

NAMMOONA LANDFILL FACILITY MONITORING RESULTS

Environmental Protection Licence No. 5873

Licensee: Richmond Valley Council



EPA POINT 3: Leachate Pond Waters				Monitoring Dates																														
Parameter	Frequency	unit of measure		4/03/2019 12:30	4/12/2019 14:45	11/09/2019 13:30	18/06/2019 12:30	21/03/2019 15:00	14/12/2018 10:00	19/09/2018 12:45	14/06/2018 10:30	27/03/2018 14:15	12/12/2017 10:35	12/09/2017 14:25	15/06/2017 10:30	8/03/2017 12:48	12/12/2016 9:45	22/09/2016 10:10	30/06/2016 10:15	15/03/2016 11:15	3/12/2015 11:30	9/09/2015 13:30	17/07/2015 9:15	31/03/2015 14:00	19/12/2014 10:05	29/08/2014 7:50	6/06/2014 8:35	5/03/2014 12:55						
Date/ Time sampled				Mitchell Call	Mitchell Call	Mitchell Call	Mitchell Call	Mitchell Call	Jesse Munro	Jesse Munro	Mark Bayley	Jesse Munro	Mark Bayley	Mark Bayley	Mark Bayley	Mark Bayley	Mark Bayley	Jesse Munro	Mark Bayley	Jesse Munro	Mark Bayley	Jesse Munro	Jesse Munro	Mark Bayley	Mark Bayley	Mark Bayley	Jesse Munro	Jesse Munro	Mark Bayley	Mark Bayley	Jesse Munro			
Sampled by				24/03/2020	24/1/2020	15/10/2019	15/07/2019	10/04/2019	8/01/2019	15/10/2018	30/07/2018	2/05/2018	19/01/2018	23/10/2017	5/07/2017	20/04/2017	16/01/2017																	
Date results received/ Date results published				30/03/2020	3/2/2020	17/10/2019	17/07/2019	12/04/2019	10/1/2019	26/10/2018	7/08/2018	3/05/2018	25/1/2018	26/10/2017	17/7/2017	15/05/2017	25/01/2017																	
Ammonia	Quarterly	mg/L		7.79	164	1.1	42.7	10.6	33.7	68.2	17.7	12.7	10.7	109	15.2	25.1	52.3	50.2	59.6	22.4	42.2	78.4	60.664	24.34	3.233	16.8	84.55	4.65						
Arsenic	Quarterly	mg/L		0.014	0.075	0.017	0.013	0.012	0.038	0.022	0.01	0.009	0.016	0.014	<0.001	0.025	0.025	0.011	0.009	0.014	0.01	0.007	0.009	0.009	0.035	0.012	0.016	0.025						
Bicarbonate	Quarterly	mg/L		435	1920	540	688	320	930	1150	980	500	560	1140	400	1000	870	780	800	680	810	970	780	690	490	460	910	540						
Calcium	Quarterly	mg/L		38	195	32.9	72	106	40.7	55	66	32	43	88	48	33	77	55	57.1	52	67.6	56	61.3	52.9	24.9	61	78	40						
Chloride	Quarterly	mg/L		533	2250	1979	1330	2251	875	2080	1213	895	819	1300	619	2363	1805	921	1024	1150	934	892	896	722	1363	911	1015	1308						
Chromium (total)	Quarterly	mg/L		0.004	0.071	0.019	0.014	0.012	0.023	0.028	0.014	0.008	0.01	0.025	0.004	0.02	0.024	0.014	0.012	0.012	0.014	0.021	0.012	0.009	0.006	0.004	0.011	0.009						
Conductivity	Quarterly	µS/cm		2970	9920	7860	8665	6330	9127	8270	5435	3380	4156	7062	2892	7654	7395	4490	4820	5310	4648	4870	3180	3520	4710	2750	4900	5310						
Copper	Quarterly	mg/L		0.003	0.009	0.005	0.002	0.008	<0.001	0.002	0.001	0.001	0.001	0.003	0.003	<0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.005	0.001	0.001	0.002	0.001	0.003						
