Operator: CWM Environmental Ltd
Permit: CP3735PB

Installation: Nantycaws Landfill Site
Form: Surface waters Q1 2020

Reporting of surface water monitoring for the period 01-Jan-2020 to 31-Mar-2020

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW201	Ionic balance	Calulation	06-Jan-2020		-3.73	%
	Electrical conductivity (field)	Field	01-Jan-2020		211	µS/cm
			01-Feb-2020		178	µS/cm
			01-Mar-2020		167	µS/cm
	Groundwater level/dip		01-Jan-2020		23mm	m
			01-Feb-2020		32mm	m
			01-Mar-2020		33mm	m
	Water temperature		01-Jan-2020		8.9	°C
			01-Feb-2020		9	°C
			01-Mar-2020		10	°C
	Total Suspended solids	TM022	06-Jan-2020		2.3	mg/l
			11-Feb-2020		11.9	mg/l
			11-Mar-2020		4.1	mg/l
	Bicarbonate alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		100	mg/l
	Total Alkalinity as CaCO3		06-Jan-2020		100	mg/l
	Total alkalinity as CaCO3 (filtered)		06-Jan-2020		100	mg/l
	Total organic carbon	TM090	06-Jan-2020		5.54	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020		<0.2	mg/l
			11-Feb-2020		<0.2	mg/l
			11-Mar-2020		<0.2	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		218	µS/cm
			11-Feb-2020		166	µS/cm
			11-Mar-2020		148	µS/cm

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW201	Cadmium (filtered)	TM152	06-Jan-2020		<0.00008	mg/l
	Calcium (filtered)		06-Jan-2020		36.5	mg/l
	Chromium (filtered)		06-Jan-2020		<0.001	mg/l
	Iron (filtered)		06-Jan-2020		0.206	mg/l
	Lead (filtered)		06-Jan-2020		<0.0002	mg/l
	Magnesium (filtered)		06-Jan-2020		2.93	mg/l
	Manganese (filtered)		06-Jan-2020		0.0178	mg/l
	Nickel (filtered)		06-Jan-2020		0.000681	mg/l
	Potassium (filtered)		06-Jan-2020		1.07	mg/l
	Sodium (filtered)		06-Jan-2020		6.82	mg/l
	Zinc (filtered)		06-Jan-2020		0.00319	mg/l
	4-Methylphenol	TM176	06-Jan-2020		<0.001	mg/l
	Diethyl phthalate		06-Jan-2020		<0.001	mg/l
	Chloride	TM184	06-Jan-2020		11.6	mg/l
			11-Feb-2020		17.8	mg/l
			11-Mar-2020		13.6	mg/l
	Nitrate as NO3		06-Jan-2020		7.74	mg/l
	Nitrite as NO2		06-Jan-2020		<0.05	mg/l
	Sulphate		06-Jan-2020		5.8	mg/l
	Total Oxidised Nitrogen as N		06-Jan-2020		1.75	mg/l
	Dichloromethane	TM208	06-Jan-2020		<0.003	mg/l
	pH (lab)	TM256	06-Jan-2020		7.8	pH units
			11-Feb-2020		7.71	pH units
			11-Mar-2020		7.49	pH units
	Mecoprop	TM411	06-Jan-2020		<0.00004	mg/l
SW202	Ionic balance	Calulation	06-Jan-2020		-3.48	%
	Electrical conductivity (field)	Field	01-Jan-2020		256	µS/cm
			01-Feb-2020		176	µS/cm
			01-Mar-2020		352	µS/cm

