Armidale Sewage Treatment Plant (STP)

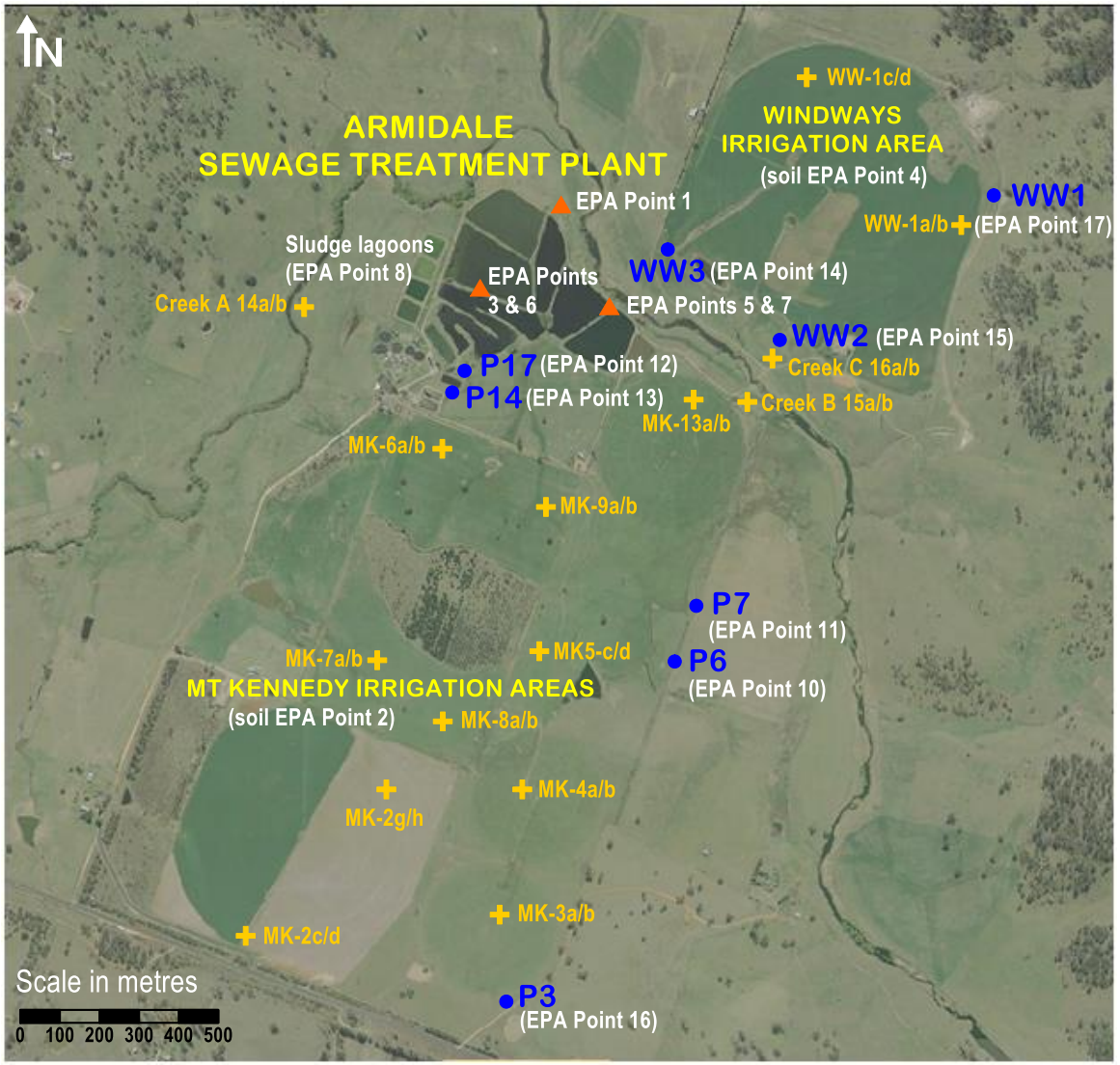
Location: 631 Cafferies Road, Armidale NSW 2350 Environment Protection Licence Number: 1722 Activities: Sewage treatment
Licensee under Protection of Environment Operations Act 1997 (POEO Act): Armidale Dumaresq Council, PO Box 75A, Armidale NSW 2350

The internet link to Licence No. 1722 is http://www.epa.nsw.gov.au/prpoeoapp/ViewPOEOLicence.aspx?DOCID=30769&SYSUID=1&LICID=1722

Council is required to monitor the volume and quality of outgoing treated wastewater (also called effluent). Up to 50% of the treated wastewater is used for irrigation on Council's surrounding cropping and grazing properties. Soils, biosolids, and groundwater are also tested to assist environmental management. This document details recent results. To meet its obligation under Section 66 (6) of the POEO Act, a link to the current version of this document is available on Council's website.

The locations of sampling points are shown on the adjacent figure. Some historical names are used. P stands for piezometer; WW = Windways Well. Corresponding Environment Protection Authority (EPA) Identification Numbers detailed on the Licence are provided below.

EPA Point No. 1 (quality monitoring - discharge to Commissioners Waters)
EPA Point No. 2 (soils and mass monitoring on 'Mt Kennedy' & areas A & B irrigation fields)
EPA Point No. 3 (volume monitoring for 'Mt Kennedy' & areas A, B & C)
EPA Point No. 4 (soils & mass monitoring 'Windways' irrigation field)
EPA Point No. 5 (volume monitoring of discharge to 'Windways')
EPA Point No. 6 (quality monitoring of electric pump discharge to 'Mt Kennedy' & areas A, B & C)
EPA Point No. 7 (quality monitoring of diesel pump discharge to 'Windways' irrigation areas)
EPA Point No. 8 (volume monitoring sludge lagoons)
EPA Point No. 9 (Biosolids monitoring)
EPA Point No. 10 (P6 groundwater monitoring)
EPA Point No. 11 (P7 groundwater monitoring)
EPA Point No. 12 (P17 groundwater monitoring)
EPA Point No. 13 (P14 groundwater monitoring)
EPA Point No. 14 (WW3 groundwater monitoring)
EPA Point No. 15 (WW2 groundwater monitoring)
EPA Point No. 16 (P3 groundwater monitoring)
EPA Point No. 17 (WW1 groundwater monitoring)



Base map: Department of Lands 2010. Deep yellow sampling points – soil sample location examples 2012 & 2014.

Monitoring results for the last four years are presented on following pages – as required in the EPA publishing requirements.

The following tables provide results required by licence. Some additional results are also provided. Results are organised in their field and laboratory presentation order.

Abbreviations in the tables are provided here in alphabetical order:

BOD_5 = Biochemical Oxygen Demand over five days; Ca = Calcium; Cl = Chloride; EC = Electrical Conductivity also called conductivity; ESP = Exchangeable Sodium Percentage: Ex = Exchangeable; FC = Faecal Coliforms; K = Potassium; Na = Sodium; Mg = Magnesium; NH_3 = Ammonia as a measure of ammonium ions; M = Monthly; NO_3 = Nitrate; NO_x = Nitrite + Nitrate = Nitrogen Oxides; NC = Not continuing; NR = Not required; OM = Organic Matter; O&G = Oil and Grease; PSC = Phosphorus Sorption Capacity; S = Sulphur; SAR = Sodium Absorption Ratio; SRP = Soluble Reactive Phosphorus (also RP); TSS = Total suspended solids; TKN = Total Kjeldahl Nitrogen (organic nitrogen + ammonia); TN = Total Nitrogen; TP = Total Phosphorus; Q = Quarterly.

Measures:

CFU/100mL = Colony Forming Units/100mL; dS/cm = deciSiemens per centimetre; mg/kg = milligram/kilogram; mg/L = milligram per litre (equivalent to ppm); µS/cm = microSiemens per cm; < = less than, kL = kilolitres.

Limits:

90 percentile concentration - the monitoring results should not exceed the specified limit for 90% of the time, so for monthly tests, only 1 of the 12 results in the year should exceed the 90% concentration. These concentration limits apply to BOD, O&G, and TSS. For TN and TP, Council pays a fee based on the load (mass in the volume) discharged to Commissioners Waters.

Choice of water quality analytes:

Some analytes are tested because they give a general understanding of the discharge quality of treated effluent. For example, it is best that effluent used for irrigation or discharge to streams is not too salty. EC is an indicator of salt levels. It is best that EC be at least <1000 µS/cm. The pH range recommended for discharged effluent is pH 6.5 to 8.5, which is not too acidic or too alkaline to harm the bacteria breaking down the effluent, or the stream biota. Reasons for some other analytes are as follows:

- The BOD_5 test has traditionally been used by wastewater professionals to manage wastewater treatment processes. It is measured by the quantity of oxygen consumed by microorganisms during a five-day period, as a measure of the amount of biodegradable organic material in, or strength of, sewage. Sewage high in BOD can deplete oxygen in receiving waters, causing fish kills and ecosystem changes. A common standard is to treat sewage so that the BOD_5 of treated effluent is less than 20 mg/L (i.e. 20 mg of O_2 are consumed per litre of water over 5 days to break down the waste).
- The volume of sludge produced in a treatment plant is directly related to the TSS present in the sewage. The extent to which a treatment plant removes suspended solids (SS), as well as BOD_5, determines the efficiency of the treatment process. Suspended solids can smother stream biota. A common standard is to treat sewage so that the TSS of the treated effluent is less than 30 mg/L.
- Chloride and sodium are major elements of salt that can cause foliar injury during irrigation.
- SAR (Sodium Absorption Ratio) indicates if soil may be affected by sodicity, that is, the presence of a high proportion of sodium (Na+) ions relative to calcium (Ca2+) and magnesium (Mg2+) ions in soil or water. Sodicity degrades soil structure by breaking down clay aggregates. This makes the soil more erodible, less permeable to water, and reduces plant growth. In general, the higher the sodium adsorption ratio, the less suitable the water is for irrigation. Plants have ranges of SAR tolerance. Examples: citrus trees can tolerate SAR 2 to 8; oats SAR 18 to 46; and wheat, cotton and barley SAR 4 to 102.
- Increased levels of faecal coliforms (FC) warn of problems with the effluent treatment and possible contamination with pathogens. Raw sewage FC counts are in the millions. Note the low counts of the treated effluent in Table 1.
- Ammonia as ammonium ions can cause fish kills and affect other stream biota. While travelling through sewer pipes, the majority of the nitrogen contained in raw sewage is converted from organic-nitrogen to ammonium compounds.
- At the sewage treatment works, bacteria remove nitrogen compounds from the effluent by a two-step biological process. The first step is nitrification in which ammonium is converted to nitrate nitrogen in aerobic conditions (with air). (NO_x is usually predominantly nitrate.) The second step is denitrification in which nitrate is reduced to nitrogen gas (N_2) in anaerobic conditions (without air). So testing for the various nitrogen compounds alerts to any problems in the sewage treatment process.
- Total Phosphorus (TP) is a component of animal and plant matter in sewage. SRP represents the fraction of TP that is available to organisms for growth. If discharged into streams in high quantities, it may stimulate growth of photosynthetic organisms such as algae. The discharged phosphorus is diluted many times in Commissioners Waters.

