Water Services Authority
Taumata Arowai

Discharge of biosolids to land implementation materials

The standard for the discharge of biosolids to land is based on the Guidelines for the Safe Application of Biosolids to Land in New Zealand. The latest comprehensive review of these guidelines included extensive technical review and engagement with sector experts. The guidelines contain technical detail that can be referred to when processing biosolids, seeking consent under this standard and designing and implementing a biosolids application proposal.

The environmental performance standard for beneficial reuse of biosolids sets out a grading system for processing biosolids, with corresponding activity status under the RMA for how and where biosolids can be reused. The standard imposes monitoring and reporting requirements that reflect the grade of biosolid. Where biosolids have a low grade, the standard imposes additional requirements for obtaining a resource consent.

Key elements of the standard are.

Standard elements	Guidance notes
Sets out a grading framework for processing of biosolids	The grade will reflect the extent to which the pathogen content and vector attraction have been controlled as well as the level of metals and organic chemical contaminants in the product.
Establishes national activity status and rules for the reuse of graded biosolids	The highest grade of biosolid products will be able to be reused as a Permitted Activity, subject to complying with the Permitted Activity conditions. Lower grades of biosolids will require consents as either a Controlled Activity or Discretionary Activity.

The *Guidelines for the Safe Application of Biosolids to Land in New Zealand* should be read alongside requirements in the standard. The guidelines provide comprehensive detail about how to meet the standard (for example, recommended pest reduction methods).

Grading framework for the processing of biosolids

The standard adopts the following grading framework for biosolids products. The ability to apply biosolids to land (including what activity status applies) is determined by the grade of the biosolids.

Contaminant grading

Biosolids are Contaminant Grade 1 if it:

- contains less than 2% Nitrogen, calculated by volume
- contains equal to or less than the maximum level of contaminants as provided in the following table (measured in milligrams of contaminant for each kilogram of dry biosolid).

Contaminant	Maximum level of contaminant (mg/kg)
Arsenic (As)	30
Cadmium (Cd)	6.5
Chromium (Cr)	1500
Copper (Cu)	750
Lead (Pb)	300
Mercury (Hg)	7.5
Nickel (Ni)	135
Perfluorooctane sulfonate (PFOS) and Perfluorohexane sulfonic acid (PFHxS) (combined)	0.031
Perfluorooctanoic acid (PFOA)	0.081
Zinc (Zn)	1250

A biosolid is Contaminant Grade 2 if it is not a Contaminant Grade 1 biosolid.

Stabilisation grading

Biosolids are Stabilisation Grade A if:

- as part of processing the biosolid, the product has been subjected to:
  1. at least 1 pest reduction method
  2. at least 1 pathogen reduction process
- after processing, the biosolids do not exceed a pathogen standard as shown in the following table.

Pathogen	Standard
E. coli	100 most probable number per gram of biosolid
Campylobacter	1 most probable number per 25 grams of biosolid
Salmonella	2 most probable number per gram of biosolid
Human adenovirus	1 plaque-forming unit per 0.25 grams of biosolid
Helminth ova	1 egg per 4 grams of biosolid.

Biosolids are Stabilisation Grade B if:

- as part of processing the biosolid, it:
  1. has been subjected to at least 1 pest-reduction method but
  2. has not been subjected to a pathogen-reduction process
- after processing, the biosolids exceed a pathogen standard specified in the table above.

Where biosolids fail to meet the requirements of either Stabilisation Grade A or B, the standards do not apply.

National consenting pathway for the reuse of biosolids

The reuse of biosolids standard establishes national consenting pathways for the application of biosolids to land, depending on the quality of the biosolid product and risks to the environment, as outlined below.

- Grade A1 biosolids may be applied as a Permitted Activity, subject to meeting Permitted Activity conditions.
- Grade A1 biosolids not meeting Permitted Activity standards, or the application of Grade B1 biosolids that do meet the Permitted Activity standards, require consent as a Controlled Activity.
- Grade B1 biosolids that do not meet the Permitted Activity standards, or Grade A2 or B2 biosolids, require consent as a Discretionary Activity.

Permitted Activity conditions

Permitted Activity conditions are required to ensure the effects of applying biosolids are still managed where a consent is not required.

