

Processing (Composting) Facility Guidance and Checklists for Tier II and Tier III Processing Facilities



**State of Idaho
Department of Environmental Quality**

July 2013



Printed on recycled paper, DEQ June 2013,
PID 9170, CA 87067. Costs associated with this
publication are available from the State of Idaho
Department of Environmental Quality in accordance
with Section 60-202, Idaho Code.

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1 Introduction

This guide is intended to assist compost facility owners, facility operators, and the general public in understanding the regulatory requirements that apply to composting facilities in Idaho. The “Solid Waste Management Rules,” IDAPA 58.01.06, define a processing facility as “a facility that uses biological or chemical decomposition to prepare solid waste for reuse” (IDAPA 58.01.06.005.32). While the term “processing facility” encompasses several different methods for preparing solid waste for reuse, this guidance focuses on biological decomposition, typically referred to as composting. To ensure regulatory compliance, compost facility owners and operators should review applicable regulations and discuss facility issues with the appropriate local, state, and/or federal agencies.

2 Composting Process

Composting is the biological breakdown of organic matter, typically under aerobic conditions when the appropriate carbon-to-nitrogen ratio is mixed with adequate moisture and at temperatures that encourage thermophilic microorganism growth. Microbial organisms use carbon for energy and nitrogen for protein synthesis. Water provides the organisms with moisture, and the air is necessary for aerobic organisms to breakdown the feedstock. When organic matter decompose in the absence of air (anaerobic decomposition), strong odors are generated. Whether composting is aerobic or anaerobic, the material remaining after the composting process is beneficial for the land in many ways, including as a soil conditioner; a source of nutrients, humus, or humic acids; a natural pesticide; and for moisture retention.

Feedstock ranges widely and can include animal manures, biosolids (solids/sludge generated from wastewater treatment plants), yard waste, wood waste, food waste, crop residue, dead animals, and other organic-based waste. When operated properly, composting can be an effective method for handling certain organic waste.

Most commercial composting facilities implement one of three basic composting methods: windrow, aerated static pile, or in-vessel. Each of these methods has advantages and disadvantages regarding cost, time, and land area and is discussed below.

2.1 Windrow Composting

Windrows are constructed by combining feedstock into triangular-shaped rows (Figure 1). To keep the windrow aerated, the windrow is turned on a periodic basis. Windrows are typically the lowest cost option. Smaller facilities can operate using a single piece of equipment such as a frontend loader or tractor with a bucket. Larger facilities may also use a piece of specifically designed equipment to turn the windrow. While the windrow method may require the least capital investment, this process requires more operator time since the windrows need turning on a fairly frequent basis. This process may also require the most land area since the feedstock is placed in rows with adequate space between them for equipment access.



Figure 1. Windrow composting (photo courtesy of Washington State University).

2.2 Aerated Static Piles

Aerated static piles are constructed by first placing a vented pipe on the bottom of the pile (Figure 2). The pipe is then connected to a blower. Mixed feedstock is placed over the vented pipe with the blower maintaining aeration in the pile. To reduce odor issues, air is typically pulled into the pile and then exhausted through a biofilter. Aerated static piles may only be turned once or twice throughout the composting process. Aerated piles require less operator time, but more costs are incurred to purchase and maintain the blower system.



Figure 2. Aerated static piles (photo courtesy of the University of Idaho).

2.3 In-Vessel Composting

In-vessel composting varies greatly in the size and complexity of each system. The basic concept is that feedstock is placed in an enclosed container where moisture, temperature, and aeration can be closely monitored and adjusted to maintain optimal conditions (Figure 3). The effect of meteorological conditions such as outside temperature and precipitation are greatly minimized using the in-vessel process. However, overall cost increases due to the container and the controls necessary to monitor and maintain moisture, temperature, and aeration. In-vessel composting can also reduce odor, vector attraction, and other nuisance issues that are sometimes associated with composting.



Figure 3. In-vessel composting (photo courtesy of Duke University).

3 Applicable Regulations

Due to the variety of feedstock used in composting, different local, state, and federal regulations may apply to various operations. These regulations typically address the location, design, stockpiling, processing, testing, and final use of the compost. This guidance discusses composting as regulated under Idaho’s “Solid Waste Management Rules” (IDAPA 58.01.06, available at <http://adminrules.idaho.gov/rules/current/58/0106.pdf>) and identifies other applicable state and federal regulations. The Idaho Department of Environmental Quality (DEQ)

strongly recommends that commercial compost owners and/or operators contact all entities with regulatory authority over a proposed feedstock or composting facility to ensure the facility is in compliance with all applicable requirements. Specific feedstock and regulatory authority is addressed later in this document.

3.1 Idaho's Solid Waste Management Rules and Facility Classifications

The “Solid Waste Management Rules” address the location, management, and disposal of certain solid waste and solid waste facilities. The authorities are shared between DEQ and the local health districts. Solid waste management facilities regulated under these rules include processing (composting) facilities, transfer stations, incinerators, and non-municipal solid waste landfills. Landfills disposing of household waste (municipal solid waste landfills) are regulated under the “Idaho Solid Waste Facilities Act,” (Idaho Code 39-74).

To ensure facilities regulated under these rules manage waste in a manner protective of human health and the environment, tier levels are assigned to facilities based on the volume of waste and types of waste managed at a particular facility. For composting facilities, regulated as processing facilities within the rules, four classifications exist with varying levels of regulatory oversight. Regulatory oversight increases as the volume of the waste and potential impact to human health and the environment increases. The four classifications are defined in IDAPA 58.01.06.009 and include below regulatory concern (BRC), Tier I, Tier II, and Tier III. Each classification is summarized below.

