
C O M P L I A N C E
O R G A N I C M A T T E R R E C Y C L I N G
R E G U L A T I O N A U D I T
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2 0 1 8

Environmental Management Act



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Executive Summary

The Organic Matter Recycling Regulation (OMRR) under the *Environmental Management Act* (EMA) governs the production, quality and land application of certain types of organic matter. It provides guidance for compost and biosolids producers on how to use organic material while protecting soil quality and drinking water sources. OMRR was amended in July 2016. During the permitting of the composting facilities that had a design production capacity in excess of 5,000 tonnes of compost per year, it was discovered that certain facilities were deficient in the preparation of their leachate management plans and odour management plans, as required under Section 24(2) of OMRR, as well as adhering to the composting facility requirements for leachate management related to receiving, storage, processing and curing of the compostable material, as required under Section 26(2) of OMRR. The objective of the audit was to verify compliance of representative composting facilities which produce less than 5,000 tonnes of finished compost per year, and therefore are not subject to the additional requirement of a permit, and to compare the results to those composting facilities that produced more than 5,000 tonnes of finished compost per year.

A total of seven composting facilities that have a design production capacity in excess of 5,000 tonnes of compost per year were inspected during the permitting process. A total of 10 composting facilities that have a design production capacity that is less than 5,000 tonnes of compost per year were inspected as part of this audit; nine of which provided relevant results for this audit. The composting facilities were assessed for compliance under Sections 3.1, 12, 24, 26 and 28 of OMRR.

Overall, the nine composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with 64 percent of the assessed requirements and Out of compliance with 25 percent of the assessed requirements. Compliance with a specific requirement was Not Determined for 6 percent of the requirements and 6 percent of the requirements were Not Applicable.

The compliance determinations resulted in the issuing of three Notices, four Advisories and three Warnings to the 10 composting facilities that have a design production capacity that is less than 5,000 tonnes of compost per year. The Advisories were issued where the non-compliances were limited to being of a minor administrative nature and the Warnings were issued when there were both minor administrative non-compliances, but also potential minor temporary environmental impacts.

It is recommended that the amendment to OMRR that is being developed include a requirement to submit plans and specifications to ensure that all composting facilities are designed to address the requirements of OMRR, clarify the definitions of curing piles and curing area so that the two uses of the word 'curing' will not be confused and clarify when compost is considered finished compost so that composting facilities can be certain when it is acceptable to move the compost off of an impermeable surface and if and when leachate collection is no longer required. It is also recommended that inspections of all authorizations and registrations are conducted at some more regular inspection interval to ensure that all authorization and registration holders are aware of their permits. Specifically for OMRR, promotion should initiate a program to contact all composting facilities that have registrations under OMRR to ensure that they are aware of their registrations and aware of their responsibility to comply with the requirements of OMRR.

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Introduction

The Organic Matter Recycling Regulation (OMRR) governs the production, quality and land application of certain types of organic matter (ENV, 2002). It provides guidance for compost and biosolids producers on how to use organic material while protecting soil quality and drinking water sources. One component of the Ministry of Environment and Climate Change Strategy (ENV) service plan is to promote organics recycling (ENV, 2017). Organic waste represents 40 percent of all waste currently sent for disposal and ENV continues to work toward the target of 75 percent of the British Columbia (BC) population covered by an organic waste disposal restriction by 2020/21 (ENV, 2017). Restrictions on organic waste disposal will divert additional organic waste to those activities that are regulated by OMRR.

OMRR was amended in July 2016 (ENV, 2016a). The amendments (Sections 3.1 and 33) required all composting facilities that process food waste and biosolids and have a design production capacity of 5,000 tonnes or more of compost per year to hold a permit for the composting facility, unless the discharger holds an approval or operational certificate for the composting facility. The discharger was required to apply for the permit within 60 days or else they were no longer exempt from Sections 6(2) and 6(3) of the *Environmental Management Act* (EMA) and therefore would be in violation of EMA if they introduced or caused or allowed waste to be introduced in the environment (ENV, 2003). The amendments to OMRR were initiated as a way to increase transparency and to put site-specific conditions in place to reduce environmental impacts, address and reduce impacts from odour and address concerns regarding public notification under OMRR (ENV, 2016b). The amendments to OMRR would also make those conditions that are put in place under a permit, better for monitoring compliance (ENV, 2016b).

During the permitting of the composting facilities that had a design production capacity in excess of 5,000 tonnes of compost per year, it was discovered that certain facilities were deficient in the preparation of their leachate management plans and odour management plans, as required under Section 24(2) of OMRR, as well as adhering to the composting facility requirements for leachate management related to receiving, storage, processing and curing of the compostable material, as required under Section 26(2) of OMRR.

The main objective of the audit was to conduct inspections to verify compliance of representative composting facilities which produce less than 5,000 tonnes of finished compost per year and therefore are not subject to the additional requirement of a Permit. The results of those inspections would then be compared with the results of the previously completed inspections at the seven composting facilities that produced more than 5,000 tonnes of finished compost per year. A secondary objective would then be to assess whether similar non-compliances are observed at authorized composting facilities that are below the than 5,000 tonnes of finished compost per year threshold that requires a Permit. In addition, OMRR is currently being revised (ENV, 2016c). Therefore, the results of the audit may be able to be used to inform changes to OMRR.

Regulatory Context

Effective regulations ensure a safe and healthy environment for people in BC, sustainable economic development, and clear and predictable decisions for the public and business community.

Ministry of Environment and Climate Change Strategy Mandate

The Ministry of Environment and Climate Change Strategy (ENV) is responsible for the protection, management and conservation of BC's water, land, air and living resources. In order to fulfil this mandate, ENV establishes and administers a broad suite of regulatory requirements.

Environmental Management Act and Regulations

The *Environmental Management Act* (EMA) is one of the key ministry statutes governing environmental protection and management in BC. EMA regulates industrial and municipal waste discharges, pollution, air quality, hazardous waste and contaminated site remediation (ENV, 2003; Appendix 1). EMA provides powers and authorities for ENV staff to verify compliance, to prevent and correct detrimental environmental impacts, and to take enforcement action and respond to environmental emergencies.

Organic Matter Recycling Regulation

In BC, any industry, trade, business, activity or operation must comply with all applicable regulatory requirements under EMA. These regulatory requirements are outlined in a series of specific Regulations or Codes of Practice.

The Organic Matter Recycling Regulation (OMRR) governs the construction and operation of composting facilities and the production, distribution, sale, storage, use, and land application of biosolids and compost (ENV, 2002; Appendix 1). OMRR was developed to facilitate the recycling of organic material while protecting human health and the environment. Organic matter that is suitable for composting under OMRR includes: food waste, animal bedding, biosolids, brewery and winery wastes, domestic septic tank sludge, fish and hatchery wastes, manure, milk processing waste and whey, plant matter derived from processing plants, poultry carcasses, red-meat waste, untreated and unprocessed wood residuals, and yard waste.

ENV is currently revising OMRR (ENV, 2016c). Intentions papers were issued in 2006, 2011 and 2016 to solicit feedback and comments (ENV, 2006, 2011 and 2016c). In response to comments received from the previous intentions papers, new technical information and stakeholder input, ENV is proposing several revisions to OMRR including, modifying the list of organic matter suitable for composting in Schedule 12, requiring composting facilities to submit all plans, reports and specifications to ENV and notify ENV of any changes, conducting sampling based on volume rather than mass, maintaining records for 10 years rather than 36 months, removing references to the carbon to nitrogen ratio and adding respiration as a measure of compost maturity and extending curing time requirements (ENV, 2016c). ENV plans to issue another intentions paper in 2018, which adjusts the proposed revisions in response to recent feedback and comments.

Requirements

Composting facilities in BC are regulated and registered under OMRR. The Sections of OMRR that are included in the audit are summarized in Table 1.

Table 1 – Applicable Organic Matter Recycling Regulation Sections

Section Number	Section Name
3.1	Permit required
12	Process and quality criteria
24	Plans and specifications
26	Composting facility requirements
28	Capacity for compost

Appendix 1 reproduces the wording for each of these Sections as contained in OMRR (ENV, 2002). Section 3.1 was part of the amendment in 2016, which requires composting facilities that have a design capacity of 5,000 tonnes or more of compost per year to hold a permit (ENV, 2016a). Section 12 presents the requirements to produce Class A Compost in accordance with Schedules 1, 2, 3, 4, 5 and 6. Section 24 outlines requirements for construction and operation of a composting facility, including all plans and specifications. Section 26 presents the requirements for leachate management. Section 28 outlines the requirement to remove at least half of the compost stored annually.

Approach

During the permitting of the composting facilities that have a design production capacity in excess of 5,000 tonnes of compost per year, 89 letters requesting the design production capacity were issued to composting facilities. Of those 89 composting facilities, 13 were out of business, one cancelled the authorization, two were listed due to administrative errors and 49 could not be contacted or verification could not be easily conducted. Of the remaining 24 composting facilities, eight submitted a permit application and 16 either verified or were in the process of verifying that the design production capacity was less than 5,000 tonnes of compost per year. Table 2 displays a summary of these results.

Table 2 – Summary of OMRR Permitting Process

Composting Facility Response	# of Responses
No contact or verification	49
No longer in business	13
Cancelled	1
Administrative errors	2
Permit application received	8
Verified or to be verified <5,000	16
Total	89

Inspections were conducted at seven of the eight facilities that submitted a permit application (the eighth composting facility remains in the application stage of the permitting process and therefore has not been inspected at this time). The seven composting facilities that were inspected and have a design production capacity in excess of 5,000 tonnes of compost per year are listed in Appendix 2, Table 1.

It was proposed that the remaining 16 composting facilities, that either verified or were in the process of verifying that the design production capacity was less than 5,000 tonnes of compost per year, would be inspected as part of this audit. It was quickly determined that three of these facilities were either not currently operating or else the facilities had not been constructed. In addition, when inspections were being arranged at the remaining 13 composting facilities, it was determined that one other was no longer operating, one had not yet constructed their facility and one deregistered the authorization. Therefore, 10 composting facilities that have a design production capacity that is less than 5,000 tonnes of compost per year were inspected and are listed in Appendix 2 Table 2.

Composting Facility Locations

Figure 1 shows the geographic distribution of the seven composting facilities that have a design production capacity in excess of 5,000 tonnes of compost per year and the 10 composting facilities that have a design production capacity that is less than 5,000 tonnes of compost per year (iMapBC, 2017).

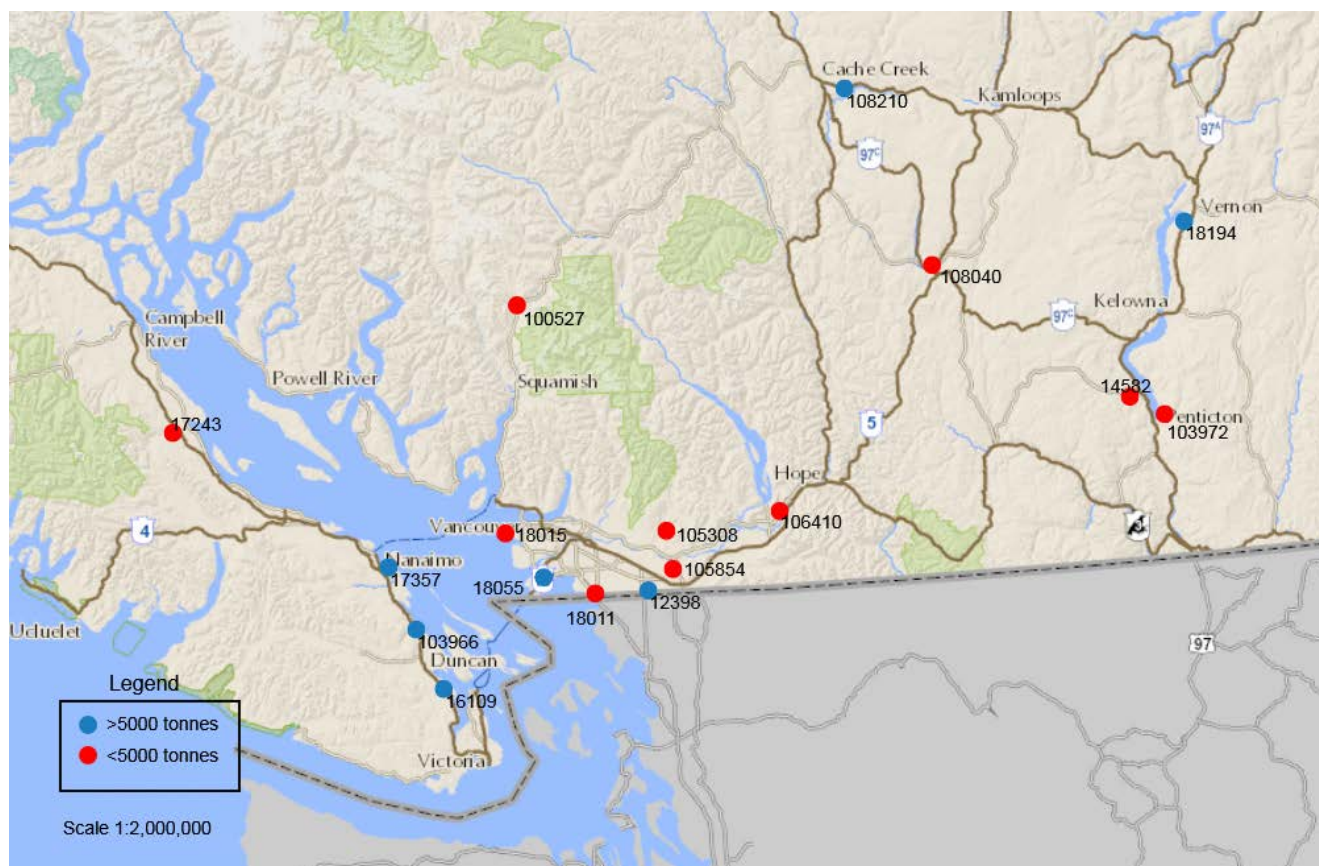


Figure 1 – Locations of the Composting Facilities included in the Audit

Inspection Approach

All inspections were completed by ENV Environmental Protection Officers (EPO). EPOs conducted all inspections on-site at the composting facilities, and followed up with the composting facilities on monitoring data that may not have been available or could not be conveniently assessed at the time of the inspection. The EPOs focused the inspections on those requirements of OMRR outlined in Table 1: Section 3.1, Section 12, Section 24 and Section 26, which focus on the design production capacity, the composting process, the presence of plans and specifications, including operation, leachate management and odour management, and overall leachate management at the composting facility.

It is important to note that when the inspections were conducted at the composting facilities that had a design production capacity in excess of 5,000 tonnes of compost per year, compliance was not assessed for all of these Sections, or more specifically, all of these Subsections. The inspections at the composting facilities, that had a design production capacity of less than 5,000 tonnes of compost per year, were intended to be more thorough. This approach was taken because no comprehensive permit would be put in place, which would assess those requirements that were found to be deficient during the permitting of the larger composting facilities.

