

Operator: CWM Environmental Ltd
Permit: CP3735PB

Installation: Nantycaws Landfill Site
Form: Leachate Q2 2023

Reporting of leachate monitoring for the period from 01-Apr-2023 to 30-Jun-2023

Monitoring location	Substance / parameter ⁽⁶⁾	Test method ⁽²⁾	Date ⁽³⁾	Compliance limit ⁽⁷⁾	Result ^{(1) (4)}	Unit ⁽⁵⁾
Cell 1/2 Sump	Base of well/borehole/sump	Field	11/04/2023		13.75	m
			05/05/2023		14.6	m
			13/06/2023		14.6	m
	Groundwater level/dip		11/04/2023		13.72	m
			05/05/2023		13.68	m
			13/06/2023		13.88	m
	Leachate level above base of sump/pit base		11/04/2023	3m above base	0.03	m
			05/05/2023	3m above base	0.92	m
			13/06/2023	3m above base	0.72	m
	Biological oxygen demand	TM045	11/04/2023		54.6	mg/l
	Total organic carbon	TM090	11/04/2023		259	mg/l
	Ammoniacal Nitrogen as N	TM099	11/04/2023	<3,640 mg/l	610	mg/l
			05/05/2023	<3,640 mg/l	567	mg/l
			13/06/2023	<3,640 mg/l	1090	mg/l
	Chemical oxygen demand (unfiltered)	TM107	11/04/2023		1010	mg/l
	Cadmium (filtered)	TM152	19/04/2023	<0.105 mg/l	0.00142	mg/l
	Calcium (filtered)		19/04/2023		39.2	mg/l
	Chromium (filtered)		19/04/2023		0.207	mg/l
	Copper (filtered)		19/04/2023		0.0822	mg/l
	Iron (filtered)		19/04/2023		6.46	mg/l
	Lead (filtered)		19/04/2023		0.03	mg/l
	Magnesium (filtered)		19/04/2023		50	mg/l
	Manganese (filtered)		19/04/2023		0.088	mg/l

Monitoring location	Substance / parameter ⁽⁶⁾	Test method ⁽²⁾	Date ⁽³⁾	Compliance limit ⁽⁷⁾	Result ^{(1) (4)}	Unit ⁽⁵⁾
Cell 1/2 Sump	Nickel (filtered)	TM152	19/04/2023		0.363	mg/l
	Potassium (filtered)		19/04/2023		3720	mg/l
	Sodium (filtered)		19/04/2023		5440	mg/l
	Zinc (filtered)		19/04/2023		0.384	mg/l
	4-Methylphenol	TM176	11/04/2023	<1.6 mg/l	<0.01	mg/l
	Diethyl phthalate		11/04/2023	<0.44 mg/l	<0.01	mg/l
	Chloride	TM184	11/04/2023	<19,000 mg/l	2310	mg/l
			05/05/2023	<19,000 mg/l	1980	mg/l
			13/06/2023	<19,000 mg/l	13600	mg/l
	Sulphate		11/04/2023		<2	mg/l
	Total Oxidised Nitrogen as N		11/04/2023		0.149	mg/l
	Dichloromethane	TM208	11/04/2023	<0.033 mg/l	<0.003	mg/l
	Electrical conductivity @20°C (lab)	TM256	11/04/2023		12200	µS/cm
			05/05/2023		10500	µS/cm
			13/06/2023		36500	µS/cm
	Total Alkalinity as CaCO3		11/04/2023		3530	mg/l
	Mecoprop	TM411	11/04/2023	<0.071 mg/l	0.0166	mg/l
Cell 3/4 Sump	Base of well/borehole/sump	Field	11/04/2023		10.96	m
			05/05/2023		10.9	m
			13/06/2023		10.9	m
	Groundwater level/dip		11/04/2023		10	m
			05/05/2023		10.22	m
			13/06/2023		10.28	m
	Leachate level above base of sump/pit base		11/04/2023	2.8m above base	0.96	m
			05/05/2023	2.8m above base	0.68	m
			13/06/2023	2.8m above base	0.62	m
	Biological oxygen demand	TM045	11/04/2023		122	mg/l
	Total organic carbon	TM090	11/04/2023		434	mg/l
	Ammoniacal Nitrogen as N	TM099	11/04/2023	<3,640 mg/l	700	mg/l
			05/05/2023	<3,640 mg/l	634	mg/l