Below Regulatory Concern

The BRC designation applies only to processing facilities, including composting facilities, and does not apply to transfer stations, incinerators, or landfills. BRC facilities manage waste such as untreated/unpainted wood, yard waste, sheet rock, clean paper products, animal manures, plant or crop residues, or garbage without meats or animal fats. The maximum amount of waste that may be managed at a BRC facility at any one time is 300 cubic yards. BRC facilities are not authorized to manage petroleum-contaminated soils or pumpable waste. Pumpable waste includes nondomestic septage, sludge, wastewater, and non-municipal solid wastes that are pumped from a holding area or container.

BRC facilities are required to comply with basic operating practices such as controlling odors, litter, and vectors (i.e., rodents, insects, birds, or other animals that may transmit diseases). In addition, owners and/or operators need to maintain documentation at the site verifying the BRC status. A daily log documenting all incoming waste types and volume is an example of the documentation required. BRC facilities are not required to obtain DEQ approval but should check with the city/county to determine if local government approval is required. All applicable requirements for BRC facilities are contained in IDAPA 58.01.06.010. BRC facilities may be inspected by the local health district or DEQ staff to ensure the facility is complying with applicable requirements.

Tier I Composting Facility

A Tier I composting facility can manage the same types of waste as a BRC facility (i.e., untreated/unpainted wood, yard waste, sheet rock, clean paper products, animal manures,

plant or crop residue, or garbage without meats or animal fats), but the maximum amount of waste that may be accumulated on site increases to 600 cubic yards at any one time.

Tier I composting facilities are required to comply with basic operating practices including the control of odors, litter, and vectors (i.e., rodents, insects, birds, or other animals that may transmit diseases). Tier I owners and/or operators also must post signs at the facility entrances indicating the facility name, hours of operation, waste accepted, and an emergency phone number. Facility access must be controlled through fencing, natural barriers, and entrances that are locked when an attendant is not on duty. No open burning may occur at Tier I facilities except for certain waste types and under specific conditions. Tier I composting operations within certain distances to airports must also manage waste to ensure birds are not a hazard to air traffic. Stormwater must be controlled through adequate design to prevent impacts to surface and ground water. In addition, owners and/or operators need to maintain documentation—such as a daily log indicating types and volumes of waste—that verify the site’s Tier I status.

Tier I composting facilities must submit a notice to DEQ prior to operating. The notice shall include the following information:

- Owner’s name
- Operator’s name
- Physical location of the site
- Mailing address
- Facility phone number
- Type of solid waste management facility

Tier I facilities may be inspected by the local health district or DEQ staff to ensure the facility is complying with applicable requirements contained in IDAPA 58.01.06.011. Tier I facility owners/operators should contact their local government to determine whether other approvals are needed.

Tier II Composting Facility

Most commercial composting facilities in Idaho are regulated as Tier II facilities. A Tier II composting facility is one that has a cumulative volume of waste over 600 cubic yards at any one time. Tier II composting facilities manage waste similar to the BRC and Tier I plus other compostable waste that do not pose a substantial threat to public health or the environment.

Tier II composting facilities must obtain DEQ approval for the site and design criteria and local health district approval for the facility’s operating plan and odor management plan. During the site approval process, a 30-day public comment period is provided to allow the public an opportunity to review the site application and submit comments on the proposed site. Tier II compost owners and/or operators will need to address both general and facility-specific criteria during the approval process. Tier II requirements are contained in IDAPA 58.01.06.012.01–08 for general criteria and IDAPA 58.01.06.012.09 for facility-specific criteria. Information regarding Tier II requirements and how compliance may be demonstrated is contained in the accompanying site approval application checklist, operating plan approval checklist, and design plan checklist (see section 8). The application review and approval process is detailed in IDAPA 58.01.06.032.

Prior to permanent facility closure, owners and/or operators are required to comply with closure requirements and submit a closure plan application to the local health district for review and approval. General Tier II closure requirements are contained in IDAPA 58.01.06.012.05–06.

Tier II facility owners/operators should contact their local government to determine whether any additional approvals are needed.

Tier III Composting Facility

Composting facilities regulated as Tier III facilities manage waste in a manner or volume that forms toxic leachate or gas or poses a substantial risk to human health or the environment. Examples include composting unsorted household waste or certain types of industrial waste or a site where ground water is relatively shallow or soils/geology are present that may increase the potential for impacts to ground water.

Tier III facilities must obtain DEQ approval for the site and design. Required design features include a liner, a leachate collection system, and ground water monitoring. Owners and operators are also required to have the facility's operating plan and odor management plan approved by the local public health district. Tier III requirements are contained in IDAPA 58.01.06.013.01–10 for general criteria and IDAPA 58.01.06.013.11 for facility-specific criteria. Information pertaining to Tier III requirements and how compliance may be demonstrated is contained in the accompanying site approval application checklist, operating plan approval checklist, and design plan checklist (see section 8). The application review and approval process is contained in IDAPA 58.01.06.032.

Prior to permanent closure, owners and/or operators are required to comply with closure requirements and submit a closure plan application to the local health district for review and approval. Tier III closure requirements are contained in IDAPA 58.01.06.013.07–08.

Tier III facility owners/operators should contact their local government to determine whether any additional approvals are needed.