Compliance Determinations

In order to determine the compliance rate, EPOs assigned one of four compliance determinations for each assessed Section and/or Subsection of OMRR. The four determinations used in the audit are defined as:

1. **In** – an ‘In’ compliance determination is given to composting facilities that meet the requirements of Sections and/or Subsections of OMRR.
2. **Out** – an ‘Out’ of compliance determination is given to composting facilities that do not meet the requirements of Sections and/or Subsections of OMRR.
3. **Not Applicable** – a ‘Not Applicable’ compliance determination is given to composting facilities where the requirements of Sections and/or Subsections are not pertinent to a particular composting facility.
4. **Not Determined** – a ‘Not Determined’ compliance determination is given to composting facilities where compliance was unable to be determined with Sections and/or Subsections of OMRR.

An overall compliance determination of either ‘In’ or ‘Out’ was assigned to each composting facility assessed in the audit. In order to be ‘In’ compliance the composting facility could not be ‘Out’ of compliance for any Section and/or Subsection.

Compliance/Enforcement Response Determinations

A final decision on what the appropriate compliance/enforcement response for individual composting facilities was based on the EPO’s professional judgement and a consideration of the Non-Compliance Decision Matrix found in the ENV Compliance and Enforcement Policy and Procedure, Version 3 (ENV, 2014; summarized in Appendix 3).

An inspection report was prepared for each inspection which provided the compliance determination for each applicable requirement and presented the overall compliance/enforcement response determination.

Results

A total of seven composting facilities that have a design production capacity in excess of 5,000 tonnes of compost per year were inspected during the permitting process. One of these larger composting facilities was operating under a Permit and was assessed for compliance with the Permit rather than OMRR at the time. A total of 10 composting facilities that have a design production capacity that is less than 5,000 tonnes of compost per year were inspected as part of this audit.

At one of the composting facilities that produced less than 5,000 tonnes of compost per year, the composting facility was not producing compost but was using commercial waste including, hydrovac soil and liquids and drywall paper, and mixing this with manure and selling the product as soil amendment. The hydrovac soil and liquids and drywall paper are wastes generated from commercial waste management or waste disposal industry, which are prescribed industries in Schedule 1 of the Waste Discharge Regulation (WDR) (ENV, 2004). The manure is a waste generated from agricultural operations, which is a prescribed industry in Schedule 2 of the WDR (ENV, 2004). Because none of these materials is included in Schedule 12 of OMRR, and there was some confusion with the holder of the registration about the applicability of OMRR, the composting facility was not inspected for compliance with OMRR at that time, but instead inspected for compliance with EMA. As a result, this composting facility was not assessed for compliance with the relevant sections of OMRR.

The nine remaining inspections conducted at the composting facilities that have a design capacity that is less than 5,000 tonnes of compost per year were inspected on those requirements outlined in Section 3.1, Section 12, Section 24 and Section 26 of OMRR. In addition, two of the smaller composting facilities were assessed for compliance with Section 28 of OMRR.

Organic Matter Recycling Regulation Requirement - Section 3.1 – Permit required

Section 3.1 was added to OMRR when it was amended in 2016 (ENV, 2016a). Specifically, within this Section, requirement 3.1(1) indicates that a discharger must hold a permit for the composting facility if the design production capacity exceeds 5,000 tonnes of compost per year. Each of the nine composting facilities inspected as part of this audit produced less than 5,000 tonnes of compost per year and therefore all were in compliance with Section 3.1(1).

Organic Matter Recycling Regulation Requirement - Section 12 – Process and Quality Criteria

Section 12 provides the requirements for meeting the process and quality criteria required to produce Class A Compost. These include following a required method or process for Pathogen Reduction and Vector Attraction Reduction, conducting the required analyses and keeping appropriate records.

Section 12(1) requires that all “untreated and unprocessed wood residuals” used in the composting process are clean wood from lumber manufacturing, and includes shavings, sawdust, chips, hog fuel, ground mill ends and land clearing waste. Each of the nine facilities used only organic matter that would be defined as “untreated and unprocessed wood residuals” under OMRR.

Section 12(3)(a) requires that, in order to be considered Class A compost, compost not solely produced from yard waste and “untreated and unprocessed wood residuals” meets the requirements of Schedule 1 – Pathogen

Reduction Processes, Schedule 2 – Vector Attraction Reduction and that the metals concentrations are less than the concentrations listed in Column 1 of Schedule 4 – Quality Criteria. Figure 2 displays the compliance determinations under Section 12(3)(a).

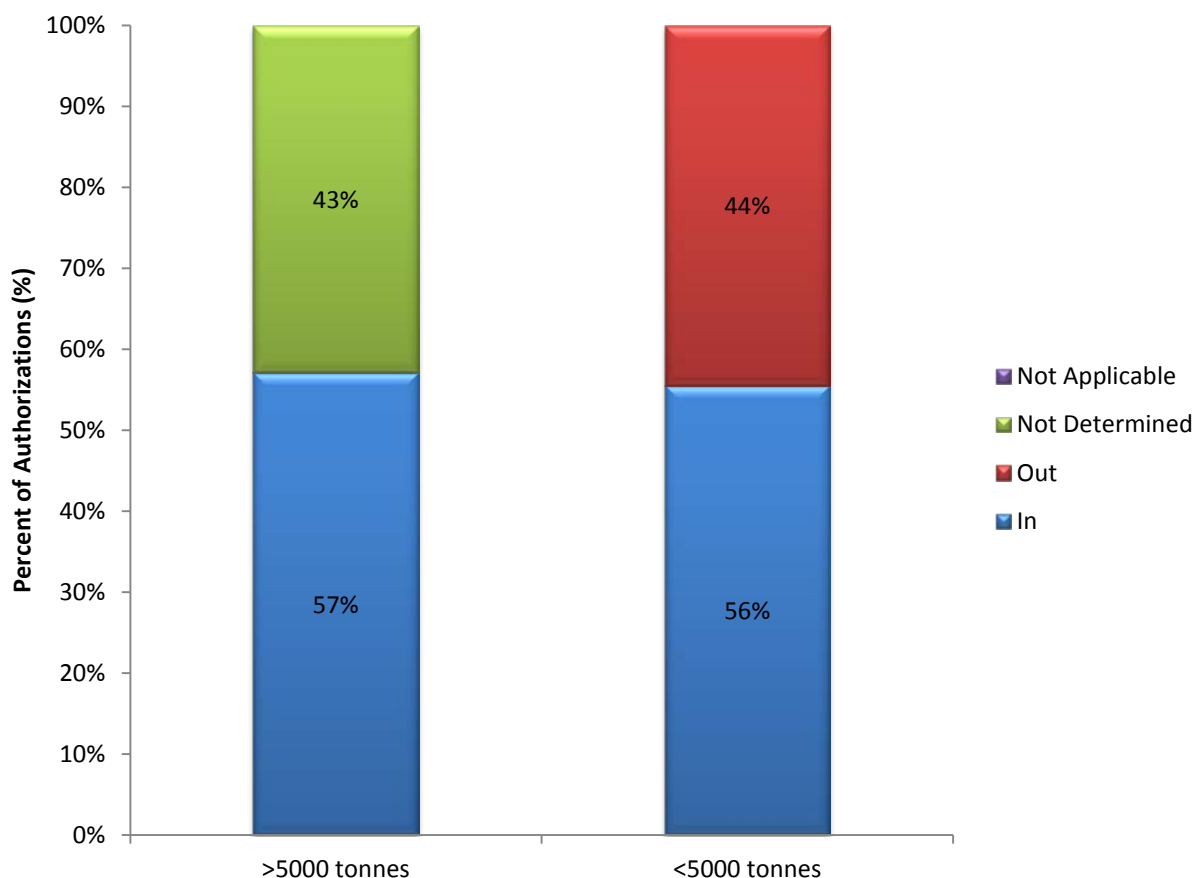


Figure 2 – Compliance Summary of Processes and Quality Criteria (Section 12(3)(a) of OMRR)

The results indicate that the seven composting facilities that produced more than 5,000 tonnes of finished compost per year were either all In compliance with Section 12(3)(a) or else the requirement was not evaluated. However, of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 44 percent were Out of compliance with Section 12(3)(a). The specific requirements that were not met included, not conducting any monitoring or sampling at one facility, moisture content results below the acceptable range, a carbon to nitrogen ratio that was less than the acceptable range, and metal concentrations which exceeded the quality criteria.

Section 12(3)(b) requires that, in order to be considered Class A compost, compost not solely produced from yard waste and “untreated and unprocessed wood residuals” meets the requirements of Schedule 3, Pathogen Reduction Limits. Figure 3 displays the compliance determinations under Section 12(3)(b).

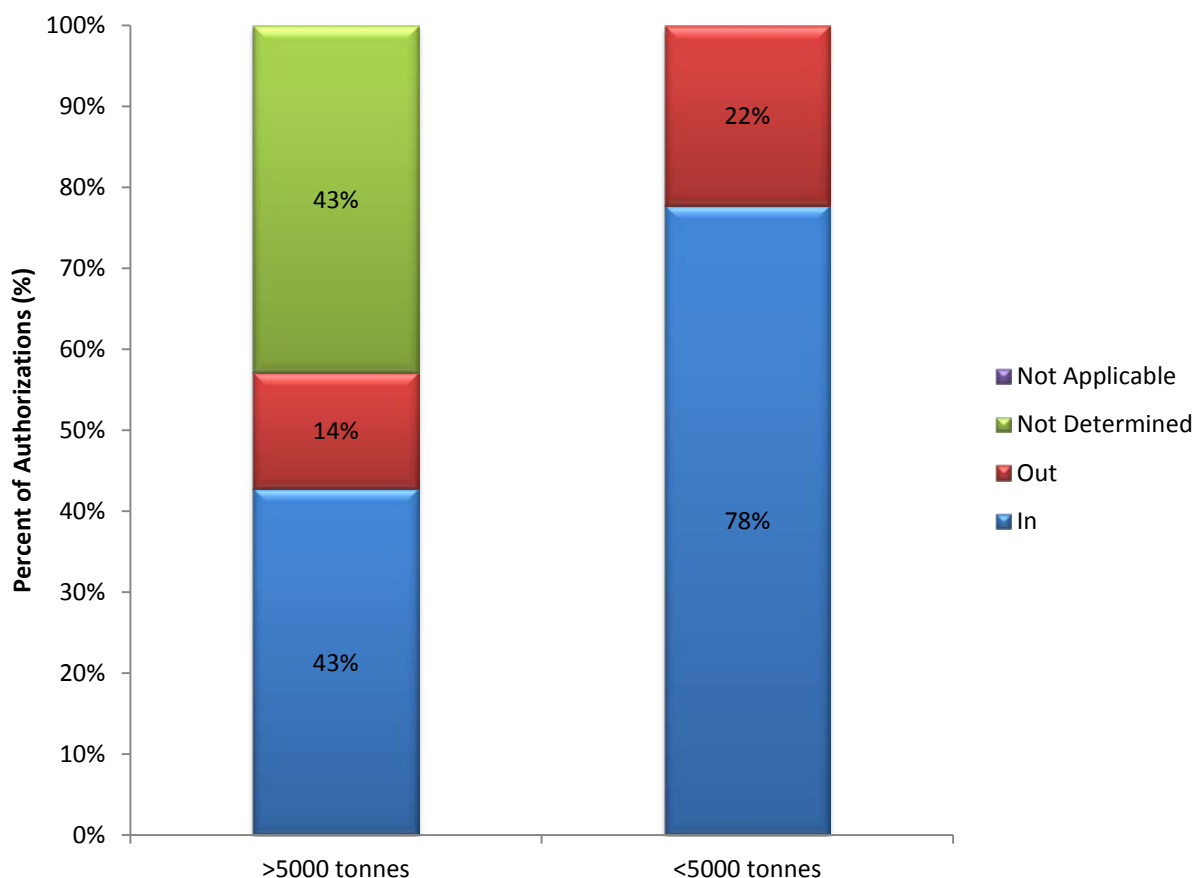


Figure 3 – Compliance Summary of Pathogen Reduction Limits (Section 12(3)(b) of OMRR)

The results indicate that six of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year were either In compliance with Section 12(3)(b) or else the requirement was not evaluated. The seventh composting facility was not conducting the required number of fecal coliform analyses. Of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 22 percent were Out of compliance with Section 12(3)(b). One of the composting facilities that were Out of compliance with this Section was not conducting any monitoring; the other was not collecting a sufficient number of samples.

Section 12(3)(c) requires that, in order to be considered Class A compost, compost not solely produced from yard waste and “untreated and unprocessed wood residuals” meets the requirements of Schedule 5, Sample and Analyses – Protocols and Frequency. Figure 4 displays the compliance determinations under Section 12(3)(c).

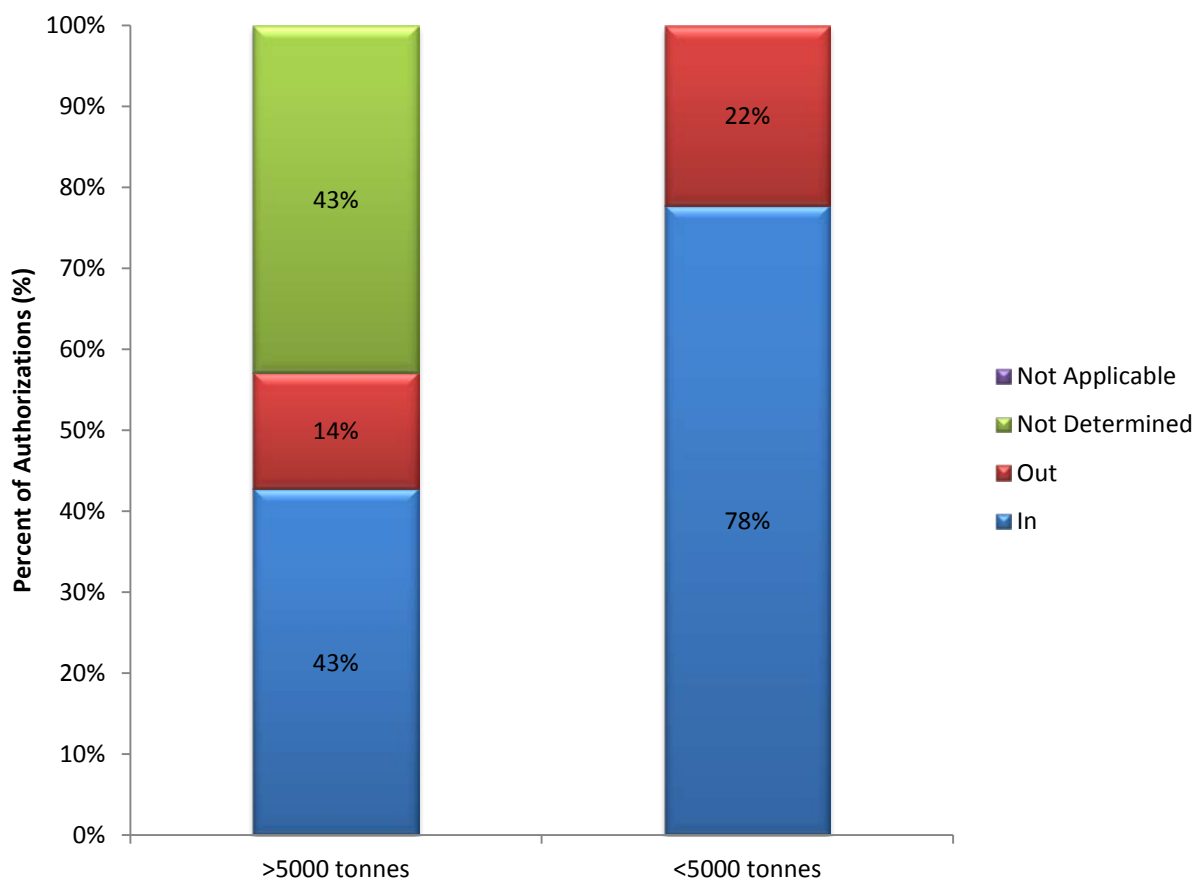


Figure 4 – Compliance Summary of Sample Analysis – Protocols and Frequency (Section 12(3)(c) of OMRR)

The compliance results under Section 12(3)(c) are the same as for those under Section 12(3)(b) for both the permitted composting facilities as the smaller composting facilities. The results are the same because the frequency of sampling and analyses for fecal coliforms of seven analyses per 1,000 tonnes of dry weight applies to both Sections. Again, one of the larger composting facilities and one of the smaller composting facilities were not conducting sufficient monitoring and one of the smaller composting facilities was not conducting any monitoring.

