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Environmental Licensing Programme,
Office of Climate, Licensing and Resource Use,
Environmental Protection Agency,
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Environmental
Protection Agency

09 APR 2008

4th April 2008

Dear Sirs,

Waste Water Discharge Licence Application D0044-01 Carrigtwohill WWTP

We wish to object to the licensing of the discharge of Carrigtwohill WWTP to Slatty Waters on the following grounds:

Overflows of untreated sewage to the estuary are, at present, nearly as large as the "treated" flows through the WWTP.

We understand from the County Council that sewage waste is recorded as coming into the Carrigtwohill plant via the Carrigtwohill and IDA inlet meters. It is initially treated in an aeration tank and goes from there to a clarifier. The waste then goes through a second course of treatment consisting of an oxidation ditch and a second clarifier. If the volume arriving at the plant is greater than the volume available for treatment in the oxidation ditch, the excess overflows directly to the final overflow. This volume is recorded on the daily spreadsheets kept at the plant, copies of which we have, and outfalls to Slatty Bridge, together with the effluent coming from the second course of treatment. I attach a copy of the monthly record for December 2006 as illustration of this data.

For the latest full year for which I have details, 2006, the volume of untreated sewage discharged to the estuary was nearly as much as the volume of treated effluent – about 44% of the total volume. This is unacceptable and, I would trust, cannot be licensed.

In "Water Matters", the South Western River Basin District explanation of planning for the future to preserve our increasingly rare resource of good quality water, including coastal water, action themes are advocated to overcome shortcomings in current water management. The first theme is "Joined-up thinking: for instance, ensuring that development plans and upgrades are in place

before new development is allowed.” Carrigtwohill WWTP would appear to be a classic instance of where the environment has had to pay a heavy price for poorly planned urban development – but, we are delighted that the plant is planned to be upgraded now to a capacity of 45,000 PE as a single first step.

The monthly flow totals for the Carrigtwohill WWTP in 2006 were:

MONTH	Carrigtwohill Inlet meter cu.m.	I. D. A. Inlet meter cu.m.	Total inflow cu.m.	Total outflow (treated) cu.m.	Total overflow (untreated) cu.m.
Jan-06	36470	23652	60122	63806	53270
Feb-06	27463	19213	46676	53005	28215
Mar-06	40378	20739	61117	63064	40151
Apr-06	28363	19416	47779	49633	31435
May-06	35598	17939	53537	54916	52215
Jun-06	23088	16795	39883	45880	44656
Jul-06	23672	22661	46333	44138	34409
Aug-06	27804	18290	46094	49978	52400
Sep-06	42987	18696	61683	67689	60855
Oct-06	46927	30243	77170	77620	78091
Nov-06	47154	39417	86571	83436	47628
Dec-06	72973	35897	108870	115901	80924
TOTALS	452877	282958	735835	769066	604249
Flow/day	1241	775	2016	2107	1655

It is not as if these untreated sewage overflows are a new development due to the 2 new housing estates in the village, there have been large volumes of untreated sewage overflowing in the same way in :

January – April 1999	12,000 – 31,000 cu.m./month
November 2000 - July 2001	10,000 – 60,000 cu.m./month
August – December 2004	15,000 – 48,000 cu.m./month
April – July 2005	all over 35,000 cu.m./month
October and December 2005	57,000 and 52,000 cu.m./month

Now we have this untreated overflow rising from 50,000 to 80,000 cu.m. per month by the end of 2006.

The EIS, accompanying the WWDL Application, on p. 8 of Section 3, gives the DWF from the Carrigtwohill pumping station as about 725m³/d, with storm flow rates of up to 2,700m³/d and with up to a maximum flow of 4,400m³/d reported. Typical flow rates for the IDA industrial estate are given on p.9 as 330m³/d. Both these inflows are about **half** the daily rate shown above for 2006 (1,241m³/d and 775m³/d). The EIS (p.9) states, “*typical outflows from the waste water*

treatment plant are 837m³/day and typical overflows are 53m³/day.” These are clearly not based on recent information and are, in fact, seriously misleading. There is a **30-fold difference** between the figure the EIS gives us of 53m³/d for these overflows and the 1,655m³/d shown in the table above for 2006.

The EIS authors do, however, admit also on this page that, “*It appears that the overflow is operating continuously, even during dry weather conditions.*” To have untreated sewage discharging, even in dry weather conditions, and averaging as much as 1,655 m³/day (44% of the total discharge) into the tiny and enclosed Slatty Channel is totally unacceptable.