4 Odor Management

One of the major issues with composting is odor and its impact to adjacent property owners or occupants. While almost every composting operation will have some odor, odor “problems” can be avoided by first understanding the types of feedstock accepted and the composting process. Feedstock such as grass clippings, food waste, and leaves can produce strong odors if stockpiled for too long. How soon a pile of grass clippings or leaves will produce odor depends on many factors such as ambient temperature and moisture of the waste. To prevent stockpiles from creating an odor issue, each facility should incorporate their feedstock into the composting process as quickly as possible. The time frame should be specified in the facility's operating plan.

Compost piles can also generate excessive odors if not effectively managed. Temperature, moisture, and aeration monitoring are important for minimizing odors. Strong odors emanating from a compost pile may be an indication that the waste is undergoing anaerobic decomposition. Piles may go anaerobic for several reasons, including insufficient aeration, excess moisture,

and/or excess nitrogen. Understanding the compost process and feedstock can prevent odor issues.

To ensure Tier II and Tier III composting facility owners and operators adequately address odor concerns, odor management plans are required in addition to general operating plans. The odor management plan describes steps the owner or operator will take to minimize odors such as processing feedstock in a timely manner, maintaining the appropriate carbon to nitrogen ratio, ensure piles are aerated, and not saturate piles. Odor management plans also describe steps the owner or operator will take should odors become a concern. These steps may include the placement of a 4 to 6 inch layer of finished compost over an active pile that is generating odors or adding additional bulking material should a pile become saturated.

5 Finished Compost Testing

Several areas of testing address the safety and quality of finished compost. Safety parameters are typically based on the feedstock, while the quality parameters inform compost users of the maturity and nutrient value of the compost. Testing parameters and frequency should be based on several factors including, but not limited to, feedstock, end use, and desired quality of the compost.

5.1 Safety Parameters

Some compost feedstock contains chemicals, pathogens, and/or elevated levels of metals. Periodic testing of the finished compost should be conducted to ensure the facility's process is effective at reducing pathogen levels and that chemicals and metals are not concentrated to levels that may be harmful to human health and the environment. Some feedstock such as grass clippings may seem innocuous; however, chemical-based fertilizer and pesticides are used on home lawns, commercial properties, and other sources of grass clippings. These chemicals can persist even after the compost process. Clopyralid is one herbicide that remains in finished compost. Clopyralid in compost can damage or kill certain plants. Animal manures, food waste, and biosolids can contain pathogens that can persist in compost if the compost process is not managed appropriately. Metals occur in most organic matter and can be concentrated in compost to levels that may have negative effects on plants, human health, and/or the environment.

Several sources are available to assist in determining chemical, pathogen, and metal constituent limits. Federal regulations provide ceiling concentration limits for metals in biosolids (40 CFR 503.13) (Table 1). These constituents and ceiling limits are designed to be protective of public health and the environment and are applicable to compost.

Table 1. Ceiling concentrations of metals in biosolids.

Pollutant	Ceiling concentration (milligrams per kilogram) ^a
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

Source: 40 CFR 503.13, Table 1

^a Dry weight basis

Table 2 below provides pathogen limits for the land application of biosolids as required under 40 CFR part 503. These values may be used as a guide for determine if compost is safe for unrestricted use.

Table 2. Pathogen limits for land application of biosolids.*

Class A Pathogens	Units	Determination	Density Limit
Fecal coliform	CFU or MPN /g total solids (dry-weight basis)	Geometric mean of ≥ 7 individual grab samples taken over a 14 day period	<1,000 fecal coliform/g total solids
Salmonella sp.	CFU or MPN /g total solids (dry - weight basis)	Arithmetic mean of ≥ 7 individual grab samples taken over a 14 day period	< 3 MPN/4 g total solids
Enteric virus PFU/4g total solids (dry - weight basis)	PFU/4g total solids (dry - weight basis)	One composite sample of ≥ 7 individual grab samples taken over a 14 day period and the arithmetic mean of 4 duplicate analysis of the composite	< 1 PFU/4 g total solids
Viable helminth ova	Viable ova /4g total solids (dry - weight basis)	One composite sample of ≥ 7 individual grab samples taken over a 14 day period and the arithmetic mean of 4 duplicate analysis of the composite	< 1 viable ova/4 g total solids

* This list is subject to change, either due to modification to Part 503 or because of new knowledge regarding previously non-inventoried substances. For the latest updates, search <http://www.gpo.gov/fdsys> for 40 CFR 503.32.

5.2 Quality Parameters

The maturity of compost relates to its degree of completeness. Some applications of compost may not need fully matured compost, while other applications where plants may be more sensitive may damage or kill plants with immature compost. Maturity is typically measured

using two or more different parameters such as carbon dioxide and ammonia. Relatively simple tests can be done on site or sent to a laboratory as part of a more comprehensive sampling protocol. Additional parameters that may be sampled for include pH and salt content. See section 5.4 for additional resources.

5.3 Sampling Frequency

While Idaho’s “Solid Waste Management Rules” do not specify a sampling frequency, several entities provide sampling frequencies that may be used as a guide. The federal requirements for biosolids (40 CFR 503.16) contain testing frequencies based on the metric ton of biosolids (Table 2).

Table 2. Frequency of monitoring—land application.