Section 12(3)(d) requires that in order to be considered Class A compost, compost not solely produced from yard waste and “untreated and unprocessed wood residuals” meets the requirements of Schedule 6, Record-keeping. Figure 5 displays the compliance determinations under Section 12(3)(d).

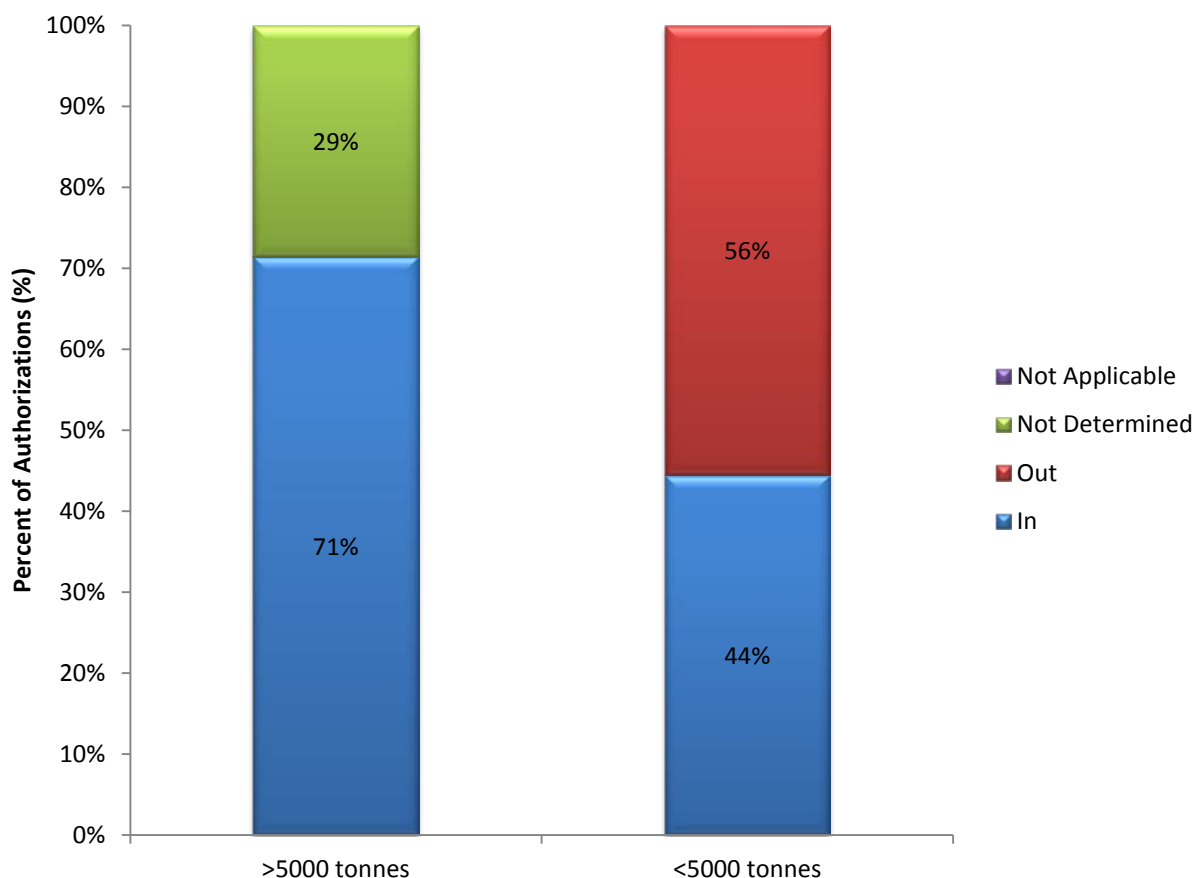


Figure 5 – Compliance Summary of Record-keeping (Section 12(3)(d) of OMRR)

The results indicate that the seven composting facilities that produced more than 5,000 tonnes of finished compost per year were either all In compliance with Section 12(3)(d) or else the requirement was not evaluated. However, of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 56 percent were Out of compliance with Section 12(3)(d). In general, those composting facilities that did not conduct sufficient monitoring or sample analyses as required under Sections 12(3)(a), 12(3)(b) and 12(3)(c), also did not keep or were not able to produce records from at least 36 months prior to the inspection. There was one example of a composting facility that did not conduct all of the monitoring and sample analyses, but did retain the records of the monitoring that was conducted. Conversely, there was one example of a composting facility that was conducting all of the monitoring and sample analyses, but did not retain all of the records for 36 months, as required.

Section 12(4) requires that Class A compost must be derived only from organic matter. All of the permitted composting facilities and all of the smaller composting facilities were In compliance with Section 12(4) or else the requirement was not evaluated.

Organic Matter Recycling Regulation Requirement - Section 24 – Plans and specifications

Section 24 provides the requirements for preparing plans and specifications for construction and operation of a composting facility. The requirements outline that a qualified professional must prepare the plans and specifications and that the plans and specifications must include all of the works constructed on site, the design capacity, and must contain a leachate management plan, and odour management plan and an operating and closure plan. Section 24 also requires that the plans and specifications be kept at the composting facility at all times and be submitted to the director upon request. In general, Section 24 was not evaluated at any of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year as part of the inspection records. This is because the plans and specifications were being submitted and evaluated as part of the permitting process and did not require additional assessment as part of the inspection report. Therefore, the compliance results for the composting facilities that produced more than 5,000 tonnes of finished compost per year are almost always Not Determined because the requirement was not evaluated at that time.

Section 24(1)(a) requires that a qualified professional prepare plans and specifications for the construction and operation of a new composting facility and Section 24(1)(b) requires that a qualified professional prepare plans and specifications where any modification is made to an existing composting facility that increases the production capacity by more than 10 percent or more than 20,000 cubic metres. The actual requirements of the plans and specifications are outlined in Section 24(2) including, 24(2)(a) all works constructed on site, 24(2)(b) design capacity, 24(2)(c) a leachate management plan, 24(2)(d) an odour management plan, and 24(2)(e) an operating and closure plan. The assessed compliance with these requirements is displayed for 24(2)(a) on Figure 6, for 24(2)(b) on Figure 7, for 24(2)(c) on Figure 8, for 24(2)(d) on Figure 9, and for 24(2)(e) on Figure 10.

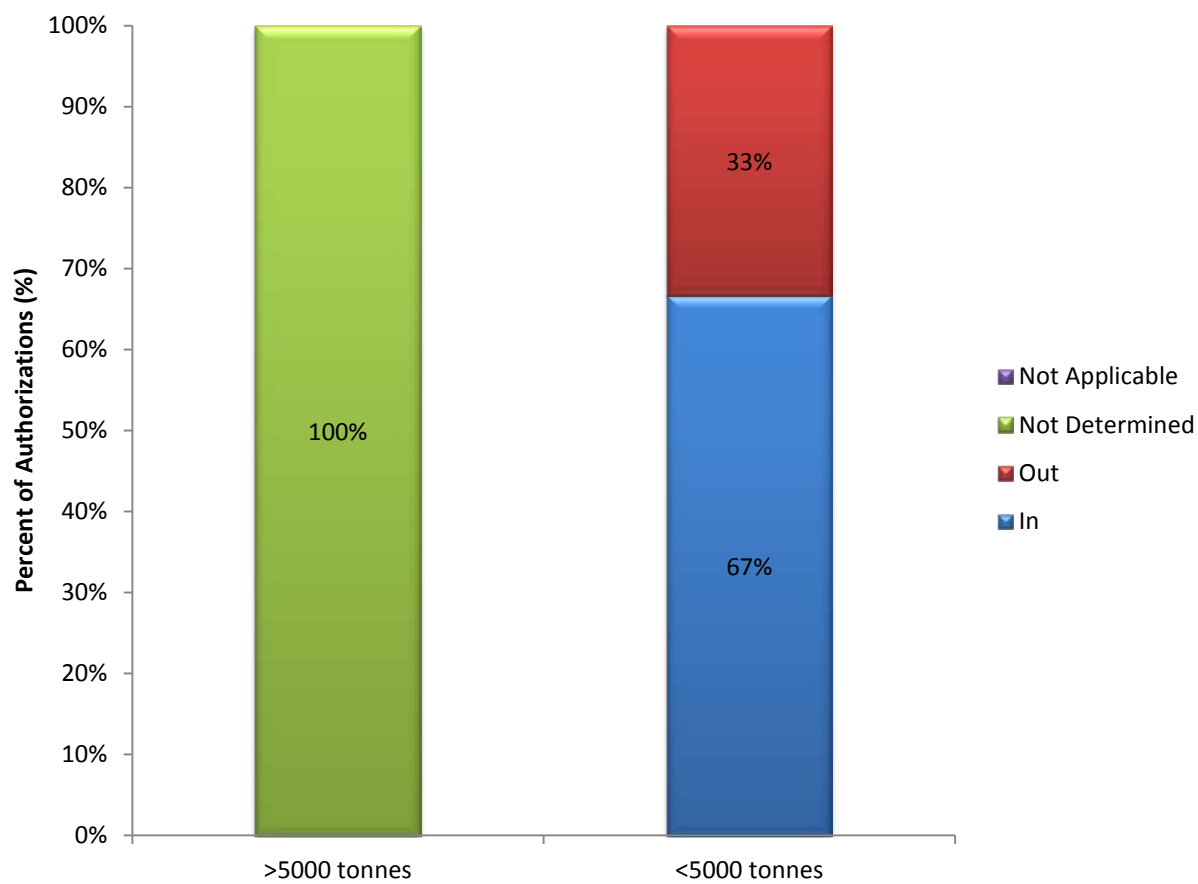


Figure 6 – Compliance Summary of Plans showing Constructed Works (Section 24(2)(a) of OMRR)

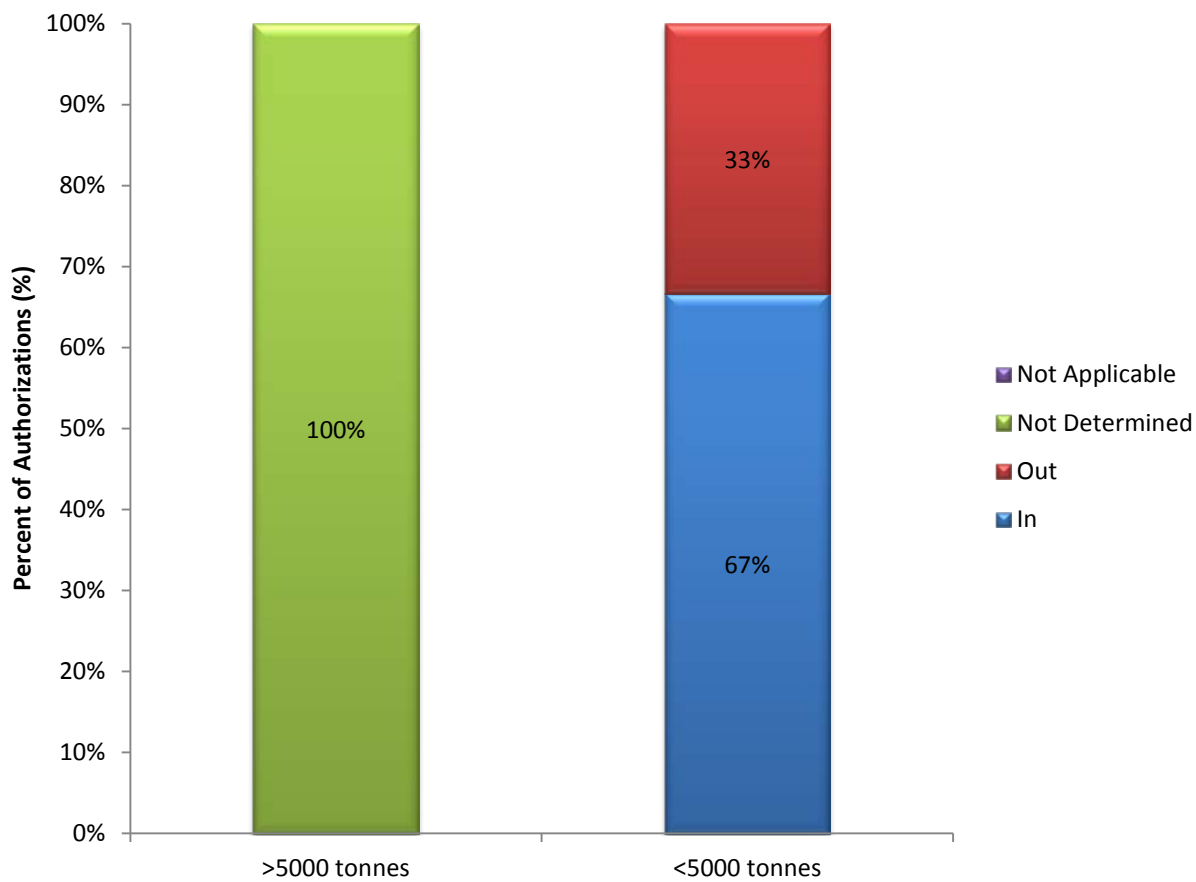


Figure 7 – Compliance Summary of Plans showing Design Capacity (Section 24(2)(b) of OMRR)

