

A. LIMITATIONS AND MONITORING REQUIREMENTS

1. Biosolids/WTP residuals Metals Limitations – Biosolids shall not be applied to the land if the concentration of any pollutant in the biosolids exceeds the ceiling limitation of that pollutant.

PARAMETERS	POLLUTANT CONCENTRATION LIMITATIONS	CEILING LIMITATIONS <sup>(1)</sup>	MONITORING REQUIREMENTS
	Monthly Average	Maximum	Frequency
Arsenic (mg/kg)	41	75	Per Item 5
Cadmium (mg/kg)	39	85	Per Item 5
Copper (mg/kg)	1,500	4,300	Per Item 5
Lead (mg/kg)	300	840	Per Item 5
Mercury (mg/kg)	17	57	Per Item 5
Molybdenum (mg/kg)	NL <sup>(2)</sup>	75	Per Item 5
Nickel (mg/kg)	420	420	Per Item 5
Selenium (mg/kg)	100	100	Per Item 5
Zinc(mg/kg)	2,800	7,500	Per Item 5
Aluminum <sup>(3)</sup> (mg/kg)	NL	NL	1/Year

NL = No Limit, monitoring required

- (1) Biosolids shall not be applied to the land if the concentration of any pollutant in the biosolids exceeds the ceiling limitation of that pollutant.
- (2) The monthly average concentration for molybdenum is currently under study by USEPA. Research suggests that a monthly average Molybdenum concentration below 40 mg/kg may be appropriate to reduce the risk of copper deficiency in grazing animals
- (3) All residuals generated at a WTP that uses any aluminum based coagulant are subject to aluminum monitoring and the tracking of the aluminum loading at each field on which WTP residuals are applied.

2. Biosolids Characteristics – Biosolids/WTP residuals that are land applied under the authority of this permit shall be monitored and limited as specified below:

PARAMETERS	LIMITATIONS <sup>(1)</sup>	MONITORING FREQUENCY
Percent Solids (%)	NL	Per Item 5.
Volatile Solids (%)	NL	Per Item 5.
Total Kjeldahl Nitrogen (mg/kg)	NL	Per Item 5.
Ammonia Nitrogen (mg/kg)	NL	Per Item 5.
Nitrate Nitrogen (mg/kg)	NL	Per Item 5.
Total Phosphorus (mg/kg)	NL	Per Item 5.
Total Potassium (mg/kg)	NL	Per Item 5.
pH (S.U.)	NL	Per Item 5.
Alkalinity as CaCO <sub>3</sub> (mg/kg) (If lime by weight is less than 10%)	NL	Per Item 5.
CCE as CaCO <sub>3</sub> (%) (If lime by weight is 10% or more)	NL	Per Item 5.

NL = No Limit, monitoring required

- (1) Results of the soil monitoring specified above shall be used to develop the NMP.

3. Biosolids Application Rates:

PARAMETERS	LIMITATIONS	MONITORING FREQUENCY
Biosolids/Residuals (Dry/Tons/Ac)	Per NMP Application	Each Application
Plant Available Nitrogen (PAN) (Lbs/Ac)	Per NMP Application	Each Application
Phosphate (P <sub>2</sub> O <sub>5</sub> ) (Lbs/Ac)	Per NMP Application	Each Application
K <sub>2</sub> O (Lbs/Ac)	Per NMP Application	(1,2)
CaCO <sub>3</sub> (Lbs/Ac)	Per NMP Application	(3,4)

- (1) Report the amount of K<sub>2</sub>O provided by the biosolids/residuals and supplemental K<sub>2</sub>O applied for each application where the soil test K is < 38 ppm Mehlich I.
- (2) Report the K<sub>2</sub>O application rate recommended in the NMP for each application where the soil test K is < 38 ppm Mehlich I.
- (3) Report the amount of CaCO<sub>3</sub> provided by the biosolids/residuals and supplemental CaCO<sub>3</sub> applied for each application where the soil test pH is < 5.5 S.U.
- (4) Report the CaCO<sub>3</sub> application rate recommended in the NMP for each application where the soil test pH is < 5.5 S.U.

4. Soils Monitoring:

PARAMETERS	LIMITATIONS <sup>(1)</sup>	MONITORING FREQUENCY <sup>(2)</sup>
Soil pH (S.U.)	NL	Prior to biosolids
Available Phosphorus (Mehlich I - P) (ppm)	NL	Prior to biosolids
Extractable Potassium (Mehlich I - K) (ppm)	NL	Prior to biosolids
Extractable Calcium (mg/100 g)	NL	Prior to biosolids
Extractable Magnesium (mg/100 g)	NL	Prior to biosolids
Zinc (mg/kg)	NL	Prior to biosolids
Manganese (mg/kg)	NL	Prior to biosolids

NL = No Limit, monitoring required

- (1) Results of the soil monitoring specified above shall be used to develop the NMP.
- (2) No sample analysis used to determine application rates shall be more than 3 years old at the time of the biosolids land application.

5. Monitoring Frequency:

Amount of biosolids land applied (dry tons per 365-day period)	Frequency
Greater than zero but less than 320	Once per year
Equal to or greater than 320 but less than 1,653	Once per quarter (four times per year)
Equal to or greater than 1,653 but less than 16,535	Once per 60 days (six times per year)
Equal to or greater than 16,535	Once per month (12 times per year)

WTP residuals shall be monitored once per year.