Amount of sewage sludge^a (metric tons per 365-day period)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (6 times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

Source: 40 CFR 503.16, Table 1

^a Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge prepared for sale or give-away in a bag or other container for application to the land (dry weight basis)

Implementing a routine testing program for finished compost will ensure chemicals, pathogens, and/or metals are below levels of concern. A routine testing program and maintaining records of the test results can also be an effective marketing tool. Offering this information to potential customers demonstrates the compost is safe for use.

5.4 Additional Resources

Other resources that may assist you in understanding and evaluating your compost include the following:

- US Composting Council—The US Composting Council has a comprehensive testing program for composters entitled “Test Method for the Examination of Composting and Compost (TMECC),” which provides details on all aspects of compost testing. Available at <http://compostingcouncil.org/>.
- California Compost Quality Council—“Compost Maturity Index.” Available at <http://www.calrecycle.ca.gov/organics/Products/Quality/CompMaturity.pdf>.
- Cornell Waste Management Institute—testing compost factsheet. Available at <http://cwmi.css.cornell.edu/compostfs4.pdf>.
- Woods End Research Laboratory—“Interpreting Waste & Compost Tests.” Available at <http://www.woodsend.org/pdf-files/compost.pdf>.

6 Composting Waste Other Than Regulated Solid Waste

Certain compost activities may not be regulated under Idaho’s “Solid Waste Management Rules” or may be jointly regulated under other federal/state regulations and the “Solid Waste Management Rules.” To determine whether your proposed composting activity is regulated under these rules, please contact DEQ’s regional office for your area (see section 7 for contact information).

6.1 Backyard Composting

Backyard composting is defined in IDAPA 58.01.06.005.02 as “composting operations used only by the owner or person in control of a residential dwelling unit to process garbage and yard waste generated at that dwelling unit.” DEQ encourages homeowners to compost yard waste and food waste (excluding meats and animal fats) when conducted appropriately. Some Idaho communities offer reduced-cost composting bins to encourage backyard composting. Idaho’s “Solid Waste Management Rules” do not apply to anyone conducting backyard composting. Anyone considering backyard composting is encouraged to contact the appropriate city/county to determine if local ordinances apply. Homeowners considering backyard composting can find resources online or ask at local garden supply stores for “how-to” information on composting.

6.2 Biosolids Composting

In Idaho, the US Environmental Protection Agency (EPA) regulates biosolids management, reuse, and disposal. Biosolids or sewage sludge is solid, semisolid, or liquid residue generated during the treatment of domestic sewage in treatment works. The “Standards for the Use or Disposal of Sewage Sludge” (40 CFR 503) include standards for sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. Also included in these regulations are pathogen and alternative vector attraction reduction requirements for sewage sludge applied to the land or placed on a surface disposal site.

The standards in 40 CFR 503 also include monitoring frequency and recordkeeping requirements when sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator. The regulations include reporting requirements for Class I sludge management facilities, publicly owned treatment works with a design flow rate equal to or greater than one million gallons per day, and publicly owned treatment works that serve 10,000 people or more.

Prior to accepting biosolids for composting, compost facility owners/operators should contact the EPA Region 10 biosolids coordinator to determine applicable federal requirements (for a contact list, see <http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/NPDES+Subject+Contacts>).

In addition to federal regulations, Idaho’s “Wastewater Rules” (IDAPA 58.01.16) may also apply to biosolids management and disposal. IDAPA 58.01.16.650 requires publicly owned wastewater treatment facilities to develop and obtain DEQ approval for a sludge management plan. For more information on biosolids management, please see DEQ’s *Guidance for Land Application of Municipal Biosolids* (<http://www.deq.idaho.gov/media/773827-biosolids-guidance-final-1211.pdf>) and contact a wastewater engineer in the appropriate DEQ regional office.

While biosolids and biosolids management are not specifically regulated under Idaho’s “Solid Waste Management Rules,” composting operations mixing biosolids and regulated solid waste as feedstock may be subject to Idaho’s “Wastewater Rules” and “Solid Waste Management Rules.”

6.3 Agricultural Waste Composting

Agricultural operations use composting to manage waste generated on farms, confined animal feeding operations (CAFOs), and other agricultural facilities. In general, the Idaho State Department of Agriculture (ISDA) has statutory authority to regulate waste generated by and managed at agricultural operations. Agricultural operations that accept regulated solid waste such as grass clipping, construction and demolition waste, or nonhazardous industrial solid waste will need to comply with the “Solid Waste Management Rules” (IDAPA 58.01.06). Industrial facilities that process agricultural commodities such as potatoes or onions and compost their waste are also regulated under the “Solid Waste Management Rules.”

Composting on Dairies and Confined Animal Feeding Operations

Under separate rules, the ISDA requires certain dairies and CAFOs to implement a nutrient management plan. The plan describes how a regulated operation will manage manures and nutrients to minimize adverse impacts to surface and ground water. The plan may include composting as a method for managing manures and other nutrient sources.

Composting Dead Animals and Animal Parts

Composting dead animals and parts of dead animals is gaining acceptance as an effective management tool. Typically, when discussing dead animal composting, the animals to be composted are chickens, turkeys, hogs, and/or cows from livestock operations. The management of dead animals is regulated under the ISDA “Rules Governing Dead Animal Movement and Disposal” (IDAPA 02.04.17). Anyone considering composting dead animals should contact the ISDA prior to transporting or accepting dead animals. Some of the main issues to address when considering dead animal composting are the quick incorporation of the carcasses into the compost pile, adequate carbon source and bulking material, odor control, and animal disease control. Composting dead animals and regulated solid waste or dead animal composting at other solid waste management facilities may need ISDA and DEQ approval.

