

## Digestate Handling and Nutrient Management Plan

Issued under: Authorization RA20047, and sections 10(1) and 26 of the Standards and Administration Regulation, Alta. Reg. 267/2001.

Issued and approved by: The Natural Resources Conservation Board (NRCB)

Issued to: BioRefinex Canada Inc. (BioRefinex)

BioRefinex shall not apply digestate to arable land without first obtaining a written agreement from the land owner to receive the digestate. The agreement shall include a statement that the landowner:

- a) has read and understands BioRefinex's obligations under both Authorization RA20047 and this Digestate Handling and Nutrient Management Plan; and,
  - b) will not take any action that will prevent BioRefinex from meeting the terms and conditions of the authorization and this Digestate Handling and Nutrient Management Plan.
1. Baseline soil testing shall be conducted on any arable land before digestate is applied by any person to that land, unless otherwise authorized by the NRCB in writing. Prior to the first application of digestate to any field, and under condition 4 below, soil testing shall be conducted for the parameters, and at the soil depths, listed in Table A.

**Table A: Soil Test Parameters and Sampling Depths for Baseline Parameters**

<b>Parameter</b>	<b>Soil depth interval [cm]</b>
Plant available nitrogen (N)	0-60, 60-120
Sulphate (S)	0-60, 60-120
Soil test phosphorus (P)	0-15
Potassium (K)	0-15
Micronutrients (SE, Zn, Cu)	0-15
Electrical conductivity	0-15
Total metals	0-15
pH	0-15
Soil Texture	0-15, 15-30

2. Prior to the second and third application of digestate to any field, in a three year period, soil samples shall be taken and analyzed for the parameters listed in Table B. The location for all testing under this condition shall be within 10 metres of, and from the same landscape as, the soil testing conducted under condition 1, unless otherwise authorized by the NRCB in writing.

**Table B: Soil Test Parameters and Sampling Depths for subsequent testing**

<b>Parameter</b>	<b>Soil depth interval [cm]</b>
Plant available nitrogen (N)	0-30, 0-60, 60-120
Soil test phosphorus (P)	0-15
Electrical conductivity	0-15

3. After three (3) applications of digestate on the same land location, and prior to each subsequent application of digestate at that location, soil tests shall be taken and analyzed for the full set of parameters listed in Table A.
4. For all soil sampling and testing under conditions 1, 2 and 3 above:
  - a) the soil samples shall be taken by a Professional Agrologist;
  - b) the sampling method used can either be random sampling or benchmark sampling as described in the following publication issued by Alberta Agriculture, Forestry and Rural Development (AFRED): The Nutrient Management Planning Guide (updated January 1, 2008) – Chapter 3.3 - Soil sampling.
  - c) whichever method is chosen should be used for all subsequent sampling at the same site;
  - d) the GPS coordinates shall be determined and recorded for all sampling locations;
  - e) all samples from different sampling locations in the same field shall be composited by sampling depth; and
  - f) all soil samples shall be analyzed in an accredited analytical soil laboratory using the standard methods for the soils in the area they were taken.
5. The NRCB may, in writing, change any of the soil testing requirements listed above, if warranted based on digestate characterization(s) or soil testing information.

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6. The Digestate Land Application Report required by condition B.2 of Authorization RA20047 shall include, at a minimum, the following information:
    - a. the digestate characterization referred to in AEP Approval 321355-00-00 (as amended);
    - b. the written agreement from the landowner for each field on which BioRefinex applies digestate;
    - c. the legal land location of each field where digestate was applied by BioRefinex;
    - d. the digestate application rate (volume per unit area basis) for each field where digestate was applied, and the area of the field to which digestate was applied;
    - e. the soil testing results required by conditions 1, 2 and 3; and
    - f. any other information required in writing by the NRCB.
  
  7. The annual Digestate Storage Report required by condition C.6 of Authorization RA20047 shall include, at a minimum, the following information:
    - a. the written agreement from the landowner for each manure storage facility in which the permit holder stores digestate;
    - b. the legal land location of each manure storage facility where digestate is stored by the permit holder;
    - c. the yearly amount (tonnes or volume) of digestate stored at each manure storage facility;
    - d. any other information required in writing by the NRCB.

May 11, 2022

(Original Signed)  
Francisco Echegaray, P.Ag.  
Approval Officer