Permitted Activity conditions for the reuse of biosolids

a. The land to which the biosolid is discharged has a soil pH level, before the discharge, of 5.5 or more.

b. The land to which the biosolid is discharged contains contaminants, before the discharge, at a concentration level at or below the level specified in the table below.

Contaminant	Median level of contaminant in the soil (mg/kg)
Arsenic (As)	4.10
Cadmium (Cd)	0.08
Chromium (Cr)	16.00
Copper (Cu)	16.00
Lead (Pb)	11.00
Mercury (Hg)	0.10
Nickel (Ni)	9.00
Zinc (Zn)	48.00

c. The land to which the biosolid is discharged has a soil bulk density, before the discharge, that is no greater than 970 kilograms per cubic metre.

d. The land to which the biosolid is discharged has a slope of 15 degrees or less.

e. The soil in the land to which the biosolid is discharged is not:

   i. colder than 4 degrees Celsius

   ii. frozen solid

   iii. under a layer of snow

   iv. saturated with water.

f. The total biosolids discharged to the land in any 12-month period is no more than the lesser of:

   i. an amount of biosolids that results in the total Nitrogen being applied to the land being no more than 400 kilograms per hectare over any 24-month period

   ii. an amount of biosolids that equates to any limit specified in the applicable regional plan or in a proposed applicable regional plan that has immediate legal effect under section 86B(3) of the Resource Management Act 1991

   iii. 50 tonnes of biosolids.

g. the biosolids must not be discharged closer than:

   i. 30 metres from any water body (other than an aquifer or any other underground water body) or coastal marine area

   ii. 85 metres from any abstraction point that is a groundwater bore

   iii. 50 metres from any property boundary or public road

   iv. 90 metres from any domestic dwelling (other than a domestic dwelling that is in a residential zone) without the agreement of the owner, occupier or person in charge of that dwelling

   v. 300 metres from any school, marae, community hall, residential zone or site of cultural significance

   vi. 1 kilometre from a registered drinking water abstraction point or a drinking water supply protection area.

h. before being discharged, the biosolids are stored in a way that:

   i. prevents run-off from the biosolids to a water body

   ii. prevents the biosolids from leaching into the ground on which they are stored

   iii. prevents or minimises any risk to public health .

i. before the biosolids are discharged, the person responsible for discharging them has prepared and submitted a biosolids application management plan to the relevant consenting authority:

   i. A biosolids application management plan must contain the following information:

      1. information showing whether the biosolids are—

         a. contaminant grade 1 biosolids or contaminant grade 2 biosolids; and

         b. stabilisation grade A biosolids or stabilisation grade B biosolids:

      2. information showing that the discharge of the biosolids will comply with the Permitted Activity conditions.

j. the biosolids application management plan is renewed and resubmitted to the relevant consenting authority at least once every five years.

k. the biosolids are discharged in accordance with the biosolids application management plan prepared and submitted in accordance with requirements in the standards (that correspond to the relevant activity status).

l. the person responsible for discharging the biosolids complies with the record-keeping requirements *below*

   i. A person who discharges biosolids to land under these regulations must keep records of—

      1. the date of each discharge; and

      2. the location of each discharge; and

      3. the type and grade of the biosolids that are discharged; and

      4. the quantity of the biosolids that are discharged.

   ii. A person who discharges biosolids to land under these regulations must provide a copy of the records kept under subclause (1) to the relevant consenting authority in December of each year.

   iii. The records provided under subclause (ii) must relate to the 12-month period ending on the last day of November in the year in which the records are provided to the relevant consenting authority.

   iv. A person who discharges biosolids to land must retain a copy of the records kept under subclause (1) until the 5th anniversary of the date on which the person ceases to discharge biosolids to the land.

Matters of control for consenting authorities

Where the application of biosolids require consent as a Controlled Activity, consenting authorities maintain the discretion to impose conditions relating to the following matters of control.

a. To avoid, remedy or mitigate one or more of the following:

   i. the effects on the environment of any contaminant in the biosolids

   ii. the effects of the discharge on public health

   iii. the management of the odour resulting from the discharge

   iv. to impose requirements on the consent holder that relate to monitoring.

b. Record-keeping, consultation, reporting or the provision of information.