By p.18 of Section 3 of the EIS, the current loading figures for the plant appear to have been upgraded substantially to an inflow of 2,087 m³/d; 9,276 PE; 557kg/d BOD; 696 kg/d SS; 106 kg/d N; 16 kg/d P.

And by the conclusion, on p.33 of this Section of the EIS, it is admitted that, “*The existing treatment plant in Carrigwohill is severely overloaded and the current effluent discharge standards can only be maintained by the use of temporary Venturii aerators and a high level of supervision and operator intervention. With predicted growth in the domestic and non-domestic loads as provided for in the development plans for Carrigwohill and its environs, over-loading of the plant may be expected to worsen significantly in the short term.*”

With the plant thus admitted to being severely overloaded, already failing to meet its current effluent consent standards and unable to treat 44% of its hydraulic load, which is discharged as untreated overflow, we would trust that the licence of its discharge to an area protected as an SAC, NHA and SPA will not be contemplated. This is especially so as, “*it is also recognised that the low levels of dilution available in the receiving waters at this location call for a very high standard of final effluent.*” (EIS Sec.3, p.33) In truth, it must be one of the worst discharge locations imaginable. EIS p.36, “*The available dilution at the existing outfall point is low...*” and again, on p.44, the outfall is described as, “*... with minimal dispersion.*”

In Section 4 (p.35 of the EIS) it is confirmed that primary treatment (sedimentation) was not considered in Section 3 – Description of the Proposed Works. This would appear to be in contravention of the National Sludge Strategy of 1994, which laid down that all new plants should incorporate primary sedimentation. Primary sedimentation has the benefit of greatly reducing the BOD load that then has to be treated.

On p.36 of the EIS we are then advised that “*secondary treatment processes of the type described above (for the new WWTP) cannot produce an effluent of the required quality and a tertiary treatment stage will be necessary.*” Membrane treatment or constructed wetlands are suggested. There is, of course, no tertiary treatment at present to these protected waters. Meanwhile on p. 92 of the EIS, we are reminded that, “*If the proposed extension to the WWTP does not take place, then the quality of the final effluent will deteriorate as the region grows. This would have a substantial negative effect on the river.*”

Missing sewage sludge from the WWTP

All the sewage sludge from Carrigtwohill WWTP was disposed of to landfill at the Rossmore landfill site (see EIS preamble p.1), whilst the site was available. There is a weighbridge for all incoming loads and an engineer in charge of the very highest calibre, who assures me that every load would have been sent to landfill with him from the WWTP and that it would have most certainly been recorded by him. Under Freedom of Information, I have a record of all the sludge loads that have been received at the site since the end of 2000, which I summarize below. The only other substantial load to be received into the WWTP has been the leachate from the Rossmore landfill site, but you will see that there has been huge variation in the amount of sludge disposed of, varying from 50 to 78 tons per month in 2000/01, but dropping thereafter to a figure of more like 30 tons and, on 11 occasions, to only about a third of that. **For 3 months no sludge came out of the plant at all.** One can only assume that, on these occasions, no treatment at all took place in the plant and the raw sewage was passed to the receiving waters.

Monthly sewage sludge disposed of to the Rossmore Landfill Site (kg)

	2000	2001	2002	2003	2004	2005	2006
January	na	57,060	45,610	14,780	0	4,440	21,640
February	na	52,170	26,770	20,030	0	42,040	14,550
March	na	78,040	31,310	36,300	35,060	28,780	52,360
April	na	38,420	na	28,160	32,140	32,860	29,860
May	na	28,200	na	7,300	5,180	19,930	3240
June	na	43,930	na	15,280	66,340	67,800	17140
July	na	28,500	na	29,540	29,580	43,680	34070
August	na	52,970	na	16,030	30,080	31,500	37480
September	na	25,670	na	5,550	29,800	43,820	33900
October	na	25,770	na	7,880	26,460	10,620	47640
November	39,630	23,950	na	0	42,260	20,560	37290
December	50,690	29,070	na	3,400	25,280	8,740	49460
Totals	*	483750	**	178250	322180	354770	378630

* Prior to November 2000 "the information was recorded electronically, but the system crashed and most of the data was irretrievable."

** No records were apparently available for these months, "due to a fault with the weighbridge" of the landfill site. This would seem unlikely for a commercial operation, where charges are on a weight basis.

It can be seen that over 300,000kg less sludge was produced in 2003 than 2 years earlier and this level has still not been achieved again. We are put in mind of the Acting County Engineer's comments on the Midleton WWTP, which is also severely overloaded, that, "overflow incidents (are) more defensible than inadequate treatment or plant downtime."