Table 1a: Treated wastewater discharge quality – EPA Point No.1 – discharge to Commissioners Waters

EPA Point No. 1 – discharge to Commissioners Waters	Received from laboratory	Accessible on Council website by	BOD	TSS	O&G	pH	NH_3	NO_x	TKN	TN	SRP	TP	EC	FC	Na	Ca	K	Mg	SAR	Cl	Remarks
Measure			mg/L	mg/L	mg/L	1-14	mg/L as N	mg/L as N	mg/L as N	mg/L	mg/L	mg/L	µS/cm	CFU /mL	mg/L	mg/L	mg/L	mg/L	ratio	mg/L	
90 percentile concentration			20	30	10																
Frequency required by licence			M	M	M	M	M	M	M	M	M	M	M	M	NR	NR	NR	NR	NR	NR	
Sampling date																					
29/01/21	03/02/21	04/02/21	17.1	68	<5	9.26	4.52	0.14	6.66	6.8	2.27	2.34	586	105	72.4	31.1	17.9	25.9	2.3	64	At time of collection no water was flowing over weir
25/02/21	04/03/21	08/03/21	14.9	29	<5	7.88	2.3	1.6	5.1	6.7	6.5	6.6	666	260	80.7	28.6	22.4	28.9	2.4	70	
30/03/21	7/04/221	28/04/21	21.4	13	<5	7.8	3.98	5.89	4.71	10.6	2.61	2.84	580	600	49.0	44.1	12.7	22.9	1.5	48	High algal growth
29/04/21	06/05/21	11/05/21	6.2	8	<5	7.88	9.77	6.90	12.4	19.3	4.68	4.82	760	5	82.6	37.3	18.7	27	2.5	67	
31/05/21	07/06/21	23/06/21	6.0	5	<5	7.89	13.3	8.8	10.1	18.9	5.61	5.70	805	20	87.3	35.2	23.1	24.7	2.8	69	
29/06/21	05/07/21	13/07/21	4.8	8	<5	7.81	13.8	10.6	11.3	21.9	5.09	5.50	7.31	130	81.2	31.4	18.9	21.2	2.7	62	
29/07/21	04/08/21	04/08/21	11.1	13	<5	7.95	10.8	9.1	13.3	22.4	4.03	4.24	671	60	71	34.5	15.8	23.4	2.3	54	
30/08/21	05/09/21	08/09/21	7.5	15	<5	8.13	10.50	6.39	12.80	19.20	3.70	3.72	609	15	59.3	31.5	13.7	21.0	2.0	48	
30/09/21	05/10/21	11/10/21	6.3	18	<5	7.88	11.4	3.9	16.1	20.0	6.46	6.60	7.14	15	74.6	34.2	17.4	24.0	2.4	69	
28/10/21	03/11/21	04/11/21	5.6	10	<5	7.89	10.5	2.06	14.1	16.2	4.71	4.90	633	5	67.2	30.3	16.4	21.5	2.3	53	
30/11/21	06/12/21	10/12/21	7.5	3	<5	7.96	4.67	2.98	8.32	11.3	2.74	2.92	512	320	47.8	34.5	9.5	20.1	1.6	36	
30/12/21	05/01/22	20/01/21	7.8	15	<5	8.11	1.2	1.85	4.95	6.8	4.20	4.56	599	70	66.9	35.0	11.6	23.6	2.1	52	
31/01/22	06/02/22	07/02/22	9.3	17	<5	9.02	0.58	0.95	3.55	4.5	2.23	3.64	568	80	70.7	12.6	15.3	22.5	2.4	55	
28/02/22	06/03/22	09/03/22	25.4	23	<5	8.41	3.94	3.15	7.05	10.2	5.42	5.64	614	550	65.7	30.7	16.6	19.1	2.3	57	Recent wet weather causing higher flow rate
31/03/22	07/04/22	08/02/22	8.7	10	<5	7.67	6.33	5.38	8.82	14.2	2.59	2.80	535	1500	45.2	30.9	11.8	16.8	1.6	38	
26/04/22	10/05/22	11/05/22	4.5	5	<5	7.92	3.4	6.5	8.50	15.0	3.81	3.82	647	70	62.4	35.6	14.8	21.3	2.0	55	
31/05/22	06/06/22	07/06/22	2.5	13	<5	7.97	8.7	10.0	11.4	21.4	4.27	4.44	663	310	53.5	34.1	15.1	20.1	1.8	56	
29/06/22	05/07/22	12/07/22	5.5	3	<5	7.84	9.24	12.1	11.7	23.8	4.35	4.38	742	15	63.4	23.0	16.9	23.0	2	60	
28/07/22	02/08/22	03/08/22	3.6	3	<5	7.97	11.2	6.67	16.1	22.8	3.86	4.22	720	25	59.6	37.0	14.0	22.5	1.9	55	
31/08/22	06/09/22	07/09/22	2.1	3	<5	7.03	9.80	8.53	15.00	23.50	4.58	4.90	711	25	61.0	37.2	15.8	23.3	1.9	45	
07/10/22	13/10/22	19/10/22	4	5	<5	8.06	5.14	5.45	8.10	13.60	2.92	2.98	600	5	55.6	38.6	11.8	21.5	1.8	40	
31/10/22	06/11/22	08/11/22	6	8	<5	7.93	3.00	3.60	5.80	9.40	2.46	2.84	508	15	43.7	35.6	9.6	19.4	1.5	35	
30/11/22	09/12/23	06/02/23	18	5	<5	8.45	0.57	1.25	2.95	4.2	3.8	4.32	573	10	61.1	36.8	13.5	22.2	2	54	
29/12/22	03/01/23	06/02/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No outflow due to irrigation
31/01/23	05/02/23	06/02/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No outflow due to irrigation
28/02/23	05/03/23	09/03/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No outflow due to irrigation
29/03/23	03/04/23	04/04/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	At the time of collection there was no flow
28/04/23	04/05/23	13/06/23	9.8	5	<10	7.79	9.26	6.19	13.6	19.8	5.35	5.54	691	130	59	32.8	18.2	20.6	2.0	59	
31/05/23	06/06/23	13/06/23	3.8	5	<5	7.91	11.8	9.04	16.2	25.2	5.03	5.86	725	40	66.2	32.5	20.4	21.5	2.2	67	
29/06/23	04/07/23	05/07/23	6.4	8	<10	7.81	15.0	10.5	19.0	29.5	6.04	6.32	775	10	66.1	30.5	20.4	20.8	2.3	66	
27/07/23	01/08/23	08/08/23	8.4	5	<10	7.70	14.7	10.7	23.0	33.7	5.89	6.26	775	25	65.9	29.8	21.2	22.1	2.2	67	
31/08/23	05/09/23	06/09/23	5.4	5	<10	7.83	15.6	9.75	20.7	30.4	6.75	7.20	874	115	73.9	34.3	22.9	24.	02.4	70	

Table 1a continued: Treated wastewater discharge quality – EPA Point No.1 – discharge to Commissioners Waters

EPA Point No. 1 – discharge to Commissioners Waters	**Received** from laboratory	**Accessible** on Council website by	**BOD**	**TSS**	**O&G**	**pH**	**NH_3**	**NO_x**	**TKN**	**TN**	**SRP**	**TP**	**EC**	**FC**	**Na**	**Ca**	**K**	**Mg**	**SAR**	**Cl**	**Remarks**
Measure			mg/L	mg/L	mg/L		mg/L as N	mg/L as N	mg/L as N	mg/L	mg/L	mg/L	µS/cm	CFU/mL	mg/L	mg/L	mg/L	mg/L		mg/L	
90 percentile concentration			20	30	10																
Frequency required by licence			M	M	M	M	M	M	M	M	M	M	M	M	NR	NR	NR	NR	NR	NR	
Sampling date																					
29/09/23	03/10/23	16/10/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No outflow due to irrigation
31/10/23	06/11/23	07/11/23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No outflow due to irrigation
29/11/23	05/12/23	06/12/23	7.5	17.5	<10	7.78	10.8	2.64	12.6	15.2	6.64	7.00	709	400	67.9	30.2	20.3	20.9	2.3	62	
28/12/23	02/01/24	12/01/24	6.0	15	<10	7.94	7.21	2.00	10.6	12.6	5.28	5.66	630	450	56.9	29.7	17.9	17.5	2.0	56	
31/01/24	05/02/24	07/02/24	12.0	30	<10	8.60	1.22	0.18	4.22	4.40	4.01	5.48	582	200	59.9	24.7	17.6	18.9	2.2	62	
28/02/24	04/03/24	07/03/24	8.8	13	<10	8.50	1.28	4.08	3.72	7.80	4.08	4.40	557	40	55.8	26.5	16.5	18.1	2.0	47	
27/03/24	02/04/24	07/05/24	5.9	8	<10	7.90	3.65	3.06	5.44	8.5	6.12	6.54	668	65	66.9	34.6	17.5	22.0	2.2	57	
30/04/24	05/05/24	07/05/24	6.7	8	<10	7.82	8.85	7.88	13.7	21.6	4.58	4.80	702	25	59.7	33.4	16.5	21.8	2.0	55	
31/05/24	05/06/24	07/06/24	2.7	5	<10	7.83	9.0	9.61	13.8	23.5	4.15	4.56	702	50	56.0	33.2	14.9	21.9	1.9	52	
26/06/24	03/07/24	07/07/24	6.9	8	<10	7.88	11.2	11.8	13.2	24.9	4.42	4.44	7.66	30	60.6	34.9	15.4	23.8	1.9	59	
31/07/24	05/08/24	07/08/24	5.8	5	<10	7.84	14.8	11.8	17.5	29.3	4.68	4.8	784	450	57.8	35.6	17.2	22.8	1.9	54	
30/08/24	04/09/24	07/09/24	3.9	8	<10	8.5	10.2	7.22	12.2	19.4	4.11	4.50	701	100	55.5	33.0	14.9	22.9	1.8	57	
30/09/24	05/10/24	07/10/24	4.8	5	<10	8.10	12.5	9.96	14.5	24.5	5.45	5.63	756	70	63.5	36.8	18.0	24.8	2.0	61	
31/10/24	05/11/24	07/11/24	9.6	18	<10	8.34	8.47	5.12	13.6	18.7	6.11	6.20	702	90	67.5	35.4	18.5	24.2	2.1	64	
29/11/24	04/12/24	07/12/24	8.0	15	<10	7.86	8.46	1.36	11.1	12.5	6.65	6.78	680	330	64.3	35.1	17.4	23.9	2.1	61	
30/12/24	05/01/25	07/01/25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No effluent discharged for the month.
30/01/25	04/02/25	07/02/25	6.6	15	<10	7.94	3.44	1.68	4.02	5.7	6.31	7.14	634	270	60.3	32.5	17.8	21.5	2.0	62	
28/02/25	05/03/25	07/03/25	7.4	10	<10	8.60	1.34	2.32	5.68	8.0	3.71	3.92	614	150	64.6	27.5	17.9	21.6	2.2	56	
28/03/25	02/04/25	07/04/25	4.5	10	<10	8.11	8.44	5.51	11.8	17.3	4.67	5.02	683	210	61.0	33.1	17.2	21.5	2.0	58	
30/04/25	05/05/25	07/05/25	5.4	8	<10	7.76	14.2	8.11	19.1	27.2	5.0	5.08	716	400	63.2	33.3	17.5	22.4	2.1	53	
30/05/25	04/06/25	07/06/25	4.7	3	<10	7.88	10.1	7.35	13.4	21.7	3.42	3.48	637	240	51.6	33.9	12.8	20.6	1.7	46	
25/06/25	30/06/25	07/06/25	9.9	3	<10	7.96	13.3	13.3	16.1	29.4	4.06	4.66	801	120	65	35.3	17.5	25.3	2.0	66	
21/07/25	28/07/25	29/07/25	8.0	5	<5	8.05	16.10	12.00	17.50	29.50		4.56	756	150	59.0	34.0	17.0	19.0	2.0	51	
25/08/25	02/09/25	02/09/25	3	4.99	<5	7.87	10.8	7.97	15.1	23.1		3.22	625	140	50	28	12	17	1.84	41	

Table 1b: Treated wastewater discharge quality – EPA Point No.6 – electric pump irrigation to Mt Kennedy