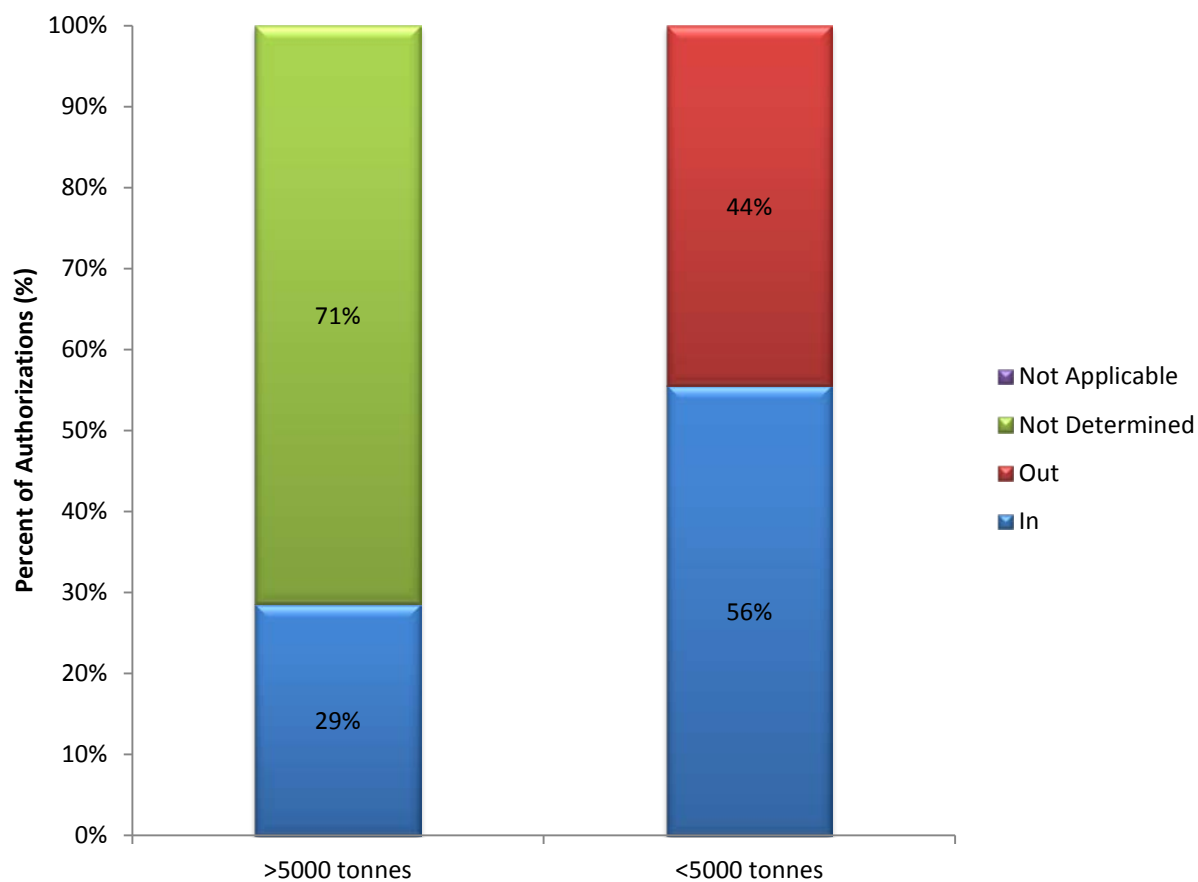


Figure 8 – Compliance Summary of Leachate Management Plans (Section 24(2)(c) of OMRR)

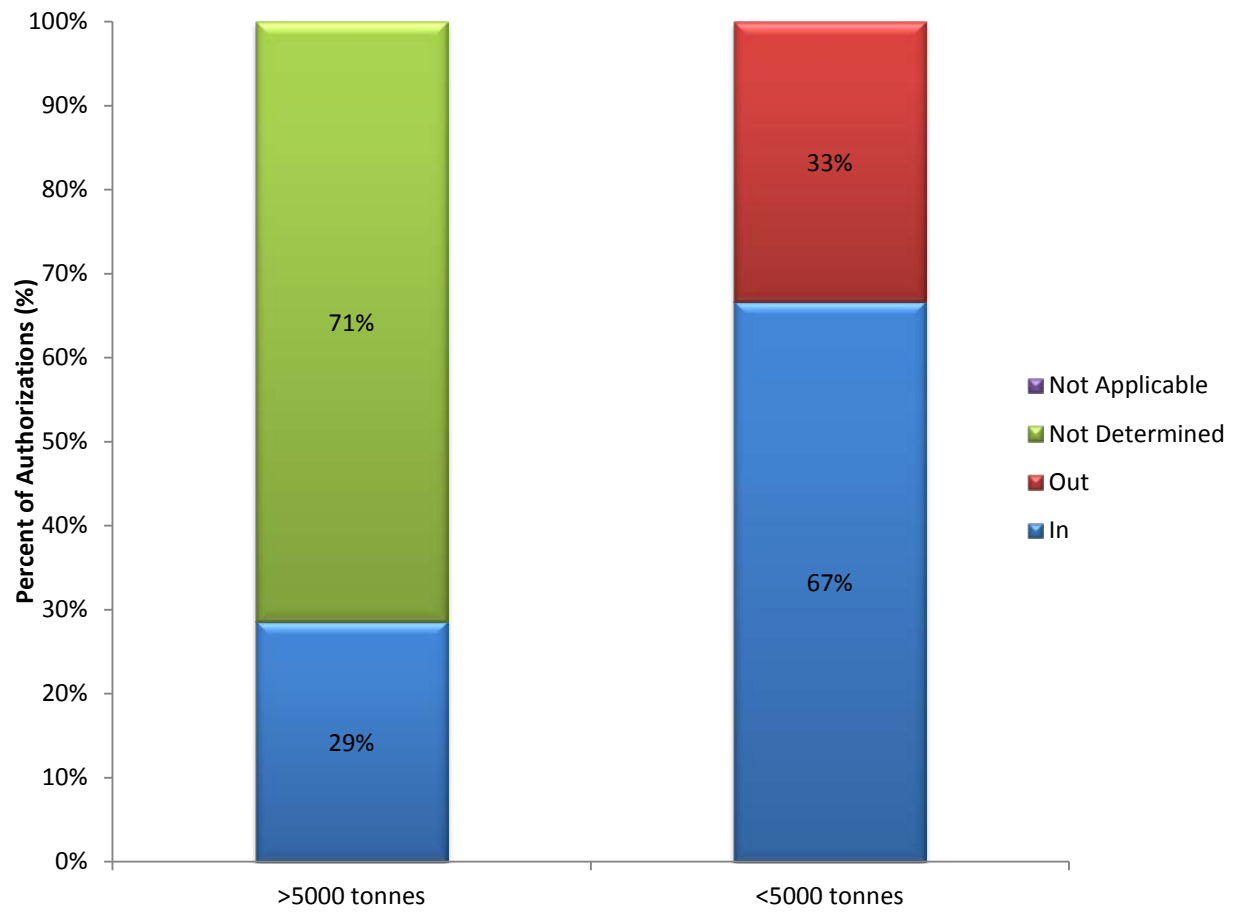


Figure 9 – Compliance Summary of Odour Management Plans (Section 24(2)(d) of OMRR)

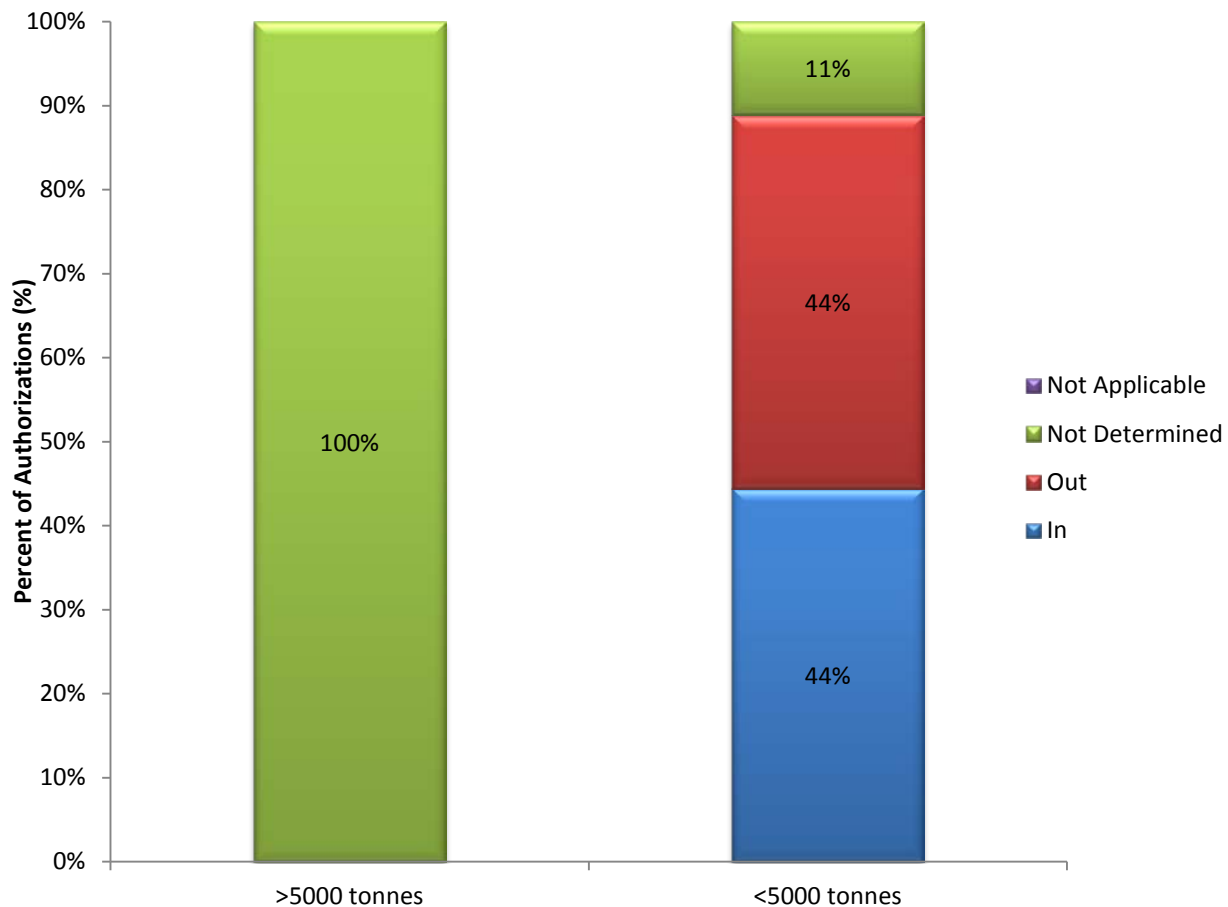


Figure 10 – Compliance Summary of Operating and Closure Plans (Section 24(2)(e) of OMRR)

As previously discussed, Section 24 was not evaluated at any of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year as part of the inspection records, with the exception of Sections 24(2)(c) and 24(2)(d) at two composting facilities, both of which were In compliance with these requirements. between 33 percent and 44 percent of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year were Out of compliance with each Subsection of Section 24(2). Three of the composting facilities were Out of compliance with all of the requirements of Section 24(2) simply because they had not prepared any plans and specifications. There was one composting facility that had plans and specifications, but the leachate management plan did not cover all areas of the composting facility and; therefore, was Out of compliance with only Section 24(2)(c). There was one composting facility that had plans and specifications, but there was no operating plan and, therefore, was Out of compliance with only Section 24(2)(e).

Sections 24(3)(b) and 24(3)(c) further require that a copy of the plans and specifications are kept at the composting facility and can be submitted to the director upon request, respectively. Figure 11 shows the compliance results with Section 24(3)(b).

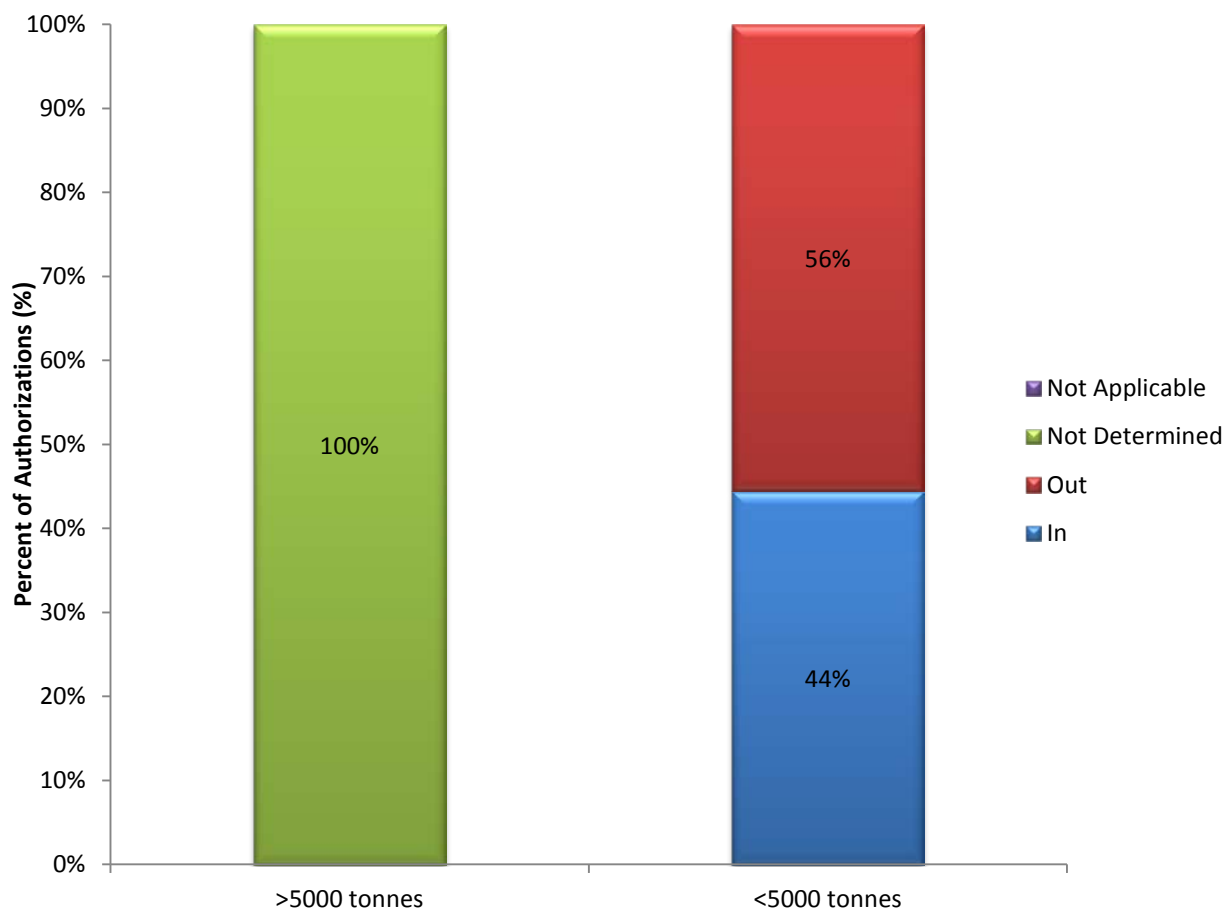


Figure 11 – Compliance Summary of Plans and Specifications at Facility (Section 24(3)(b) of OMRR)

The results indicated that an even greater percentage of composting facilities were Out of compliance with Section 24(3)(b) than were with Section 24(2). The reason for this is that, in addition to the three composting facilities that had no plans and specifications and therefore were Out of compliance with Section 24(3)(b), two other composting facilities that did have plans, did not keep the plans and specifications at the composting facility at all times as required by Section 24(3)(b). The same composting facilities that had not prepared plans and specifications were also Out of compliance with 24(3)(c) because they could not provide plans and specifications at the request of the director, whereas the two composting facilities that did not keep the plans and specifications at the composting facility, were able to provide those plans and specifications after the inspection was conducted.