Dissolved Organic Carbon	Quarterly	mg/L		74.3	359	282	178	122	297.9	230	202	97	152	250	95.7	246	190	132	164.1	150	125	154	99.5	108	162.9	118	116	153						
Dissolved Oxygen	Quarterly	mg/L		19.2	7.2	15.7	0.99	--	5.65	--	21.9	11.2	4.8	14.5	9.6	16.5	19.2	10.7	5.2	6.61	2.65	6.9	8.9	7.8	10.5	5.98	6.85	7.65						
Magnesium	Quarterly	mg/L		69	176	92.3	106	104	124	166	95	60	69	123	51	114	118	75	79	89	79.2	80	70.8	68.1	102	60	100	98						
Nitrogen (total)	Quarterly	mg/L		23.7	272	52	42.1	43.8	117	64.6	94.9	36.3	28.8	117	36.1	67.9	93.6	59.4	74.6	41.3	58.7	90.9	78.8	47.18	30.7	31.8	94.8	43.62						
Organochlorine Pesticides	Quarterly	mg/L		<0.0001	0.0001	<0.0001	<0.0001	<0.0002	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0	0	0	0	0	<0.2	<0.2	<0.2					
Organophosphate Pesticides	Quarterly	mg/L		<0.0005	<0.0005	<0.0002	<0.0005	<0.0005	<0.0002	<0.0001	<0.0001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0	0	0	0	<0.2	<0.2	<0.2					
pH	Quarterly	pH		8.78	6.76	9.89	8.94	9.14	8.48	8.72	8.75	8.78	8.59	7.89	8.23	8.94	8.73	8.61	8.46	8.46	8.03	8.58	8.97	8.32	9.99	8.61	7.33	8.7						
Phenols	Quarterly	mg/L		<0.0005	0.096	0.0007	0.0007	<0.0005	14	<0.005	<0.0005	<0.010	<0.002	--	<0.001	<0.001	<0.002	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2						
Phosphorus	Quarterly	mg/L		0.98	5.73	3.68	2.61	0.54	1.65	0.63	1.41	0.65	1.0	0.8	0.67	1.66	2.2	0.53	0.389	0.42	0.4	0.34	0.42	0.59	1.07	1	1.672	2.62						
Potassium	Quarterly	mg/L		78	275	229	209	181	279	302	158	106	133	218	90	254	241	140	141	178	129	145	112	116	188	136	100	152						
Semi-volatile organic carbons	Quarterly	mg/L		<0.05	0.25	<0.0005	<0.0005	<0.0005	<0.05	<0.05	<0.0005	<0.10	<0.002	<1	<5	<1	10	<10	<10	<10	<10	none detected	none detected	nil	none detected	ND	Not detected	none detected						
Sodium	Quarterly	mg/L		482	1400	1451	1218	983	1574	1580	822	547	667	995	428	1321	1145	628	669	771	604	689	512	449	886	481	675	881						
Sulphate	Quarterly	mg/L		164	65	27	225	690	54	27	<1	42	34	42	61	79	160	22	44	52	53	41	3	18	21	60	51	27						
Total dissolved solids	Quarterly	mg/L		1640	4950	4510	4271	4090	5940	4930	3280	2000	2470	3510	1530	4690	4010	2465	3275	3611	2397	3312	2591	1900	3090	1745	2640	2810						
Total petroleum hydrocarbons	Quarterly	mg/L		1.9	0.93	3.09	7.07	3.1	3.71	2.87	3	<0.050	0.227	0.524	<0.1	4.02	4.61	2070	1730	1290	1560	0.005	2970	1900	3650	5390	4680	4.07						
Volatile organic compounds	Quarterly	mg/L		<0.01	<0.01	<0.01	<0.010	<0.01	<0.01	<0.010	171.2	<0.010	<0.001	<0.01	<0.01	<0.001	<0.001	<10	<1	<1	none detected	none detected	none detected	nil	none detected	none detected	none detected	none detected						

