

## ANNUAL SUMMARY

### 2023 Management of Regional District of Nanaimo French Creek Pollution Control Centre Biosolids

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#### 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 is sold to local property developers or used in on-site landfill closure. BGM from FCPCC biosolids has been produced at Harmac since 2020.

SYLVIS Environmental provides qualified professional oversight of the BGM program and certifies annual or semi-annual batches of BGM as per the BGM criteria in the OMRR. To date all batches of BGM produced using FCPCC biosolids at Harmac have met regulatory quality criteria.

#### 2023 MANAGEMENT SUMMARY

Row #	Material	Category	2020	2021	2022	2023
1	FCPCC Biosolids (wt)	Carry over from previous year	0	730	1,031	1,682
2		Tonnage delivered to BGM project	1,007	1,299	1,291	1,124
3		Tonnage exported from site	277	998	640	605
4		Tonnage used in landfill cover	0	0	0	648
5		Carry over to next year (1+2)-(3+4)	730	1,031	1,682	1,554
6	BGM (m <sup>3</sup> )	Carry over from previous year	0	3,300	4,700	7,700
7		Volume mixed	4,700	6,000	6,000	5,200
8		Volume exported from site	1,400	4,600	3,000	2,800
9		Volume used in landfill cover	0	0	0	3,000
10		Carry over to next year (6+7)-(8+9)	3,300	4,700	7,700	7,100

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

#### BIOSOLIDS QUALITY SUMMARY

In 2023, three composite samples were collected by SYLVIS and analyzed for physical parameters, nutrients, and trace elements. In 2023 FCPCC biosolids met the OMRR Class A criteria for trace elements concentrations. Eight samples for fecal coliform analysis were collected by SYLVIS in 2023. Six of these samples had fecal coliforms below the Class A criterion of 1,000 MPN/g. Two samples collected late in 2023 exceeded this criterion, but it was determined that they were spurious results, likely related to sample collection or storage issues. Unfortunately

there was insufficient time in 2023 to re-sample following these results. The RDN's FCPCC sampling results were used to confirm that the biosolids continue to meet the OMRR Class A criterion of < 1,000 MPN/g fecal coliforms.

**Table 1:** French Creek Pollution Control Centre biosolids quality summary - 2023.

WWTP	FCPCC	OMRR Class A Biosolids Criteria <sup>a</sup>	Units
# of samples	3		
<b>Available Nutrients</b>			
Ammonia + Ammonium - N (available)	2,697	-	µg/g
Nitrate - N (available)	4	-	µg/g
Phosphorus (total)	23,333	-	µg/g
Potassium (available)	691	-	µg/g
<b>Classification</b>			
Organic Matter	62.7	-	%
Total Nitrogen	4.48	-	%
C:N Ratio	7.9	-	-
<b>OMRR Trace Elements</b>			
Arsenic	2.2	75	µg/g
Cadmium	1.60	20	µg/g
Chromium	53.3	1,060 <sup>b</sup>	µg/g
Cobalt	2.47	150	µg/g
Copper	713	2,200 <sup>b</sup>	µg/g
Lead	17.0	500	µg/g
Mercury	0.593	5	µg/g
Molybdenum	3.43	20	µg/g
Nickel	13.3	180	µg/g
Selenium	1.5	14	µg/g
Zinc	1,140	1,850	µg/g
<b>Physical Properties</b>			
Total Solids	32.1	-	%
Electrical Conductivity (Sat Paste)	7.78	-	dS/m
pH (1:2 Soil:Water)	7.2	-	pH
Foreign Matter	< 0.1	1	%
Foreign Matter (sharps)	< 0.1	0	%
<b>Microbiology</b>			
Fecal coliforms	10 <sup>c</sup>	1,000	MPN/g Dry

**Note:** All analyses based on dry weight.

- a Class A trace element criteria specified in Trade Memorandum T-4-93, Standards for Metals in Fertilizers and Supplements as of August 2017, 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.
- c Value is the maximum of six samples collected by SYLVIS throughout 2023.