EPA Point No. 6 – electric pump irrigation to Mt Kennedy	**Received** from laboratory	**Accessible** on Council website by	**BOD**	**TSS**	**O&G**	**pH**	**NH_3**	**NO_x**	**TKN**	**TN**	**SRP**	**TP**	**EC**	**FC**	**Na**	**Ca**	**K**	**Mg**	**SAR**	**Cl**	**Remarks**
Measure			mg/L	mg/L	mg/L		mg/L as N	mg/L as N	mg/L as N	mg/L	mg/L	mg/L	µS/cm	CFU/ mL	mg/L	mg/L	mg/L	mg/L		mg/L	
90 percentile concentration			20	30	10																
Frequency required by licence			M	M	M	M	NR	NR	NR	M	NR	M	M	M	Q	Q	Q	Q	Q	Q	
Sampling date																					
29/01/21	03/02/21	04/02/21	14.6	65	<5	9.40	5.54	1.43	6.97	8.4	2.25	2.36	618	420	77.9	30.6	19.5	26.3	2.5	678	Effluent pond was very green
25/02/21	04/03/21	08/03/21	42.0	20	<5	7.79	2.0	4.3	6.9	11.2	6.0	6.2	695	760	79.7	37.6	23.2	28.3	2.4	71	Algae
30/03/21	7/04/221	28/04/21	12.2	10	<5	7.89	4.16	6.19	4.71	10.9	2.58	2.88	600	1050	52.2	42.6	13	23.6	1.6	49	
29/04/21	06/05/21	11/05/21	8.1	5	<5	7.82	11.6	7.88	13.3	21.2	5.03	5.32	765	145	84.6	34.1	19.0	25.4	2.7	67	
31/05/21	07/06/21	23/06/21	8.6	8	<5	7.75	14.8	11.6	6.92	15.8	5.94	6.00	8.34	320	87.5	33.9	23.2	24.2	2.8	70	
29/06/21	05/07/21	13/07/21	10.4	5	<5	7.71	14.4	11.7	9.55	21.2	5.28	5.62	737	1000	77.5	30.7	18.1	20.8	2.6	64	
29/07/21	04/08/21	04/08/21	10.8	13	<5	7.93	12.3	10.1	11.6	21.6	4.19	4.48	695	600	70.4	34.2	16.0	23.3	2.3	60	
30/08/21	05/09/21	08/09/21	7.7	10	<5	7.88	9.13	6.44	11.8	18.2	3.12	3.18	577	125	52.2	31.3	11.9	20.6	1.8	47	
30/09/21	05/10/21	11/10/21	11.1	18	<5	7.95	16.1	5.4	20.1	25.5	6.07	6.38	738	90	76.4	32.6	18.5	22.8	2.5	67	
28/10/21	03/11/21	04/11/21	5.3	10	<5	7.82	10.6	2.58	14.6	17.2	4.81	5.02	647	80	68.4	32.0	16.3	22.4	2.3	54	
30/11/21	06/12/21	10/12/21	6.3	5	<5	7.63	4.30	2.76	7.34	10.1	2.44	2.74	519	430	48.8	35.7	10.2	21.0	1.6	36	
30/12/21	05/01/22	20/01/21	11.9	8	<5	7.81	4.6	2.38	8.72	11.1	4.87	4.98	611	70	68.9	33.3	11.9	23.2	2.2	55	
31/01/22	06/02/22	07/02/22	15	23	<5	8.41	1.11	3.78	3.62	7.4	3..29	4.16	586	310	67.9	29.7	15.4	22.1	2.3	56	
28/02/22	06/03/22	09/03/22	22.4	13	<5	7.89	8.15	4.35	7.25	11.6	5.19	5.36	629	2000	61.2	30.3	16.5	18.6	2.2	54	Hi flow rate from wet weather
31/03/22	07/04/22	08/02/22	10.2	8	<5	7.57	5.49	4.58	7.92	12.5	2.10	2.24	492	2000	40.4	30.3	10.2	16.0	1.5	34	
26/04/22	10/05/22	11/05/22	6.9	5	<5	7.90	5.6	7.74	9.86	17.6	3.6	3.82	672	235	65.1	34.8	15.7	21.3	2.1	58	
31/05/22	06/06/22	07/06/22	3.0	8	<5	7.94	10.7	12.0	12.0	24.0	4.60	4.62	698	2100	54.0	34.6	15.2	20.3	1.8	59	
29/06/22	05/07/22	12/07/22	10.1	3	<5	7.88	12.3	11.4	15.3	26.7	4.95	5.04	792	650	65.1	35.9	17.7	23.2	2.1	63	
28/07/22	02/08/22	03/08/22	8.3	5	<5	7.85	12.9	7.13	17.2	24.3	4.30	4.77	711	600	62.1	36.5	15.0	22.7	2.0	58	
31/08/22	06/09/22	07/09/22	4.5	5	<5	7.73	12.50	8.90	15.90	24.80	4.50	4.82	749	70	61.0	36.9	16.5	23.1	2.0	47	
07/10/22	13/10/22	19/10/22	23.3	73	<5	7.86	7.57	5.45	13.30	18.70	3.21	3.50	652	25	58.7	39.0	13.2	22.4	1.9	49	Hi flow rate from wet weather
31/10/22	06/11/22	08/11/22	2.0	13	<5	9.00	2.50	3.20	9.90	13.10	2.74	3.20	526	25	48.5	36.5	9.6	20.7	1.6	40	
30/11/22	09/12/23	06/02/23	19.80	27.00	<5	8.10	4.72	3.64	8.16	11.80	5.34	5.38	669	150	69.5	36.9	16.7	23.3	2.2	67	
29/12/22	03/01/23	06/02/23	12.9	13	<5	8.26	5.44	0.89	9.71	10.6	6.77	6.96	674	350	73.8	33.6	20	21	2.5	75	
31/01/23	05/02/23	06/02/23	21.3	40	<5	8.89	2.63	1.06	7.94	9	3.47	5.16	598	680	68.9	21.6	7.5	16.8	2.7	71	Effluent pond was very green Algae
28/02/23	05/03/23	09/03/23	50.4	80	<5	9.62	1.57	2.71	10.4	13.1	1.91	4.42	544	850	69.8	19.2	18.5	13.8	3.0	66	
29/03/23	03/04/23	04/04/23	10.8	8	<2	7.92	9.85	4.71	14.4	19.1	5.90	6.48	650	300	58.4	28.1	17.3	18.4	2.1	54	
28/04/23	04/05/23	13/06/23	6.6	5	<10	7.86	13.0	7.56	17.1	24.7	5.99	6.30	735	200	62.7	32.4	19.5	20.9	2.1	63	
31/05/23	06/06/23	13/06/23	5	8	<5	7.89	14.0	10.4	19.3	29.7	5.44	6.20	751	350	65.5	30.8	20	20.9	2.2	63	
29/06/23	04/07/23	05/07/23	9.8	5	<10	7.72	17.0	11.5	20.8	32.3	6.51	6.98	757	250	64.5	29.5	19.7	20.2	2.2	65	
27/07/23	01/08/23	08/08/23	8.4	3	<10	7.68	18.5	11.7	24.1	35.8	5.11	6.52	786	350	66.6	29.6	21.5	22.2	2.3	67	
31/08/23	05/09/23	06/09/23	8.3	5	<10	7.70	17.6	9.32	25.1	34.4	6.93	7.26	795	180	72.4	33.4	22.8	23.7	2.3	67	

Table 1b continued: Treated wastewater discharge quality – EPA Point No.6 – electric pump irrigation to Mt Kennedy

EPA Point No. 6 – electric pump irrigation to Mt Kennedy	**Received** from laboratory	**Accessible** on Council website by	**BOD**	**TSS**	**O&G**	**pH**	**NH_3**	**NO_x**	**TKN**	**TN**	**SRP**	**TP**	**EC**	**FC**	**Na**	**Ca**	**K**	**Mg**	**SAR**	**Cl**	**Remarks**
Measure			mg/L	mg/L	mg/L		mg/L as N	mg/L as N	mg/L as N	mg/L	mg/L	mg/L	µS/cm	CFU/ mL	mg/L	mg/L	mg/L	mg/L		mg/L	
90 percentile concentration			20	30	10																
Frequency required by licence			M	M	M	M	NR	NR	NR	M	NR	M	M	M	Q	Q	Q	Q	Q	Q	
29/09/23	03/10/23	16/10/23	8.6	2.5	<10	8.33	14.6	10.9	18.9	29.8	7.43	7.56	794	190	71.1	33.3	21.9	22.9	2.3	73	
31/10/23	06/11/23	07/11/23	5.3	5	<10	7.96	14.0	3.7	19.5	23.2	7.02	7.54	780	550	75.1	33.7	23.7	23.7	2.4	71	
29/11/23	05/12/23	06/12/23	5.3	10	<10	7.74	11.2	3.35	14.0	17.3	5.74	5.96	680	250	63.9	29.0	19.1	19.8	2.2	59	
28/12/23	2/01/24	12/01/24	6.9	10	<10	7.9	7.19	2.97	10.32	13.3	4.70	4.96	581	1100	52.0	29.7	16.2	16.3	1.9	51	
31/01/24	05/02/24	07/02/24	11.3	18	<10	7.73	7.78	5.51	12.2	17.7	5.30	5.84	665	1250	61.5	29.2	17.2	20.0	2.2	60	
28/02/24	04/03/24	07/03/24	25.1	18	<10	8.10	2.60	6.03	6.17	12.2	4.48	4.94	596	440	55.9	28.8	15.9	18.7	2.0	50	
27/03/24	02/04/24	07/05/24	13.5	23	<10	7.95	8.28	8.79	10.4	19.2	5.82	6.38	6.90	700	68.3	33.0	17.7	21.8	2.3	58	
30/04/24	05/05/24	07/05/24	8.1	5	<10	7.73	11.1	70.4	14.1	24.5	4.93	5.28	729	275	61.7	33.5	17.1	22.2	2.0	55	
31/05/24	05/06/24	07/06/24	5.3	8	<10	7.75	9.7	9.18	15.2	24.4	4.42	5.00	727	600	56.0	33.2	14.9	21.9	1.9	52	
26/06/24	03/07/24	07/07/24	7.5	8	<10	7.93	13.30	15.70	14.60	27.20	4.78	4.86	792	350	63.6	34.8	16.9	24.4	2.0	63	
31/07/24	05/08/24	07/08/24	7.8	8	<10	7.67	14.20	10.10	17.80	27.90	4.48	5	715	900	52.4	35.6	15.9	21.3	1.7	50	
30/08/24	04/09/24	07/09/24	7.4	23	<10	8.42	12.10	7.89	15.00	22.90	4.63	4.92	743	200	57.7	31.8	16.6	22.8	1.9	62	
30/09/24	05/10/24	07/10/24	6.9	13	<10	7.98	15.20	10.70	19.00	29.70	6.05	6.28	817	1000	64.8	37.2	18.6	25.2	2.0	63	
31/10/24	05/11/24	07/11/24	5.9	10	<10	8.30	9.74	7.22	13.20	20.70	5.70	5.80	712	25	68.5	35.5	18.1	24.5	2.2	63	
29/11/24	04/12/24	07/12/24	6.3	18	<10	7.05	8.83	3.30	11.70	15.00	5.91	6.02	723	320	66.6	35.3	17.0	24.2	2.1	65	
30/12/24	05/01/25	07/01/25	11.0	50	<10	8.20	2.24	1.25	4.85	6.10	6.07	6.24	699	1200	76.5	35.9	21.5	26.5	2.4	74	
30/01/25	04/02/25	07/02/25	10.1	13	<10	7.99	5.76	0.78	9.52	10.30	5.65	6.02	626	300	56.3	30.9	16.7	20.2	1.9	58	
28/02/25	05/03/25	07/03/25	12.2	13	<10	8.45	5.14	5.70	8.80	14.50	4.03	4.64	655	80	64.2	26.7	18.6	21.5	2.2	58	
28/03/25	02/04/25	07/04/25	7.8	15	<10	7.97	10.70	7.52	15.10	22.60	5.56	5.74	721	300	61.2	33.1	17.2	21.6	2.0	60	
30/04/25	05/05/25	07/05/25	5.0	10	<10	7.68	12.60	7.13	16.40	23.50	4.01	4.06	631	700	55.7	32.5	14.6	20.3	1.9	47	
30/05/25	04/06/25	07/06/25	6.2	3	<10	7.63	8.40	8.11	12.60	20.70	3.16	3.38	629	950	49.5	35.7	13.0	21.7	1.6	49	
25/06/25	30/06/25	07/06/25	7.0	5	<10	7.92	15.10	14.20	17.90	32.10	4.85	5.06	833	425	66.0	34.2	17.8	25.4	2.1	64	
21/07/25	28/07/25	29/07/25	8.0	5	<5	7.95	15.90	10.40	18.00	28.40		4	714	1000	53.0	34.0	16.0	18.0	1.8	48	
25/08/25	02/09/25	02/09/25	4.0	5	<5	7.82	9.42	7.31	13.20	20.50		2.82	580		45.0	27.0	10.0	16.0	1.7	38	

Table 1c: Treated wastewater discharge quality – EPA Point No.7 – diesel pump irrigation to Windways