6.4 Soil and Plant Amendment Requirements

Anyone commercially producing compost should contact the ISDA to determine if the compost should be registered as a soil amendment or plant amendment as required under the “Rules Pertaining to the Idaho Soil and Plant Amendment Act of 2001” (IDAPA 02.06.41).

7 Questions Regarding Composting in Idaho

For questions regarding composting in Idaho, please contact the appropriate DEQ regional office, local health district office, or the solid waste program coordinator at the DEQ State Office (Table 3).

Table 3. DEQ and health district office contact information.

County	DEQ Regional Office	Public Health District
Boundary, Bonner, Kootenai, Benewah, Shoshone	Coeur d'Alene Regional Office 2110 Ironwood Parkway Coeur d'Alene, ID 83814 (208) 769-1422 toll-free: (877) 370-0017 fax: (208) 769-1404	Panhandle Health District 8500 North Atlas Road Hayden, ID 83835 (208) 415-5100
Latah, Nez Perce, Lewis, Clearwater, Idaho	Lewiston Regional Office 1118 F Street Lewiston, ID 83501 (208) 799-4370 toll-free: (877) 541-3304 fax: (208) 799-3451	Public Health-Idaho North Central District 215 10th Street Lewiston, ID 83501 (208) 799-3100 fax: (208) 799-0349
Adams, Washington, Valley, Payette, Gem, Boise, Canyon, Ada, Elmore, Owyhee	Boise Regional Office 1445 N. Orchard Boise, ID 83706 (208) 373-0550 toll-free: (888) 800-3480 fax: (208) 373-0287	Southwest District Health 13387 Miami Lane Caldwell, ID 83607 (208) 455-5400 Central District Health 707 N. Armstrong Place Boise, ID 83704 (208) 327-7499
Camas, Blaine, Gooding, Lincoln, Minidoka, Jerome, Twin Falls, Cassia	Twin Falls Regional Office 1363 Fillmore Street Twin Falls, ID 83301 (208) 736-2190 toll-free: (800) 270-1663 fax: (208) 736-2194	South Central Public Health 1020 Washington Street North Twin Falls, ID 83301 (208) 737-5900
Bingham, Power, Bannock, Caribou, Power, Oneida, Franklin, Bear Lake	Pocatello Regional Office 444 Hospital Way, #300 Pocatello, ID 83201 (208) 236-6160 toll-free: (888) 655-6160 fax: (208) 236-6168	Southeast District Health 1901 Alvin Ricken Drive Pocatello, ID 83201 (208) 233-9080
Lemhi, Custer, Butte, Clark, Fremont, Jefferson, Bonneville, Madison, Teton	Idaho Falls Regional Office 900 N. Skyline Drive, Suite B Idaho Falls, ID 83402 (208) 528-2650 toll-free: (800) 232-4635 fax: (208) 528-2695	Eastern Idaho Public Health 1250 Hollipark Idaho Falls, ID 83401 (208) 522-0310
State Office	DEQ State Office Solid Waste Program 1410 North Hilton Boise, ID 83706 (208) 373-0416 fax: (208) 373-0154	

8 Tier II and Tier III Checklists

The following checklists are designed to assist Tier II and Tier III processing facility owners and/or operators in completing the required site, operating plan, and design applications (Table 4 through Table 6). These applications are required to be completed, submitted to DEQ or the local health district as applicable, and approved by the associated agency prior to construction for site and design applications and prior to waste acceptance for the operating plan. These checklists are provided as guides only. To ensure compliance with necessary requirements, please reference applicable sections of the “Solid Waste Management Rules” (IDAPA 58.01.06).

Table 4. Tier II and Tier III processing facility site approval application checklist.

Completed ✓	Requirement	Discussion	Resources
	<p>Flood Plain Restriction—A facility shall not be located within a 100-year flood plain if the facility will restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the flood plain, or result in a washout of solid waste so as to pose a hazard to human health and the environment.</p> <p>IDAPA 58.01.06.012.01.a or IDAPA 58.01.06.013.01.a</p>	<p>Flood plains are natural areas along rivers that provide water storage areas during floods. Owners/operators should exercise caution when planning to locate a composting operation in a 100-year flood plain. Owners/operators will need to establish emergency plans to remove waste/compost in the event a flood is likely. These plans must include equipment to load and haul waste/compost and an alternative site outside of the flood plain where the waste/compost can be stored until flood waters recede.</p> <p>The site approval application must include a Federal Emergency Management Agency (FEMA) flood map with the site clearly indicated on the map. For facilities proposed within a 100-year flood plain, the operating plan must incorporate actions the owner/operator will implement in the event of flood.</p>	<p>FEMA map website— https://msc.fema.gov/webapp/wcs/stores/servlet/FemaWelcomeView?storeId=10001&catalogId=10001&langId=-1</p>
	<p>Endangered and Threatened Species—A facility shall not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife or result in the destruction or adverse modification of the critical habitat of endangered or threatened species as identified in 50 CFR Part 17.</p> <p>IDAPA 58.01.06.012.01.b or IDAPA 58.01.06.013.01.b</p>	<p>To limit impacts to endangered and threatened species, the owner/operator must obtain a determination from the US Fish and Wildlife Service or the Idaho Office of Species Conservation that the proposed facility will not cause or contribute to the taking of any endangered or threatened species.</p> <p>If a determination is made that the proposed site may impact endangered or threatened species, the owner/operator may be required to conduct a survey on the proposed site to determine if endangered or threatened species are on site or if the site contains critical habitat for the species. If the site contains endangered or threatened species or critical habitat, the owner/operator may need to undertake mitigation to address the endangered or threatened species.</p>	<p>US Fish and Wildlife Service— http://www.fws.gov/endangered/</p> <p>Idaho Office of Species Conservation— http://species.idaho.gov/</p>
	<p>Surface Water—The active portion of a facility shall be located such that the facility shall not cause contamination of surface waters, unless such surface waters are an integral part of the non-municipal solid waste facility’s operation for stormwater and/or leachate management.</p> <p>IDAPA 58.01.06.012.01.c or IDAPA 58.01.06.013.01.c</p>	<p>Surface water such as streams, rivers, lakes, and reservoirs can be impacted from composting operations by the leachate that may wash off site during storm events and/or snowmelt. Adequate stormwater control and site grading are effective ways to prevent surface water impacts from composting.</p> <p>Site applications must indicate nearby surface water on a scaled map and identify how the site will not impact surface water. A US Geological Survey 7.5-minute topographic map can be used to show surface water features in the area of the proposed site.</p>	<p>US Geologic Survey topographic maps— http://nationalmap.gov/ustopo/index.html</p>