Monitoring location	Substance / parameter ⁽⁶⁾	Test method ⁽²⁾	Date ⁽³⁾	Compliance limit ⁽⁷⁾	Result ⁽¹⁾ ⁽⁴⁾	Unit ⁽⁵⁾
Cell 3/4 Sump	Ammoniacal Nitrogen as N	TM099	13/06/2023	<3,640 mg/l	853	mg/l
	Chemical oxygen demand (unfiltered)	TM107	11/04/2023		1570	mg/l
	Cadmium (filtered)	TM152	11/04/2023	<0.105 mg/l	0.000432	mg/l
	Calcium (filtered)		11/04/2023		102	mg/l
	Chromium (filtered)		11/04/2023		0.0836	mg/l
	Copper (filtered)		11/04/2023		0.0222	mg/l
	Iron (filtered)		11/04/2023		2.79	mg/l
	Lead (filtered)		11/04/2023		0.000769	mg/l
	Magnesium (filtered)		11/04/2023		43.2	mg/l
	Manganese (filtered)		11/04/2023		0.521	mg/l
	Nickel (filtered)		11/04/2023		0.151	mg/l
	Potassium (filtered)		11/04/2023		598	mg/l
	Sodium (filtered)		11/04/2023		1140	mg/l
	Zinc (filtered)		11/04/2023		0.0367	mg/l
	4-Methylphenol	TM176	11/04/2023	<1.6 mg/l	<0.05	mg/l
	Diethyl phthalate		11/04/2023	<0.44 mg/l	<0.05	mg/l
	Chloride	TM184	11/04/2023	<19,000 mg/l	1500	mg/l
			05/05/2023	<19,000 mg/l	1390	mg/l
			13/06/2023	<19,000 mg/l	5160	mg/l
	Sulphate		11/04/2023		187	mg/l
	Total Oxidised Nitrogen as N		11/04/2023		54.3	mg/l
	Dichloromethane	TM208	11/04/2023	<0.033 mg/l	<0.003	mg/l
	Electrical conductivity @20°C (lab)	TM256	11/04/2023		10700	µS/cm
			05/05/2023		9030	µS/cm
			13/06/2023		19500	µS/cm
	Total Alkalinity as CaCO3		11/04/2023		3970	mg/l
	Mecoprop	TM411	11/04/2023	<0.071 mg/l	0.0235	mg/l
Cell 5 Sump	Base of well/borehole/sump	Field	11/04/2023		5.9	m
			05/05/2023		5.9	m
			13/06/2023		5.9	m