With a constant (though now increasing) sewage load from the village and no industry that generates such monthly load variation, despite the Council's assertion on p.10 of the Application that, "*the pollution load from (the local population, industries and leachate) varies greatly with daily, weekly and seasonal producers of effluent*", we would hope that the County Council would need to have a very convincing reason for the huge monthly overflows, coupled with the shrinking and widely varying amounts of sludge that are being produced from this plant, if they are to convince you that a large proportion of the load from this plant is not being passed straight out to the sensitive waters of the Slatty Channel, untreated.

We are told on p.9 of the Application that the works does not always achieve the 20/30 standard for effluent, but we wonder why it is that the Council cannot provide more up-to-date figures for effluent results than 2001 and 2002? Is it because of the growing number of overflows that they then refer to in the next paragraph? Can they really expect this discharge to be licensed when they state again at the end of p.10, "*Generally the plant does achieve the standards set in the Urban Wastewater Directive 1994. However there have been exceptions in recent years.*" Is this good enough for yourselves, or are we entitled to expect licencing to carry some sort of guarantee of satisfactory performance?

Of the 4 months sampled in Table F.1(i)(a) for the primary discharge point, the BOD is 1.85 to 5 times the 20mg/l consent and SS is 1.9 to 3.3 times the 30mg/l consent in 3 out of the 4 months. The 2007 figure given in the EIS (p.17) for SS shows the January – June 2007 average effluent as being 6 times above the consent level.

The Council also state on p.10 of the Application that "*the final effluent is discharged into Slatty Waters. The current outflows from the WWTP are approximately 3,000m³/day to the tidal waters of Slatty Waters.*" From the table above with the flows for 2006, it would appear that the average flows for 2006 were 3,762m³/day, but the County Council ignore two of the important parts of this question of the WWDL Application – "*the nature and quantities of foreseeable emissions from the waste water works into the receiving aqueous environment as well as identification of significant effect of the emissions on the environment.*" Surely this was the place to admit that 44% of the outflows were of crude sewage, with significantly different effects of the emissions on the environment?

Finally, the County Council tell us at the end of p.10 that, "*there is currently no spare capacity within the plant*".

On p.11, under "*Measures planned to monitor emissions into the environment*", we are told, "*Cork County Council, as current operator has developed procedures and processes for sampling and analysis of the incoming raw sewage, outgoing effluent, sludge and other by-products such as screenings, so that analytical results are reliable, consistent and accurate.*" With such assurances, it would seem unlikely that something as simple as sludge production could fail to be monitored accurately.

However, the EIS (Sec. 3, p.9) does not appear to agree with the County Council's opinion of their sampling efficiency. "*Taking samples of the influent is difficult because of the pumped nature of the influent. There are few samples taken due to the lack of a suitable sampling location.*"

Table D.1(i)(a) Primary Discharge Point. SW01 Carrigwohill.

The average flow/day is given rather accurately as 1804.6 m³/day for "treated wastewater from Carrigwohill wastewater treatment plant + surface water and storm water overflow", but the figures above for the outfall in 2006, would appear to be **twice** as great, at 3762 m³/d. For the first 6 months of 2007, the total flow/day was even greater at 3930m³/day. The figure of 1804.6 m³/day would appear to be seriously misleading.

Tables D.1 re storm water overflows SW02 and SW01

We note that no volumes at all are given for the size of these discharges to Barryscourt Stream. It would be important that some estimates were made in order to ascertain the hydraulic flow for the future WWTP upgrade?

Table D.2

In looking at the emission from the WWTP, it is important to take into account that Slatty Waters are designated as an SAC, NHA and SPA – i.e. a Natura 2000 site. The water has also been classed as sensitive.

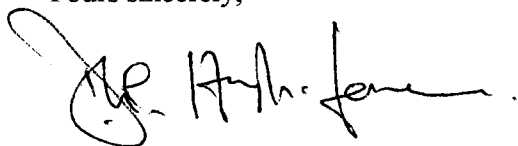
Table E.4 Primary discharge monitoring in 2007

9 samples dates are recorded as having been sampled. In 5 out of the 9 samples, both the BOD and SS consents were breached, with the average BOD being 230% above and SS 164% above the 20/30 effluent level the plant has to meet. None of the 7 effluent samples met the total N limit of 15mg/l. and the average figure was 250% above the likely consent for sensitive waters. This discharge cannot surely be licensed until the plant has been upgraded and its consent conditions met.

Conclusion

With so much of the sewage flow by-passing the plant; with so much less sewage sludge being produced by the plant compared to 7 years ago; with consent failures of up to 600% and with the admission by the consulting engineers, who compiled the EIS, that the plant is severely overloaded, we trust that you will not see fit to license the primary discharge to Slatty Channel until the plant has been upgraded and the emission will meet the consent levels.