Completed ✓	Requirement	Discussion	Resources
	<p>Park, Scenic, or Natural Use—The active portion of a facility shall not be located closer than 1,000 feet from the boundary of any state or national park, or land reserved or withdrawn for scenic or natural use including, but not limited to, wild and scenic areas, national monuments, wilderness areas, historic sites, recreation areas, preserves, and scenic trails.</p> <p>IDAPA 58.01.06.012.01.d or IDAPA 58.01.06.013.01.g</p>	<p>The 1,000-foot separation distance from parks and scenic or natural use areas is intended to reduce potential impacts to park/scenic/natural use visitors.</p> <p>The site application must contain a map indicating the distance to the nearest park and scenic/natural use area.</p>	<p>National Atlas website for wilderness areas and federal lands— http://www.nationalatlas.gov/mapmaker?AppCmd=CUSTOM&LayerList=wa&visCats=CAT-boundary,CAT-boundary http://nationalatlas.gov/printable.html#fedlands</p>
	<p>Ground Water—The active portion of a facility shall be located, designed, and constructed such that the facility shall not cause contamination to a drinking water source or cause contamination of the ground water.</p> <p>IDAPA 58.01.06.012.09.a.i or IDAPA 58.01.06.013.01.d</p>	<p>Ground water protection is an important goal of DEQ. Idaho citizens rely on ground water for drinking, irrigating crops, watering livestock, and industrial purposes. Improperly sited, designed, and/or operated solid waste management facilities can negatively impact ground water.</p> <p>Solid waste management facility owners/operators need to demonstrate that their proposed composting operation will not impact ground water. The site application should include depth to the highest known ground water, an evaluation of the soils and geology under the proposed site, design features that will prevent the downward migration of leachate, and operations to limit the generation of leachate.</p>	<p>Idaho Department of Water Resources well driller report— http://www.idwr.idaho.gov/WaterManagement/WellInformation/DrillerReports/dr_default.htm Contact a qualified geologist/hydrogeologist for assistance.</p>
	<p>Geologic—No facility may be located on land that would threaten the integrity of the design.</p> <p>IDAPA 58.01.06.012.09.a.ii or IDAPA 58.01.06.013.01.e</p>	<p>Fault areas, seismic impact zones, and other unstable natural or man-made features may impact a facility’s site and design elements that are intended to protect human health and the environment. A site evaluation for these factors should be conducted by a qualified professional to determine if potential geologic issues exist with the site.</p>	<p>http://www.usgs.gov/ Contact a qualified professional geologist for assistance.</p>
	<p>Property Line Setback—The active portion of a facility shall not be located closer than 100 feet to the property line.</p> <p>IDAPA 58.01.06.012.09.a.iii or IDAPA 58.01.06.013.01.f</p>	<p>The intent of the setback is to provide a physical separation between facility activities and surrounding neighbors. Even well-run facilities can have some dust, odor, noise, and vectors. By providing this setback, the impact to neighbors can be reduced, thereby reducing complaints.</p> <p>The site application must contain a scaled map of the site with the location of all stockpiling areas, active composting areas, processing/screening areas, and finished compost storage areas. The scaled site map must depict a 100-foot setback from the property line and all areas identified above outside the 100-foot setback.</p>	

Completed ✓	Requirement	Discussion	Resources
	<p>Site Map Requirements—</p> <ul style="list-style-type: none"> • Highways, roads, and adjacent communities • Property boundaries • Total acreage of the site • Off-site and on-site access roads and service roads • Types of land use adjacent to the facility and a description of all facilities on the site • All water courses, ponds, lakes, reservoirs, canals, irrigation systems, and existing water supplies, within on-quarter (¼) mile of the proposed facility property lines • High tension power line rights-of-way, fuel transmission pipeline rights-of-way, and proposed or existing utilities • Proposed and existing fencing and structures at the facility and within 500 feet of the facility boundary. This shall include location of employee building and scales (if provided). • Direction of prevailing winds <p>IDAPA 58.01.06.012.02 or IDAPA 58.01.06.013.02</p>	<p>A map (or maps) containing the information to the left help identify potential issues or considerations during the review/approval process.</p>	

Table 5. Tier II and Tier III processing facility operating plan approval checklist.