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Cell 5 Sump	Groundwater level/dip	Field	11/04/2023		5.1	m
			05/05/2023		5.22	m
			13/06/2023		5.36	m
	Leachate level above base of sump/pit base		11/04/2023	2m above base	0.8	m
			05/05/2023	2m above base	0.68	m
			13/06/2023	2m above base	0.54	m
	Biological oxygen demand	TM045	11/04/2023		74.3	mg/l
	Total organic carbon	TM090	11/04/2023		428	mg/l
	Ammoniacal Nitrogen as N	TM099	11/04/2023	<3,640 mg/l	858	mg/l
			05/05/2023	<3,640 mg/l	678	mg/l
			13/06/2023	<3,640 mg/l	1740	mg/l
	Chemical oxygen demand (unfiltered)	TM107	11/04/2023		1490	mg/l
	Cadmium (filtered)	TM152	11/04/2023	<0.105 mg/l	0.000274	mg/l
	Calcium (filtered)		11/04/2023		97	mg/l
	Chromium (filtered)		11/04/2023		0.0839	mg/l
	Copper (filtered)		11/04/2023		0.0113	mg/l
	Iron (filtered)		11/04/2023		3.56	mg/l
	Lead (filtered)		11/04/2023		0.0024	mg/l
	Magnesium (filtered)		11/04/2023		107	mg/l
	Manganese (filtered)		11/04/2023		0.587	mg/l
	Nickel (filtered)		11/04/2023		0.133	mg/l
	Potassium (filtered)		11/04/2023		1920	mg/l
	Sodium (filtered)		11/04/2023		2540	mg/l
	Zinc (filtered)		11/04/2023		0.094	mg/l
	4-Methylphenol	TM176	11/04/2023	<0.126 mg/l	<0.02	mg/l
	Diethyl phthalate		11/04/2023	<0.36 mg/l	<0.02	mg/l
	Chloride	TM184	11/04/2023	<19,000 mg/l	5180	mg/l
			05/05/2023	<19,000 mg/l	4450	mg/l
			13/06/2023	<19,000 mg/l	8650	mg/l
	Sulphate		11/04/2023		<40	mg/l

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Cell 5 Sump	Total Oxidised Nitrogen as N	TM184	11/04/2023		45	mg/l
	Dichloromethane	TM208	11/04/2023	<0.066 mg/l	<0.003	mg/l
	Electrical conductivity @20°C (lab)	TM256	11/04/2023		20500	µS/cm
			05/05/2023		17800	µS/cm
			13/06/2023		30700	µS/cm
	Total Alkalinity as CaCO3		11/04/2023		3770	mg/l
	Mecoprop	TM411	11/04/2023	<0.14 mg/l	0.0247	mg/l
Cell 6 Sump	Base of well/borehole/sump	Field	11/04/2023		25.62	m
			05/05/2023		25.6	m
			13/06/2023		25.6	m
	Groundwater level/dip		11/04/2023		24.2	m
			05/05/2023		25.38	m
			13/06/2023		25.4	m
	Leachate level above base of sump/pit base		11/04/2023	1.5m above base	1.42	m
			05/05/2023	1.5m above base	0.22	m
			13/06/2023	1.5m above base	0.2	m
	Biological oxygen demand	TM045	11/04/2023		9.04	mg/l
	Total organic carbon	TM090	11/04/2023		161	mg/l
	Ammoniacal Nitrogen as N	TM099	11/04/2023	<3,640 mg/l	250	mg/l
			05/05/2023	<3,640 mg/l	91.1	mg/l
			13/06/2023	<3,640 mg/l	3.84	mg/l
	Chemical oxygen demand (unfiltered)	TM107	11/04/2023		503	mg/l
	4-Methylphenol	TM176	11/04/2023	<0.126 mg/l	<0.004	mg/l
	Diethyl phthalate		11/04/2023	<0.36 mg/l	<0.004	mg/l
	Chloride	TM184	11/04/2023	<19,000 mg/l	615	mg/l
			05/05/2023	<19,000 mg/l	652	mg/l
			13/06/2023	<19,000 mg/l	902	mg/l
	Sulphate		11/04/2023		<4	mg/l
	Total Oxidised Nitrogen as N		11/04/2023		<0.2	mg/l
	Dichloromethane	TM208	11/04/2023	<0.066 mg/l	<0.003	mg/l