EPA Point No. 7 – diesel pump irrigation to Windways	**Received** from laboratory	**Accessible** on Council website by	**BOD**	**TSS**	**O&G**	**pH**	**NH_3**	**NO_x**	**TKN**	**TN**	**SRP**	**TP**	**EC**	**FC**	**Na**	**Ca**	**K**	**Mg**	**SAR**	**Cl**	**Remarks**
Measure			mg/L	mg/L	mg/L		mg/L as N	mg/L as N	mg/L as N	mg/L	mg/L	mg/L	µS/cm	CFU/ mL	mg/L	mg/L	mg/L	mg/L		mg/L	
90 percentile concentration			20	30	10																
Frequency required by licence			M	M	M	M	NR	NR	NR	M	NR	M	M	M	Q	Q	Q	Q	Q	Q	
Sampling date																					
29/01/21	03/02/21	04/02/21	8.1	20	<5	8.19	13.0	6.57	15.4	22.0	5.85	6.04	805	760	81.6	37.6	23.0	29.6	2.4	73	
25/02/21	04/03/21	08/03/21	13.7	7	<5	7.75	13.3	5.4	16.6	22.0	6.4	6.5	825	2250	78.8	36.8	23.7	27.2	2.4	70	
30/03/21	7/04/221	28/04/21	5.4	5	<5	7.83	2.18	3.63	4.67	8.3	5.20	5.5	640	900	76.4	36.1	18.6	26.3	2.4	77	
29/04/21	06/05/21	11/05/21	3.9	3	<5	8.04	5.28	5.72	5.9	11.6	5.12	5.28	726	600	87.4	33.5	17.4	26.5	2.7	70	
31/05/21	7/06/21	23/06/21	6.0	8	<5	7.85	9.76	8.37	3.93	12.3	5.02	5.28	770	1120	86.9	34.9	20.9	25.2	2.7	73	
29/06/21	05/07/21	13/07/21	8.6	8	<5	7.64	16.2	13.9	17.4	31.3	5.47	5.82	761	2500	76.8	31.0	17.3	20.3	2.6	63	
29/07/21	04/08/21	04/08/21	11.4	8	<5	7.79	14.8	12.3	15.4	27.7	4.51	4.84	727	2000	75.3	34.2	17.2	23.3	2.4	64	
30/08/21	5/09/21	8/09/21	6.6	5	<5	7.70	8.51	8.03	12.1	20.1	2.88	2.90	605	800	54.6	33.5	11.5	21.7	1.8	49	
30/09/21	05/10/21	11/10/21	14.0	15	<5	7.79	16.4	11.3	23.7	35.0	6.43	6.92	800	201	76.9	31.7	19.5	22.2	2.6	67	
28/10/21	03/11/21	4/11/21	13.2	13	<5	8.0	14.2	9.51	20.9	30.4	5.75	6.18	763	1500	77.9	34.7	19.9	23.9	2.5	64	
30/11/21	6/12/21	10/12/21	9.2	5	<5	7.57	5.19	5.07	8.63	13.7	2.50	2.56	542	1500	55.4	37.5	10.6	22.2	1.8	41	
30/12/21	5/01/22	20/01/21	10.8	3	<5	7.60	11.1	7.05	14.6	21.6	4.19	4.78	667	1200	67.1	30.6	11.7	22.2	2.3	53	
31/01/22	6/02/22	7/02/22	21.2	35	<5	9.18	0.36	0.35	4.25	4.6	1.88	3.24	555	120	68.4	22.8	14.6	28.3	2.3	61	Hi flow rate from wet weather
28/02/22	06/03/22	9/03/22	11.0	10	<5	7.66	10.4	7.92	7.78	15.7	4.19	4.38	611	1000	51.6	27.8	14.4	17	1.9	48	
31/03/22	7/04/2022	8/02/2022	15.5	13	<5	7.57	3.93	4.15	6.25	10.4	1.92	2.06	468	3000	39.1	30.6	9.2	15.9	1.4	32	
26/04/22	10/05/22	11/05/22	5.4	8	<5	7.69	11.4	14.9	15.6	30.5	4.85	5.18	751	1400	66.6	34.3	17.0	21.5	2.2	60	
31/05/22	06/06/22	07/06/22	6.9	8	<5	7.80	13.4	14.4	15.0	29.4	4.61	4.80	750	>2000	53.3	34.3	15.1	19.6	1.8	59	
29/06/22	05/07/22	12/07/22	11.0	8	<5	7.69	14.2	11.3	18.8	30.1	5.23	5.30	820	2000	65.7	35.3	18.1	23.1	2.1	63	
28/07/22	02/08/22	03/08/22	8.3	3	<5	7.76	15.1	7.90	22.6	30.4	4.76	5.17	791	1300	64.1	36.1	15.8	22.7	2.1	61	
31/08/22	06/09/22	07/09/22	1.1	5	<5	7.81	0.86	2.24	3.60	5.80	2.79	2.98	643	25	64.7	34.6	14.9	22.0	2.1	48	
07/10/22	13/10/22	19/10/22	9.7	115	<5	8.01	8.11	7.65	17.10	24.80	3.64	4.00	685	1150	60.70	37.9	14.2	22.9	1.9	56	Hi flow rate from wet weather
31/10/22	06/11/22	08/11/22	6.8	10	<5	7.84	7.10	8.10	10.00	18.10	3.32	3.58	651	340	58.9	37.7	12.0	22.3	1.9	50	
30/11/22	09/12/23	06/02/23	12.80	23.00	<5	8.01	13.20	12.60	16.90	29.50	5.40	5.76	749	550	71.9	34.3	18.0	22.1	2.4	68	
29/12/22	03/01/23	06/02/23	5	8	<5	7.9	3.2	0.9	8	8.9	5.48	5.62	663	20	68.2	35.9	16.5	21.7	2.2	73	
31/01/23	05/02/23	06/02/23	11.8	10	<5	7.69	13.7	7.57	19	26.6	6.67	6.7	711	825	64.3	28.6	17.8	18.8	2.3	66	
28/02/23	05/03/23	9/03/23	16.2	30	<5	8.18	13.0	7.43	19.3	26.7	4.66	5.98	673	>2000	69.6	27.3	19.2	16.6	2.6	66	
29/03/23	03/04/23	04/04/23	9.3	5	<2	7.62	12.1	9.23	19.0	28.2	4.30	5.78	665	>2500	56	27.1	16.	17.7	2.1	53	
28/04/23	4/05/23	13/06/23	8.7	5	<10	7.66	17.2	12.4	28.2	38.6	6.10	6.34	961	1200	63.5	29.5	19.6	19.9	2.2	66	
31/05/23	06/06/23	13/06/23	10.1	10	<5	7.69	15.8	14.6	21.3	35.9	6.10	6.36	765	1700	66.5	28.9	20.0	20.7	2.3	7	
29/06/23	04/07/23	5/07/23	11.1	3	<10	7.59	15.5	13.3	19.3	32.6	6.09	9.64	762	1750	63.2	28.4	19.2	19.8	2.2	62	
27/07/23	01/08/23	08/08/23	10.3	3	<10	7.61	18.3	12.7	24.4	37.1	6.07	6.50	791	1500	68.0	29.9	24.7	22.4	2.3	69	
31/08/23	05/09/23	6/09/23	13.2	3	<10	7.59	19.3	11.8	24.7	36.5	6.65	6.80	803	1050	71.	32.7	22.2	23.0	2.3	67	

Table 1c continued: Treated wastewater discharge quality – EPA Point No.7 – diesel pump irrigation to Windways

EPA Point No. 7 – diesel pump irrigation to Windways	**Received** from laboratory	**Accessible** on Council website by	**BOD**	**TSS**	**O&G**	**pH**	**NH_3**	**NO_x**	**TKN**	**TN**	**SRP**	**TP**	**EC**	**FC**	**Na**	**Ca**	**K**	**Mg**	**SAR**	**Cl**	**Remarks**
Measure			mg/L	mg/L	mg/L		mg/L as N	mg/L as N	mg/L as N	mg/L	mg/L	mg/L	µS/cm	CFU/mL	mg/L	mg/L	mg/L	mg/L		mg/L	
90 percentile concentration			20	30	10																
Frequency required by licence			M	M	M	M	NR	NR	NR	M	NR	M	M	M	Q	Q	Q	Q	Q	Q	
Sampling date																					
29/09/23	03/10/23	16/10/23	14.9	5	<10	7.77	16.8	14.2	20.1	34.4	6.55	6.80	830	900	67.8	32.7	21.7	21.8	2.3	67	
31/10/23	06/11/23	07/11/23	10.8	5	<10	7.73	16.4	9.0	22.4	31.4	6.45	6.74	733	1500	64.2	31.0	20.4	20.9	2.2	67	
29/11/23	05/12/23	06/12/23	7.7	2.5	<10	7.56	10.6	7.22	12.8	20	5.27	5.54	664	1300	59.7	30.1	19.1	19.8	2.1	67	
28/12/23	02/01/24	12/01/24	8.3	17.5	<10	7.73	9.66	6.35	14.5	20.8	4.46	4.86	612	2000	50.2	30.4	14.2	15.9	1.8	67	
31/01/24	05/02/24	07/02/24	12.9	13	<10	8.04	5.01	2.53	9.07	11.6	5.83	6.34	660	2500	64.4	29.2	17.7	20.0	2.2	67	
28/02/24	04/03/24	07/03/24	4.5	3	<10	7.95	3.28	1.79	5.01	6.8	6.28	6.78	671	200	69.8	30.4	19.1	21.7	2.4	67	
27/03/24	02/04/24	07/05/24	14.7	33	<10	7.74	13.1	12.8	15.2	28.0	5.78	6.38	753	2000	69.3	31.8	17.7	21.4	2.3	67	
30/04/24	05/05/24	07/05/24	6.2	6	<10	7.82	4.8	5.55	9.45	15.0	5.56	5.92	706	650	68.6	32.9	17.7	22.5	2.3	67	
31/05/24	05/06/24	07/06/24	4.4	5	<10	7.84	1.85	4.46	4.8	9.3	5.15	6.86	692	290	66.0	31.5	16.3	22.5	2.2	67	
26/06/24	03/07/24	07/07/24	12.6	8	<10	7.70	15.20	16.00	19.10	35.10	5.50	5.68	879	3000	66.9	33.9	17.9	24.7	2.1	66	
31/07/24	05/08/24	07/08/24	4.4	5	<10	7.88	6.30	7.00	9.00	16.00	3.94	4	696	1250	56.9	36.2	15.5	21.2	1.9	56	
30/08/24	04/09/24	07/09/24	7.8	3	<10	7.81	14.20	11.42	19.90	31.30	5.17	5.48	852	1100	62.4	31.3	17.7	23.2	2.1	68	
30/09/24	05/10/24	07/10/24	10.2	8	<10	7.78	16.40	13.90	18.30	32.20	5.57	5.89	767	2000	60.10	34.8	17.3	23.6	1.9	60	
31/10/24	05/11/24	07/11/24	6.2	8	<10	8.42	1.88	1.24	3.46	4.70	6.15	6.20	675	40	74.3	35.6	17.7	25.3	2.3	72	
29/11/24	04/12/24	07/12/24	8.6	9	<10	7.80	13.30	11.80	14.60	26.40	6.20	6.30	818	550	71.1	36.2	17.9	25.4	2.2	70	
30/12/24	05/01/25	07/01/25	10.5	13	<10	7.98	8.83	6.85	13.70	20.50	6.46	6.62	756	1000	72.7	34.5	21.0	25.6	2.3	71	
30/01/25	04/02/25	07/02/25	7.8	5	<10	7.80	11.20	6.54	14.60	21.10	5.63	5.92	697	2000	56.2	31.7	16.3	20.2	1.9	32	
28/02/25	05/03/25	07/03/25	6.6	3	<10	7.90	12.10	10.50	16.10	26.60	5.52	5.66	763	650	63.9	28.0	19.5	22.0	2.2	60	
28/03/25	02/04/25	07/04/25	10.8	8	<10	7.67	15.20	12.10	19.30	31.40	5.76	6.08	785	2000	62.2	32.8	17.6	21.7	2.1	63	
30/04/25	05/05/25	07/05/25	8	15	<10	7.46	10.20	6.63	13.60	20.20	3.25	3.32	586	2000	50.8	33.4	12.6	19.5	1.7	39	
30/05/25	04/06/25	07/06/25	6.2	3	<10	7.63	8.40	8.11	12.60	20.70	3.16	3.38	629	950	49.5	35.7	13.0	21.7	1.6	49	
25/06/25	30/06/25	07/06/25	7.0	5	<10	7.92	15.10	14.20	17.90	32.10	4.85	5.06	833	425	66.0	34.2	17.8	25.4	2.1	64	
21/07/25	28/07/25	29/07/25	8.0	5	<5	7.95	15.90	10.40	18.00	28.40		4	714	1000	53.0	34.0	16.0	18.0	1.8	48	
25/08/25	02/09/25	02/09/25	2.0	5	<5	7.73	8.62	7.34	11.80	19.10		2.62	579		45.0	28.0	10.0	16.0	1.7	37	