Completed ✓	Requirement	Discussion	Resources
	<p>Prohibited Activities—</p> <ul style="list-style-type: none"> • Disposal of regulated waste from health care, support to health care businesses, or medical diagnostic services that has not been decontaminated • Speculative accumulation • Disposal of radioactive materials <p>IDAPA 58.01.06.012.03.a or IDAPA 58.01.06.013.03.a</p>	<p>Unless specifically provided for in a facility’s operating plan, waste from medical care facilities that would be considered infectious or bloodborne pathogen waste is prohibited.</p> <p>Speculative accumulation occurs with stockpiles of material or recyclables to be processed for reuse or disposal when 50% of the material is not reused or disposed by the end of the following calendar year after the date of first receipt by the facility.</p> <p>Radioactive waste shall not be accepted.</p> <p>The operating plan must describe steps the owner or operator will take to prevent unauthorized waste from incorporation into the compost process. The operating plan must also describe how waste will be managed to prevent speculative accumulation.</p>	<p><i>OSHA Bloodborne Pathogen Requirements</i></p>
	<p>Signs—Facilities open to the public shall clearly post visible and legible signs at each entrance to the facility. The signs shall specify at a minimum the name of the facility, hours of operation, waste accepted at the facility, and an emergency phone number.</p> <p>IDAPA 58.01.06.012.03.b or IDAPA 58.01.06.013.03.b</p>	<p>Proper signage informs customers of the hours of operation, types of waste accepted, and emergency contact information. Having informed customers prevents waste from being dumped when the facility is closed, reduces the amount of unacceptable waste requiring off-site disposal, and allows for quicker emergency response time in the event of an emergency.</p> <p>The operating plan must specify the proposed information to be displayed on the facility’s sign and state that a sign containing the proposed information will be posted at every entrance to the facility.</p>	
	<p>Waste Types—Only the solid waste types listed in the approved operating plan may be accepted for processing.</p> <p>IDAPA 58.01.06.012.03.c or IDAPA 58.01.06.013.03.c</p>	<p>The facility’s operating plan must identify specific wastes to be processed and how unauthorized waste will be excluded from the site.</p>	

Completed ✓	Requirement	Discussion	Resources
	<p>Waste Monitoring and Measurement—Provisions shall be made for monitoring or measuring all solid waste delivered to a facility. The waste monitoring program shall include the following:</p> <ul style="list-style-type: none"> • A daily written log listing the types and quantities of waste received • A plan for monitoring and handling receipt of unauthorized waste • Routine characterization of the waste received • Other measures included in an approved operating plan <p>IDAPA 58.01.06.012.03.d or IDAPA 58.01.06.013.03.d</p>	<p>To process waste in a timely manner, facility owners/operators must know how much waste they are managing and the volume of different waste in order to have the right mixture of carbon and nitrogen sources. In addition, owners/operators need to be prepared to manage unauthorized waste that may be mixed with incoming loads. Other measures may be incorporated in a plan to deal with specific waste or provide greater protection.</p>	<p>US Composting Council— http://compostingcouncil.org/ Cornell Waste Management Institute— http://cwmi.css.cornell.edu/composting.htm</p>
	<p>Communication—Communication devices shall be available or reasonably accessible at the site.</p> <p>IDAPA 58.01.06.012.03.e or IDAPA 58.01.06.013.03.e</p>	<p>Communication devices allow workers to communicate and also provide communication to emergency response if needed.</p>	
	<p>Fire Prevention and Control—Adequate provisions shall be made for controlling or managing fires at the site.</p> <p>IDAPA 58.01.06.012.03.f or IDAPA 58.01.06.013.03.f</p>	<p>Fires can occur at composting sites for a variety of reasons. Compost piles and/or feedstock piles can become hot enough to spontaneously combust. In addition, equipment can contact feedstock and cause fires. Owners/operators need to be prepared and have a plan in place to deal with fires. Site staff also needs to know when a situation requires emergency response personnel.</p>	
	<p>Facility Access—Unauthorized vehicles and persons shall be prohibited access to the facility. A facility open to the public shall accept waste only when an attendant is on duty. The facility shall be fenced or otherwise blocked to access when an attendant is not on duty.</p> <p>IDAPA 58.01.06.012.03.g or IDAPA 58.01.06.013.03.g</p>	<p>To prevent “midnight dumping,” vandalism, and liability from an injury, owners/operators need to secure their composting site.</p>	

Completed ✓	Requirement	Discussion	Resources
	<p>Scavenging and Salvaging—Scavenging by the public at a facility is prohibited; however, salvaging may be conducted in accordance with a written operations plan and only by the owner, operator, or an authorized agent.</p> <p>IDAPA 58.01.06.012.03.h or IDAPA 58.01.06.013.03.h</p>	<p>Feedstock at a composting facility is not typically valuable for scavenging or salvaging. If salvaging is to be conducted, the owner/operator must be sure the person conducting the salvaging is aware of the potential dangers and is provided proper personal protection equipment.</p>	
	<p>Nuisance Control—The owner and operator shall control nuisances, including but not limited to the following:</p> <ul style="list-style-type: none"> • Disease or Discomfort. Operations at any facility shall not provide sustenance to rodents or insects that cause human disease or discomfort. • Vector. Vector control procedures shall prevent or control vectors that may cause health hazards or nuisances. • Odor. The facility shall be operated to control malodorous gases. • Litter. Effective measures shall be taken to minimize the loss of debris from the facility. Debris blown from or within the facility shall be collected and properly disposed to prevent objectionable accumulations. <p>IDAPA 58.01.06.012.03.i or IDAPA 58.01.06.013.03.i</p>	<p>Nuisance issues are one of the biggest public concerns surrounding a compost site. Effectively managing incoming materials, maintaining the appropriate carbon-to-nitrogen ratio, and keeping piles adequately moist and aerated can go a long ways to reduce nuisance issues. Considering meteorological conditions when turning piles can also limit odor impacts to neighbors. An operating plan must detail how nuisance conditions will be controlled and contingency measures should nuisance conditions arise. See below for details about the odor management plan.</p>	<p>Cornell Waste Management Institute— http://compost.css.cornell.edu/odors/odor.html</p> <p>CalRecycle— http://www.calrecycle.ca.gov/Publications/Documents/Organics%5C44207001.pdf</p>