Organic Matter Recycling Regulation Requirement - Section 26 – Composting facility requirements

Section 26 outlines the requirements for leachate management for composting facility. The requirements are that the receiving, storage, processing and curing areas of a composting facility must be located on an impermeable surface, have a roof, cover or prepared surface to prevent the surface collection of water around the compost and to prevent run-off water from entering these areas and have a leachate collection system that is designed to

remove leachate from these areas. Section 26 further requires that any leachate not collected and reused in the composting process is not discharged to the environment.

Section 26 does state that these requirements are not necessary if a qualified professional can demonstrate through an environmental impact assessment that the environment will be protected through the use of alternative leachate management processes.

Section 26(2)(a) requires that the receiving, storage, processing and curing areas of a composting facility must be located on an impermeable surface such as asphalt, concrete or similar; the intention being to prevent the release of leachate into the environment. Figure 12 displays the compliance determinations under Section 26(2)(a).

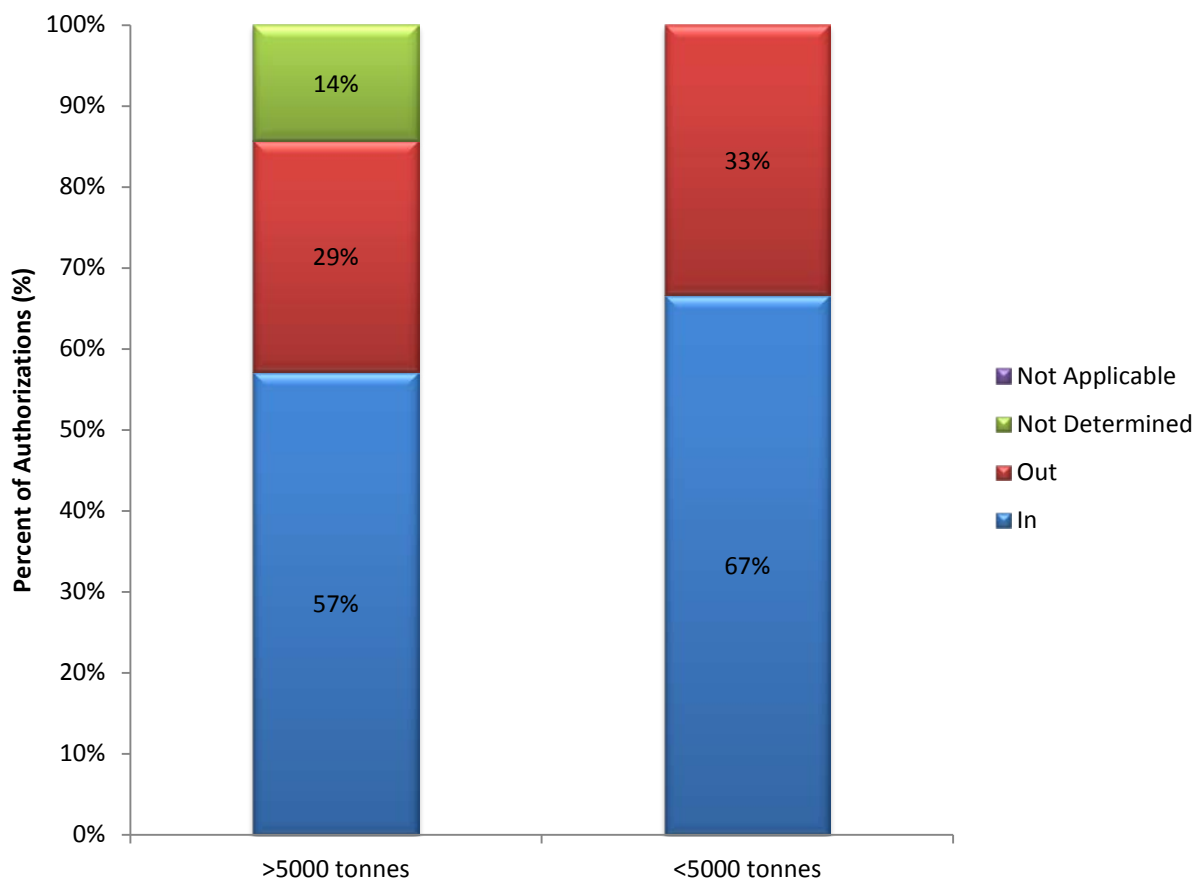


Figure 12 – Compliance Summary of Leachate Release Prevention (Section 26(2)(a) of OMRR)

The results indicate that of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year, 57 percent were In compliance and 29 percent were Out of compliance with Section 26(2)(a); with one composting facility not being evaluated. One of these composting facilities did not have the curing area located on an impermeable surface and one other did not have a portion of the curing area located on an impermeable surface. Of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 67 percent were In compliance and 33 percent were Out of compliance with Section 26(2)(a). Of the two composting facilities that were Out of compliance, one had the receiving, storage, processing and curing areas on local soils, one had a small pile of organic matter in the receiving area that was on local soils and had a portion of the curing area on local soils.

Section 26(2)(b)(i) requires that the receiving, storage, processing and curing areas of a composting facility have a roof or cover or prepared surface designed to prevent water from collecting around the base of the organic matter or compost. Section 26(2)(b)(ii) requires that the receiving, storage, processing and curing areas of a composting facility have a roof or cover or prepared surface designed to prevent run-off water from entering the receiving, storage, processing and curing areas. Figure 13 displays the compliance determinations under Section 26(2)(b)(i) and Figure 14 displays the compliance determinations under Section 26(2)(b)(ii).

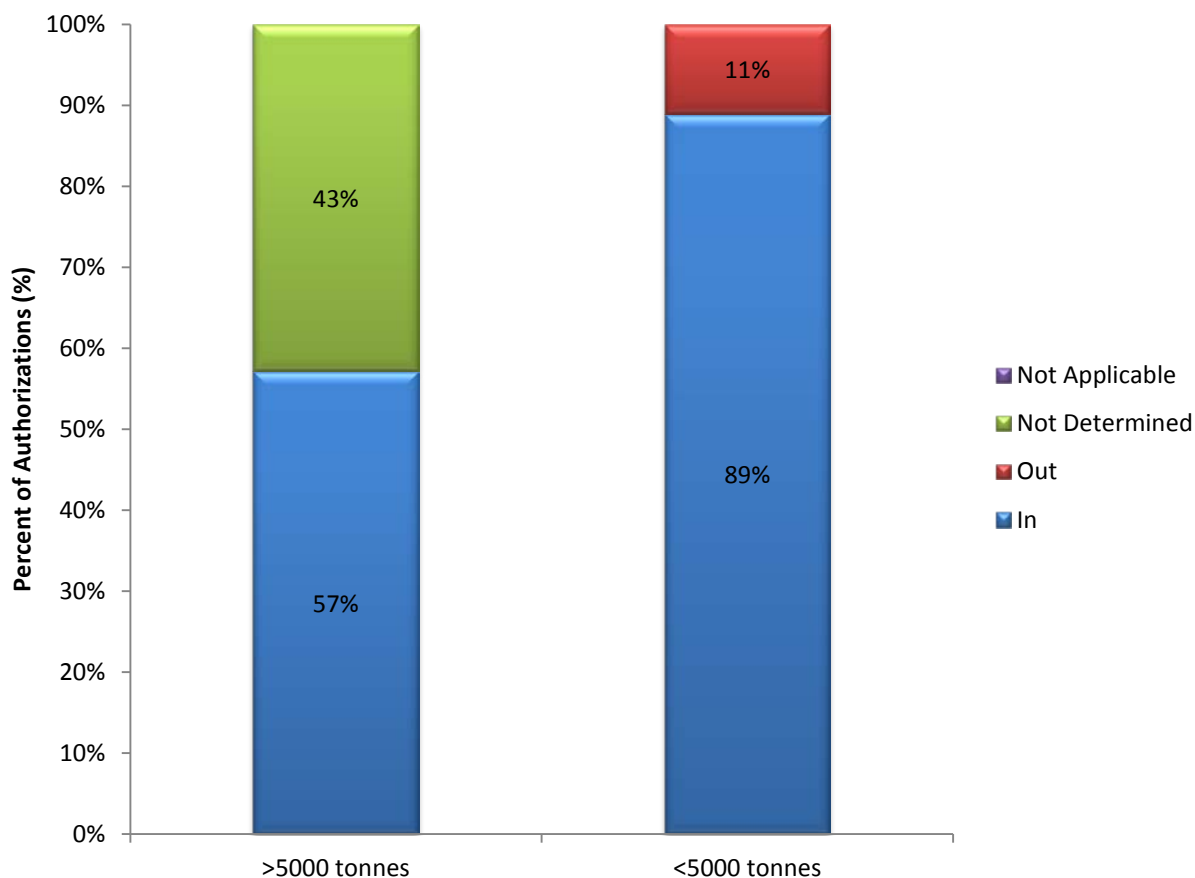


Figure 13 – Compliance Summary of Surface Collection of Water Prevention (Section 26(2)(b)(i) of OMRR)

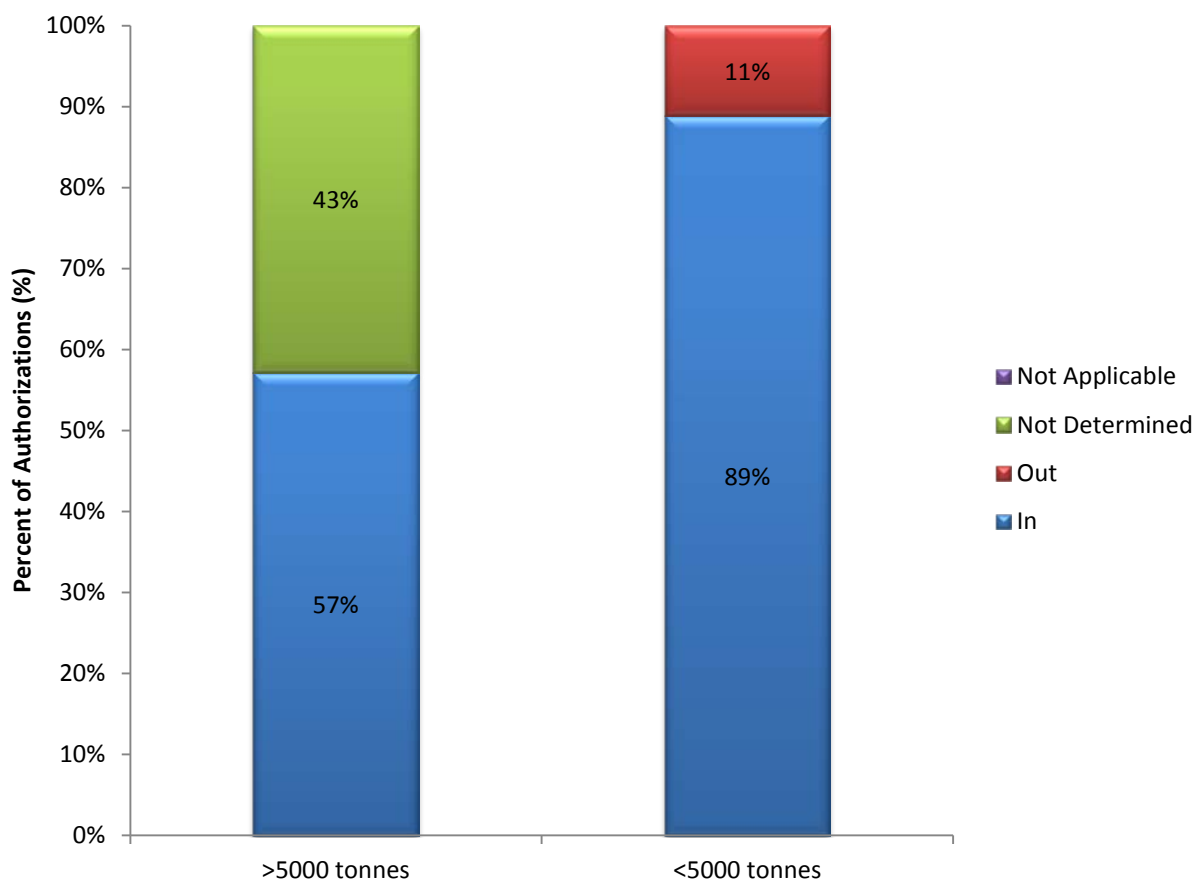


Figure 14 – Compliance Summary of Run-off Water Prevention (Section 26(2)(b)(ii) of OMRR)

The results are the same for both Section 26(2)(b)(i) and Section 26(2)(b)(ii). Of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year, 57 percent were In compliance with these Sections or else the requirement was not evaluated. Of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 89 percent were In compliance and 11 percent were Out of compliance with these Sections. This indicates that those composting facilities that either have a roof or cover or a prepared surface, prevent both the surface collection of water around the organic matter and compost as well as run-off entering the receiving, storage, processing and curing areas. The one composting facility that was Out of compliance with Sections 26(2)(b)(i) and 26(2)(b)(ii) did not have a prepared surface to prevent water from entering or collecting around the organic matter.

Section 26(2)(c) requires that the receiving, storage, processing and curing areas of a composting facility must have a leachate collection system designed to reuse leachate or to remove leachate. Figure 15 displays the compliance determinations under Section 26(2)(c).