Yours sincerely,



D.L.I. Hugh-Jones

Copy to the Legal Unit, DG Environment, Brussels.

CARRIGTOHILL SEWERAGE TREATMENT PLANT

Date	Carrigtohill Inlet meter cu.m	Total Inlet meter cu.m	I. D. A. Inlet meter cu.m	Total outflow cu.m	Total overflow cu.m	Total pumped cu.m	No.2 pump		No.1 pump		No.2 Pump I. D. A.		No.1 Pump I. D. A.					
							Coch road Hours	Total Hours	Coch road Hours	Total Hours	Coch road Hours	Total Hours	Coch road Hours	Total Hours				
01-Dec-06	107770	6340	409635	1496	4194877	5182	10080.3	22	10110.2	15	2011481	6256	2882.2	0	2065.2	15.4	No.1 Pump I. D. A. cu.m/hr	No.2 Pump I. D. A. cu.m/hr
02-Dec-06	110081	2311	410812	1177	4199230	4373	10096.6	16.3	10110.2	0	2015998	4517	2882.2	0	2073.1	7.9	0.0	149.0
03-Dec-06	116093	6012	412110	1298	4203169	3919	10112.8	16.2	10112.8	2.6	2019675	3677	2882.2	0	2094	20.9	0.0	62.1
04-Dec-06	119037	2944	413269	1159	4207864	4695	10126.2	12.4	10126.5	15.7	2022599	2924	2882.2	0	2108	14	0.0	82.8
05-Dec-06	122585	3548	413550	281	4211680	3816	10126.5	1.3	10146.8	18.3	2026106	3507	2882.2	0	2111.3	3.3	0.0	85.2
06-Dec-06	125669	3084	415187	1637	4216477	4797	10126.5	0	10163.1	16.3	2029164	3058	2882.2	0	2128.4	17.1	0.0	95.7
07-Dec-06	128130	2461	416615	1428	4220930	4453	10126.5	0	10176.1	13	2031550	2386	2882.2	0	2143.7	15.3	0.0	93.3
08-Dec-06	130285	2155	418082	1467	4225256	4326	10126.5	0	10187.4	11.3	2033659	2109	2882.2	0	2163.4	19.7	0.0	74.5
09-Dec-06	132093	1808	419432	1350	4229145	3889	10126.5	0	10207.4	10.3	2037907	1867	2882.2	0	2176.1	12.7	0.0	106.3
10-Dec-06	134013	1920	420683	1251	4233109	3984	10126.5	0	10219.5	12.1	2039548	2241	2882.2	0	2191.6	15.5	0.0	80.7
11-Dec-06	136288	2275	421369	686	4235603	2494	10126.5	0	10237.9	8.6	2042945	1586	2882.2	0	2225.2	2.6	0.0	263.8
12-Dec-06	138163	1875	423007	1638	4239668	4065	10126.5	0	10247.2	9.8	2044647	1702	2882.2	0	2210.6	16.4	0.0	99.9
13-Dec-06	139779	1616	424258	1251	4243153	3485	10126.5	0	10259.2	12	2046836	2189	2882.2	0	2241.8	14.6	0.0	80.8
14-Dec-06	141496	1717	425600	1342	4246913	3760	10126.5	0	10274.3	15.1	2048924	2856	2882.2	0	2252.6	10.8	0.0	99.8
15-Dec-06	143819	2323	426878	1078	4250691	3778	10126.5	0	10284.7	10.4	2051544	1852	2882.2	0	2268.5	15.9	0.0	84.2
16-Dec-06	146629	2810	428017	1339	4255303	4612	10126.5	0	10294.9	9.3	2053252	1708	2882.2	0	2297.1	16.7	0.0	59.6
17-Dec-06	148534	1905	429323	1306	4259274	3971	10126.5	0	10303	9	2054844	1592	2882.2	0	2312.9	15.8	0.0	82.2
18-Dec-06	150277	1743	430318	985	4262546	3272	10126.5	0	10311	8	2056294	1450	2882.2	0	2327.6	14.7	0.0	83.0
19-Dec-06	151912	1635	431617	1299	4266128	3582	10126.5	0	10318.5	8	2057729	1435	2882.2	0	2342	14.4	0.0	81.7
20-Dec-06	153390	1478	432837	1220	4268930	2802	10126.5	0	10326.5	7.4	2059121	1392	2882.2	0	2358	16	0.0	73.7
21-Dec-06	154850	1460	434013	1176	4272173	3243	10126.5	0	10333.9	8	2060400	1370	2882.2	0	2369.5	11.5	0.0	96.3
22-Dec-06	156271	1421	435182	1179	4275303	3130	10126.5	0	10341	7.1	2061803	1312	2882.2	0	2381.9	12.4	0.0	76.0
23-Dec-06	157671	1400	436300	1108	4278533	3260	10126.5	0	10349.9	8.1	2063200	1198	2882.2	0	2392.7	10.8	0.0	85.4
24-Dec-06	158983	1312	437243	943	4281389	2828	10126.5	0	10354	4.1	2064601	2199	2882.2	0	2406.4	13.7	0.0	69.9
25-Dec-06	160238	1255	438165	922	4284089	2700	10126.5	0	10364.9	8.9	2066000	2199	2882.2	0	2416.9	10.5	0.0	78.8
26-Dec-06	161424	1186	439081	916	4286675	2586	10126.5	0	10365.9	1.7	2068540	2322	2882.2	0	2429.2	12.3	0.0	76.6
27-Dec-06	163547	2123	439908	827	4289746	3071	10126.5	0	10369.9	5.6	2071137	2597	2882.2	0	2442.2	13	0.0	76.1
28-Dec-06	165787	2240	440850	942	4293311	3565	10136.5	12	10371.5	5.6	2074886	3749	2882.2	0	2450.4	8.2	0.0	131.5
29-Dec-06	168303	2516	441839	989	4297073	3762	10150.9	12.4	10371.5	0.4	2077108	2222	2882.2	0	2467.8	17.4	0.0	64.3
30-Dec-06	172173	3870	442917	1078	4301707	4634	10166.6	11.1	10371.9	0	2077108	2222	2882.2	0	418	418	0.0	0.0
31-Dec-06	174403	2230	444036	1119	4305586	3889	10177.6	11.1	10371.9	0	2077108	2222	2882.2	0	2467.8	17.4	0.0	64.3