Completed ✓	Requirement	Discussion	Resources
	<p>Bird Hazards to Aircraft—No facility may handle putrescible wastes in such a manner that may attract birds and increase the likelihood of bird/aircraft collisions. Facilities located within 10,000 feet of any airport runway used by turbojet aircraft, or within 5,000 feet of any airport used by only piston-type aircraft, shall operate the facility in such a manner that birds are not a hazard to aircraft.</p> <p>IDAPA 58.01.06.012.03.j or IDAPA 58.01.06.013.03.i</p>	<p>Food waste accepted at composting facilities can attract birds, which may fly in the path of aircraft and become a serious hazard. Bird strikes can cause damage to aircraft resulting in a crash. Owners/operators need to ensure that their site manages waste properly if their facility is in the vicinity of an airport.</p>	
	<p>Open Burning and Fires—Open burning is prohibited at facilities except as authorized by the “Solid Waste Management Rules” and IDAPA 58.01.01, “Rules for the Control of Air Pollution in Idaho.”</p> <p>IDAPA 58.01.06.012.03.k or IDAPA 58.01.06.013.03.k</p>	<p>Most composting operations should not be conducting open burning since materials allowed for open burning are the same types of materials used as feedstock in the compost pile.</p>	
	<p>Stormwater Run-On/Runoff Controls—The operating plan shall include sufficient stormwater management provisions, which may incorporate a National Pollutant Discharge Elimination System (NPDES) stormwater pollution prevention plan, to prevent contamination of surface and ground water and prevent the spread and impact of contamination beyond the boundary of the facility.</p> <p>IDAPA 58.01.06.012.03.l or IDAPA 58.01.06.013.03.l</p>	<p>Feedstock piles and unfinished compost piles can release contaminants to the environment that, if not managed appropriately, may impact human health and the environment. Compost facility owners/operators must ensure their site manages stormwater run-on and runoff to minimize these impacts. In addition, collecting stormwater run-on and runoff provides an opportunity to reuse this water as make-up water in the composting process.</p>	<p>EPA Stormwater Control— http://cfpub.epa.gov/npdes/stormwater/swbasicinfo.cfm</p>

Completed ✓	Requirement	Discussion	Resources
	<p>Odor Management Plan—The owner and operator of a processing facility shall implement a health district-approved odor management plan designed to minimize malodorous gases. The plan shall include specific operating criteria for oxygen, moisture, and temperature levels appropriate for the wastes to be processed and processing technologies to be employed; methods used to maintain the specific operating criteria; and a monitoring strategy that includes the frequency and parameters for monitoring the specific operating criteria.</p> <p>IDAPA 58.01.06.012.09.c.i or IDAPA 58.01.06.013.11.a</p>	<p>Nuisance issues including odor are one of the main concerns with a composting facility. Developing a plan to both minimize odors and reduce odors when generated will demonstrate to neighbors that the facility owner/operator is a good neighbor.</p>	
	<p>Documentation Requirement—The owner and operator of a processing facility shall maintain documentation of compliance with the “Solid Waste Management Rules,” Section 012 or 013, including an operational log of the methods used to maintain the operating criteria and sampling results.</p> <p>IDAPA 58.01.06.012.07 and 09.c.ii or IDAPA 58.01.06.013.09 and 11.e</p>	<p>In addition to maintaining documentation for waste types and volumes, compost facility owners/operators are also required to maintain documentation for monitoring temperature, moisture, aeration, and other conditions that demonstrate the composting process is optimized to process the waste as quickly as possible and minimize odors.</p>	

Table 6. Tier II and Tier III processing facility design plan checklist.

Completed ✓	Requirement	Discussion	Resources
	<p>The active portion of a facility shall be located, designed, and constructed such that the facility shall not cause contamination to a drinking water source or cause contamination of the ground water.</p> <p><i>IDAPA 58.01.06.012.09.a.i or IDAPA 58.01.06.013.01.d</i></p>	<p>Compost facility designs can vary significantly based on the types of waste to be managed, volume of waste to be managed, and site-specific geologic conditions beneath. The design may be as simple as natural soils providing adequate protection to ground water or may involve a constructed liner. Any proposed design plan will need to adequately document that ground water will be protected. The design will also need to incorporate stormwater controls to ensure run-on/runoff is managed appropriately.</p>	<p>Contact a qualified professional engineer and/or geologist for assistance in determining an adequate design based on the volume of waste, types of waste, and other site-specific conditions that will ensure protection of public health and the environment.</p> <p>EPA Stormwater Pollution Prevention Plan— http://www.epa.gov/npdes/pubs/industrial_swppp_guide.pdf</p>