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Cell 6 Sump	Electrical conductivity @20°C (lab)	TM256	11/04/2023		4780	µS/cm
			05/05/2023		4050	µS/cm
			13/06/2023		4480	µS/cm
	Total Alkalinity as CaCO3		11/04/2023		1960	mg/l
	Mecoprop	TM411	11/04/2023	<0.14 mg/l	<0.004	mg/l
Cell 7 Sump	Base of well/borehole/sump	Field	11/04/2023		26.35	m
			05/05/2023		26.3	m
			13/06/2023		26.3	m
	Groundwater level/dip		11/04/2023		25.7	m
			05/05/2023		26.12	m
			13/06/2023		26.1	m
	Leachate level above base of sump/pit base		11/04/2023	1.5m above base	0.65	m
			05/05/2023	1.5m above base	0.18	m
			13/06/2023	1.5m above base	0.2	m
	Biological oxygen demand	TM045	11/04/2023		<10	mg/l
	Total organic carbon	TM090	11/04/2023		205	mg/l
	Ammoniacal Nitrogen as N	TM099	11/04/2023	<3,640 mg/l	250	mg/l
			05/05/2023	<3,640 mg/l	133	mg/l
			13/06/2023	<3,640 mg/l	4.04	mg/l
	Chemical oxygen demand (unfiltered)	TM107	11/04/2023		586	mg/l
	4-Methylphenol	TM176	11/04/2023	<0.126 mg/l	<0.01	mg/l
	Diethyl phthalate		11/04/2023	<0.36 mg/l	<0.01	mg/l
	Chloride	TM184	11/04/2023	<19,000 mg/l	758	mg/l
			05/05/2023	<19,000 mg/l	795	mg/l
			13/06/2023	<19,000 mg/l	898	mg/l
	Sulphate		11/04/2023		61.7	mg/l
	Total Oxidised Nitrogen as N		11/04/2023		0.39	mg/l
	Dichloromethane	TM208	11/04/2023	<0.066 mg/l	<0.003	mg/l
	Electrical conductivity @20°C (lab)	TM256	11/04/2023		5300	µS/cm
			05/05/2023		4940	µS/cm

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Cell 7 Sump	Electrical conductivity @20°C (lab)	TM256	13/06/2023		4470	µS/cm
	Total Alkalinity as CaCO3		11/04/2023		2130	mg/l
	Mecoprop	TM411	11/04/2023	<0.14 mg/l	<0.004	mg/l
Leachate Holding Lagoon	Base of well/borehole/sump	Field	11/04/2023		8.5	m
			05/05/2023		8.56	m
			13/06/2023		8.56	m
	Groundwater level/dip		11/04/2023		2.4	m
			05/05/2023		2.43	m
			13/06/2023		2.98	m
	Biological oxygen demand	TM045	11/04/2023		79.1	mg/l
	Total organic carbon	TM090	11/04/2023		403	mg/l
	Ammoniacal Nitrogen as N	TM099	11/04/2023	<3,640 mg/l	919	mg/l
			05/05/2023	<3,640 mg/l	847	mg/l
			13/06/2023	<3,640 mg/l	1060	mg/l
	Chemical oxygen demand (unfiltered)	TM107	11/04/2023		1200	mg/l
	Cadmium (filtered)	TM152	11/04/2023		<0.00008	mg/l
	Calcium (filtered)		11/04/2023		95.6	mg/l
	Chromium (filtered)		11/04/2023		0.0833	mg/l
	Copper (filtered)		11/04/2023		0.00198	mg/l
	Iron (filtered)		11/04/2023		2.87	mg/l
	Lead (filtered)		11/04/2023		0.000749	mg/l
	Magnesium (filtered)		11/04/2023		71.4	mg/l
	Manganese (filtered)		11/04/2023		0.605	mg/l
	Nickel (filtered)		11/04/2023		0.107	mg/l
	Potassium (filtered)		11/04/2023		1140	mg/l
	Sodium (filtered)		11/04/2023		2020	mg/l
	Zinc (filtered)		11/04/2023		0.0286	mg/l
	4-Methylphenol	TM176	11/04/2023		<0.05	mg/l
	Diethyl phthalate		11/04/2023		<0.05	mg/l
	Chloride	TM184	11/04/2023	<19,000 mg/l	2970	mg/l