EPA POINT 8: Monitoring Bore MB1				Monitoring Dates														
Parameter	Frequency	Trigger level	unit of measure	4/03/2020	11/09/2019	21/03/2019	19/09/2018	27/03/2018	12/09/2017	8/03/2017	22/09/2016	15/03/2016	9/09/2015	31/03/2015	19/12/2014	3/09/2014	5/03/2014	
Date/ Time sampled				Mitchell Call	Mitchell Call	Mitchell Call	Jesse Munro	Jesse Munro	Mark Bayley	Mark Bayley	Jesse Munro	Jesse Munro	Jesse Munro	Mark Bayley	Jesse Munro	Jesse Munro	Mark Bayley	
Sampled by																		
Date results received/ Date results published				4/03/2020	17/10/2019	12/04/2019	26/10/2018	3/05/2018	26/10/2017	15/05/2017								
Ammonia	6 Months	0.62	mg/L	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
Dissolved Organic Carbon	6 Months	69.6	mg/L	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
Nitrogen (total)	6 Months	4.2	mg/L	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
pH	6 Months	5.35-9.26	pH	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
Potassium	6 Months	36.9	mg/L	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
Total petroleum hydrocarbons C15-C36	6 Months	125.8	µg/L	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
Fraction	6 Months	<100		dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	
SWL (BGL), m				dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	dry bore	

EPA POINT 9: Monitoring Bore MB2				Monitoring Dates														
Parameter	Frequency	Trigger level	unit of measure	4/03/2019 14:30	11/09/2019 12:30	21/03/2019 13:20	19/09/2018 12:00	27/03/2018 13:45	12/09/2017 13:50	8/03/2017 15:40	22/09/2016 8:45	15/03/2016 10:25	9/09/2015 13:30	31/03/2015 14:30	19/12/2014 10:15	3/09/2014 8:10	5/03/2014 12:30	
Date/ Time sampled				Mitchell Call	Mitchell Call	Mitchell Call	Jesse Munro	Jesse Munro	Mark Bayley	Mark Bayley	Jesse Munro	Jesse Munro	Jesse Munro	Mark Bayley	Jesse Munro	Jesse Munro	Mark Bayley	
Sampled by																		
Date results received/ Date results published				26/03/2020	17/10/2019	12/04/2019	26/10/2018	3/05/2018	26/10/2017	15/05/2017								
Ammonia	6 Months	0.26	mg/L	0.162	0.147	0.2	0.246	0.458	0.248	0.185	0.105	0.127	0.167	0.317	0.178	0.15	44.889	
Dissolved Organic Carbon	6 Months	63.4	mg/L	2.9	3.8	3.2	2.6	3.4	4.5	5.2	4.9	12.3	3.2	12.8	10.6	23.9	9.2	
Nitrogen (total)	6 Months	3.3	mg/L	0.19	0.25	0.24	0.36	0.54	0.4	0.27	0.26	0.21	0.292	0.25	0.37	0.25	48.24	
pH	6 Months	5.11-9.5	pH	6.33	6.42	6.41	6.43	6.82	6.4	6.34	6.26	6.02	6.34	6.51	6.39	6.38	6.39	
Potassium	6 Months	9.1	mg/L	3.41	4.3	4.2	4.4	4.2	4.3	4.5	4.5	4.2	3.4	3.6	4	4.2	8.5	