9943.1		10191.3		93216		82310.8		12792.6		9482.4		25563.5		495.1		58716.4		75079.8				
No. 1 Cobh Rd Pumping cu/m/hr	No. 2 Cobh Rd Pumping cu/m/hr	No. 1 Computer Hours	Total Hours	No. 2 Computer Hours	Total Hours	Leeched Pump Reading	Total Flow m3	No. 1 1st. Stg. Ret. Pump Hours	Total Hours	No. 2 1st. Stg. Ret. Pump Hours	Total Hours	No. 1 2nd. Stg. Ret. Pump Hours	Total Hours	No. 2 2nd. Stg. Ret. Pump Hours	Total Hours	Toilet Pump Hours	Total Hours	No. 1 Fixed Aerator Hours	Total Hours	No. 2 Fixed Aerator Hours	Total Hours	
284.4	417.1	9943.1	0	10215.6	24.3	93355	139	82335.1	24.3	12792.6	0	10587.9	1106	25575	11.5	495.1	0	58740.7	24.3	75104.1	24.3	
277.1	0.0	9943.1	0	10238.9	23.3	93524	169	82358.9	23.8	12792.6	0	10587.9	0	25598.7	11.7	495.2	0.1	58764.4	23.7	75127.9	23.8	
227.0	1414.2	9943.1	0	10264.3	25.4	93531	7	82382.6	23.7	12792.6	0	10587.9	0	25598.8	12.1	495.2	0	58789.3	24.9	75152.8	24.9	
235.8	186.2	9943.1	0	10287.1	22.8	93627	96	82405.5	22.9	12792.6	0	10587.9	0	25608.2	9.4	495.2	0	58812.3	23	75175.8	23	
2697.7	191.6	9943.1	0	10311.3	24.2	93645	18	82409.6	4.1	12810.4	17.8	10587.9	0	25617.7	9.5	495.2	0	58836.3	24	75199.8	24	
0.0	187.6	9943.1	0	10335.2	23.9	93682	37	82409.6	0	12834.3	23.9	10587.9	0	25636.9	19.2	495.2	0	58860.3	24	75223.7	23.9	
0.0	183.5	9943.1	0	10359.1	23.9	93717	35	82409.6	0	12850.8	16.5	10587.9	0	25654.1	17.2	495.2	0	58884.2	23.9	75247.7	24	
0.0	186.6	9943.1	0	10383.2	24.1	93875	158	82409.6	0	12874.7	23.9	10587.9	0	25667.3	13.2	495.2	0	58908.4	24.2	75271.9	24.2	
0.0	183.6	9943.1	0	10407.2	24	93982	107	82409.6	0	12898.6	23.9	10587.9	0	25678.4	11.1	495.2	0	58932.3	23.9	75295.7	23.8	
0.0	181.3	9943.1	0	10433	25.8	94122	140	82409.6	0	12946.3	22	10587.9	0	25699.4	11	495.2	0	58957.9	25.6	75321.4	25.7	
0.0	185.2	9943.1	0	10454.9	21.9	94122	140	82409.6	0	12969.3	22	10587.9	0	25697.4	8	495.2	0	58979.9	22	75343.4	22	
0.0	184.8	9943.1	0	10479.4	24.5	94179	57	82409.6	0	12971	24.7	10587.9	0	25706.2	8.8	495.2	0	59004.7	24.8	75369.2	24.8	
0.0	184.4	9943.1	0	10503	23.6	94197	18	82409.6	0	12994.4	24.4	10587.9	0	25729.1	22.9	495.2	0	59028.1	23.4	75375	6.8	
0.0	183.0	9943.1	0	10526.8	23.8	94321	124	82409.6	0	13017.2	22.8	10587.9	0	25753	23.9	495.2	0	59051.9	23.8	75382.2	24.8	
