

Waikato District Council Wastewater Treatment Monitoring Results

Site: **Te Kauwhata**
 Consent number:
 Report period: Jul 08 to Jun 09

Discharge Limit Transgression		
Minor transgression		
Suspect/Missing Sample		

1 Discharge Limits - Monthly Tests From Wetland to Lake Waikare		Consent value	Consent value	Median	10 Percentile	90 Percentile	Average	Maximum	Minimum	8-Jul-08	07-Aug-08	11-Sep-08	14-Oct-08	11-Nov-08	10-Dec-08	13-Jan-09	09-Feb-09	05-Mar-09	09-Apr-09	05-May-09	03-Jun-09
Suspended Solids SS	g/cum	50		6.60	4.25	8.89	6.55	9.30	4.00	4.7	8.80	7.40	7.20	4.00	7.70	9.30	8.90	5.30	6.00	4.20	5.10
Total Ammoniacal Nitrogen	g/cum	30		0.62	0.13	4.53	1.54	5.20	0.06	0.059	0.44	0.12	3.90	5.20	4.60	0.79	1.60	0.84	0.24	0.44	0.29
Faecal Coli FC (median from 5 samples in 30 days)	MPN/100mL		5000	150.00	48.00	700.00	274.36	1000.00	22.00	430	290.00		22.00	76.00	1000.00	700.00	46.00	68.00	180.00	56.00	150.00

2 Characterisation Values - Monthly Tests from Wetland/Rock Filter Outlet		Units	Median	10 Percentile	90 Percentile	Average	Maximum	Minimum	8-Jul-08	07-Aug-08	11-Sep-08	14-Oct-08	11-Nov-08	10-Dec-08	13-Jan-09	09-Feb-09	05-Mar-09	09-Apr-09	05-May-09	03-Jun-09
BOD	g/cum		2.10	1.12	5.33	4.99	34.00	1.10	1.5	2.60	1.10	1.7	2	3.1	34	5.5	3.8	2.2	1.1	1.3
TKN	g/cum		2.45	1.72	6.06	3.20	6.50	1.20	2.3	2.00	1.20	5.7	6.1	6.5	2.8	3.5	2.6	1.9	1.7	2.1
Nitrate NO3-N	g/cum		0.16	0.01	0.72	0.30	1.80	0.01	0.031	0.77	0.19	0.24	0.17	0.15	0.024	0.0058	0.008	0.21	0.032	1.8
Nitrite NO2-N	g/cum		0.02	0.01	0.06	0.03	0.07	0.00	0.059	0.07	0.02	0.038	0.024	0.034	0.012	0.0039	0.0073	0.0083	0.0052	0.037
Total Nitrogen	g/cum		2.84	1.78	6.26	3.53	6.68	1.41	2.39	2.84	1.41	5.978	6.294	6.684	2.836	3.5097	2.6153	2.1183	1.7372	3.937
DRP	g/cum		2.95	2.20	4.25	3.18	5.90	2.00	3.2	2.20	2.80	2.2	2	3	4.3	5.9	3.8	2.9	3	2.8
TP	g/cum		3.10	2.40	4.19	3.32	5.30	2.30	3.3	2.40	3.20	2.4	2.3	3.7	4.2	5.3	4.1	2.9	3	3
Temp	°C		11.25	0.00	21.06	10.24	23.00	0.00	8.2	0.00	14.70	0	0	0	21.2	23	19.8	14.3	14.5	7.2
pH			6.98	6.74	7.09	6.93	7.14	6.63	6.88	6.76	6.85	6.63	7.14	6.74	6.98	7.01	7.07	7.09	6.97	7
E Coli	MPN/100mL		150.00	44.80	344.00	180.89	600.00	40.00		200.00			76	600	280	46	40	180	56	150

3 Characterisation Values - Monthly Tests from Pond 2 Outlet		Units	Median	10 Percentile	90 Percentile	Average	Maximum	Minimum	2-Jul-08	8-Jul-08	10-Jul-08	16-Jul-08	17-Jul-08	22-Jul-08	25-Jul-08	30-Jul-08	6-Aug-08	7-Aug-08	12-Aug-08	20-Aug-08	27-Aug-08
pH			7.71	7.15	9.05	7.82	9.17	7.00		7.62								7.34			
SS	g/cum		21.00	5.32	25.90	19.50	42.00	4.80		19.00								16			
Alkalinity	g/cum		97.00	65.50	130.00	98.65	140.00	59.00		95.00		90.00		100.00	93.00	82.00	89	86	72	59	62
BOD	g/cum		6.20	2.67	9.77	6.28	10.00	1.20		6.50								9.8			
COD	g/cum		57.00	31.00	77.00	57.91	98.00	28.00		52.00								77			
Total Ammoniacal Nitrogen	g/cum		0.018	0.009	16.700	4.909	21.000	0.009		0.02								0.01			
DRP	g/cum		3.20	2.30	4.15	3.30	4.40	2.10		3.70				4.40	3.50	3.10	3	3.1	3	2.2	2.1
TP	g/cum		4.00	3.14	4.78	3.88	4.90	2.70		4.30		3.10						3.5			
Faecal Coli	MPN/100mL		480.00	30.00	10000.00	2503.08	13000.00	10.00	6500.00	11000.00	10000.00		10000.00			2000.00	4300	13000	1300		950
Ecoli	MPN/100mL		225.00	1.40	1134.00	625.33	4000.00	0.00		0.00								4000			
TKN	g/cum		3.70	2.82	16.11	6.54	21.00	2.50		3.00								4			
NO2-N	g/cum		0.30	0.05	1.95	0.75	3.60	0.02		0.32								3.6			
NO3-N	g/cum		4.95	0.78	12.70	5.84	14.00	0.17		5.20								2.5			
TN	g/cum		10.30	6.47	25.46	13.13	33.00	4.04		8.52								10.1			