Table 1d: Annual reporting year summary table of effluent quality at EPA Point No 1 - discharge to Commissioners Water

Reporting Year	Pollutant	Units of Measure	Monitoring frequency required by licence	No. of times measured during year	Min. value	Max. value	90 percentile value	90 percentile limit	Exceedance (yes/no)	Remarks
2020/21	BOD	mg/L	12	12	5	21	17.10	20	No	
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	8	68	50	30	Yes	High algal growth on maturation ponds.
2021/22	BOD	mg/L	12	12	4.8	25.4	11.10	20	Yes	Recent wet weather causing higher flow rate
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	3	23	18	30	No	
2022/23	BOD	mg/L	12	8	2	18	10.52	20	No	Nil discharge into Commissioners Water Dec & Mar 22-23
	Oil and Grease	mg/L	12	8	<5	<5	<5	10	No	Nil discharge into Commissioners Water Dec & Mar 22-23
	Total Suspended Solids	mg/L	12	8	3	13	10	30	No	Nil discharge into Commissioners Water Dec & Mar 22-23
2023/24	BOD	mg/L	12	10	4	12	9.12	20	No	Nil discharge into Commissioners Water Sep-Oct 23-24
	Oil and Grease	mg/L	12	10	<5	<5	<5	10	No	Nil discharge into Commissioners Water Sep-Oct 23-24
	Total Suspended Solids	mg/L	12	10	5	30	18.75	30	No	Nil discharge into Commissioners Water Sep-Oct 23-24
2024/25	BOD	mg/L	12	11	3	10	8	20	No	Nil discharge into Commissioners Water Dec 24
	Oil and Grease	mg/L	12	11	<10	<10	<10	10	No	Nil discharge into Commissioners Water Dec 24
	Total Suspended Solids	mg/L	12	11	5	18	15	30	No	Nil discharge into Commissioners Water Dec 24

Note: Annual reporting year is from 1 May to 30 April.

Table 1e: Annual reporting year summary table of effluent quality at EPA Point No 6 – electric pump irrigation to Mt Kennedy

Reporting Year	Pollutant	Units of Measure	Monitoring frequency required by licence	No. of times measured during year	Min. value	Max. value	90 percentile value	90 percentile limit	Exceedance (yes/no)	Remarks
2020/21	BOD	mg/L	12	12	4.7	42	20.4	20	Yes	High algal growth. No concern. Discharge is irrigated to paddock
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	3	65	32	30	Yes	High algal growth. No concern. Discharge is irrigated to paddock
2021/22	BOD	mg/L	12	12	5.3	22.4	15.0	20	Yes	Recent wet weather causing higher flow rate
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	5	23	18	30	No	
2022/23	BOD	mg/L	12	12	2	50.4	23.3	20	Yes	High algal growth. No concern. Discharge is irrigated to paddock
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	3	80	73	30	Yes	High algal growth. No concern. Discharge is irrigated to paddock
2023/24	BOD	mg/L	12	12	5	25.1	13.3	20	No	
	Oil and Grease	mg/L	12	12	<10	<10	<10	10	No	
	Total Suspended Solids	mg/L	12	12	3	23	18	30	No	
2024/25	BOD	mg/L	12	12	5	12.2	11	20	No	
	Oil and Grease	mg/L	12	12	<10	<10	<10	10	No	
	Total Suspended Solids	mg/L	12	12	8	50	11	30	No	

Note: Annual reporting year is from 1 May to 30 April.

Table 1f: Annual reporting year summary table of effluent quality at EPA Point No 7 – diesel pump irrigation to Windways

Reporting Year	Pollutant	Units of Measure	Monitoring frequency required by licence	No of times measured during year	Min. value	Max. value	90 percentile value	90 percentile limit	Exceedance (yes/no)	Remarks
2020/21	BOD	mg/L	12	12	1	18	15	20	No	
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	5	33	25	30	Yes	High algal growth. No concern. Discharge is irrigated to paddock
2021/22	BOD	mg/L	12	12	1	16	12.8	20	No	
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	3	115	30	30	Yes	High algal growth. No concern. Discharge is irrigated to paddock
2022/23	BOD	mg/L	12	12	1	16	12.8	20	No	
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	3	115	30	30	No	
2023/24	BOD	mg/L	12	12	5	15	14.55	20	No	
	Oil and Grease	mg/L	12	12	<5	<5	<5	10	No	
	Total Suspended Solids	mg/L	12	12	3	33	17.05	30	No	
2024/25	BOD	mg/L	12	12	4	13	11	20	No	
	Oil and Grease	mg/L	12	12	<10	<10	<10	10	No	
	Total Suspended Solids	mg/L	12	12	3	15	13	30	No	

Note: Annual reporting year is from 1 May to 30 April.

Table 2a: Soil monitoring of different soil types in irrigation areas – ongoing – 3 yearly – Mt Kennedy areas

	Frequency required by licence	Received from laboratory	Accessible on Council website by	Location	Stability (Emerson)	Ex Ca	Ex K	Ex Mg	Ex Na	ESP	pHw	pHca	EC	OM as Org C	Extractable Phosphorus	NO_3 (Mineral N)	PSC
Measure					description	mg/kg	mg/kg	mg/kg	mg/kg	%			dS/cm	%	mg/kg	mg/kg	kg/ha
EPA Point No. 2 Mt Kennedy areas	3 yearly (Rotated locations)																
June 2019		06/06/19	14/08/20	5 tower 2a	water stable, no swell	1559	1559	540	178	4.6	6.65	5.87	0.134	3.48	34.4	24.8	2200
June 2019		06/06/19	14/08/20	5 tower 2b	slake 1	1041	1041	447	222	7.7	6.94	5.91	0.104	1.24	1.8	0.41	5800
June 2019		06/06/19	14/08/20	5 tower 2e	water stable	1259	1259	481	338	9.8	7.52	6.48	0.264	4.02	39.8	9.66	1500
June 2019		06/06/19	14/08/20	5 tower 2f	slake 2	657	657	378	394	17.5	7.30	6.23	0.159	0.31	2.00	0.85	10700
June 2019		06/06/19	14/08/20	Eastern 5a	water stable	903	903	337	228	9.4	7.25	6.29	0.172	3.16	22.0	6.83	1100
June 2019		06/06/19	14/08/20	Eastern 5b	slake 2	855	855	524	516	17.3	7.26	6.19	0.204	0.44	1.10	1.79	5800
June 2019		06/06/19	14/08/20	Prairie Sth 11a	water stable	2098	2098	782	551	9.7	7.56	6.83	0.41	6.42	48.8	24.97	1700
June 2019		06/06/19	14/08/20	Prairie Sth 11b	slake 2	704	704	280	1278	42.2	8.06	6.95	1.023	0.39	3.60	13.10	2600
June 2019		06/06/19	14/08/20	Shed 12a	water stable, no swell	1687	1687	549	64	1.6	6.52	5.93	0.233	5.59	54.6	40.7	900
June 2019		06/06/19	14/08/20	Shed 12b	slake 2	1021	1021	310	90	3.7	7.05	6.24	0.135	1.69	47.2	10.32	1400
June 2019		06/06/19	14/08/20	Prairie Nth 14a	water stable, no swell	2751	2751	1091	326	4.5	7.02	6.32	0.186	6.80	51.6	13.59	1500
June 2019		06/06/19	14/08/20	Prairie Nth 14b	slake 1	2092	2092	771	564	10.0	8.55	6.81	0.192	1.69	43.7	2.73	900
June 2020		22/06/20	14/08/20	Surface (WW 1a)	water stable, no swell	1412	125	490	94	3.5	6.38	5.37	0.150	4.66	36.7	53.1	1200
June 2020		22/06/20	14/08/20	Subsoil (WW1b)	slake 3	1241	102	1044	426	11.0	6.72	5.48	0.155	1.06	0.1	4.5	7900
June 2020		22/06/20	14/08/20	Creek Nth (16a)	water stable, no swell	3483	242	1416	118	1.71	7.70	6.60	0.241	6.81	31.3	5.9	1300
June 2020		22/06/20	14/08/20	Creek Nth (16b)	slake1	2655	100	984	338	6.36	8.24	6.70	0.329	1.38	4.1	0.3	2800
June 2020		22/06/20	14/08/20	Surface 5 Tower 2c	water stable, no swell	1291	160	524	76	2.87	7.01	6.58	0.161	4.08	56.5	20.8	1500
June 2020		22/06/20	14/08/20	Subsoil 5 Tower 2d	slake 3	783	71	545	302	13.3	7	6.52	0.148	1.13	1.1	12.3	15900
June 2020		22/06/20	14/08/20	Surface Fescue 1 3a	water stable, no swell	1661	193	713	118	3.4	7.12	6.46	0.172	5.53	30.4	9.9	1500
June 2020		22/06/20	14/08/20	Subsoil Fescue 1 3b	slake 3	555	42	343	283	17.8	7.75	6.47	0.093	0.52	0.1	0.1	7600
June 2020		22/06/20	14/08/20	Surface East Paddock 5c	water stable, no swell	1727	282	605	91	2.7	7.00	6.37	0.137	6.15	47.2	10.6	1400
June 2020		22/06/20	14/08/20	Subsoil East Paddock 5d	slake 3	667	156	257	120	8.2	7.81	6.43	0.068	1.13	4.7	0.5	2800
June 2020		22/06/20	14/08/20	Surface Rye 3 – 8a	water stable, no swell	1308	292	534	148	5.2	6.86	6.32	0.194	5.25	24.8	15.0	1700
June 2020		22/06/20	14/08/20	Subsoil Rye 3 – 8b	slake2	547	52	294	237	16.4	7.35	6.31	0.126	0.88	0.9	0.5	4600
June 2020		22/06/20	14/08/20	Surface Rye 4 – 9a	water stable, no swell	1846	220	715	155	4.1	7	6.32	0.18	6.8	28.8	14.6	1400
June 2020		22/06/20	14/08/20	Subsoil Rye 4 – 9b	slake1	523	51	287	299	20.3	8.12	6.37	0.135	0.71	0.4	0.3	2900
June 2021		24/06/21	13/07/21	Fescue 2 North 4a	Water stable 8	1586	173	630	219	6.6	6.98	6.98	0.205	5.74	23.8	10.44	1800
June 2021		24/06/21	13/07/21	Fescue 2 North 4b	3/6, slake 3	572	41	322	249	16.2	7.70	6.29	0.082	0.48	0.69	0.00	4600
June 2021		24/06/21	13/07/21	Rye 1 6a	Water stable 8	1883	218	650	331	8.6	7.04	6.34	.288	5.23	28.0	21.36	1400
June 2021		24/06/21	13/07/21	Rye 1 6b	3/6 slake 2	453	59	255	177	14.6	7.29	6.12	0.09	0.42	2.8	0	6700
June 2021		24/06/21	13/07/21	Rye 2 7a	Water stable 7	1417	238	507	273	9.1	7.07	6.33	0.244	5.18	25.9	7.8	2000
June 2021		24/06/21	13/07/21	Rye 2 7b	3/6, slake 3	547	195	354	358	20.2	7.26	6.17	0.169	0.44	3.6	0.00	14000
June 2021		24/06/21	13/07/21	House 13a	Water stable 7	1605	258	637	101	3.1	7.17	6.46	0.157	4.09	49.7	7.55	1000
June 2021		24/06/21	13/07/21	House 13b	3/6 slake 2	973	86	724	442	14.8	7.70	6.54	0.154	0.92	1.02	0.00	6400
June 2021		24/06/21	13/07/21	Creek Xing 15a	Water stable 7	1789	247	682	738	17.5	7.08	6.69	0.926	4.43	10.3	1.54	1500
June 2021		24/06/21	13/07/21	Creek Xing 15b	3/6, slake 2	2534	171	960	711	12.9	8.41	7.54	0.401	0.92	0.11	0.00	6500

Table 2a continued: Soil monitoring of different soil types in irrigation areas – ongoing – 3 yearly – Mt Kennedy areas