Total petroleum hydrocarbons C15-C36	6 Months	139.8	µg/L	<100	<100	<100	<150	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
Fraction	6 Months	<100		<100	<100	<100	<150	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	
SWL (BGL), m				3.79	3.89	3.89	3.57	2.7	3.6	2.1	2.73	3.3	3.45	3.3			2.7	

EPA POINT 10: Monitoring Bore MB3				Monitoring Dates														
Parameter	Frequency	Trigger level	unit of measure	4/03/2019 12:00	11/09/2019 14:20	21/03/2019 15:20	19/09/2018 13:40	27/03/2018 13:30	12/09/2017 12:55	8/03/2017 14:05	22/09/2016 10:40	15/03/2016 12:08	9/09/2015 14:10	31/03/2015 15:10	19/12/2014 10:40	3/09/2014 8:50	5/03/2014 13:05	
Date/ Time sampled				Mitchell Call	Mitchell Call	Mitchell Call	Jesse Munro	Jesse Munro	Mark Bayley	Mark Bayley	Jesse Munro	Jesse Munro	Jesse Munro	Mark Bayley	Jesse Munro	Jesse Munro	Mark Bayley	
Sampled by																		
Date results received/ Date results published				26/03/2020	17/10/2019	12/04/2019	26/10/2018	3/05/2018	26/10/2017	15/05/2017								
Ammonia	6 Months	1.4	mg/L	0.168	0.087	0.15	4.59	7.49	0.073	0.4								

Date sampled	Time sampled	Sampled by	Date results received/ Date results published	4/03/2020 14:00 Mitchell Call	11/09/2019 13:00 Mitchell Call	21/03/2019 14:40 Mitchell Call	19/09/2018 12:30 Jesse Munro	27/03/2018 14:15 Jesse Munro	12/09/2017 13:30 Mark Bayley	8/03/2017 14:50 Mark Bayley	22/09/2016 9:35 Jesse Munro	15/03/2016 11:02 Jesse Munro	9/09/2015 12:45 Jesse Munro											
Ammonia	6 Months	0.15	mg/L	0.11	0.029	0.08	0.025	0.05	0.141	0.042	0.078	0.07	0.026											
Dissolved Organic Carbon	6 Months	40.3	mg/L	5.8	5.2	3.4	2.7	3.7	5.6	5.1	9.6	5.4	2.2											
Nitrogen (total)	6 Months	3	mg/L	0.46	0.27	0.18	0.19	0.2	0.41	1.4	1.63	0.23	0.13											
pH	6 Months	4.9-8.4	pH	6.61	6.7	6.61	6.39	6.11	5.46	6.52	5.3	8.78	5.89											
Potassium	6 Months	4.95	mg/L	2.79	3.67	3.3	3.2	2.3	2.7	2.7	2.7	2.8	1.2											
Total petroleum hydrocarbons C15-C36 Fraction	6 Months	50	µg/L	<100	<100	<100	<150	<100	<100	<100	<100	<100	<100											
SWL (BGL), m				2.91	3.02	2.97	2.57	1.67	2.8	2.5	1.66	2	2.13											
SW01	Surface Waters		50mm Rainfall event in 24hrs	129.0mm (onsite) 42.6mm BOM - Casino Airport	84.5mm (onsite) No Data BOM - Casino Airport	124.0mm (onsite) 89.0mm BOM - Casino Airport	49.5mm (onsite) 43.2mm BOM - Casino Airport	58.5mm (onsite) 82.8mm BOM - Casino Airport																
Parameter	Frequency	Trigger level	unit of measure	13/02/2020	7/02/2020	18/01/2020	18/03/2019	16/03/2019	5/06/2016	4/06/2016	28/10/2015	2/05/2015	21/02/2015	29/08/2014	19/06/2013	28/02/2013	29/01/2013	29/01/2013						