4-Sep-08	11-Sep-08	17-Sep-08	25-Sep-08	2-Oct-08	7-Oct-08	14-Oct-08	21-Oct-08	29-Oct-08	11-Nov-08	10-Dec-08	13-Jan-09	9-Feb-09	5-Mar-09	9-Apr-09	5-May-09	3-Jun-09
	7.30					7.26			7.14	7.85	9.13	9.17	8.32	7.93	7.8	7
	8.20					5.00			4.80	23	24.00	24.00	42.00	26	25	17
75.00	88.00	99.00	65.00	130.00	130.00	140.00	130.00	130.00	110.00	92	99.00	140.00	130.00	100	99	
	1.20					2.60			3.30	8.9	5.90	10.00	9.50	5.2	5	7.5
	28.00					71.00			31.00	98	47.00	60.00	57.00	71	45	
	6.80					17.00			17.00	14	0.01	0.02	0.01	0.009	0.009	0.014
2.20	2.40	2.50	2.90	3.10	3.50	3.80	3.80	4.00	3.60	4.3	3.20	4.10	3.00	3.2	3.8	4.2
	2.70					4.10			4.00	4.9	3.30	4.10	3.80	3.5	4.2	4.9
30.00	14.00	10.00	30.00	54.00	110.00	90.00	100.00	62.00	540.00	2500	430.00	330.00	560.00	210	450	510
	14.00					0.00			540.00	1200	130.00	240.00	210.00	210	450	510
	8.10					21.00			6.10	17	3.10	3.40	4.10	3.4	2.5	2.8
	0.06					0.67			0.02	2	0.30	0.05	0.10	0.29	0.12	1.5
	2.60					4.70			0.17	14	6.60	0.59	3.90	6.8	10	13
	10.76					26.37			6.29	33	10.00	4.04	8.10	10.49	12.62	17.3

4 Characterisation Values - Nutrient Loads		Maximum	Median	10 Percentile	90 Percentile	Average	Maximum	Minimum	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09
Average TN applied to wetland area (using Out-Flow)	kg/ha/day	50	3.42	1.10	7.16	3.87	9.04	0.86	4.64	6.55	2.94	9.04	1.07	7.22	1.38	0.96	1.46	2.02	3.90	5.39
Average TN applied to wetland area (using In-Flow)	kg/ha/day	50	2.94	1.33	6.69	3.48	7.52	0.85	3.40	6.58	2.68	7.52	1.29	6.81	1.86	0.85	1.68	2.10	3.21	4.77
Average TN applied to Lake Waikare (using Out-Flow)	kg/day		1.81	0.78	3.80	1.98	4.10	0.77	2.60	3.68	0.77	4.10	2.14	2.93	0.78	1.49	0.94	0.81	1.07	2.45
Average TP applied to wetland area (using In-Flow)	kg/ha/day		0.93	0.67	1.88	1.06	1.93	0.61	1.72	1.93	0.67	1.17	0.82	1.01	0.61	0.86	0.79	0.70	1.07	1.35
Average TP applied to Lake Waikare (using Out-Flow)	kg/day		1.58	1.18	2.59	1.71	2.65	0.94	2.63	2.65	1.59	1.37	0.94	1.53	1.56	2.22	1.70	1.16	1.53	1.65
peak									8.80	12.41	3.68	15.35	1.54	13.76	2.63	1.81	2.39	3.52	5.65	17.04

nb: TN = TKN+nitrate+nitrite.
 Value of TN applied to wetland is taken from average calculated TN data from pond 2 outlet x average daily inflow / 2Ha wetland area (Old method used Out Flow and is shown for comparison)
 Value of TN and TP applied to Lake Waikare calculated with average daily outflow volume

5 Characterisation Values - Daily Total In Flows		Flow	Median	10 Percentile	90 Percentile	Average	Maximum	Minimum	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09
Minimum Daily In Flow	cum/day		344	297	437	359	510	260	441	510	401	340	347	260	310	324	333	295	369	372
Average Daily In Flow	cum/day		458	401	776	538	1105	372	798	1105	498	571	409	413	372	419	415	400	509	552
Maximum Daily In Flow	cum/day		865	532	2056	1104	2457	489	2066	2457	683	1164	489	834	526	897	589	672	895	1970
Monthly Total	cum/day		13894	11759	24043	16427	34256	11524	24749	34256	14928	17692	12262	12793	11524	11731	12859	12010	15770	16548

6 Characterisation Values - Daily Total Out Flows		Consent	Maximum	Median	10 Percentile	90 Percentile	Average	Maximum	Minimum	Jul-08	Aug-08	Sep-08	Oct-08	Nov-08	Dec-08	Jan-09	Feb-09	Mar-09	Apr-09	May-09	Jun-09
Flow	cum/day	1080																			
Minimum Daily Out Flow	cum/day		288	177	546	339	806	164	564	806	382	325	325	225	172	164	253	236	319	371	
Average Daily Out Flow	cum/day		492	341	1048	591	1297	275	1088	1297	547	686	339	438	275	424	360	384	626	623	
Maximum Daily Out Flow	cum/day		1188	610	1613	1101	1723	481	1632	1723	804	1442	481	1130	599	1246	711	886	1293	1270	
Monthly Total	cum/day		14766	9934	32420	17625	38921	8255	33736	38921	16399	20573	9838	13133	8255	11876	10795	11147	18771	18057	