							Total	14709	6524 0