

SUMMARY OF BIOSOLIDS PRODUCTION AND END USE – 2022

CAPITAL REGIONAL DISTRICT

January 2023

Amount of Biosolids Produced

In 2022, a total of 3,173 tonnes (t) of Class A Biosolids were produced at the Residuals Treatment Facility (RTF). 470 t were provided to Lafarge per the Definitive Plan. 595 t were used to produce Biosolids Growing Medium (BGM) as part of the approved Contingency Plan. 2,108 t were deposited in Hartland Landfill, either incorporated into interim daily cover or landfilled directly. All biosolids produced by the RTF in 2022 met Class A standards.

Biosolids production and end use data for 2022 is as follows:

Biosolids Type	Produced	End Use		
		Definitive Plan ^b	Contingency Plan: BGM ^c	Hartland Landfill ^d
Dried ^a Class A	3,173 t	470 t	595 t	2,108 t

^a Greater than 90% solids.

^b Used as an alternative fuel at the Lafarge cement manufacturing facility in Richmond, BC.

^c Land applied within the leachate containment area of Hartland Landfill.

^d Class A Biosolids placed within leachate containment areas as a layer of interim cover or are directly landfilled.

Compliance Monitoring

The Capital Regional District's (CRD) contractor, Hartland Resource Management Group, tests biosolids produced at the RTF to ensure the biosolids are Class A, as defined by the BC Organic Matter Recycling Regulation (OMRR). Testing is performed by CARO Analytical Services. OMRR specifies that for Class A biosolids, metals concentrations must not exceed "those specified in Trade Memorandum T-4-93 (September 1997), Standards for Metals in Fertilizers and Supplements, as amended from time to time." The latest version of OMRR – <https://www2.gov.bc.ca/gov/content/environment/waste-management/food-and-organic-waste/regulations-guidelines> and the latest version of Trade Memorandum T-4-93 <https://inspection.canada.ca/plant-health/fertilizers/trade-memoranda/t-4-93/eng/1305611387327/1305611547479>.

In June 2022, the Ministry of Environment and Climate Change Strategy announced the intention to amend OMRR, including new standards for Class A biosolids. Regulatory amendments are targeted for 2023. The proposed OMRR Standards have been included in the table for reference. Values reported in the table below represent the average, minimum and maximum of the 36 samples taken between January and December 2022.

Substance	OMRR Standard ^a (mg/kg dry weight)	Proposed OMRR Standard ^b (mg/kg dry weight)	RTF Biosolids (mg/kg dry weight)		
			Average	Minimum	Maximum
Metals					
Arsenic (As)	666	41	2.08	1.40	2.68
Cadmium (Cd)	177	15	1.51	1.02	2.02
Chromium (Cr)	9,333	1000	34.8	23.9	45.1
Cobalt (Co)	1,333	150	2.84	1.89	3.71
Copper (Cu)	6,666	1500	549	404	711
Mercury (Hg)	44	4	0.544	0.419	0.729
Molybdenum (Mo)	177	20	7.71	5.89	10.3
Nickel (Ni)	1,600	180	17.0	11.8	20.8
Lead (Pb)	4,444	300	29.8	21.9	37.3
Selenium (Se)	124	25	4.19	1.01	5.21
Thallium (Tl)	44	ns	<0.10	<0.10	<0.10
Vanadium (V)	5,777	ns	14.3	8.4	23.9
Zinc (Zn)	16,444	1820	875	650	1100
Fecal Coliforms					
MPN	1,000	1000	<3.0	<3.0	<3.0

^a For metals, the maximum allowable concentrations for Class A biosolids are calculated based on a 500 kg/ha annual application rate; for fecal coliforms, the maximum allowable concentration is a fixed value.

^b Proposed OMRR standards are tabled for reference - standards subject to change once final OMRR amendment is published.

ns = no standard

MPN = most probable number

For reference, the following CRD reports can be found in the links below:

1. Biosolids Beneficial Use Strategy – <https://www.crd.bc.ca/project/biosolids-beneficial-use-strategy>
2. Definitive Plan – <https://www.crd.bc.ca/docs/default-source/biosolids-pdf/appendix-a-biosolids-beneficial-use-definitive-plan---sylvia.pdf?sfvrsn=7105cfca>
3. Short-Term Biosolids Contingency Plan – https://www.crd.bc.ca/docs/default-source/biosolids-pdf/crd-biosolids-short-term-contingency-plan.pdf?sfvrsn=a2b023cc_2
4. Biosolids Production Reports – <https://www.crd.bc.ca/about/data/biosolids-production>