	Frequency required by licence	Received from laboratory	Accessible on Council website by	Location	Stability (Emerson)	Ex Ca	Ex K	Ex Mg	Ex Na	ESP	pHw	pHca	EC	OM as Org C	Extractable Phosphorus	NO_3 (Mineral N)	PSC
Measure					description	mg/kg	mg/kg	mg/kg	mg/kg	%			dS/cm	%	mg/kg	mg/kg	kg/ha
EPA Point No. 2 Mt Kennedy areas	3 yearly (Rotated locations)																
June 2021		24/06/21	13/07/21	5 Tower 2g	water stable, no swell	1333	155	477	240	8.7	7.18	6.47	0.221	3.84	26.97	3.5	1500
June 2021		24/06/21	13/07/21	5 Tower 2h	3/6, slake 2	755	51	376	321	16.7	7.44	6.33	0.130	0.48	1.43	0.00	7800
June 2022		28/06/22	12/07/22	5 Tower 2a	Water stable swell	1277	112	339	39	1.7	6.25	5.62	0.088	2.07	25.2	22.9	1800
June 2022		28/06/22	12/07/22	5 Tower 2b	Slake 2	671	43	315	112	7.4	6.86	5.98	0.066	0.54	0.1	20.7	4600
June 2022		28/06/22	12/07/22	5 Tower 2e	Water stable swell	1027	88	245	34	2.0	6.42	5.82	0.083	2.02	56.5	6.85	1100
June 2022		28/06/22	12/07/22	5 Tower 2f	Slake 3	654	46	363	155	9.6	7.18	6.34	0.069	0.31	0.8	1.50	8200
June 2022		28/06/22	12/07/22	Eastern 5a	water stable, no swell	1146	426	393	195	7.7	7.46	6.7	0.234	2.82	25.3	3.95	1200
June 2022		28/06/22	12/07/22	Eastern 5b	Slake 3	222	52	87	89	15.9	7.85	6.83	0.067	0.18	2.2	1.95	900
June 2022		28/06/22	12/07/22	Prairie South 11a	water stable, no swell	1690	266	615	763	18.9	7.64	6.94	0.404	3.96	11.5	12.4	2700
June 2022		28/06/22	12/07/22	Prairie South 11b	Slake 3	430	64	177	150	14.5	7.6	6.53	0.074	0.36	0.2	0.56	1900
June 2022		28/06/22	12/07/22	Shed 12a	water stable, no swell	1642	706	488	27	0.8	6.72	6.06	0.139	4.00	54	16.7	1100
June 2022		28/06/22	12/07/22	Shed 12b	Slake 1	805	308	268	22	1.3	7.04	6.28	0.062	1.30	33.7	2.00	1200
June 2022		28/06/22	12/07/22	Prairie North 14a	water stable, no swell	2425	216	736	127	2.8	6.36	5.81	0.121	5.37	60.7	16.5	1600
June 2022		28/06/22	12/07/22	Prairie North 14b	Slake 3	2105	65	438	230	6.5	7.24	6.3	0.088	1.06	62.2	1.12	1800
June 2023		06/06/23	13/06/223	5 Tower 2c	8	1058	67	254	68	3.59	6.56	5.67	0.081	1.96	29.8	7.4	1400
June 2023		06/06/23	13/06/223	5 Tower 2d	Slake 3	992	55	459	133	5.9	6.73	5.9	0.072	0.71	0.1	0.4	14300
June 2023		06/06/23	13/06/223	Fescue 1 3a	8	1240	101	437	136	5.3	7.18	6.35	0.124	2.7	15.83855	7.5	2000
June 2023		06/06/23	13/06/223	Fescue 1 3b	Slake 3	569	57	443	236	12.8	7.77	6.48	0.077	0.29	0.1	0.00	7100
June 2023		06/06/23	13/06/223	East Paddock 5c	8	1678	295	542	120	3.6	6.95	6.19	0.142	3.98	40.3	11.5	1700
June 2023		06/06/23	13/06/223	East Paddock 5d	Slake 2	942	490	425	91	3.9	7.54	6.49	0.064	0.97	3.2	0.4	7300
June 2023		06/06/23	13/06/223	Rye 3 8a	8	14.92	243	451	98	3.4	6.84	6.07	0.131	3.23	37.6	8.2	1200
June 2023		06/06/23	13/06/223	Rye 3 8b	Slake 2	786	146	331	256	13.3	7.84	6.54	0.106	0.45	7.4	0.0	5300
June 2023		06/06/23	13/06/223	Rye 4 9a	8	1622	153	492	158	5.1	7.13	6.29	0.122	3.17	21.9	8.0	1300
June 2023		06/06/23	13/06/223	Rye 4 9b	Slake 3	672	111	345	285	15.7	8.32	6.66	0.098	0.37	0.1	0.0	5000
June 2024		11/06/24	12/06/24	5 Tower 2g	water stable, no swell	1294	147	484	278	9.8	6.89	5.78	.189	6.63	28.1	5.4	2000
June 2024		11/06/24	12/06/24	5 Tower 2h	Slake 3	528	54	335	213	13.7	7.11	5.8	0.093	0.0	1.6	0.0	4500
June 2024		11/06/24	12/06/24	Fescue 2 North 4a	water stable, no swell	2027	124	885	265	6.0	7.04	6.05	0.142	9.69	6.0	15.3	2100
June 2024		11/06/24	12/06/24	Fescue 2 North 4b	Slake 2	840	38	500	296	13.0	7.60	6.08	0.10	1.50	1.7	0.0	4800
June 2024		11/06/24	12/06/24	Rye 1 6a	water stable, no swell	1604	152	537	176	5.5	7.11	6.13	0.15	7.60	36.1	20.1	900
June 2024		11/06/24	12/06/24	Rye 1 6b	Slake 3	292	44	156	196	21.6	7.75	6.24	0.109	0.39	3.3	0.0	2400

Table 2a continued: Soil monitoring of different soil types in irrigation areas – ongoing – 3 yearly – Mt Kennedy areas

	Frequency required by licence	Received from laboratory	Accessible on Council website by	Location	Stability (Emerson)	Ex Ca	Ex K	Ex Mg	Ex Na	ESP	pHw	pHca	EC	OM as Org C	Extractable Phosphorus	NO_3 (Mineral N)	PSC
Measure					description	mg/kg	mg/kg	mg/kg	mg/kg	%			dS/cm	%	mg/kg	mg/kg	kg/ha
EPA Point No. 2 Mt Kennedy areas	3 yearly (Rotated locations)																
June 2024		11/06/24	12/06/24	Rye 2 7a	water stable, no swell	1256	132	446	231	8.7	7.08	6.17	0.173	6.14	19.7	11.1	1800
June 2024		11/06/24	12/06/24	Rye 2 7b	Slake 2	576	50	318	296	18	7.63	6.23	0.125	0.56	2.2	0.0	7500
June 2024		11/06/24	12/06/24	House 13a	water stable, no swell	1592	167	630	107	3.2	7.06	6.16	0.123	7.39	36.2	14.2	500
June 2024		11/06/24	12/06/24	House 13b	Slake 1	937	66	520	258	10.6	7.48	6.26	0.098	1.56	7.3	1.0	2200
June 2024		11/06/24	12/06/24	Creek Xing 15a	water stable, no swell	1347	293	449	73	2.7	6.19	5.44	0.087	6.81	7.02	6.2	1400
June 2024		11/06/24	12/06/24	Creek Xing 15b	Slake 2	990	40	361	410	17.7	8.05	6.17	0.243	0.77	1.3	0.0	1600
June 2025		15/06/25	20/06/25	5 Tower 2a	Water stable swell	2162	76	195	94	3.0	6.40	5.55	0.09	2.91	17.5	23.8	3600
June 2025		15/06/25	20/06/25	5 Tower 2b	Slake 2	1713	63	793	136	3.7	6.81	5.77	0.07	1.83	2.8	12.9	5300
June 2025		15/06/25	20/06/25	5 Tower 2e	Water stable swell	1200	159	409	107	4.4	7.15	6.27	0.13	2.31	27.2	2.7	1100
June 2025		15/06/25	20/06/25	5 Tower 2f	Slake 3	808	53	343	386	19.0	8.03	6.57	0.121	0.27	1.7	0.0	2400
June 2025		15/06/25	20/06/25	Eastern 5a	water stable, no swell	1088	140	383	288	12.0	7.53	6.52	0.176	2.04	11.2	2.1	1100
June 2025		15/06/25	20/06/25	Eastern 5b	Slake 3	467	50	174	144	13.1	7.40	6.31	0.101	0.61	3.3	0.0	1100
June 2025		15/06/25	20/06/25	Prairie South 11a	water stable, no swell	1588	228	498	161	5.2	7.38	6.51	0.136	2.49	11.1	4.8	1600
June 2025		15/06/25	20/06/25	Prairie South 11b	Slake 3	702	142	257	188	11.9	8.22	6.91	0.091	0.27	0.0	0.0	3000
June 2025		15/06/25	20/06/25	Shed 12a	water stable, no swell	14.12	535	437	26	0.9	6.75	5.85	0.128	3.3	44.7	11.3	700
June 2025		15/06/25	20/06/25	Shed 12b	Slake 1	607	204	223	62	4.6	7.20	6.13	0.051	1.26	11.9	0.0	1800
June 2025		15/06/25	20/06/25	Prairie North 14a	water stable, no swell	2830	200	799	191	3.7	6.52	5.72	0.126	4.06	61.2	11.9	1300
June 2025		15/06/25	20/06/25	Prairie North 14b	Slake 3	2465	73	519	212	5.1	7.27	6.17	0.089	1.43	62.3	1.5	1600

Table 2b: Soil monitoring of different soil types in irrigation areas – ongoing – 3 yearly – Windways areas

	Frequency required by licence	Received from laboratory	Accessible on Council website by	Location	Stability (Emerson)	Ex Ca	Ex K	Ex Mg	Ex Na	ESP	pHw	pHca	EC	OM as Org C	Extractable Phosphorus	NO_3 (Mineral N)	PSC
Measure					description	mg/kg	mg/kg	mg/kg	mg/kg	%			dS/cm	%	mg/kg	mg/kg	kg/ha
EPA Point No. 4 Windways areas	3 yearly (Rotated locations)																
June 2019		06/06/19	14/08/20	Windways 1e	water stable, no swell	1969	140	772	227	5.6	6.91	6.18	0.156	3.86	27.00	26.00	2000
June 2019		06/06/19	14/08/20	Windways 1f	Water stable swell	1505	71	727	362	10.3	6.92	5.95	0.158	1.19	1.60	1.19	2900
June 2020		22/06/20	14/08/20	Surface (WW 1a)	water stable, no swell	1412	125	490	94	3.5	6.38	5.37	0.150	4.66	36.7	53.1	1200
June 2020		22/06/20	14/08/20	Subsoil (WW1b)	slake 3	1241	102	1044	426	11.0	6.72	5.48	0.155	1.06	0.1	4.5	7900
June 2021		24/06/21	13/07/21	Windways 1c	Water stable,swell Class 7	1123	210	433	100	4.3	6.65	5.95	0.15	2.73	55.3	21.9	800
June 2021		24/06/21	13/07/21	Windways 1d	3/6, Slake 3	1015	77	645	357	12.8	6.51	5.33	0.121	0.63	2.60	13.51	6800
June 2022		28/06/22	12/07/22	Windways 1e	Water stable swell	2551	205	864	177	3.6	6.85	6.52	0.24	3.24	53.4	26.9	2200
June 2022		28/06/22	12/07/22	Windways 1f	Slake 3	2403	99	1218	384	7.0	7.33	6.44	0.126	0.45	1.8	5.0	4600
June 2023		06/06/23	13/06/223	Windways 1a	8	1332	221	363	110	4.4	6.82	6.00	0.119	2.28	26.2	15.1	1100
June 2023		06/06/23	13/06/223	Windways 1b	Slake 3	1053	82	945	304	8.9	7.04	5.67	0.086	0.26	0.1	0.0	4800
June 2023		06/06/23	13/06/223	Creek north 16a	8	2305	150	949	449	8.95	6.65	5.67	0.445	3.04	9.0	1.1	2200
June 2023		06/06/23	13/06/223	Creek north 16b	Slake 1	2137	111	886	364	7.82	6.60	5.90	0.331	0.87	0.1	0.0	2500
June 2024		11/06/24	12/06/24	Windways 1c	water stable, no swell	1230	78	334	49	2.2	6.21	5.30	0.108	4.80	55.2	1.6	800
June 2024		11/06/24	12/06/24	Windways 1d	Slake 2	872	50	551	369	14.7	6.93	5.58	0.138	1.01	3.3	0.4	4200
June 2025		15/06/25	20/06/25	Windways 1e	Water stable swell	2048	111	629	92	2.4	6.35	5.52	0.095	2.35	33.3	25.1	1300
June 2025		15/06/25	20/06/25	Windways 1f	Slake 3	1382	63	589	238	7.8	7.27	6.07	0.08	0.65	0.5	1.2	2500