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW202	Groundwater level/dip	Field	01-Jan-2020		36mm	m
			01-Feb-2020		38mm	m
			01-Mar-2020		37mm	m
	Water temperature		01-Jan-2020		10.1	°C
			01-Feb-2020		9.2	°C
			01-Mar-2020		11.5	°C
	Total Suspended solids	TM022	06-Jan-2020		5.75	mg/l
			11-Feb-2020		11.8	mg/l
			11-Mar-2020		12.7	mg/l
	Bicarbonate alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		130	mg/l
	Total Alkalinity as CaCO3		06-Jan-2020		120	mg/l
	Total alkalinity as CaCO3 (filtered)		06-Jan-2020		130	mg/l
	Total organic carbon	TM090	06-Jan-2020		4.83	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020		<0.2	mg/l
			11-Feb-2020		<0.2	mg/l
			11-Mar-2020		0.419	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		263	µS/cm
			11-Feb-2020		163	µS/cm
			11-Mar-2020		391	µS/cm
	Cadmium (filtered)	TM152	06-Jan-2020		<0.00008	mg/l
	Calcium (filtered)		06-Jan-2020		47.3	mg/l
	Chromium (filtered)		06-Jan-2020		<0.001	mg/l
	Iron (filtered)		06-Jan-2020		0.232	mg/l
	Lead (filtered)		06-Jan-2020		0.0005	mg/l
	Magnesium (filtered)		06-Jan-2020		3.69	mg/l
	Manganese (filtered)		06-Jan-2020		0.0498	mg/l
	Nickel (filtered)		06-Jan-2020		0.000884	mg/l
	Potassium (filtered)		06-Jan-2020		2.76	mg/l
	Sodium (filtered)		06-Jan-2020		7.7	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW202	Zinc (filtered)	TM152	06-Jan-2020		0.0138	mg/l
	4-Methylphenol	TM176	06-Jan-2020		<0.001	mg/l
	Diethyl phthalate		06-Jan-2020		<0.001	mg/l
	Chloride	TM184	06-Jan-2020		12.4	mg/l
			11-Feb-2020		17.8	mg/l
			11-Mar-2020		30.2	mg/l
	Nitrate as NO3		06-Jan-2020		10.1	mg/l
	Nitrite as NO2		06-Jan-2020		0.125	mg/l
	Sulphate		06-Jan-2020		8.5	mg/l
	Total Oxidised Nitrogen as N		06-Jan-2020		2.31	mg/l
	Dichloromethane	TM208	06-Jan-2020		<0.003	mg/l
	pH (lab)	TM256	06-Jan-2020		7.97	pH units
			11-Feb-2020		7.67	pH units
			11-Mar-2020		7.78	pH units
	Mecoprop	TM411	06-Jan-2020		<0.00004	mg/l
SW203	Electrical conductivity (field)	Field	01-Jan-2020		646	µS/cm
			01-Feb-2020		465	µS/cm
			01-Mar-2020		477	µS/cm
	Groundwater level/dip		01-Jan-2020		21mm	m
			01-Feb-2020		27mm	m
			01-Mar-2020		35mm	m
	Water temperature		01-Jan-2020		9.7	°C
			01-Feb-2020		8.5	°C
			01-Mar-2020		14.9	°C
	Total Suspended solids	TM022	06-Jan-2020		2.3	mg/l
			11-Feb-2020		4.05	mg/l
			11-Mar-2020		5.65	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020		<0.2	mg/l
			11-Feb-2020		<0.2	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW203	Ammoniacal Nitrogen as N	TM099	11-Mar-2020		0.503	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		652	µS/cm
			11-Feb-2020		442	µS/cm
			11-Mar-2020		442	µS/cm
	Cadmium (filtered)	TM152	06-Jan-2020		<0.00008	mg/l
	4-Methylphenol	TM176	06-Jan-2020		<0.001	mg/l
	Diethyl phthalate		06-Jan-2020		<0.001	mg/l
	Chloride	TM184	06-Jan-2020		23.6	mg/l
			11-Feb-2020		25	mg/l
			11-Mar-2020		17.1	mg/l
	Dichloromethane	TM208	06-Jan-2020		<0.003	mg/l
	pH (lab)	TM256	06-Jan-2020		7.78	pH units
			11-Feb-2020		7.93	pH units
			11-Mar-2020		7.58	pH units
	Mecoprop	TM411	06-Jan-2020		<0.00004	mg/l
SW204	Ionic balance	Calulation	06-Jan-2020		-2.36	%
	Electrical conductivity (field)	Field	01-Jan-2020		468	µS/cm
			01-Feb-2020		437	µS/cm
			01-Mar-2020		369	µS/cm
	Groundwater level/dip		01-Jan-2020		29mm	m
			01-Feb-2020		31mm	m
			01-Mar-2020		28mm	m
	Water temperature		01-Jan-2020		9.9	°C
			01-Feb-2020		11.2	°C
			01-Mar-2020		10.7	°C
	Total Suspended solids	TM022	06-Jan-2020		4.45	mg/l
			11-Feb-2020		6.4	mg/l
			11-Mar-2020		3	mg/l
	Bicarbonate alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		180	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW204	Total Alkalinity as CaCO3	TM043	06-Jan-2020		180	mg/l
	Total alkalinity as CaCO3 (filtered)		06-Jan-2020		180	mg/l