0.0	182.4	9943.1	0	10550.8	24	94392	71	82409.6	0	13041.7	24.5	10587.9	0	25777.5	24.5	495.2	0	59076.5	24.6	75393.4	17.8	
0.0	189.1	9943.1	0	10575	24.2	94565	173	82409.6	0	13065.4	23.7	10587.9	0	25801.2	23.7	495.2	0	59100	23.5	75395.6	0	
0.0	178.1	9943.1	0	10601.3	26.3	94568	3	82409.6	0	13091.7	26.3	10587.9	0	25825.7	24.5	495.2	0	59126.4	26.4	75419.7	26.3	
0.0	183.7	9943.1	0	10622.8	21.5	94759	191	82409.6	0	13113.2	21.5	10587.9	0	25849	23.3	495.2	0	59147.8	21.4	75441.2	21.5	
0.0	176.9	9943.1	0	10647.4	24.6	94786	27	82409.6	0	13137.4	24.2	10587.9	0	25873.6	24.6	495.2	0	59172.5	24.7	75461.2	20	
0.0	181.3	9943.1	0	10670.9	23.5	94850	164	82409.6	0	13161	23.6	10587.9	0	25897.0	23.6	495.2	0	59196.1	23.6	75462.8	1.6	
0.0	0.0	9943.1	0	10694.7	23.8	95027	77	82409.6	0	13184.7	23.7	10587.9	0	25920.9	23.7	495.2	0	59219.9	23.8	75462.8	0	
0.0	174.0	9943.1	0	10719	24.3	95028	1	82409.6	0	13208.2	24.5	10587.9	0	25945.4	24.5	495.2	0	59244.3	24.4	75462.8	0	
0.0	185.1	9943.1	0	10743.7	24.7	95209	181	82409.6	0	13234	24.8	10587.9	0	25970.3	24.9	495.2	0	59268.1	24.8	75462.8	0	
0.0	184.8	9943.1	0	10768.1	24.4	95209	0	82409.6	0	13258	24	10587.9	0	25994.2	23.9	495.2	0	59293.7	24.6	75462.8	0	
0.0	22.2	9943.1	0	10793.5	25.4	95248	39	82409.6	0	13282.2	24.2	10587.9	0	26018.4	24.2	495.2	0	59317.4	24.7	75462.8	0	
0.0	536.3	9943.1	0	10817.2	23.7	95248	0	82409.6	0	13307.1	24.9	10587.9	0	26043.3	24.9	495.2	0	59342.3	24.9	75462.8	0	
0.0	197.8	9943.1	0	10825.9	8.7	95248	0	82409.6	0	13328.8	21.7	10587.9	0	26065	21.7	495.2	0	59364	21.7	75462.8	0	
193.5	1365.9	9943.1	0	10850.2	24.3	95341	93	82409.6	0	13353.1	24.3	10587.9	0	26098.9	24.3	495.2	0	59388.3	24.3	75462.8	0	
209.4	0.0	9943.1	0	10875.4	25.2	95371	30	82409.6	0	13377.6	24.5	10587.9	0	26113.8	24.5	495.2	0	59412.8	24.5	75462.8	0	
240.3	669.5	9943.1	0	10897.8	22.4	95507	136	82409.6	0	13400.7	23.1	10587.9	0	26136.9	23.1	495.2	0	59435.9	23.1	75462.8	0	
200.2	5555.0	9943.1	0	10922.8	25	95542	35	82409.6	0	13425.8	25.1	10587.9	0	26162	25.1	495.2	0	59460.9	25	75462.8	0	
			0	731.5	731.5	2326	2326	98.8	98.8	633.2	633.2	1105.5	1106	598.5	598.5	0.1	0.1	744.5	744.5	383	383	
			9943.1	0	10922.8	95542	82409.6	13425.8	10587.9	26162	495.2	59460.9	75462.8	383								