Table 3: Treated wastewater discharge & irrigation volumes

	Frequency required by licence	Reporting month	Month's Total	Lowest daily volume	Mean daily volume	Greatest daily volume
Electronic measure			kL	kL/day	kL/day	kL/day
EPA Point No. 1 (Commissioners Waters)	/daily					
		Jan 2021	197432	0	6369	108011
		Feb 2021	34312	0	1225	17120
		Mar 2021	361081	4842	11648	48926
		Apr 2021	123648	1316	4122	8748
		May 2021	116798	1470	3768	6934
		Jun 2021	168336	2192	5611	7996
		Jul 2021	247838	5896	7995	12120
		Aug 21	288472	5330	9306	23586
		Sep 21	118474	1524	3949	7266
		Oct 21	194682	908	6280	15148
		Nov 21	315966	742	10532	36578
		Dec 21	334684	3110	10736	34668
		Jan 22	124450	962	4015	8150
		Feb 22	132222	444	472	12152
		Mar 22	399348	2894	12882	50792
		Apr 22	263232	5410	8774	25604
		May 22	220898	3276	7126	17324
		Jun 22	147612	2192	4920	8648
		Jul 22	295336	3582	9527	34782
		Aug 22	274062	3864	8841	27976
		Sep 22	340958	2788	11365	35028
		Oct 22	389616	2175	11811	40316
		Nov 22	201888	0	6730	28538
		Dec 22	0	0	0	0
		Jan 23	0	0	0	0
		Feb 23	0	0	0	0
		Mar 23	28818	0	930	23806
		Apr 23	162572	1618	5419	15280
		May 23	162572	1618	5419	15280
		Jun 23	80794	274	2693	4172
		Jul 23	124496	2572	4016	6206
		Aug 23	82722	1522	2668	4032
		Sep 23	1054	0	350	2076
		Oct 23	0	0	0	0
		Nov 23	63546	0	2118	13320

	Frequency required by licence	Reporting month	Month's Total	Lowest daily volume	Mean daily volume	Greatest daily volume	Accessible on Council website
Electronic measure			kL	kL/day	kL/day	kL/day	
EPA Points Nos. 3 & 5 (Mt Kennedy & Windways irrigation areas)	daily						
		Jan 2021	21135	0	682	4439	04/02/21
		Feb 2021	68941	0	2337	5129	8/03/21
		Mar 2021	433	0	14	302	28/04/21
		Apr 2021	36587	0	1220	3192	11/05/21
		May 2021	43887	0	1416	3188	23/06/21
		Jun 2021	19876	0	663	2724	13/07/21
		Jul 2021	0	0	0	0	04/08/21
		Aug 21	0	0	0	0	8/09/21
		Aug 21	47429	0	1581	3632	11/10/21
		Oct 21	47852	0	1544	5373	04/11/21
		Nov 21	42822	0	1427	3588	10/12/21
		Dec 21	9546	0	308	25972	20/01/22
		Jan 21	73085	0	2358	6923	7/02/22
		Feb 22	62284	0	2148	5186	09/03/22
		Mar 22	8687	0	280	4183	08/04/22
		Apr 22	3538	0	118	1207	11/05/22
		May 22	11486	0	371	2854	7/06/22
		Jun 22	38337	0	1278	3104	12/07/22
		Jul 22	1560	0	50	1558	03/08/22
		Aug 22	6628	0	214	2658	07/09/22
		Sep 22	19274	0	642	3641	19/10/22
		Oct 22	12921	0	417	4506	08/11/22
		Nov 22	60997	0	2033	5948	06/02/23
		Dec 22	149040	1876	4808	6405	06/02/23
		Jan 23	120401	660	3884	6437	06/02/23
		Feb 23	119546	0	4122	5721	09/03/23
		Mar 23	115723	0	3733	5792	04/04/23
		Apr 23	22173	0	739	3695	13/06/23
		May 23	22173	0	739	3695	13/06/23
		Jun 23	77689	0	2590	5176	05/07/23
		Jul 23	44188	0	1425	3001	08/08/23
		Aug 23	75225	405	2427	32116	06/09/23
		Sep 23	114487	2686	3816	5341	16/10/23
		Oct 23	119321	491	3849	6020	7/11/23
		Nov 23	86295	0	2877	6144	6/12/23

Frequency of measurement required by licence is daily, and the daily limits are **16,500 kL** for discharge to Commissioners Waters; and **7,000 kL** for only EPA Point 3, the Mt Kennedy irrigation areas.

Table 3 continued: Treated wastewater discharge & irrigation volumes

	Frequency required by licence	Reporting month	Month's Total	Lowest daily volume	Mean daily volume	Greatest daily volume
Electronic measure			kL	kL/day	kL/day	kL/day
EPA Point No. 1 (Commissioners Waters)	/daily					
		Dec 23	107632	38	3415	18514
		Jan 24	8342	0	269	3582
		Feb 24	81198	0	2800	12438
		Mar 24	125998	538	4064	11150
		Apr 24	241766	2180	8059	24392
		May 24	254538	4150	8211	18456
		Jun 24	211612	3160	7054	15006
		Jul 24	233696	4128	7539	12915
		Aug 24	239678	3618	7732	14876
		Sep 24	148246	710	4942	14228
		Oct 24	124070	362	4002	8464
		Nov 24	48950	0	1748	5884
		Dec 24	3936	0	218	1008
		Jan 25	56382	0	1819	6802
		Feb 25	97742	652	3491	9678
		Mar 25	166792	614	5380	13070
		Apr 25	209450	1566	6982	18522
		May 25	280868	6264	9060	23082
		Jun 25	207474	5730	6916	8052
		Jul 25	284812	5786	9187	17596
		Aug 25	418246	6860	13492	44472
		Sep 25				
		Oct 25				
		Nov 25				
		Dec 25				

	Frequency required by licence	Reporting month	Month's Total	Lowest daily volume	Mean daily volume	Greatest daily volume	Accessible on Council website
Electronic measure			kL	kL/day	kL/day	kL/day	
EPA Points Nos. 3 & 5 (Mt Kennedy & Windways irrigation areas)	daily						
		Dec 23	82297	0	2655	5240	12/01/24
		Jan 24	124322	0	4010	7003	14/02/24
		Feb 24	105833	0	3649	6133	14/03/24
		Mar 24	65279	0	2106	5292	14/04/24
		Apr 24	8583	0	286	2744	14/05/24
		May 24	0	0	0	0	14/06/24
		Jun 24	0	0	0	0	14/07/24
		Jul 24	82	0	3	82	14/08/24
		Aug 24	8325	0	269	2505	14/09/24
		Sep 24	50235	0	1675	4404	14/10/24
		Oct 24	73257	0	2363	5787	14/11/24
		Nov 24	87315	0	2911	6446	14/12/24
		Dec 24	142677	2409	4602	6329	14/01/25
		Jan 25	114607	0	3697	6741	14/02/25
		Feb 25	68452	0	2360	4641	14/03/25
		Mar 25	31607	0	1020	4286	14/04/25
		Apr 25	37315	0	1244	5840	14/05/25
		May 25	0	0	0	0	14/06/25
		Jun 25	0	0	0	0	14/07/25
		Jul 25	0	0	0	0	14/08/25
		Aug 25	0	0	0	0	02/09/25
		Sep 25					
		Oct 25					
		Nov 25					
		Dec 25					

Table 4: Biosolids sludge volume and spread monitoring

Table 4: continued

	Frequency required by licence	Reporting month	Sludge lagoons	to Mt Kennedy areas	to Windways areas	Accessible on Council website
Measure			kL (~m³)	kL (~m³)	kL (~m³)	
EPA Point No. 8	daily during discharge					
		Jan 2021	No desludging	0	0	04/02/21
		Feb 2021	No desludging	0	0	08/03/21
		Mar 2021	No desludging	0	0	28/04/21
		Apr 2021	No desludging	0	0	11/05/21
		May 2021	No desludging	0	0	23/06/21
		Jun 2021	No desludging	0	0	13/07/21
		July 2021	No desludging	0	0	04/08/21
		Aug 2021	No desludging	0	0	8/09/21
		Sep 2021	No desludging	0	0	11/10/21
		Oct 2021	No desludging	0	0	04/11/21
		Nov 2021	No desludging	0	0	10/12/21
		Dec 2021	No desludging	0	0	20/01/22
		Jan 2022	No desludging	0	0	07/02/22
		Feb 2022	No desludging	0	0	09/03/22
		Mar 2022	No desludging	0	0	08/04/22
		Apr 2022	No desludging	0	0	11/05/22
		May 2022	470	0	470	7/06/22
		Jun 2022	440	0	440	12/07/22
		July 2022	420	120	300	03/08/22
		Aug 2022	1350	600	750	07/09/22
		Sep 2022	No desludging	0	0	19/10/22
		Oct 2022	No desludging	0	0	08/11/22
		Nov 2022	No desludging	0	0	06/02/23
		Dec 2022	No desludging	0	0	06/02/23
		Jan 2023	No desludging	0	0	06/02/23
		Feb 2023	No desludging	0	0	04/04/23
		Mar 2023	No desludging	0	0	04/04/23
		Apr 2023	No desludging	0	0	13/06/23
		May 2023	No desludging	0	0	13/06/23
		Jun 2023	No desludging	0	0	05/07/23
		Jul 2023	420	420		08/08/23
		Aug 2023	300	300		06/09/23
		Sept 2023	No desludging	0	0	16/10/23
		Oct 2023	No desludging	0	0	07/11/23
		Nov 23	No desludging	0	0	06/12/23

	Frequency required by licence	Reporting month	Sludge lagoons	to Mt Kennedy areas	to Windways areas	Accessible on Council website
Measure			kL (~m³)	kL (~m³)	kL (~m³)	
EPA Point No. 8	daily during discharge					
		Dec 23	No desludging	0	0	12/01/24
		Jan 24	No desludging	0	0	14/03/24
		Feb 24	No desludging	0	0	14/04/24
		Mar 24	No desludging	0	0	14/05/24
		Apr 24	No desludging	0	0	14/06/24
		May 24	No desludging	0	0	14/07/24
		Jun 24	No desludging	0	0	14/08/24
		Jul 24	700	700		14/09/24
		Aug 24	9100	560	350	14/10/24
		Sep 24	No desludging	0	0	14/11/24
		Oct 24	No desludging	0	0	14/12/24
		Nov 24	No desludging	0	0	14/01/25
		Dec 24	No desludging	0	0	14/02/25
		Jan 25	No desludging	0	0	14/03/25
		Feb 25	No desludging	0	0	14/04/25
		Mar 25	No desludging	0	0	14/05/25
		Apr 25	No desludging	0	0	14/06/25
		May 25	5500	5500	0	14/07/25
		Jun 25	7400	7400	0	14/08/25
		Jul 25	No desludging	0	0	14/08/25
		Aug 25	No desludging	0	0	02/09/25
		Sep 25				
		Oct 25				
		Nov 25				
		Dec 25				