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Leachate Holding Lagoon	Chloride	TM184	05/05/2023	<19,000 mg/l	2600	mg/l	
			13/06/2023	<19,000 mg/l	3560	mg/l	
			11/04/2023		<40	mg/l	
	Total Oxidised Nitrogen as N		11/04/2023	<1	mg/l		
	Dichloromethane	TM208	11/04/2023		<0.003	mg/l	
	Electrical conductivity @20°C (lab)	TM256	11/04/2023		15300	µS/cm	
			05/05/2023		13900	µS/cm	
			13/06/2023		16800	µS/cm	
	Total Alkalinity as CaCO3		11/04/2023		4520	mg/l	
	Mecoprop	TM411	11/04/2023		0.0218	mg/l	
LMP5a	Base of well/borehole/sump	Field	11/04/2023		8.5	m	
			05/05/2023		8.5	m	
			13/06/2023		8.5	m	
	Groundwater level/dip		11/04/2023		DRY	m	
			05/05/2023		DRY	m	
			13/06/2023		DRY	m	
	Leachate level above base of sump/pit base		11/04/2023	1.5m above base	0	m	
			05/05/2023	1.5m above base	0	m	
			13/06/2023	1.5m above base	0	m	
	LMP5b	Base of well/borehole/sump		11/04/2023		6.8	m
05/05/2023					6.8	m	
13/06/2023					6.8	m	
Groundwater level/dip			11/04/2023		DRY	m	
			05/05/2023		DRY	m	
			13/06/2023		DRY	m	
Leachate level above base of sump/pit base			11/04/2023	1.5m above base	0	m	
			05/05/2023	1.5m above base	0	m	
			13/06/2023	1.5m above base	0	m	
LMP6a		Base of well/borehole/sump		11/04/2023		19.1	m
	05/05/2023				19.1	m	

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LMP6a	Base of well/borehole/sump	Field	13/06/2023		19.1	m
	Groundwater level/dip		11/04/2023		DRY	m
			05/05/2023		DRY	m
			13/06/2023		DRY	m
	Leachate level above base of sump/pit base		11/04/2023	1.5m above base	0	m
			05/05/2023	1.5m above base	0	m
LMP7a	Base of well/borehole/sump		13/06/2023	1.5m above base	0	m
			11/04/2023		10.5	m
			05/05/2023		10.44	m
			13/06/2023		10.44	m
	Groundwater level/dip		11/04/2023		10.2	m
			05/05/2023		10.22	m
LMP7b			13/06/2023		10.24	m
	Leachate level above base of sump/pit base		11/04/2023	1.5m above base	0.3	m
			05/05/2023	1.5m above base	0.22	m
			13/06/2023	1.5m above base	0.2	m
	Base of well/borehole/sump		11/04/2023		4	m
			05/05/2023		4	m
M1A			13/06/2023		4	m
	Groundwater level/dip		11/04/2023		3.88	m
			05/05/2023		3.97	m
			13/06/2023		3.97	m
	Leachate level above base of sump/pit base		11/04/2023	1.5m above base	0.12	m
			05/05/2023	1.5m above base	0.03	m
			13/06/2023	1.5m above base	0.03	m
	Base of well/borehole/sump		11/04/2023		16.38	m
			05/05/2023		16.4	m
			13/06/2023		16.4	m
	Groundwater level/dip		11/04/2023		15.9	m
			05/05/2023		15.93	m

Monitoring location	Substance / parameter ⁽⁶⁾	Test method ⁽²⁾	Date ⁽³⁾	Compliance limit ⁽⁷⁾	Result ^{(1) (4)}	Unit ⁽⁵⁾
M1A	Groundwater level/dip	Field	13/06/2023		16.13	m
	Leachate level above base of sump/pit base		11/04/2023	2m above base	0.48	m
			05/05/2023	2m above base	0.47	m
M1B	Base of well/borehole/sump		13/06/2023	2m above base	0.27	m
			11/04/2023		10.68	m
			05/05/2023		10.6	m
	Groundwater level/dip		13/06/2023		10.6	m
			11/04/2023		10.33	m
			05/05/2023		10.2	m
	Leachate level above base of sump/pit base		13/06/2023		10.58	m
			11/04/2023	2m above base	0.35	m
			05/05/2023	2m above base	0.4	m
M2A	Base of well/borehole/sump		13/06/2023	2m above base	0.02	m
			11/04/2023		19.1	m
			05/05/2023		21.2	m
	Groundwater level/dip		13/06/2023		21.2	m
			11/04/2023		DRY	m
			05/05/2023		DRY	m
	Leachate level above base of sump/pit base		13/06/2023		DRY	m
			11/04/2023	2m above base	0	m
			05/05/2023	2m above base	0	m
M2B	Base of well/borehole/sump		13/06/2023	2m above base	0	m
			11/04/2023		19.72	m
			05/05/2023		19.7	m
	Groundwater level/dip		13/06/2023		19.7	m
			11/04/2023		19.2	m
			05/05/2023		19.38	m
	Leachate level above base of sump/pit base		13/06/2023		19.49	m
			11/04/2023	2m above base	0.52	m
			05/05/2023	2m above base	0.32	m

