10.4.2 Non-Agricultural Source Material (NASM)

Definition

The application to land, handling and storage of non-agricultural source material (NASM) are prescribed drinking water threats listed in Regulation 287/07 under the *Clean Water Act, 2006*. NASM is one class of nutrients that are not produced on a farm, and can be applied to land for the purpose of improving the growth of agricultural crops and for soil conditioning. NASM includes the following materials that are intended to be applied to land as nutrients:

- pulp and paper biosolids;
- sewage biosolids;
- anaerobic digestion output, where less than 50% of the total material is on-farm anaerobic digestion materials (anaerobic digestion is a process used to decompose organic matter by bacteria in an oxygen-limited environment); and
- any other material that is not from an agricultural source and that is capable of being applied to land as a nutrient (such as materials from dairy product or animal food manufacturing).

Furthermore, the Categories of NASM are broken into 3 groups:

- Category 1 – unprocessed plant based materials such as fruit and vegetable peels;
- Category 2 – processed plant based materials such as bakery washwater;
- Category 3 – animal based materials such as meat and dairy washwater, sewage biosolids, and any material that is not listed in the other categories.

NASM can be applied to both agricultural and non-agricultural lands for nutrient enhancement and soil conditioning purposes. NASM that will be applied to fields on a farm can be stored in a permanent nutrient storage facility (usually a steel or concrete tank), or on a temporary field nutrient storage site (only for solid NASM stored for more than 24 hours). There are restrictions about what types of NASM can be stored on a farm and for how long.

Why is NASM a Threat to Drinking Water Sources?

Chemicals and pathogens from NASM could make their way into drinking water sources. The Ministry of the Environment's *Tables of Drinking Water Threats* identifies the following sub-threat activities:

- The application of NASM to land (includes treated septage) (see circumstances #37-54, 1970-1971)
- The handling and storage of NASM (see circumstances #1409-1432, 1965-1968)

Under certain conditions, specific chemicals and pathogens can make their way from NASM application, handling or storage sites into groundwater drinking sources. The Ministry of the Environment and Climate Change's *Tables of Drinking Water Threats* identifies the following chemicals and pathogens as potential concerns:

- Nitrogen
- Total phosphorus
- Pathogens

Nitrogen is a concern for both surface and groundwater, but phosphorus is mainly a concern for surface water. Nitrogen and phosphorus, are typically associated with human waste, household and personal care products (such as soap and detergents), and animal by-products.

Pathogens are associated with the following sources of NASM:

- seafood processing operations
- dairy producers
- dairy product manufacturing operations
- pulp and paper mills
- animal food manufacturing operations (from animal sources)
- meat plants
- sewage works

The assessment of chemical threats for the application of NASM to land considered the geographic location, percentage of managed land and livestock density. The assessment of pathogen threats for the application of NASM to land considered the geographic location and the source of the material. The

assessment of NASM storage sites, considered the geographic location, whether the storage facility is temporary or permanent, the source of the material, and whether the material is stored above or below grade.

See **Table 10-5** for when and where application and storage of NASM may be a significant drinking water threat. Note: to determine if a specific activity is a significant drinking water threat consult the *Tables of Drinking Water Threats* for the specific circumstances that must be met for the activity to be a threat. These activities may also be significant drinking water threats anywhere within an Issue Contributing Area (ICA) for nitrates or pathogens. If the activity meets the description in Column 2 of the *Tables of Drinking Water Threats* it is a significant drinking water threat irrespective of vulnerability score.

Prescribed Drinking Water Threat	NASM Threat Sub-Category	Area and Vulnerability Score (VS)
The application, handling and storage of non-agricultural source material to land	The application of non-agricultural source material to land (including treated septage)	• WHPA-A • WHPA-B (VS = 10) • WHPA-E (VS ≥ 8) • Anywhere in an ICA for Nitrates or Pathogens
	The storage of non-agricultural source material	• WHPA-A • WHPA-B (VS = 10) • WHPA-E (VS ≥ 8) • Anywhere in an ICA for Nitrates or Pathogens