	Total organic carbon	TM090	06-Jan-2020		14.4	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020		<0.2	mg/l
			11-Feb-2020		<0.2	mg/l
			11-Mar-2020		<0.2	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		449	µS/cm
			11-Feb-2020		381	µS/cm
			11-Mar-2020		334	µS/cm
	Cadmium (filtered)	TM152	06-Jan-2020		<0.00008	mg/l
	Calcium (filtered)		06-Jan-2020		70	mg/l
	Chromium (filtered)		06-Jan-2020		<0.001	mg/l
	Iron (filtered)		06-Jan-2020		0.15	mg/l
	Lead (filtered)		06-Jan-2020		0.000255	mg/l
	Magnesium (filtered)		06-Jan-2020		5.65	mg/l
	Manganese (filtered)		06-Jan-2020		0.0534	mg/l
	Nickel (filtered)		06-Jan-2020		0.00231	mg/l
	Potassium (filtered)		06-Jan-2020		29.6	mg/l
	Sodium (filtered)		06-Jan-2020		12.6	mg/l
	Zinc (filtered)		06-Jan-2020		0.00267	mg/l
	4-Methylphenol	TM176	06-Jan-2020		<0.001	mg/l
	Diethyl phthalate		06-Jan-2020		<0.001	mg/l
	Chloride	TM184	06-Jan-2020		33.5	mg/l
			11-Feb-2020		33.2	mg/l
			11-Mar-2020		22	mg/l
	Nitrate as NO3		06-Jan-2020		10.7	mg/l
	Nitrite as NO2		06-Jan-2020		<0.05	mg/l
	Sulphate		06-Jan-2020		38.6	mg/l
	Total Oxidised Nitrogen as N		06-Jan-2020		2.42	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW204	Dichloromethane	TM208	06-Jan-2020		<0.003	mg/l
	pH (lab)	TM256	06-Jan-2020		8.02	pH units
			11-Feb-2020		7.73	pH units
			11-Mar-2020		7.79	pH units
	Mecoprop	TM411	06-Jan-2020		5.74e-05	mg/l
SW205a	Ionic balance	Calulation	06-Jan-2020		-3.33	%
	Electrical conductivity (field)	Field	01-Jan-2020		264	µS/cm
			01-Feb-2020		415	µS/cm
			01-Mar-2020		447	µS/cm
	Groundwater level/dip		01-Jan-2020		38mm	m
			01-Feb-2020		43mm	m
			01-Mar-2020		62mm	m
	Water temperature		01-Jan-2020		9.6	°C
			01-Feb-2020		9	°C
			01-Mar-2020		12.2	°C
	Total Suspended solids	TM022	06-Jan-2020	<70 mg/l	7.7	mg/l
			11-Feb-2020	<70 mg/l	7.7	mg/l
			11-Mar-2020	<70 mg/l	3.1	mg/l
	Bicarbonate alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		125	mg/l
	Total Alkalinity as CaCO3		06-Jan-2020		130	mg/l
	Total alkalinity as CaCO3 (filtered)		06-Jan-2020		125	mg/l
	Total organic carbon	TM090	06-Jan-2020		4.52	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020	<1.0 mg/l	<0.2	mg/l
			11-Feb-2020	<1.0 mg/l	0.262	mg/l
			11-Mar-2020	<1.0 mg/l	<0.2	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		255	µS/cm
			11-Feb-2020		393	µS/cm
			11-Mar-2020		302	µS/cm
	Cadmium (filtered)	TM152	06-Jan-2020	<0.0001 mg/l	<0.00008	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW205a	Calcium (filtered)	TM152	06-Jan-2020		45.8	mg/l
	Chromium (filtered)		06-Jan-2020		<0.001	mg/l
	Iron (filtered)		06-Jan-2020		0.231	mg/l
	Lead (filtered)		06-Jan-2020		0.000259	mg/l
	Magnesium (filtered)		06-Jan-2020		3.48	mg/l
	Manganese (filtered)		06-Jan-2020		0.0484	mg/l
	Nickel (filtered)		06-Jan-2020		0.000557	mg/l
	Potassium (filtered)		06-Jan-2020		2.32	mg/l
	Sodium (filtered)		06-Jan-2020		7.18	mg/l
	Zinc (filtered)		06-Jan-2020		0.00334	mg/l
	4-Methylphenol	TM176	06-Jan-2020	<0.001 mg/l	<0.001	mg/l
	Diethyl phthalate		06-Jan-2020	<0.003 mg/l	<0.001	mg/l
	Chloride	TM184	06-Jan-2020	<150 mg/l	12	mg/l
			11-Feb-2020	<150 mg/l	34	mg/l
			11-Mar-2020	<150 mg/l	21.9	mg/l
	Nitrate as NO3		06-Jan-2020		9.77	mg/l
	Nitrite as NO2		06-Jan-2020		0.124	mg/l
	Sulphate		06-Jan-2020		7.1	mg/l
	Total Oxidised Nitrogen as N		06-Jan-2020		2.25	mg/l
	Dichloromethane	TM208	06-Jan-2020	<0.002 mg/l	<0.003	mg/l
	pH (lab)	TM256	06-Jan-2020	6 to 9 pH units	7.97	pH units
			11-Feb-2020	6 to 9 pH units	8.02	pH units
			11-Mar-2020	6 to 9 pH units	7.96	pH units
	Mecoprop	TM411	06-Jan-2020	<0.000055 mg/l	<0.00004	mg/l
SW206	Ionic balance	Calulation	06-Jan-2020		-4.28	%
	Electrical conductivity (field)	Field	01-Jan-2020		271	µS/cm
			01-Feb-2020		467	µS/cm
			01-Mar-2020		242	µS/cm
	Groundwater level/dip		01-Jan-2020		54mm	m