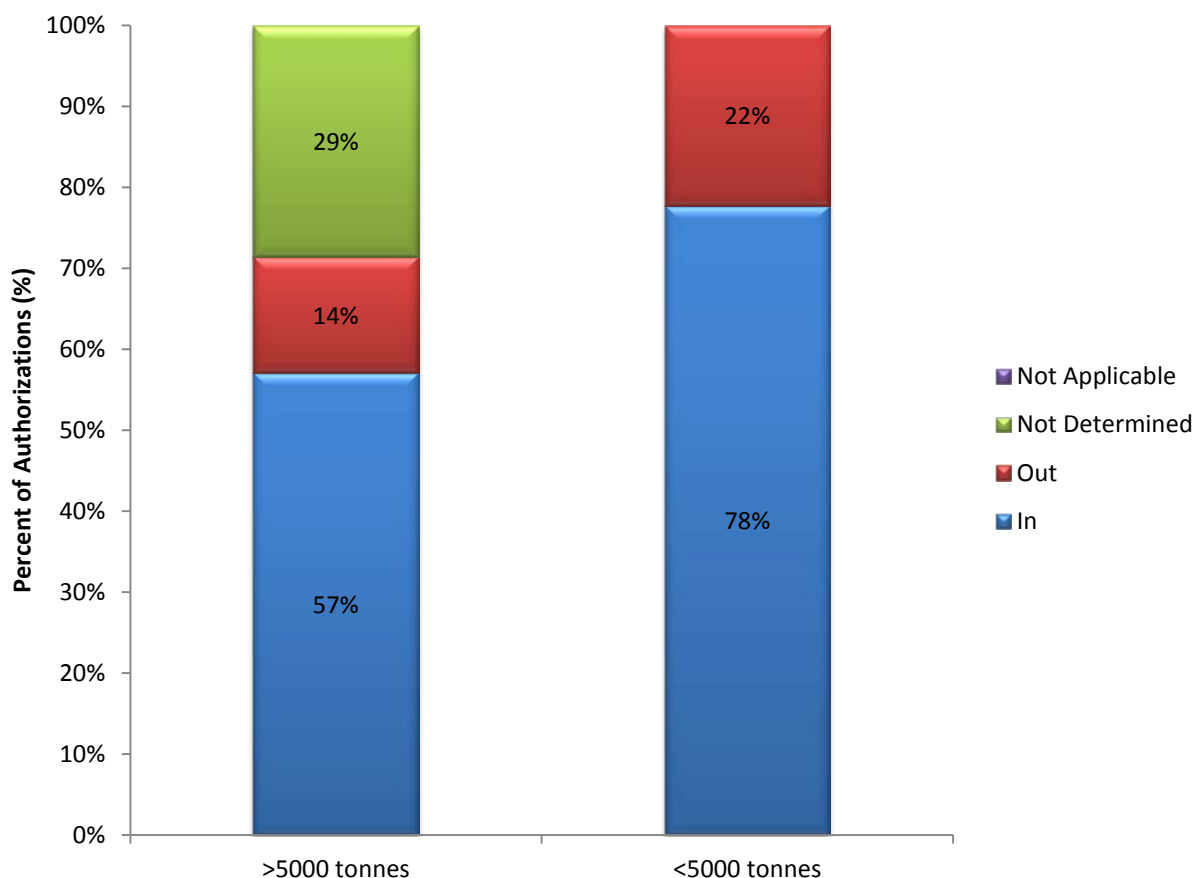


Figure 15 – Compliance Summary of Leachate Collection System (Section 26(2)(c) of OMRR)

The results show that of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year, 57 percent were In compliance and 14 percent were Out of compliance with Section 26(2)(c); with two composting facility not being evaluated. These results are the same as those for Section 26(2)(a), which required that the receiving, storage, processing and curing areas be located on an impermeable surface, with the exception of the one composting facility that was Out of compliance for having a portion of the curing area on local soils because compliance was not assessed for Section 26(2)(c). Of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 78 percent were In compliance and 22 percent were Out of compliance with Section 26(2)(c). Again, these results are the same as for Section 26(2)(a). This indicates that composting facilities that locate the receiving, storage, processing and curing areas on an impermeable surface also have a leachate collection system. Conversely, those composting facilities that do not locate one or more of the receiving, storage, processing and curing areas on an impermeable surface, do not have a leachate collection system for those areas that are not on an impermeable surface.

Section 26(3) requires that any leachate that is not collected and reused in the composting process must not be discharged into the environment unless authorized under the EMA. Figure 16 displays the compliance determinations under Section 26(3).

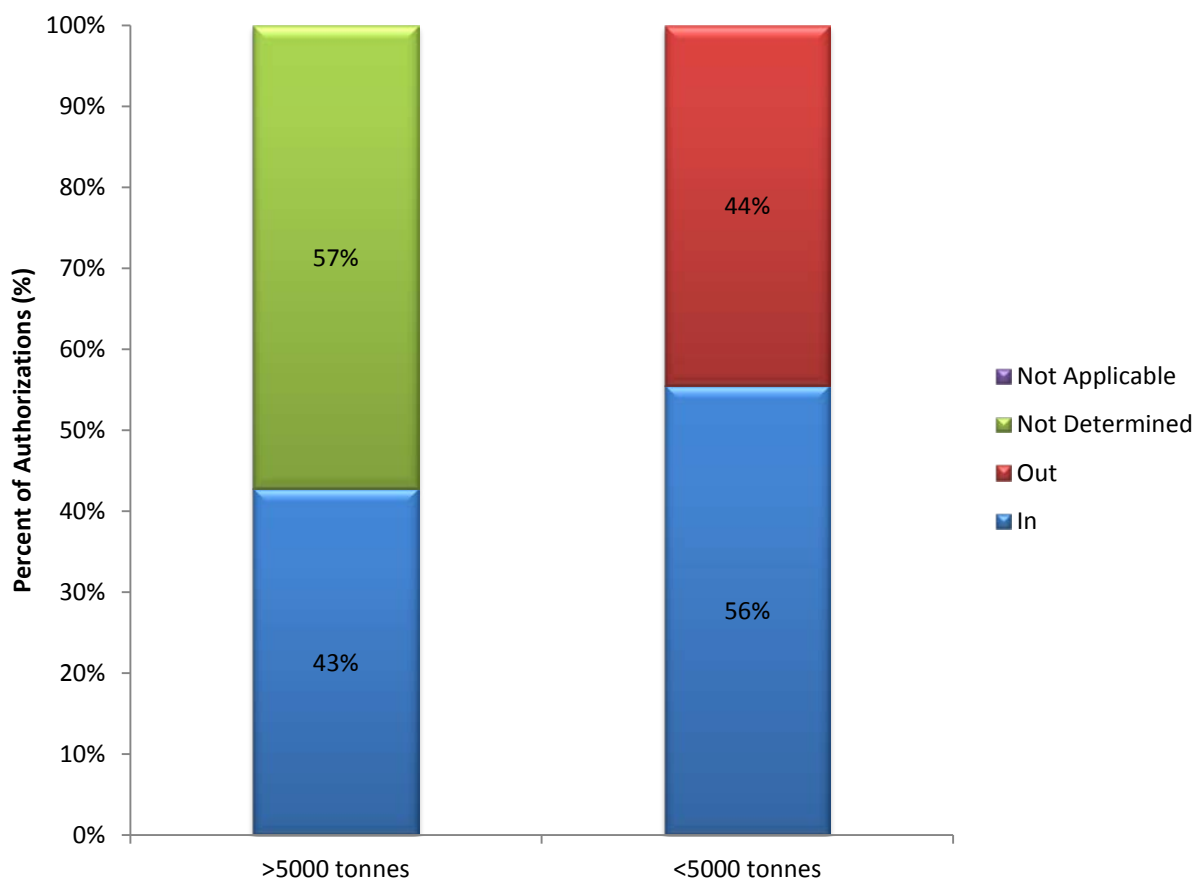


Figure 16 – Compliance Summary of Leachate Discharge to Environment (Section 26(3) of OMRR)

The results show that of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year, 43 percent were In compliance with Section 26(3); with 57 percent of composting facility not being evaluated. Of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year, 56 percent were In compliance and 44 percent were Out of compliance with Section 26(3). The reasons that two other composting facilities were Out of compliance with this requirement but not with 26(2)(c) were different. At one of the composting facilities where leachate was being collecting, the leachate was being discharged to an unlined lagoon, which ultimately discharged to the environment. At the other composting facility where leachate was being collected, the composting facility indicated that during periods of heavy rainfall, leachate is observed to flow down-gradient off of the impermeable surface, and into a ditch and stormwater drain which subsequently discharges to the environment.

Section 26(4) states that the requirements of Section 26(2) and Section 26(3) are not necessary if a qualified professional can demonstrate through an environmental impact assessment that the environment will be protected through the use of alternative leachate management processes. None of the composting facilities that were inspected had used a qualified professional to demonstrate through an environmental impact assessment that the environment could be protected without the requirements of Section 26(2) and Section 26(3) in place.

Organic Matter Recycling Regulation Requirement - Section 28 – Capacity for compost

During one of the inspections, it was found that the composting facility had been stockpiling the finished compost for approximately three years. Section 28 of OMRR requires that at least half of the compost stored at a composting facility is removed annually; therefore, this composting facility was found to be Out of compliance with Section 28.

Organic Matter Recycling Regulation Requirement Summary

The compliance assessment results of these selected requirements of OMRR can be further summarized to evaluate the overall compliance with each Section and the overall compliance with the regulation. Because only selected requirements were assessed during the permitting of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year, the summary only considers those composting facilities that produced less than 5,000 tonnes of finished compost per year. Figure 17 displays the compliance determinations when summed together for each requirement under Sections 3.1, 12, 24, 26 and 28, as well as the compliance determinations when summed together for each requirement under all of these Sections.

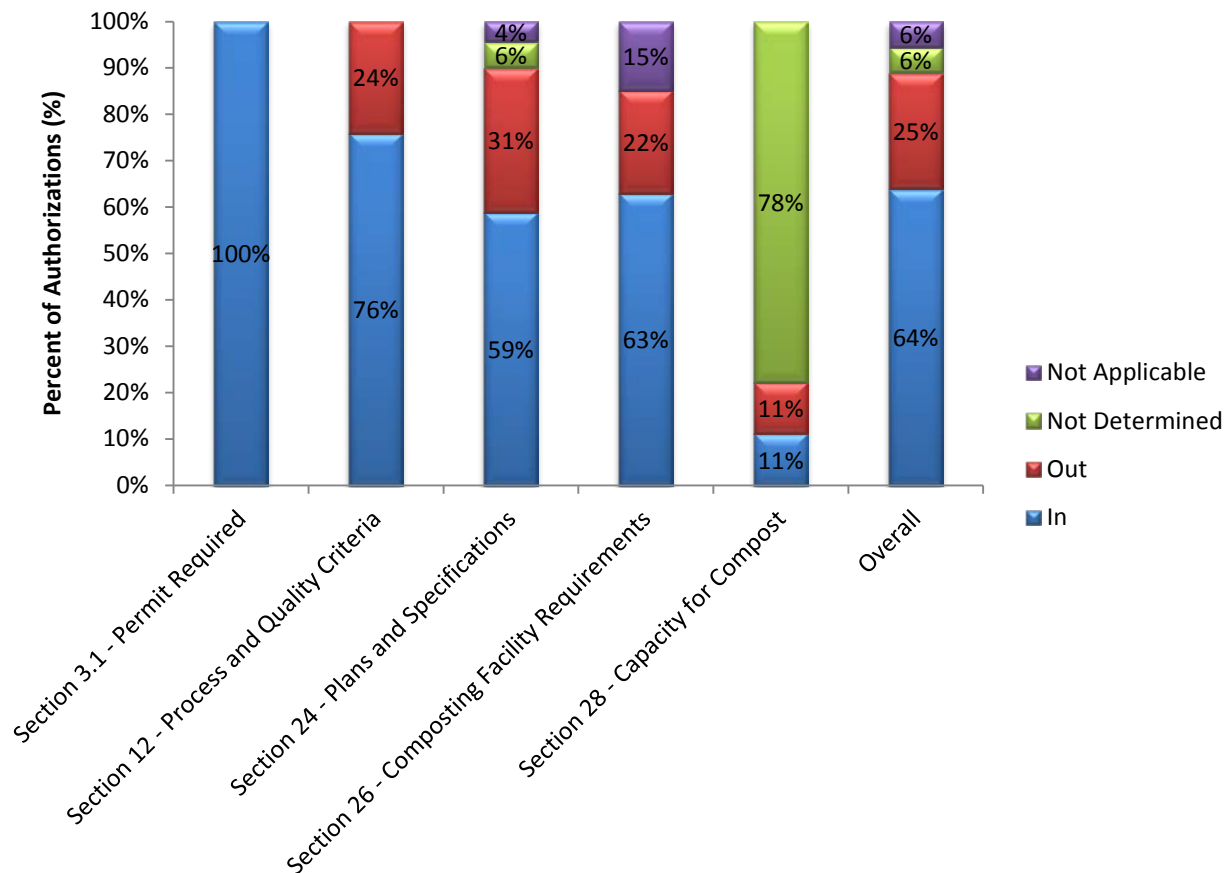


Figure 17 – Compliance Summary of OMRR

Under Section 3.1 there is only one requirement, therefore because 100 percent of the composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with this requirement, each of them is also In compliance with Section 3.1.

There were six requirements assessed for compliance under Section 12 and the nine composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with 76 percent of these requirements and Out of compliance with the remaining 24 percent of these requirements.

There were ten requirements assessed for compliance under Section 24. The nine composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with 59 percent and Out of compliance with 31 percent of these requirements. Compliance with a specific requirement was Not Determined for six percent of these requirements and was Not Applicable for four percent of these requirements.

There were six requirements assessed for compliance under Section 26 and the nine composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with 63 percent of the requirements and Out of compliance with the remaining 22 percent of the requirements. Compliance was Not Applicable for 15 percent of these requirements.

Compliance with the single requirement of Section 28 was assessed at only two of the nine composting facilities that produced less than 5,000 tonnes of finished compost per year. Therefore, overall 11 percent of these

composting facilities were In compliance, 11 percent were Out of Compliance and compliance was Not Determined for the remaining 78 percent of composting facilities.

Overall, the nine composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with 64 percent of the assessed requirements and Out of compliance with 25 percent of the assessed requirements. Compliance with a specific requirement was Not Determined for six percent of the requirements and six percent of the requirements were Not Applicable.

Discussion

The inspections of the composting facilities were generally conducted by evaluating compliance with four main sections of OMRR. These sections focused on permit requirements, the process and quality criteria to produce Class A compost, the requirement to have plans for the facility, including leachate and odour management, and the requirement of the composting facility to manage leachate. A fifth section of OMRR was also assessed at two composting facilities because of additional insight gained during the process of conducting inspections.

Organic Matter Recycling Regulation Requirement - Section 3.1 – Permit required

All nine of the composting facilities inspected as part of this audit produced less than 5,000 tonnes of compost per year and therefore all were In compliance with Section 3.1(1) (Table 3). This indicates that the permitting process was able to capture all of those composting facilities that produced more than 5,000 tonnes of compost per year during the original permitting process.

Table 3 – Compliance Summary with Permit Requirement (Section 3.1 of OMRR)

Determination	<5,000 tonnes compost
In	9
Out	0
Not Determined	0
Not Applicable	0

Organic Matter Recycling Regulation Requirement - Section 12 – Process and Quality Criteria

All of the composting facilities that produced more than 5,000 tonnes of finished compost per year and were assessed for the requirements were generally conducting their composting in a manner that follows those outlined in Section 12 of OMRR. Only one composting facility was found to be Out of compliance with any of the requirements in Section 12 (Table 4). At this composting facility, it was observed that fewer samples were being analyzed than required in Sections 12(3)(b) and 12(3)(c).