Date sampled				13/02/2020	7/02/2020	18/01/2020	18/03/2019	16/03/2019	5/06/2016	4/06/2016	28/10/2015	2/05/2015	21/02/2015	29/08/2014	19/06/2013	28/02/2013	29/01/2013	29/01/2013						
Time sampled				10:20am	8:30am	10:30am	8:30am	8:15am						6:45	10:45									
Sampled by				J. Moroney - RVC	J. Moroney - RVC	C. Dzendolet - RVC	Kristin Blain - RVC	Kristin Blain - RVC	RVC	RVC	RVC	RVC	RVC	Mark Bayley-AWC	Mark Bayley - AWC	RVC	RVC	RVC						
Date results received				24/02/2020	20/02/2020	28/01/2020	4/04/2019	4/04/2019																
Date results published				24/02/2020	20/02/2020	28/01/2020	4/04/2019	4/04/2019																
Ammonia	Event based	n/a	mg/L	0.111	0.244	0.33	0.073	0.068	4.01	0.051	0.055	1.082	0.013	4.474	0.931	0.374	1.755	0.034						
Arsenic	Event based	n/a	mg/L	<0.001	0.121	0.038	0.001	0.001	0.035	0.001	0.001	0.024	0.002	0.001	0.002	0.086	0.002	0.196						
Calcium	Event based	n/a	mg/L	6.4	20	9.94	10.3	21	43.6	8.83	34.4	27.5	24.8	53.1	67.3	18.9	37.3	6.2						
Chloride	Event based	n/a	mg/L	17	72	99	120	48	93.1	103	109	126	25	62	459	64	56	47						
Chromium	Event based	n/a	mg/L	<0.001	0.054	0.012	0.001	0.003	0.023	0.001	0.006	0.016	0.008	0.001	0.002	0.075	0.008	0.082						
Conductivity	Event based	n/a	uS/cm	111	462	424	1110	324	0.75	0.45	0.86	552	272	780	1.83	430	580	240						
Copper	Event based	n/a	mg/L	0.013	0.052	0.018	0.006	0.006	0.029	0.003	0.003	0.016	0.021	0.009	0.004	0.051	0.008	0.075						
Dissolved organic carbon	Event based	n/a	mg/L	15.5	19.6	15.9	36.8	22.5	96.79	14.75	58.5	8.6	14.9	29.2	37.4	14.2	21.5	13.2						
Dissolved Oxygen	Event based	n/a	mg/L	8.3	8.5	9.9	3.2	6.5	1.97	9.95	10.8	8.6	8.7	10.1	8.3	6.52	6.32	6.89						
Magnesium	Event based	n/a	mg/L	2.5	11	9.02	27.9	6.6	15.7	7.85	17.1	12.9	6.8	20.6	46.9	10.8	12.8	5.1						
Manganese	Event based	n/a	mg/L	0.036	0.05	0.045	0.011	0.029	0.484	0.026	0.313	0.022	0.164	0.055	0.099	0.332	0.042	0.031						
Nitrate	Event based	n/a	mg/L	1.5	3.67	1.25	44.6	4.85	2.27	0.343	17.999	4.246	0.75	11.513	4.437	0.28	8.358	0.015						
pH	Event based	n/a	pH	6.92	7.21	6.7	7.02	7.31	6.86	6.33	6.33	7.28	7.37	6.8	7.4	7.35	7.24	7.03						
Potassium	Event based	n/a	mg/L	6.1	8.7	6.69	0.075	15.4	17.2	5.71	26.2	10.9	5.7	16.9	21.6	8.7	15.6	4.4						
Redox potential	Event based	n/a	mV	-52	-52	-57	-52	-57	110	123	217	240	254	225	210	150	210	165						
Sodium	Event based	n/a	mg/L	9.5	58	53.6	62.6	25.2	66.1	55.1	81.2	47.8	25.1	66.8	255	52.7	48.6	32.6						
Sulphate	Event based	n/a	mg/L	6	33	7.7	89	46	44.1	2.01	47	4	21	56	40	17	62	6						
Temperature	Event based	n/a	Deg C						19	20				14.61	15.2	18.5	18.3							
Total suspended solids	Event based	n/a	mg/L	100	24	72	24	28	56	15	38	62	487	70	25	71	66	50						