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW206	Groundwater level/dip	Field	01-Feb-2020		55mm	m
			01-Mar-2020		58mm	m
	Water temperature		01-Jan-2020		8.7	°C
			01-Feb-2020		8.9	°C
			01-Mar-2020		12.6	°C
	Total Suspended solids	TM022	06-Jan-2020	<50 mg/l	2.25	mg/l
			11-Feb-2020	<50 mg/l	24.5	mg/l
			11-Mar-2020	<50 mg/l	2.05	mg/l
	Bicarbonate alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		135	mg/l
	Total Alkalinity as CaCO3		06-Jan-2020		130	mg/l
	Total alkalinity as CaCO3 (filtered)		06-Jan-2020		135	mg/l
	Total organic carbon	TM090	06-Jan-2020		5.66	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020	<1.0 mg/l	<0.2	mg/l
			11-Feb-2020	<1.0 mg/l	0.301	mg/l
			11-Mar-2020	<1.0 mg/l	<0.2	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		274	µS/cm
			11-Feb-2020		461	µS/cm
			11-Mar-2020		180	µS/cm
	Cadmium (filtered)	TM152	06-Jan-2020	<0.0001 mg/l	<0.00008	mg/l
	Calcium (filtered)		06-Jan-2020		46.6	mg/l
	Chromium (filtered)		06-Jan-2020		<0.001	mg/l
	Iron (filtered)		06-Jan-2020		0.171	mg/l
	Lead (filtered)		06-Jan-2020		0.000322	mg/l
	Magnesium (filtered)		06-Jan-2020		3.8	mg/l
	Manganese (filtered)		06-Jan-2020		0.0441	mg/l
	Nickel (filtered)		06-Jan-2020		0.000701	mg/l
	Potassium (filtered)		06-Jan-2020		7.69	mg/l
	Sodium (filtered)		06-Jan-2020		7.84	mg/l
	Zinc (filtered)		06-Jan-2020		0.00334	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW206	4-Methylphenol	TM176	06-Jan-2020	<0.001 mg/l	<0.001	mg/l
	Diethyl phthalate		06-Jan-2020	<0.003 mg/l	<0.001	mg/l
	Chloride	TM184	06-Jan-2020	<150 mg/l	14.3	mg/l
			11-Feb-2020	<150 mg/l	36.6	mg/l
			11-Mar-2020	<150 mg/l	18.1	mg/l
	Nitrate as NO3		06-Jan-2020		10.7	mg/l
	Nitrite as NO2		06-Jan-2020		0.095	mg/l
	Sulphate		06-Jan-2020		8.8	mg/l
	Total Oxidised Nitrogen as N		06-Jan-2020		2.45	mg/l
	Dichloromethane	TM208	06-Jan-2020	<0.002 mg/l	<0.003	mg/l
	pH (lab)	TM256	06-Jan-2020	6 to 9 pH units	8.05	pH units
			11-Feb-2020	6 to 9 pH units	7.97	pH units
			11-Mar-2020	6 to 9 pH units	7.59	pH units
	Mecoprop	TM411	06-Jan-2020	<0.000055 mg/l	<0.00004	mg/l
SW207	Ionic balance	Calulation	06-Jan-2020		-6.14	%
	Electrical conductivity (field)	Field	01-Jan-2020		232	µS/cm
			01-Feb-2020		243	µS/cm
			01-Mar-2020		239	µS/cm
	Groundwater level/dip		01-Jan-2020		42mm	m
			01-Feb-2020		47mm	m
			01-Mar-2020		46mm	m
	Water temperature		01-Jan-2020		10	°C
			01-Feb-2020		9.7	°C
			01-Mar-2020		11.1	°C
	Total Suspended solids	TM022	06-Jan-2020		2.65	mg/l
			11-Feb-2020		14.9	mg/l
			11-Mar-2020		7.7	mg/l
	Bicarbonate alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		115	mg/l
	Total Alkalinity as CaCO3		06-Jan-2020		115	mg/l