Floating Aerator Hours	Total Hours	19485.7		52291.6		56953.9		86014.2		3799		6617.7		11737.5		D.O. of mixing tank	D.O. of ditch	P.H. of mixing tank	P.H. of ditch	P.H. of final effluent
		No. 1 Bridge Scraper Hours	Total Hours	No. 2 Bridge Scraper Hours	Total Hours	Picket fence thickener Hours	Total Hours	Weir actuator Hours	Total Hours	Filtrate return pump Hours	Total Hours	Invert bypass starter Hours	Total Hours	Belt press Hours	Total Hours					
81782.8	24.3	19510	24.3	52315.9	24.3	56978.2	24.3	86038.2	24	3799	0	6617.7	0	11737.5	0	0.95	0.6			
81806	23.2	19533.7	23.7	52339.6	23.7	57001.9	23.7	86082.2	24	3800.8	1.8	6617.7	0	11742.6	0	1.02	0.06			
81831	25	19558.6	24.9	52364.5	24.9	57026.8	24.9	86110	24.9	3800.8	0	6617.7	0	11742.6	0	1.11	0.06			
81854	23	19581.6	23	52387.6	23.1	57049.9	23.1	86134.1	22.9	3800.8	0	6617.7	0	11742.6	0	1.2	0.07			
81877.4	23.4	19605.6	24	52411.5	23.9	57073.8	23.9	86158.2	24.1	3807.1	6.3	6617.7	0	11764.5	21.9	1.07	0.08			
81901.4	24	19629.8	24.2	52435.5	24	57097.8	24	86182.2	23.9	3808.5	1.4	6617.7	0	11768.1	3.6	1.05	0.14			
81925.3	23.9	19653.5	23.7	52459.5	24	57121.8	24	86206.2	24.2	3811.1	2.6	6617.7	0	11775.1	7	1.32	0.07			
81949.5	24.2	19677.7	24.2	52483.6	24.1	57145.9	24.1	86230.1	23.9	3814.9	3.8	6617.7	0	11785.8	10.7	1	0.09			
81973.4	23.9	19701.6	23.9	52507.5	23.9	57169.8	23.9	86254.1	24	3816.4	1.5	6617.7	0	11790.4	4.6	1.2	0.06			
81999	25.6	19727.7	26.1	52531.2	25.7	57193.5	25.7	86277.7	23.6	3817.5	5.6	6617.7	0	11813.5	23.1	0.35	0.06			
82021	22	19749.2	21.5	52555.2	22	57217.6	24.1	86301.1	24.8	3818.2	5.5	6617.7	0	11835.2	21.7	0.94	0.87			
82045.8	24.8	19774	24.8	52579.89	24.69	57242.2	24.6	86325.9	24.8	3819.1	3.6	6617.7	0	11848.7	13.5	1.09	0.07			
82069.2	23.4	19797.4	23.4	52603.3	23.41	57265.6	23.4	86349.7	23.8	3821.1	3.6	6617.7	0	11867	18.3	0.76	0.91			
82092.6	23.4	19821.2	23.8	52627.1	23.8	57289.4	23.8	86374.3	24.6	3822.5	5.6	6617.7	0	11870.1	3.1	1.11	0.26			
82117.7	25.1	19845.8	24.6	52651.7	24.6	57314.6	25.2	86397.9	23.6	3823.9	0.9	6617.7	0	11892.4	22.3	1.19	0.38			
82140.3	22.6	19869.4	23.6	52675.3	23.6	57339.6	23.6	86424.2	26.3	3824.5	0	6617.7	0	11892.4	0	0.8	0.07			
82167.1	26.8	19895.7	26.3	52701.6	26.3	57364	26.4	86445.5	21.3	3824.5	0	6617.7	0	11892.4	0	0.91	0.06			
82188.6	21.5	19914	18.3	52723.1	21.5	57386.5	21.5	86470.3	24.8	3825.0	3.7	6617.7	0	11905	12.6	0	5.21			
82210.8	22	19941.8	27.8	52747.7	24.6	57410	24.5	86493.9	23.6	3826.2	0	6617.7	0	11905	0	0	0.75			
82234.2	23.6	19965.4	23.6	52771.3	23.6	57433.6	23.6	86517.6	23.7	3826.2	0	6617.7	0	11909.4	4.4	0.87	0.2			
82257.9	23.7	19989.7	24.3	52795.1	23.8	57457.4	23.8	86541.7	23.7	3827.4	1.2	6617.7	0	11909.4	0	0.83	0.16			
82282.4	24.5	20013.6	23.9	52819.6	24.5	57481.9	24.5	86565.9	24.8	3828.8	1.4	6617.7	0	11914.2	4.8	1.06	2.58			
82307.2	24.8	20038.4	24.8	52844.3	24.7	57506.7	24.8	86590.9	24	3829.2	0.4	6617.7	0	11915.5	1.3	0.96	6.46			
82331.2	24	20062.5	24.1	52868.4	24.1	57530.2	23.5	86615.1	24.2	3829.2	0	6617.7	0	11915.5	0	0.69	5.33			
82353.1	21.9	20086.6	24.1	52892.8	24.4	57554.9	24.7	86640	24.9	3829.2	0	6617.7	0	11915.5	0	0.78	1.09			
82378	24.9	20111.6	25	52917.5	24.7	57579.5	24.6	86665.1	21.8	3829.2	0	6617.7	0	11915.5	0	0.77	0.11			
82399.7	21.7	20133.3	21.7	52939.2	21.7	57601.5	22	86690.2	24.2	3829.6	0.4	6617.7	0	11917	1.5	0.52	0.16			
82424	24.3	20157.6	24.3	52963.3	24.1	57625.8	24.3	86710.5	24.5	3829.6	0	6617.7	0	11917	0	0.79	0.15			
82447.9	23.9	20182.1	24.5	52988	23.7	57650.3	24.1	86733.6	23.1	3829.6	0	6617.7	0	11917	0	0.79	0.21			
82471	23.1	20205.7	23.6	53011.7	24.7	57673.4	23.1	86758.7	25.1	3829.6	0	6617.7	0	11917	0	0.69	0.21			
82496.1	25.1	20230.3	24.6	53036.1	24.4	57699.4	25	86783.7	25.1	3849.6	0	6617.7	0	11917	0	0.69	0.21			
737.6	737.6	744.6	744.6	744.5	744.5	744.5	744.5	744.5	744.5	50.6	50.6	0	0	179.5	179.5					
82496.1		20230.3		53036.1		57699.4		86758.7		3849.6		6617.7		11917						