Table 5: Biosolids sludge quality monitoring

	Frequency required by licence	**Reporting month**	**Ca**	**Cl**	**EC**	**Mg**	**Moisture**	**NO_3**	**TN**	**TP**	**K**	**Na**	**SAR**	**S**	**pH**	**Received** from laboratory	**Accessible** on Council website
Measure			mg/kg	mg/kg	us/cm	mg/kg	as % DW	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ratio	mg/kg	1-14		
EPA Point No. 9	quarterly (every third month of discharge)																
		Jul 2020	No biosolids have been sprayed since August 2018.														
	Lagoon 4	Aug 2020	20989	4520	4460	3340	6.2	120	22930	15100	1790	2800	5.1	6770	7.62	12/08/20	14/08/20
	Lagoon 3	May 2022	28360	823	3220	3080	9.1	10	18500	11630	1120	1270	1.9	6377	7.36	24/05/2022	7/06/22
	Lagoon 4	Aug 2022	25465	742	3020	5800	6.9	93	22600	16828	1611	1656	2.4	6856	7.36	06/08/2022	04/09/22
	Lagoon 1	Jul 2023	18175	1080	4000	4340	5.5	38	23500	16600	2340	2870	5.0	7100	7.13	03/08/2023	08/08/23
	Lagoon 1	Aug 2024	26530	98	2470	4350	5.4	2.1	34200	15935	1960	2545	3.8	6940	7.19	24/08/2024	24/08/2024
	Lagoon 1	Jun 2025	25660	98	2290	4190	5.6	10.0	38800	18650	1800	3050	4.7	7240	7.14	03/06/2025	14/08/2025
	Lagoon 2	July 2025	37700		3150	5110	0.6	0.6	32100	17800	2260	3060		8090	8.1	22/07/2025	14/08/2025

Table 6a: Groundwater quality & depth – WW1, WW2, WW3

Wells	Frequency required by licence	DO	EC	pH	Eh	Temp	D	WL RL	Received from laboratory	Accessible on Council website by	NO_x	TKN	TN	TP
Measure		mg/L	µS/cm	1-14	mV	ºC	m	m			mg/L as N	mg/L as N	mg/L	mg/L
WW1	6 monthly								**WW1**					
Sampling date														
19/03/21		2.68	1451	6.83	+104	22.1	8.28	968.65	06/04/21	27/04/21	2.64	0.4	3.0	0.05
22/04/21		0.83	1385	7.00	+185	16.4	7.74	969.19	05/05/21	25/05/21	1.88	0.4	2.3	0.04
01/11/21		0.64	1243	7.00	+108	17.1	6.93	970.00	11/11/21	01/12/21	1.72	0.4	2.1	0.03
23/03/22		0.86	1258	6.85	+48	18.7	6.47	970.46	04/04/22	26/04/22	1.46	0.2	1.7	0.01
16/12/22		0.68	1162	6.94	+103	16.6	5.48	971.45	03/01/23	23/01/23	1.05	0.3	1.4	<0.01
23/03/23		0.56	1161	6.91	+142	18.3	6.88	970.05	05/04/23	28/04/23	1.04	0.1	1.1	<0.01
14/09/23		7.01	1134	7.00	+159	17.9	7.99	968.94	26/09/23	16/10/23	1.19	0.2	1.4	0.01
27/03/24		0.77	1414	6.93	+123	16.6	8.60	986.33	10/04/24	01/05/24	1.01	<0.1	1.0	<0.01
25/09/24		0.66	1386	7.01	+118	16.8	7.43	969.50	09/10/24	29/10/24	0.97	0.1	1.1	0.02
14/04/25		0.59	1410	6.97	+151	17.2	7.32	969.61	06/05/25	26/05/25	0.98	0.2	1.2	0.02
WW2	6 monthly								**WW2**					
22/04/21		0.23	1222	7.04	+164	16.2	0.93	954.05	05/05/21	25/05/21	0.06	<0.1	<0.1	0.01
01/11/21		0.23	1180	7.04	+88	15.9	1.04	953.94	11/11/21	01/12/21	0.10	0.2	0.3	<0.01
23/03/22		0.30	1157	6.92	+36	18.6	0.82	954.16	04/04/22	26/04/22	0.11	<0.1	0.1	<0.01
16/12/22		0.21	1107	6.97	+105	16.2	1.16	953.82	03/01/23	23/01/23	0.14	<0.1	0.1	<0.01
23/03/23		0.15	1072	6.94	+114	18.0	1.56	953.42	05/04/23	28/04/23	0.15	<0.1	0.2	<0.01
14/09/23		0.23	971	6.89	+117	16.3	1.25	953.73	26/09/23	16/10/23	0.15	0.6	0.8	<0.01
27/03/24		0.21	1192	7.00	+125	16.3	1.26	953.72	10/04/24	01/05/24	0.16	<0.1	0.2	<0.01
25/09/24		0.12	1182	7.08	+104	15.8	1.13	953.85	09/10/24	29/10/24	0.17	<0.1	0.2	<0.01
17/04/25		0.11	1189	7.04	+158	16.0	0.88	954.10	06/05/25	26/05/25	0.21	<0.1	0.2	<0.01
WW3	6 monthly								**WW3**					
22/04/21		0.42	923	7.45	-33	16.9	0.41	955.39	05/05/21	25/05/21	0.01	<0.1	<0.1	0.06
01/11/21		0.58	894	7.49	-29	17.9	0.33	955.47	11/11/21	01/12/21	0.03	<0.1	<0.1	0.06
23/03/22		0.82	899	7.41	-18	18.7	0.32	955.48	04/04/22	26/04/22	0.02	<0.1	<0.1	0.04
16/12/22		0.51	864	7.27	+47	17.3	0.38	955.42	03/01/23	23/01/23	<0.01	<0.1	<0.1	0.03
23/03/23		0.60	843	7.27	+21	18.5	0.92	954.88	05/04/23	28/04/23	<0.01	<0.1	<0.1	0.04
14/09/23		2.87	777	7.26	+64	16.4	1.19	954.61	26/09/23	16/10/23	<0.01	0.2	0.2	0.04
27/03/24		1.46	921	7.30	+35	17.2	1.48	954.32	10/04/24	01/05/24	<.01	<0.1	<0.1	0.01
25/09/24		0.61	944	7.35	+36	16.2	0.94	954.86	09/10/24	29/10/24	<0.1	<0.1	<0.1	0.03
17/04/25		0.21	935	7.37	+112	16.8	1.09	954.71	06/05/25	26/05/25	1.03	0.2	1.2	0.04

Table 6b: Groundwater quality & depth – P3, P6, P7

Wells	Frequency required by licence	DO	EC	pH	Eh	Temp	D	WL RL	Received from laboratory	Accessible on Council website by	NO_x	TKN	TN	TP
Measure		mg/L	µS/cm	1-14	mV	ºC	m	m			mg/L as N	mg/L as N	mg/L	mg/L
P3	6 monthly								**P3**					
Sampling date														
22/04/21		DRY							DRY					
01/11/21		DRY							DRY					
23/03/22		DRY							DRY					
16/12/22		DRY							DRY					
23/03/23		DRY							DRY					
14/09/23		DRY							DRY					
27/03/24		DRY							DRY					
25/09/24		DRY							DRY					
17/04/25		DRY							DRY					
P6	6 monthly								**P6**					
22/04/21		6.70	845	7.53	+51	17.5	3.27	958.42	05/05/21	25/05/21	0.08	0.9	1.0	0.03
01/11/21		6.53	1642	6.31	+123	16.6	3.69	958.00	11/11/21	01/12/21	0.05	0.9	1.0	0.02
23/03/22		6.84	1318	7.43	+81	24.8	2.96	958.73	04/04/22	26/04/22	0.03	0.7	0.7	0.02
16/12/22		5.58	1285	6.59	+176	18.0	3.32	958.37	03/01/23	23/01/23	0.03	1.3	1.3	<0.01
23/03/23		4.96	1323	6.50	+114	18.0	4.44	957.25	05/04/23	28/04/23	0.12	1.6	1.7	0.01
14/09/23		6.97	1168	6.72	+217	16.1	4.48	957.21	26/09/23	16/10/23	0.06	1.0	1.1	<0.01
27/03/24		3.97	1193	6.69	+136	19.9	4.31	957.38	10/04/24	01/05/24	<0.01	0.6	0.6	<0.01
25/09/24		6.50	1805	7.18	+84	18.7	3.70	957.99	09/10/24	29/10/24	0.05	0.9	1.0	<0.01
17/04/25		6.66	1588	6.79	+164	18.8	4.10	957.59	06/05/25	26/05/25	0.09	0.6	0.7	<0.01
P7	6 monthly								**P7**					
22/04/21		9.00	345	7.68	+100	16.2	0.44	961.25	05/05/21	25/05/21	0.02	0.6	0.6	0.19
01/11/21		10.23	337	7.53	+126	15.6	0.91	960.78	11/11/21	01/12/21	0.02	<0.1	<0.1	0.12
23/03/22		9.10	329	7.66	+80	22.9	0.51	961.18	04/04/22	26/04/22	0.02	0.1	0.1	0.08
16/12/22		10.14	332	8.38	+140	18.8	0.80	960.89	03/01/23	23/01/23	0.02	<0.1	<0.1	0.08
23/03/23		7.82	335	7.89	+15	20.5	1.42	960.27	05/04/23	28/04/23	0.01	<0.1	<0.1	0.07
14/09/23		9.38	318	7.58	+213	16.2	1.38	960.31	26/09/23	16/10/23	0.06	0.2	0.3	0.16
27/03/24		7.35	468	7.41	+214	20.4	1.38	959.69	10/04/24	01/05/24	0.12	0.1	0.2	0.13
25/09/24		4.72	654	6.73	+123	18.1	1.97	959.10	09/10/24	29/10/24	0.10	0.5	0.6	0.07
17/04/25		8.70	336	7.65	+199	18.5	0.71	960.98	06/05/25	26/05/25	0.03	<0.1	<0.1	0.16

Table 6c: Groundwater quality & depth – P14, P17

Wells	Frequency required by licence	DO	EC	pH	Eh	Temp	D	WL RL	Received from laboratory	Accessible on Council website by	NO_x	TKN	TN	TP	Remarks
Measure		mg/L	µS/cm	1-14	mV	ºC	m	m			mg/L as N	mg/L as N	mg/L	mg/L	
P14	6 monthly								**P14**						
Sampling date															
22/04/21		7.86	594	7.53	+75	17.2	1.34	959.73	05/05/21	25/05/21	0.77	1.1	1.9	0.21	
01/11/21		6.30	641	7.48	+71	18.4	1.93	959.14	11/11/21	01/12/21	2.03	0.9	2.9	0.16	
23/03/22		6.86	596	7.61	+192	24.0	1.57	959.50	04/04/22	26/04/22	2.22	0.7	2.9	0.17	
16/12/22		5.07	659	7.02	+217	19.1	1.55	959.52	03/01/23	23/01/23	3.37	1.0	4.4	0.12	
23/03/23		4.88	652	6.98	+102	22.2	2.20	958.87	05/04/23	28/04/23	3.38	0.8	4.2	0.14	Fresh biosolids upgradient.
14/09/23		6.72	417	7.00	+164	18.9	1.38	959.69	26/09/23	16/10/23	0.28	0.6	0.9	0.16	
27/03/24		7.35	468	7.41	+214	20.4	1.38	959.69	10/04/24	01/05/24	0.12	0.1	0.2	0.13	
25/09/24		4.72	654	6.73	+123	18.1	1.97	959.10	09/10/24	29/10/24	0.10	0.5	0.6	0.07	
24/04/25		7.10	502	7.10	+136	17.2	1.30	959.77	06/05/25	26/05/25	0.11	0.2	0.3	0.06	
P17	6 monthly								**P17**						
22/04/21		5.71	2975	7.70	+117	17.4	3.17	954.47	05/05/21	25/05/21	9.12	1.4	10.5	0.20	
01/11/21		3.68	4535	7.38	+64	17.9	3.17	954.47	11/11/21	01/12/21	3.39	2.1	5.5	0.21	
23/03/22		3.75	4230	7.50	+136	22.3	1.68	955.96	04/04/22	26/04/22	1.69	1.5	3.2	0.18	
16/12/22		3.22	3475	7.40	+177	19.0	1.96	955.68	03/01/23	23/01/23	1.24	1.3	2.5	0.13	
23/03/23		2.61	3411	7.35	+68	21.4	2.83	954.81	05/04/23	28/04/23	0.79	1.0	1.8	0.16	
14/09/23		5.87	3235	7.47	+131	18.6	2.01	955.63	26/09/23	16/10/23	0.63	2.4	3.0	0.20	
27/03/24		2.99	3590	7.37	+177	19.9	2.98	954.75	10/04/24	01/05/24	0.74	1.0	1.7	0.11	
25/09/24		4.61	3675	7.51	+77	17.1	1.90	955.74	09/10/24	29/10/24	3.31	1.0	4.3	0.15	
24/04/25		4.32	3310	7.40	+92	20.3	2.79	954.85	06/05/25	26/05/25	1.28	0.7	2.0	0.16	