SW02	Surface Waters		50mm Rainfall event in 24hrs				49.5mm (onsite) 43.2mm BOM - Casino Airport	58.5mm (onsite) 82.8mm BOM - Casino Airport																
Parameter	Frequency	Trigger level	unit of measure	13/02/2020	7/02/2020	18/01/2020	18/03/2019	16/03/2019	5/06/2016	4/06/2016	28/10/2015	2/05/2015	21/02/2015	29/08/2014	19/06/2013	28/02/2013	29/01/2013	29/01/2013						
Date sampled				13/02/2020	7/02/2020	18/01/2020	18/03/2019	16/03/2019	5/06/2016	4/06/2016	28/10/2015	2/05/2015	21/02/2015	29/08/2014	19/06/2013	28/02/2013	29/01/2013	29/01/2013						
Time sampled				10:20am	8:30am	10:30am	8:30am	8:15am						6:55	10:20									
Sampled by				J. Moroney - RVC	J. Moroney - RVC	C. Dzendolet - RVC	Kristin Blain - RVC	Kristin Blain - RVC	RVC	RVC	RVC	RVC	RVC	Mark Bayley-AWC	Mark Bayley - AWC	RVC	RVC	RVC						
Date results received				24/02/2020	20/02/2020	28/01/2020	4/04/2019	4/04/2019																
Date results published				24/02/2020	20/02/2020	28/01/2020	4/04/2019	4/04/2019																
Ammonia	Event Based	n/a	mg/L	0.133	0.269	0.213	0.074	0.075	0.44	0.03	0.055	0.42	0.148	0.877	6.38	0.491	0.557	0.118						
Arsenic	Event Based	n/a	mg/L	<0.001	0.002	0.001	0.064	0.268	0.00	0.00	0.001	0.002	0.135	0.002	0.001	0.001	0.001	0.002						
Calcium	Event Based	n/a	mg/L	20	53	39	10.3	4.2	66.10	11.50	34.4	38.1	12.9	119	128	78.4	62.3	27						
Chloride	Event Based	n/a	mg/L	14	41	16	61	32	77.50	14.20	109	70	55	115	122	46	80	32						
Chromium	Event Based	n/a	mg/L	0.001	0.001	0.003	0.018	0.069	0.00	0.00	0.006	0.003	0.059	0.002	0.002	0.002	0.003	0.005						
Conductivity	Event Based	n/a	uS/cm	198	577	388	332	154	0.95	0.19	0.858	497	0.316	1.3	1.48	830	850	410						
Copper	Event Based	n/a	mg/L	0.007	0.006	0.01	0.029	0.072	0.01	0.01	0.003	0.006	0.064	0.013	0.015	0.013	0.009	0.009						
Dissolved organic carbon	Event Based	n/a	mg/L	14.6	11.8	17.9	16.5	36.89	13.49	58.5	28.8	14.1	43.8	37.1	12	24.1	30.8							
Dissolved Oxygen	Event Based	n/a	mg/L	8.1	6.4	8.6	4.8	5.6	10.32	9.90	10.8	10.3	9.6	10.4	8.3	7.02	6.61	7.15						
Magnesium	Event Based	n/a	mg/L	5.6	14	8.73	7.6	3.4	22.70	3.64	17.1	12.8	7.4	45.4	49.9	25	19.2	7.5						
Manganese	Event Based	n/a	mg/L	0.052	0.008	0.089	0.028	0.027	0.02	0.03	0.313	0.033	0.095	0.038	0.131	0.048	0.033	0.021						
Nitrate	Event Based	n/a	mg/L	2.28	3.96	12.4	1.77	0.378	13.70	1.52	17.999	3.685	0.581	24.031	17.204	4.723	15.889	5.93						
pH	Event Based	n/a	pH	7.35	7.56	7.46	7.07	7.01	7.60	7.31	6.33	7.28	7.26	7.029	7.63	7.46	7.23	7.5						
Potassium	Event Based	n/a	mg/L	6.9	15	11.6	7.3	2.4	26.80	9.02	26.2	12.9	5.1	32.3	32.8	18.3	18.7							