Monitoring location	Substance / parameter [6]	Test method [2]	Date [3]	Compliance limit [7]	Result [1] [4]	Unit [5]
SW207	Total alkalinity as CaCO3 (filtered)	TM043	06-Jan-2020		115	mg/l
	Total organic carbon	TM090	06-Jan-2020		6.83	mg/l
	Ammoniacal Nitrogen as N	TM099	06-Jan-2020		<0.2	mg/l
			11-Feb-2020		<0.2	mg/l
			11-Mar-2020		<0.2	mg/l
	Electrical conductivity @20°C (lab)	TM120	06-Jan-2020		280	µS/cm
			11-Feb-2020		268	µS/cm
			11-Mar-2020		216	µS/cm
	Cadmium (filtered)	TM152	06-Jan-2020		<0.00008	mg/l
	Calcium (filtered)		06-Jan-2020		38.9	mg/l
	Chromium (filtered)		06-Jan-2020		<0.001	mg/l
	Iron (filtered)		06-Jan-2020		0.22	mg/l
	Lead (filtered)		06-Jan-2020		0.000316	mg/l
	Magnesium (filtered)		06-Jan-2020		3.29	mg/l
	Manganese (filtered)		06-Jan-2020		0.0307	mg/l
	Nickel (filtered)		06-Jan-2020		0.000726	mg/l
	Potassium (filtered)		06-Jan-2020		4.83	mg/l
	Sodium (filtered)		06-Jan-2020		7.68	mg/l
	Zinc (filtered)		06-Jan-2020		0.00319	mg/l
	4-Methylphenol	TM176	06-Jan-2020		<0.001	mg/l
	Diethyl phthalate		06-Jan-2020		<0.001	mg/l
	Chloride	TM184	06-Jan-2020		14.6	mg/l
			11-Feb-2020		23	mg/l
			11-Mar-2020		20.7	mg/l
	Nitrate as NO3		06-Jan-2020		8.69	mg/l
	Nitrite as NO2		06-Jan-2020		<0.05	mg/l
	Sulphate		06-Jan-2020		7.9	mg/l
	Total Oxidised Nitrogen as N		06-Jan-2020		1.98	mg/l
	Dichloromethane	TM208	06-Jan-2020		<0.003	mg/l

Monitoring location	Substance / parameter (6)	Test method (2)	Date (3)	Compliance limit (7)	Result (1) (4)	Unit (5)
SW207	pH (lab)	TM256	06-Jan-2020		7.86	pH units
			11-Feb-2020		7.84	pH units
			11-Mar-2020		7.82	pH units
	Mecoprop	TM411	06-Jan-2020		<0.00004	mg/l

(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 above base of ditch / stream.
(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.

Dent, Julia
Digitally signed by Dent, Julia
DN: cn=Dent, Julia, ou=Manchester (First Street), email=Julia.Dent@wsp.com
Date: 2020.04.24 17:16:49 +01'00'

Signature:..... Date: 24 April 2020

(Authorised to sign as representative of Operator)