Table 4 – Compliance Summary with Process and Quality Criteria (Section 12 of OMRR)

Determination	>5,000 tonnes compost	<5,000 tonnes compost
In	4	3
Out	1	6
Not Determined	2	0
Not Applicable	0	0

Similar to the larger composting facilities, most of the composting facilities that produce less than 5,000 tonnes of finished compost per year were conducting their composting in a manner that follows those outlined in Section 12 of OMRR. However, there were far more instances where the composting facilities were Out of compliance with one or more of the requirements of Section 12 (Table 4). 44 percent of the smaller composting facilities were Out

of compliance with Section 12(3)(a), which includes the procedures, monitoring and sampling that must be followed as part of the Pathogen Reduction and Vector Attraction Reduction processes. The main reasons that these composting facilities were Out of compliance with Section 12(3)(a) included, moisture content and carbon to nitrogen ratio concentrations that were outside the acceptable range following the Vector Attraction Reduction process and metal concentrations that exceeded the quality criteria following the Vector Attraction Reduction process. The two composting facilities, which had moisture content and/or carbon to nitrogen ratios outside the acceptable range, were conducting their sampling following the curing process and after being screened for larger organic matter, which may have contributed to these results being below the acceptable ranges and therefore, Out of compliance. The rationale that these composting facilities provided for conducting the analysis later in the composting process is that they wanted to have recent sampling results to show compliance with OMRR quality criteria at the time that that particular compost was being sold. It is worth noting that ENV intends to remove references to the carbon to nitrogen ratio from OMRR and adding respiration as a measure of compost maturity (ENV, 2016c).

There was also one composting facility that was not conducting any temperature, moisture content, carbon to nitrogen ratio or metals analyses at all and indicated that they were unaware of any requirement to do so. This composting facility had recently undergone a change in operator. 22 percent of the smaller composting facilities were not collecting the sufficient number of quality criteria samples as required by Sections 12(3)(b) and 12(3)(c). One of these composting facilities was not collecting any samples and the other composting facility was generally collecting seven fecal coliform samples and one metals sample per year or only shortly before selling the compost, rather than per 1,000 tonnes dry weight. Again, the rationale was that they wanted recent laboratory results to show compliance prior to the sale of the compost.

56 percent of the smaller composting facilities were also not keeping their records for the full 36 months or not keeping the records at the composting facility as required by Section 12(3)(d). Generally, it was the same composting facilities that were not conducting any sample analyses or sufficient analyses that did not retain the records, whereas those composting facilities that did conduct the sample analyses, simply did not keep all of the records at the composting facility. It is understood that there is the potential that the record keeping requirement in OMRR will be extended to 10 years (ENV, 2016c).

Organic Matter Recycling Regulation Requirement - Section 24 – Plans and specifications

The requirement to have plans and specifications that include the works constructed on site, the design capacity and leachate management, odour and operating and closure plans was generally not evaluated in the inspection reports at any of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year because the plans and specifications were being submitted and evaluated as part of the permitting process. Therefore, very little comparison can be made with the composting facilities that produce more than 5,000 tonnes of finished compost per year based on the inspection reports. Several observations can still be made based on the results of the inspections conducted at the smaller composting facilities (Table 5).

Table 5 – Compliance Summary with Plans and Specifications (Section 24 of OMRR)

Determination	>5,000 tonnes compost	<5,000 tonnes compost
In	2	3
Out	0	6
Not Determined	5	0
Not Applicable	0	0

33 percent of these smaller composting facilities did not have any plans at all and therefore, were Out of compliance with all assessed requirements of Section 24 of OMRR. Generally, the operators of these composting facilities indicated that they had taken over operation of the facility from others and simply conducted the composting in the manner in which it had always been performed. They were unaware of the requirements of Section 24 of OMRR. This also likely indicates that the previous operators did not have any plans and specifications. One of these composting facilities further stated that they were unaware of their registration with OMRR and were simply conducting the composting in the manner that they had always operated, thinking that the composting facility was included within another city waste disposal permit. ENV conducted a review and concluded that this composting facility had most likely been notified only with a short email that stated that their composting operation, which was a very small portion of another permit, was now under a registration with OMRR and then conducted no follow up. This notification would likely have been sent in 2004 or 2005 and no inspections of the composting facility had been conducted since that time.

An additional requirement under Section 24(3)(b) of OMRR is that the plans and specifications are kept at the composting facilities. 56 percent of the small composting facilities could not produce the plans and specifications during the inspection; the three composting facilities that did not have any plans and specifications, but also two additional composting facilities that were later able to produce the plans following the inspection. At present, OMRR only requires composting facilities to give notice before beginning operation and there is no requirement to submit the plans and specifications to ENV. In response to stakeholder feedback from ENV (2006) and ENV (2011), ENV intends to amend OMRR to require that composting facilities provide notification and also submit plans and specifications to ENV and keep the plans and specifications up to date (ENV, 2016c). This change should ensure that all composting facilities have plans and specifications.

Although not reported in Table 5 because Section 24(4) was not assessed for compliance as part of this Audit, one of the composting facilities that had a design capacity greater than 5,000 tonnes per year, was required to include additional information in the plans and specifications. During the inspection, it was observed that not all of these additional requirements were being followed. The specific requirements were ozone treatment works, which were not always operation due to mechanical problems and cold temperatures and additional groundwater monitoring. Conduct.

Organic Matter Recycling Regulation Requirement - Section 26 – Composting facility requirements

Two of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year were found to be Out of compliance with at least one of the leachate management requirements under Section 26 of OMRR (Table 6). In both cases, the composting facilities did not have all of the receiving, storage, processing and curing areas located on impermeable surfaces. At one of the two composting facilities, a deficiency in one portion

of the curing area was observed where leachate was pooling adjacent to the impermeable surface on local soils and therefore, not collected by the leachate collection system. At the other composting facility, the organic matter, once having undergone Pathogen Reduction and Vector Attraction Reduction in the processing area on an impermeable surface, was moved to the curing area, which was not located on an impermeable surface. Leachate from the curing area was observed on the local soils and was not collected by the leachate collection system. This composting facility indicated that they had interpreted Section 26(2)(a) of OMRR to only include the Pathogen Reduction and Vector Attraction Reduction phases of the composting process requiring an impermeable surface. The confusion seemed to arise because Section 2(b) of Schedule 2 states that Class A compost must be retained in curing piles for at least 21 days and Section 26(1) defines “curing area” as the area where organic matter is further matured into humus-like material after having undergone the rapid initial stage of composting. The composting facility interpreted the rapid initial stage of composting as the Pathogen Reduction process and interpreted the “curing area” as the area in which the Vector Attraction Reduction process takes place because Vector Attraction Reduction occurs in curing piles as defined in Section 2(b) of Schedule 2. OMRR does not define what the rapid initial stage of composting is so the composting facility was not aware that the rapid initial stage of composting should include both the Pathogen Reduction and Vector Attraction Reduction processes and that the “curing area” is where the organic matter goes after these initial stages are completed. The composting facility was moving the organic matter from the impermeable surface to the local soils following these initial stages. Additionally, at one of the composting facilities it was Not Determined whether the lagoon where the leachate was directed was fully lined. Lastly, and not documented in Table 6 due to being a compliance point outside of Section 26 of OMRR, one of the seven composting facilities, operating under a permit, was not meeting the permit requirements for leachate quality.

Table 6 – Compliance Summary with Composting Facility Requirements (Section 26 of OMRR)

Determination	>5,000 tonnes compost	<5,000 tonnes compost
In	4	5
Out	2	4
Not Determined	1	0
Not Applicable	0	0

Some similar results were found with the composting facilities that produce less than 5,000 tonnes of finished compost per year. 44 percent of these smaller composting facilities were Out of compliance with at least one of the leachate management requirements under Section 26 of OMRR (Table 6). At one of the composting facilities, the receiving, storage, processing and curing areas were not located on impermeable surfaces, the surfaces were not graded to prevent surface water collection around the organic matter or to prevent run-off water from entering the areas and no leachate collection system was in place. This composting facility indicated that they were simply operating the facility as they had for more than 20 years and while generally aware of OMRR, they were not aware of the specific requirements. As previously mentioned, this composting facility had been issued a registration under OMRR in a very short email at one time for their existing composting operation and no follow-up had ever been conducted. Another one of the smaller composting facilities had the receiving, storage and processing areas located on impermeable surfaces and a leachate collection system was in place, but only a portion of the curing area was located on an impermeable surface. The leachate collection system could not collect leachate for the portion of the curing area not located on the impermeable surface. This composting facility indicated that they simply didn’t have enough impermeable surface area to conduct the total of their operations at the time, but were preparing to add additional impermeable surface area in the near future. At another composting facility, all of the receiving, storage,

processing and curing areas were located on impermeable surfaces and there was a leachate collection system in place; however, the leachate was being discharged to an unlined lagoon, and ultimately to the environment. The composting facility indicated that the leachate was not entering the ground but simply evaporating; however, they were not conducting any monitoring to evaluate this theory and had not conducted environmental impact assessments to ensure that the environment was protected. The last of the composting facilities that was Out of compliance with Section 26 of OMRR was collecting leachate; however, the composting facility indicated that during periods of heavy rainfall, leachate was observed to flow off of the impermeable surface and into a ditch and stormwater drain, which subsequently discharged to the environment. The composting facility could not provide any reason for why they had not made any change to their leachate management practices in response to these events.

Organic Matter Recycling Regulation Requirement - Section 28 – Capacity for compost

During one of the inspections, it was found that one of the composting facilities that produced less than 5,000 tonnes of finished compost per year, had been stockpiling the finished compost for approximately three years. This results in the composting facility being Out of compliance with Section 28 of OMRR, which requires that at least half of the compost stored at a composting facility is removed annually. This requirement was only evaluated at a few of the composting facilities (Table 7).

Table 7 – Compliance Summary with Capacity for Compost (Section 28 of OMRR)

Determination	>5,000 tonnes compost	<5,000 tonnes compost
In	1	1
Out	0	1
Not Determined	6	7
Not Applicable	0	0

The reason expressed by the composting facility that they had not removed at least half of the compost stored at the composting facility was that they were unable to sell any of the finished compost. The composting facility has been operating for more than 20 years producing compost, not so much to produce and sell compost, but as a way to remove municipal sewage waste. Until recently, the composting facility has been able to sell the compost produced; however, they have been unable to sell any substantial amount of the finished compost because the public does not want to use Class A compost produced from biosolids. Another composting facility who produces Class A compost from biosolids similarly indicated that they are having a more difficult time selling their compost than in past years and, as a result, have greatly reduced the cost of the finished compost in order to be able to sell the compost and not have to store the compost at the composting facility or else find an alternative use for the compost. They also believe that the reason for this is that the public does not want to use Class A compost produced from biosolids.

ENV has recently commissioned a technical working group to conduct a scientific review of biosolids. A literature review by technical working group indicated that more transparency is required for the public and First Nations, including published notifications of plans, reports and land applications online, new quality standards for Class A biosolids, contingency land application plans, covering stored compost in areas of heavy precipitation and further research on the impacts from exposure to livestock and wildlife (ENV, 2016d). An initial report of the results of the second portion of the scientific review, which included a soil sampling project, indicated that the soil standards at

all of the sampled sites where biosolids had been applied complied with OMRR substance concentrations listed in Schedule 4 (ENV, 2016e).

Environmental Management Act - Section 6 – Waste disposal

One of the composting facilities that produced less than 5,000 tonnes of finished compost per year, while holding a registration with OMRR, was producing what they described as a soil amendment product rather than compost. The wastes used to generate the soil amendment product were commercial waste including, hydrovac soil and liquids and drywall paper, and mixing this was agricultural waste in the form of manure. None of the wastes is included in Schedule 12 of OMRR or included in the definition of soil amendment as listed in the Code of Practice for Soil Amendments (ENV, 2007). Each of these wastes is waste generated by a prescribed industry as listed in Schedule 1 and Schedule 2 of the WDR.

These wastes were being mixed together and stored in piles. Leachate from the piles was collected in an unlined pond that was routinely pumped out onto a nearby field. The waste was then stored in large piles on unpaved ground and the finished product was sold to the public for use as soil amendment. These activities were considered an introduction of waste into the environment produced by a prescribed activity and the composting facility was found to be Out of compliance with Section 6(3) of the EMA.

Compliance Determination

The response to the non-compliances was based on consideration of the Non-Compliance Decision Matrix found in the ENV (2014) (Appendix 3). Of the seven composting facilities that produced more than 5,000 tonnes of finished compost per year, 43 percent were In compliance, receiving a Notice, and the remaining 57 percent were Out of compliance with at least one of the Sections of OMRR or a Permit that were evaluated (Figure 17). Of the 10 composting facilities that produced less than 5,000 tonnes of finished compost per year assessed in the audit, 30 percent were In compliance, receiving a Notice, and the remaining 70 percent were Out of compliance with at least one of the Sections of OMRR that were evaluated (Figure 17).

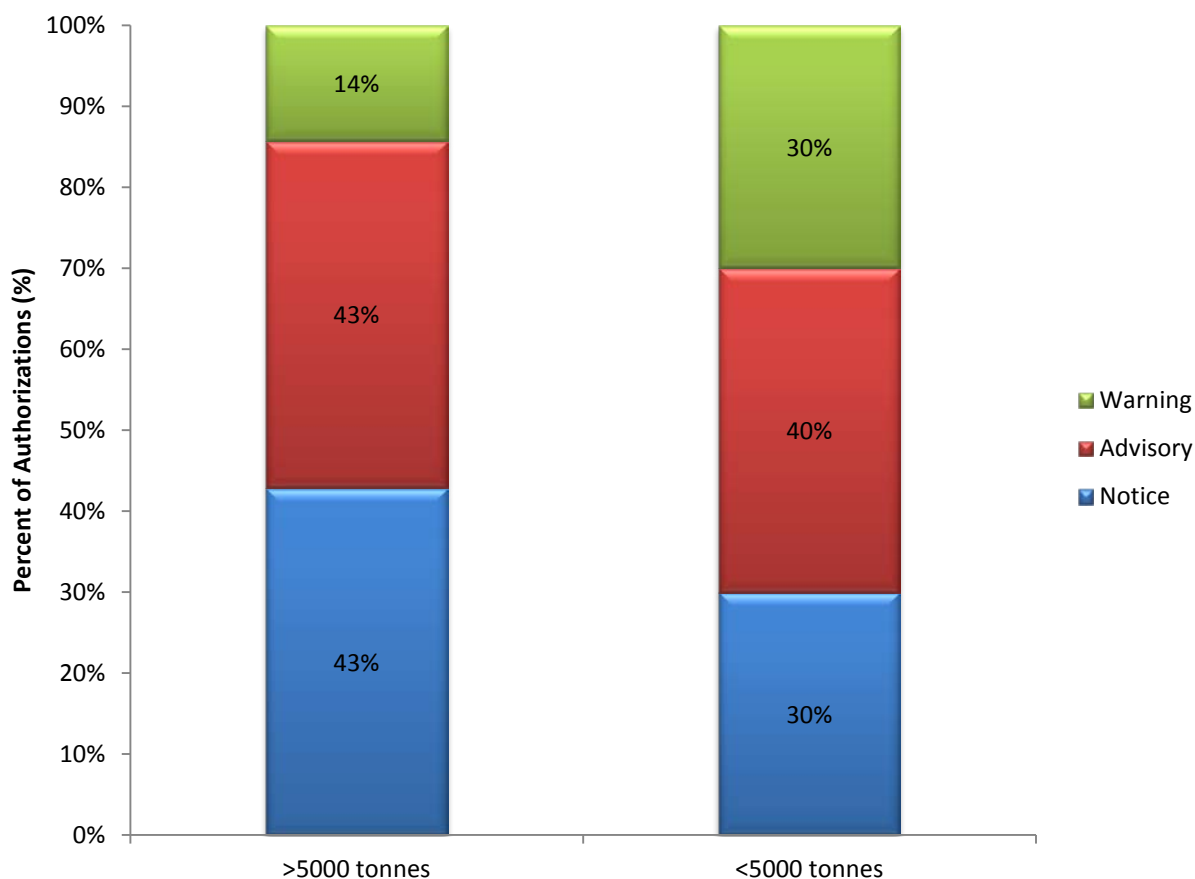


Figure 18 – Compliance Determination

The response issued to the composting facilities that were Out of compliance with at least one of the Sections of OMRR was either an Advisory or Warning, which are considered a first level enforcement response to address non-compliance. Advisories are issued when the non-compliance does not or is not likely to result in an impact to the environment or is of a minor administrative nature and there is some indication that compliance in the future is high. A Warning is similar to an Advisory; however, a Warning is issued when there is minor to moderate temporary impact to the environment or of a more significant administrative nature and the indications of future compliance or uncertain are unlikely. A Warning also presents the possibility of escalating enforcement action if the non-compliance continues.