38992				20051				
Plant Water mtr Reading	Total cu.m.	SS of M.tank	SS of Ditch	Signed	Weather	Fota Reading	m³	Gallons
38992	0	300	350	P.Mc	W	20188	137	30140
39010	18	400	450	P.Mc	D	20275	88	19360
39010	0	450	500	P.Mc	W	20362	122	26840
39010	0	150	450	P.Mc	W	20489	82	18040
39086	76	350	400	P.Mc	W	20553	73	16060
39100	14	400	200	P.Mc	W	20608	75	12100
39131	31	200	200	P.Mc	W	20667	59	12980
39175	44	350	175	P.Mc	D	20742	98	16500
39192	17	575	225	P.Mc	W	20840	98	21560
39269	77	650	300	P.Mc	W	20938	98	21960
39269	0	600	400	P.Mc	D	21008	70	15400
39345	76	550	500	P.Mc	W	21090	82	18040
39397	52	400	300	P.Mc	W	21151	61	13420
39470	73	500	350	P.Mc	W	21241	90	19800
39482	12	400	200	P.Mc	W	21349	108	23760
39559	77	425	250	P.Mc	W	21460	111	24420
39559	0	400	200	P.Mc	D	21610	150	33000
39559	0	425	250	P.Mc	D	21711	101	22220
39608	49	650	300	P.Mc	D	21784	73	16060
39608	0	100	500	P.Mc	W	21860	76	16720
39624	16	150	250	P.Mc	D	21926	66	14520
39624	0	300	200	P.Mc	D	21981	55	12100
39642	18	400	275	P.Mc	D	22045	64	14080
39648	6	550	325	P.Mc	D	22121	76	16720
39648	0	600	350	P.Mc	D	22176	55	12100
39648	0	600	350	P.Mc	D	22225	49	10780
39648	0	400	375	P.Mc	W	22286	61	13420
39653	5	150	80	P.Mc	W	22363	67	14740
39653	0	130	50	M.B.	W	22469	116	25520
39653	0	150	60	P.Mc	W	22563	114	25080
39653	0	175	50	P.Mc	W	22689	106	23320

39653

22563

661

2532

2.22222E+14

Consent of copy