Table 10-5: When/where NASM may be a significant drinking water threat

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
NASM-1	Application of Non-Agricultural Source Material (NASM) to Land (Category 1)	RMO	G	**Part IV, s.57, s.58** Where the application of NASM (Category 1) to land is, or would be, a significant drinking water threat, the following actions shall be taken: 1) The application of NASM (Category 1) to land is designated for the purpose of s.57 under the *Clean Water Act*, and is therefore prohibited where the threat is, or would be significant, in the following area: • WHPA-A (existing, future).	See Maps 1.1 - 1.21	Future: Immediately (T-5) Existing: 180 days (T-4)	GEN-1	MON-2
			H	2) The application of NASM (Category 1) to land is designated for the purpose of s.58 under the *Clean Water Act*, requiring risk management plans, where the threat is, or would be significant, in any of the following areas: • WHPA-B (VS = 10) which is not in an Issue Contributing Area for Nitrates (existing, future); or • WHPA-E (VS ≥ 8) which is not in an Issue Contributing Area for Nitrates (existing, future); or • the remainder of an Issue Contributing Area for Nitrates (existing, future).		Future: Immediately (T-7) Existing: 1 year/ 5 years (T-6)	GEN-1 GEN-2 NASM-5	MON-2
NASM-2	Handling and Storage of Non-Agricultural Source Material (NASM) (Category 1)	RMO	G	**Part IV, s.57, s.58** Where the handling and storage of NASM (Category 1) is, or would be, a significant drinking water threat, the following actions shall be taken: 1) The handling and storage of NASM (Category 1) is designated for the purpose of s.57 under the *Clean Water Act*, and is therefore prohibited where the threat would be significant in the following area: • WHPA-A (future).	See Maps 1.1 - 1.21	Future: Immediately (T-5)	GEN-1	MON-2
			H	2) The handling and storage of NASM (Category 1) is designated for the purpose of s.58 under the *Clean Water Act*, requiring risk management plans, where the threat is, or would be significant, in any of the following areas: • WHPA-A (existing); or • WHPA-B (VS = 10) (existing, future); or • WHPA-E (VS ≥ 8) (existing, future); or • the remainder of an Issue Contributing Area for Nitrates (existing, future).		Future: Immediately (T-7) Existing: 1 year/ 5 years (T-6)	GEN-1 GEN-2 NASM-5	MON-2

Policy ID	Threat Description	Implementing Body	Legal Effect	Policy	Where Policy Applies	When Policy Applies	Related Policies	Monitoring Policy
NASM-3	Application of Non-Agricultural Source Material (NASM) to Land (Category 2 and 3)	OMAFRA MOECC	C	**Prescribed Instrument** 1) The application of NASM (Category 2 and 3) to land shall be prohibited where the activity would be a significant drinking water threat in any of the following areas: • WHPA-A (future); or • WHPA-B (VS = 10) (future); or • WHPA-E (VS ≥ 8) (future); or • the remainder of an Issue Contributing Area for Nitrates or Pathogens (future).	See Maps 1.1 - 1.21	Future: Immediately (T-3)	N/A	MON-4
				2) The application of NASM to land (existing) may continue only until the expiry of the current approval, after which time it would be considered as a future activity.		Existing: Upon expiry or within 5 years (T-2)	NASM-5	MON-4
NASM-4	Handling and Storage of Non-Agricultural Source Material (NASM) (Category 2 and 3)	OMAFRA MOECC	C	**Prescribed Instrument** The handling and storage of NASM (Category 2 and 3) shall be prohibited where the activity is, or would be, a significant drinking water threat in any of the following areas: • WHPA-A (existing, future); or • WHPA-B (VS = 10) (existing, future); or • WHPA-E (VS ≥ 8) (existing, future); or • the remainder of an Issue Contributing Area for Nitrates or Pathogens (existing, future).	See Maps 1.1 - 1.21	Future: Immediately (T-3) Existing: Upon expiry or within 5 years (T-2)	N/A	MON-4
NASM-5	Application of NASM to Land Handling and Storage of NASM	OMAFRA MOECC	K	**Education and Outreach** The Ministry of the Environment and Climate Change and the Ministry of Agriculture, Food and Rural Affairs are requested to provide to landowners and haulers that have a Prescribed Instrument or Risk Management Plan to haul, store or apply NASM, information on the importance of protecting source water and the location of the nearby municipal wells where the application, handling and storage of NASM is, or would be, a significant drinking water threat in any of the following areas: • WHPA-A (existing, future); or • WHPA-B (VS = 10) (existing, future); or • WHPA-E (VS ≥ 8) (existing, future); or • the remainder of an Issue Contributing Area for Nitrates or Pathogens (existing, future).	See Maps 1.1 - 1.21	Existing & Future: Consider within 2 years (T-15)	GEN-8 NASM-1 NASM-2 NASM-3	MON-4