Monitoring location	Substance / parameter ⁽⁶⁾	Test method ⁽²⁾	Date ⁽³⁾	Compliance limit ⁽⁷⁾	Result ^{(1) (4)}	Unit ⁽⁵⁾
M2B	Leachate level above base of sump/pit base	Field	13/06/2023	2m above base	0.21	m
M3A	Base of well/borehole/sump		11/04/2023		21.48	m
			05/05/2023		21.5	m
			13/06/2023		21.5	m
	Groundwater level/dip		11/04/2023		20.9	m
			05/05/2023		21.26	m
			13/06/2023		21.38	m
	Leachate level above base of sump/pit base		11/04/2023	1.8m above base	0.58	m
			05/05/2023	1.8m above base	0.24	m
			13/06/2023	1.8m above base	0.12	m
M3B	Base of well/borehole/sump		11/04/2023		15.62	m
			05/05/2023		15.6	m
			13/06/2023		15.6	m
	Groundwater level/dip		11/04/2023		15.1	m
			05/05/2023		15.13	m
			13/06/2023		15.2	m
	Leachate level above base of sump/pit base		11/04/2023	1.8m above base	0.52	m
			05/05/2023	1.8m above base	0.47	m
			13/06/2023	1.8m above base	0.4	m
M4A	Base of well/borehole/sump		11/04/2023		18.58	m
			05/05/2023		18.5	m
			13/06/2023		18.5	m
	Groundwater level/dip		11/04/2023		18	m
			05/05/2023		18	m
			13/06/2023		18.1	m
	Leachate level above base of sump/pit base		11/04/2023	1.8m above base	0.58	m
			05/05/2023	1.8m above base	0.5	m
			13/06/2023	1.8m above base	0.4	m
M4B	Base of well/borehole/sump		11/04/2023		16.9	m
			05/05/2023		16.9	m

Monitoring location	Substance / parameter ⁽⁶⁾	Test method ⁽²⁾	Date ⁽³⁾	Compliance limit ⁽⁷⁾	Result ^{(1) (4)}	Unit ⁽⁵⁾
M4B	Base of well/borehole/sump	Field	13/06/2023		16.9	m
	Groundwater level/dip		11/04/2023		16.8	m
			05/05/2023		16.72	m
			13/06/2023		16.78	m
	Leachate level above base of sump/pit base		11/04/2023	1.8m above base	0.1	m
			05/05/2023	1.8m above base	0.18	m
			13/06/2023	1.8m above base	0.12	m

(1) The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

(2) Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, e.g. gas chromatography.

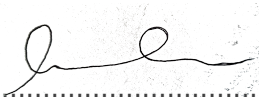
(3) For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

(4) The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated; refer to laboratory data sheets for specific uncertainty.

(5) Depths reported as metres (m) are metres below ground level unless are labelled as leachate head above base of sump.

(6) For details of the sampling method, frequency and parameters measured / analysed for, refer to the site Environmental Monitoring Management Plan (EMMP).

(7) Where blank, there is no defined compliance limit specified for the monitoring location / parameter.

Signature:.....

Date: 29 June 2023

(Authorised to sign as representative of
Operator)