

ANNUAL SUMMARY

2024 Management of Regional District of Nanaimo French Creek Pollution Control Centre Biosolids

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Presentation date: February 6, 2024

BACKGROUND

Regional District of Nanaimo (RDN) Class A biosolids from the French Creek Pollution Control Centre (FCPCC) are delivered to the Nanaimo Forest Products Harmac Pacific pulp and paper mill (Harmac) in Nanaimo, BC where they are blended with hog fuel and sand to produce a biosolids growing medium (BGM), a retail-grade product regulated under the BC *Organic Matter Recycling Regulation* (OMRR). BGM from FCPCC biosolids has been produced at Harmac since 2020 and has been sold to local property developers or used in on-site landfill closure.

SYLVIS provides qualified professional oversight of the BGM program and certifies batches of BGM as per OMRR criteria. All batches of BGM produced to date have met regulatory quality criteria with the exception of the batch produced from deliveries occurring between July 2023 and September 2024, which was sampled and tested in September 2024. This material technically remains a Class A biosolids. Harmac will identify an end-use for this material in 2025.

2024 MANAGEMENT SUMMARY

In 2024 a volume correction factor has been included to align with documented stockpile clearing events. Volume changes can result from handling and blending of the feedstocks. Theoretical volume calculations based on the mix ratio are likely biased towards higher volumes, and thus require a periodic correction.

Row #	Material	Category	2020	2021	2022	2023	2024
1	FCPCC Biosolids (wt)	Carry over from previous year	0	730	1,031	1,363	791
2		Tonnage delivered to BGM project	1,007	1,299	1,291	1,124	1,074
3		Tonnage exported from site	277	998	640	605	238
4		Tonnage used in landfill cover	0	0	0	648	0
5		Tonnage Correction	0	0	320	443	0
6		Carry over to next year (1+2)-(3+4)	730	1,031	1,363	791	1,627
7	BGM (m ³)	Carry over from previous year	0	3,320	4,720	6,260	3,610
8		Volume mixed	4,720	6,020	5,980	5,200	4,970
9		Volume exported from site	1,400	4,620	2,960	2,800	1,100
10		Volume used in landfill cover	0	0	0	3,000	0
11		Volume Correction	0	0	1,480	2,050	0
12		Carry over to next year (7+8)-(9+10+11)	3,320	4,720	6,260	3,610	7,480

Note: Biosolids are mixed at a ratio of 2 biosolids : 4 hog fuel : 5 sand to produce BGM.

BIOSOLIDS QUALITY SUMMARY

In 2024, three composite samples were collected by SYLVIS and analyzed for physical parameters, nutrients, and trace elements. In 2024 FCPCC biosolids met the OMRR Class A criteria for trace element concentrations. Eight samples for fecal coliform analysis were collected by SYLVIS in 2024. All samples tested below the Class A criterion of 1,000 MPN/g. Five samples tested at < 10 MPN/g. The other three samples tested at < 1,000 MPN/g due to “dilution effects” resulting from requirements of the analytical method for those specific samples. The dilution effect increases the detection limit, in this case increasing it up to the regulatory criterion. In all likelihood the actual fecal coliform count was similar to other samples but the lab could not confirm that, although they did confirm that the values were below the regulatory criterion. FCPCC biosolids continued to meet the OMRR Class A criterion of < 1,000 MPN/g fecal coliforms in 2024.

Table 1: French Creek Pollution Control Centre biosolids quality summary - 2024.

WWTP	FCPCC	OMRR Class A Biosolids Criteria ^a	Units
# of samples	3		
Available Nutrients			
Ammonia + Ammonium - N (available)	3,133	-	µg/g
Nitrate - N (available)	46	-	µg/g
Phosphorus (total)	20,100	-	µg/g
Potassium (available)	948	-	µg/g
Classification			
Organic Matter	68.5	-	%
Total Nitrogen	5.08	-	%
C:N Ratio	7.6	-	-
OMRR Trace Elements			
Arsenic	2.1	75	µg/g
Cadmium	1.61	20	µg/g
Chromium	31.0	1,060 ^b	µg/g
Cobalt	2.20	150	µg/g
Copper	696	2,200 ^b	µg/g
Lead	13.1	500	µg/g
Mercury	0.594	5	µg/g
Molybdenum	4.89	20	µg/g
Nickel	11.5	180	µg/g
Selenium	4.5	14	µg/g
Zinc	1,367	1,850	µg/g

Note: All analyses based on dry weight.

- a Class A trace element criteria specified in the August 2017 version of *Trade Memorandum T-4-93, Standards for Metals in Fertilizers and Supplements*, and microbiological criteria specified in Schedule 3 of the *BC Organic Matter Recycling Regulation*.
- b For context, OMRR Class B trace element criteria are specified where no Class A criteria exist.

Table 1 cont'd: French Creek Pollution Control Centre biosolids quality summary - 2024.

WWTP	FCPCC	OMRR Class A Biosolids Criteria ^a	Units
# of samples	3		
Physical Properties			
Total Solids	31.3	-	%
Electrical Conductivity (Sat Paste)	8.87	-	dS/m
pH (1:2 Soil:Water)	7.0	-	pH
Foreign Matter	< 0.1	1	%
Foreign Matter (sharps)	< 0.1	0	%
Microbiology			
Fecal coliforms	< 1,000 ^c	1,000	MPN/g Dry

Note: All analyses based on dry weight.

- a Class A trace element criteria specified in the August 2017 version of *Trade Memorandum T-4-93, Standards for Metals in Fertilizers and Supplements*, and microbiological criteria specified in Schedule 3 of the *BC Organic Matter Recycling Regulation*.
- c Value is the maximum of eight samples collected by SYLVIS throughout 2024.