43 percent of the composting facilities that produced more than 5,000 tonnes of finished compost per year were issued an Advisory and 14 percent of the composting facilities that produced more than 5,000 tonnes of finished compost per year were issued a Warning. The one Warning issued to a composting facility that produced more than 5,000 tonnes of finished compost per year was operating under a Permit and the effluent that was discharging to the environment did not meet the effluent quality objectives outlined in the Permit.

40 percent of the composting facilities that produced less than 5,000 tonnes of finished compost per year were issued an Advisory and 30 percent of the composting facilities that produced less than 5,000 tonnes of finished compost per year were issued a Warning. Each of the composting facilities showed a cooperative attitude and in all cases, there were indications of a willingness to comply. Therefore, generally, an Advisory was issued to those composting facilities where the non-compliances were limited to administrative in nature, such as insufficient sample collection, improper record keeping or deficient plans and specifications. Warnings were then issued to the composting facilities that in addition to having some issues of administrative non-compliance also were deficient in their leachate management and leachate was either discharging to the environment or there was the potential for leachate to be discharged into the environment. One Warning was issued to a composting facility where a portion of the curing area was not connected to the leachate collection system because this portion of the curing area was not located on the impermeable surface. Another Warning was issued to a composting facility that did not have any of the receiving, storage, processing or curing areas located on impermeable surfaces and did not have a leachate collection system.

The final Warning issued to a composting facility that produced less than 5,000 tonnes of finished compost per year was issued under Section 6(3) of the EMA, which states that a person must not introduce into the environment waste produced by a prescribed activity. The composting facility was not producing compost but was using commercial waste including, hydrovac soil and liquids and drywall paper, and mixing this was agricultural waste and selling the product as soil amendment. These wastes are generated from prescribed industries as listed in the WDR. It was therefore assessed, that the composting facility should be issued the Warning under EMA rather than assessed for compliance with the relevant Sections of OMRR.

Conclusions and Recommendations

Based on the results of the audit following inspections at seven composting facilities that have a design production capacity in excess of 5,000 tonnes of compost per year and 10 composting facilities that have a design production capacity of less than 5,000 tonnes of compost per year, it can be concluded that:

1. 100 percent of the inspected composting facilities that have a design production capacity less than 5,000 tonnes of compost per year were In compliance with Section 3.1 of OMRR that requires that the composting facility have a permit if the design production capacity is in excess of 5,000 tonnes of compost per year;
2. The inspected composting facilities that have a design production capacity less than 5,000 tonnes of compost per year were In compliance with 76 percent of the requirements of Section 12 of OMRR that deal with process and quality criteria. 33 percent of these composting facilities were In compliance with all requirements of Section 12. The non-compliances were generally due to:
 - a. Quality exceedances for moisture content, carbon/nitrogen ratio and metals;
 - b. Not collecting quality criteria samples or a sufficient number of quality criteria samples;
 - c. Not keeping process and quality records;
3. The inspected composting facilities that have a design production capacity less than 5,000 tonnes of compost per year were In compliance with 59 percent of the requirements of Section 24 of OMRR that deal with plans and specifications. 33 percent of these composting facilities were In compliance with all requirements of Section 24. The non-compliances were generally due to:
 - a. Not having any plans or specifications;
 - b. Not having a leachate management plan for all stages of the composting process;
 - c. Not having a copy of the plans or specifications at the facility;
4. The inspected composting facilities that have a design production capacity less than 5,000 tonnes of compost per year were In compliance with 63 percent of the requirements of Section 26 of OMRR that deal with composting facility requirements for leachate management. 56 percent of these composting facilities were In compliance with all requirements of Section 26. The non-compliances were generally due to:
 - a. Not locating the receiving, storage, processing and curing areas on an impermeable surface;
 - b. Not having a leachate collection system;
 - c. Allowing leachate to discharge to the environment;
5. One of the two composting facilities that have a design production capacity less than 5,000 tonnes of compost per year that were assessed for compliance with Section 28 of OMRR that deals with capacity for compost was In compliance. The other composting facility was not removing at least half of the stored compost annually;
6. Overall, the nine composting facilities that produced less than 5,000 tonnes of finished compost per year were In compliance with 64 percent of the assessed requirements and Out of compliance with 25 percent of the assessed requirements. Compliance with a specific requirement was Not Determined for 6 percent of the requirements and 6 percent of the requirements were Not Applicable;
7. One composting facility was not producing compost but was using commercial waste and mixing this was agricultural waste and selling the product as soil amendment;

8. Three Notices, four Advisories and three Warnings were issued. The Advisories were issued where the non-compliances were administrative in nature and the Warnings were issued when there were both minor administrative non-compliances but also potential minor temporary environmental impacts; and
9. In general, the same non-compliances were observed at the smaller composting facilities that were previously observed at those composting facilities that have a design production capacity in excess of 5,000 tonnes of compost per year;

It is recommended that:

1. Following the issuing of an intended revised intentions paper in 2018, ENV solicits feedback and recommendations from all stakeholders and then amends OMRR.
2. The amendment included a requirement to submit plans and specifications, as well as any modifications, to ENV to ensure that all composting facilities were at least, initially, designed to address the requirements of OMRR.
3. The amendment to OMRR clarify the definitions of curing piles and curing area so that the two uses of the word 'curing' will not be confused.
4. The amendment to OMRR clarify when compost is considered finished compost so that composting facilities can be certain when it is acceptable to move the compost off of an impermeable surface and if and when leachate collection is no longer required.
5. In general, ENV Compliance conducts inspections of all authorizations and registrations at some more regular inspection interval. More than one of the composting facilities inspected during this audit had never undergone an inspection and were even sometimes unaware of their registration with OMRR.
6. Compliance promotion initiates a program to contact all composting facilities that have registrations under OMRR to ensure that they are aware of their registrations and aware of their responsibility to comply with the requirements of OMRR.
7. If compost derived from biosolids and biosolids are to remain an organic waste diversion strategy, that ENV promote the benefits of this waste diversion and land application and present the science that supports land application so that the public is amenable to its production and use.

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Appendix 1 – Legislation

Appendix 1 – Legislation

Composting facilities are regulated and authorised under the *Environmental Management Act* (EMA). Definitions in the regulation include:

Environmental Management Act (EMA)

Section 6 –Waste Disposal

6(2) Subject to subsection (5), a person must not introduce or cause or allow waste to be introduced into the environment in the course of conducting a prescribed industry, trade or business.

6(3) Subject to subsection (5), a person must not introduce or cause or allow to be introduced into the environment, waste produced by a prescribed activity or operation.

In order for a person constructing or operating a composting facility to be exempt from Sections 6(2) and 6(3) of EMA; they must first register under the Organic Matter Recycling Regulation (OMRR). For the purpose of the audit, the following Sections of OMRR were assessed to determine compliance:

Organic Matter Recycling Regulation (OMRR)

Section 2 – General application

2(2) A person who produces or uses biosolids or compost is exempt from section 6 (2) and (3) of the Act if the person produces and uses the biosolids or compost only in accordance with this regulation.

Section 3.1 – Permit required

3.1(1) Section 2 (2) applies to a discharger in relation to a composting facility that processes food waste or biosolids and has a design production capacity of 5 000 tonnes or more of compost per year only if the discharger holds a permit for the composting facility, unless the discharger holds an approval or operational certificate for that composting facility.

...

Section 24 – Plans and specifications

24(1) A discharger must have a qualified professional prepare plans and specifications for

- (a) the construction and operation of a new composting facility, or
- (b) any modification of an existing composting facility that results in an increase in the annual production capacity of more than 10 percent or more than 20 000 cubic metres.

24(2) The plans and specifications required by subsection (1) must include, but are not limited to, all of the following:

- (a) all works to be constructed on the site;
- (b) design capacity of the composting facility;
- (c) a leachate management plan which stipulates how leachate generated from any and all stages of the composting process will be minimized, managed, treated or disposed;

- (d) an odour management plan which stipulates how air contaminants from the composting facility will be discharged in a manner that does not cause pollution;
- (e) an operating and closure plan for the composting facility.

24(3) The discharger must ensure that

- (a) the qualified professional
 - (i) affixes his or her professional seal or signature, or both, to the plans and specifications for the composting facility, and
 - (ii) makes a signed statement certifying that the composting facility has been constructed in accordance with the plans and specifications,
- (b) a copy of the plans and specifications for the composting facility are kept at the composting facility at all times, and are available for inspection at any time,
- (c) the plans and specifications are submitted to a director upon request, and
- (d) the composting facility is operated in compliance with the plans and specifications required by subsection (1).

...

Section 26 – Composting facility requirements

26(1) In this section, "curing area" means an area where organic matter which has undergone the rapid initial stage of composting is further matured into a humus-like material.

26(2) The receiving, storage, processing and curing areas of a composting facility must comply with all of the following:

- (a) be located on asphalt, concrete or another similar impermeable surface that is capable of withstanding wear and tear from normal operations and that will prevent the release of leachate into the environment;
- (b) have a roof or cover, or a prepared surface, designed to prevent
 - (i) the surface collection of water around the base of organic matter and compost, and
 - (ii) run-off water from entering the receiving, storage, processing and curing areas;
- (c) have a leachate collection system designed, constructed, maintained and operated to reuse leachate, or to remove leachate, from the receiving, storage, processing and curing areas.

26(3) Leachate that is not collected and reused in the composting process must not be discharged into the environment unless authorized under the Act.

26(4) Despite subsections (2) and (3), an impermeable surface, roof, cover, prepared surface or leachate collection system is not necessary if a qualified professional can demonstrate through an environmental impact assessment that the environment will be protected and appropriate water quality criteria satisfied through the use of alternative leachate management processes.

Section 28 – Capacity for compost

28 At least half of the compost stored at a composting facility must be removed annually from the facility beginning in the third year after facility start-up.

...

Appendix 2 – List of Authorized Composting Facilities Included in the Audit

Appendix 2 – List of Registered Composting Facilities Included in the Audit

Table 1 – List of composting facilities with a design production capacity in excess of 5,000 tonnes of compost per year included in the audit

Authorization Number	Company Name
12398	Consolidated Envirowaste Industries Inc. (formerly The Answer Garden Products Ltd.)
16109	Fisher Road Holdings Ltd.
17357	International Composting Corporation
18055	Enviro-smart Organics Ltd.
18194	City of Kelowna
103966	Coast (V.I.) Environmental Ltd.
108210	Pacific Substrate Ltd.

Table 2 – List of composting facilities with a design production capacity less than 5,000 tonnes of compost per year included in the audit

Authorization Number	Company Name
14582	City of Summerland Compost Facility
17243	Comox Valley Regional District
18011	Border Feedlot Corporation
18015	University of B.C.
100527	Resort Municipality of Whistler
103972	City of Penticton
105308	District of Mission Formerly Transform Compost Systems Ltd.
105854	Net Zero Waste Inc.
106410	Seabird Island Band
108040	City of Merritt

Appendix 3 – Non-Compliance Decision Matrix

Appendix 3 – Non-Compliance Decision Matrix

		ESCALATING ENVIRONMENTAL, HUMAN HEALTH OR SAFETY (ACTUAL OR POTENTIAL)				
		LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
DIMINISHING LIKELIHOOD OF COMPLIANCE (COMPLIANCE HISTORY/WILLINGNESS AND CAPACITY TO COMPLY)	CATEGORY A (HIGH)	ADVISORY	ADVISORY - WARNING	WARNING - ORDER - ADMIN SANCTION - AP	ORDER - ADMIN SANCTION - AP - INVESTIGATION	INVESTIGATION <div>Note: An investigation is always necessary prior to issuance of a ticket, recommendation of formal charges or use of restorative justice therefore these tools are not shown on the matrix. Depending on the outcome, an investigation could also culminate in the issuance of a warning, administrative sanction or penalty, or an order.</div>
	CATEGORY B	ADVISORY - WARNING	WARNING - AP	INVESTIGATION		
	CATEGORY C	WARNING - AP	WARNING - ORDER - ADMIN SANCTION - AP - INVESTIGATION			
	CATEGORY D	WARNING - ORDER - ADMIN SANCTION - AP				
	CATEGORY E (LOW)	ORDER - ADMIN SANCTION - AP - INVESTIGATION				

Categories of Likelihood of Compliance

Categories of Likelihood of Compliance

(Compliance History/Willingness and Capacity to Comply)

CATEGORY A - Indications of future and ongoing compliance are very high

- No previous occurrences of non-compliance;
- Good demonstrated awareness of and/or capacity to meet regulatory requirement; and/or
- Offender has a reasonable and cooperative attitude.

CATEGORY B - Indications of future and ongoing compliance are uncertain

- Few previous occurrences of non-compliance; and/or
- Questionable awareness of and/or capacity to meet regulatory requirement.

CATEGORY C - Indications of future and ongoing compliance are unlikely

- Numerous previous occurrences of non-compliance; and/or
- Little or no awareness of and/or capacity to meet regulatory requirement.

CATEGORY D - No indication of future and ongoing compliance

- Wilful violation of ministry regulatory requirement; and/or
- Little or no demonstrated willingness or capacity to meet regulatory requirement.

CATEGORY E - No indication of future and ongoing compliance

- Hindering or obstructing a ministry official;
- Refusing to furnish required information; and/or
- Intentionally including false or misleading information in any required document.

Levels of Escalating Environmental, Human Health or Safety Impacts

Levels of Escalating Environmental, Human Health or Safety Impacts

(Actual or Potential)

LEVEL 1

- Non-compliance that does not result or is unlikely to result in any environmental, human health or safety impact; or
- Minor administrative non-compliance.

LEVEL 2

- Non-compliance resulting in a minor, temporary impact to the environment or minor, temporary threat to human health or safety; or
- Significant administrative non-compliance.

LEVEL 3

- Non-compliance resulting in a moderate, temporary impact to the environment or moderate, temporary threat to human health or safety.

LEVEL 4

- Non-compliance resulting in a significant impact to the environment or significant threat to human health or safety (may be temporary or permanent).

LEVEL 5

- Known or likely human health impact that is severe in effect, i.e. resulting in hospitalization and/or long term human health consequences.