



MONTANA

BIOSOLIDS MANAGEMENT 2018 - STATE SUMMARY

This summary, a dashboard of state statistics, & further data are at www.biosolidsdata.org

In Montana...

- In 2018, a total of 10,700 dry metric tons (dmt) of biosolids were tracked, with 46% land applied and 54% going to landfills. An estimated few hundred additional dmt went to landfill or land application from small mechanical plants and one-time lagoon clean-out operations that were not required to report, resulting in a rounded estimate of 11,000 dmt for that year.
- Three larger communities account for most of the landfilled solids: Billings, Bozeman, and Great Falls.
- Several biosolids composting operations have been successful over many years, including Missoula's Garden City Compost, the Glacier Gold Compost in the Kalispell and Whitefish area, and compost created from Butte-Silver Bow solids.

Biosolids Management in Montana

Montana has just over a million people and abundant open space. Agriculture is a major industry, and there are ample uses for biosolids and ample landfill space. In 2018, a total of 10,700 dry metric tons (dmt) of biosolids were tracked, with 46% land applied and 54% going to landfills. An estimated few hundred additional dmt went to landfill or land application from small mechanical plants and one-time lagoon clean-out operations that were not required to report, resulting in a rounded estimate of 11,000 dmt in 2018. Helena biosolids management mirrors the state's biosolids management: the capital city land applies Class B biosolids in the summer and uses the local landfill in the winter.

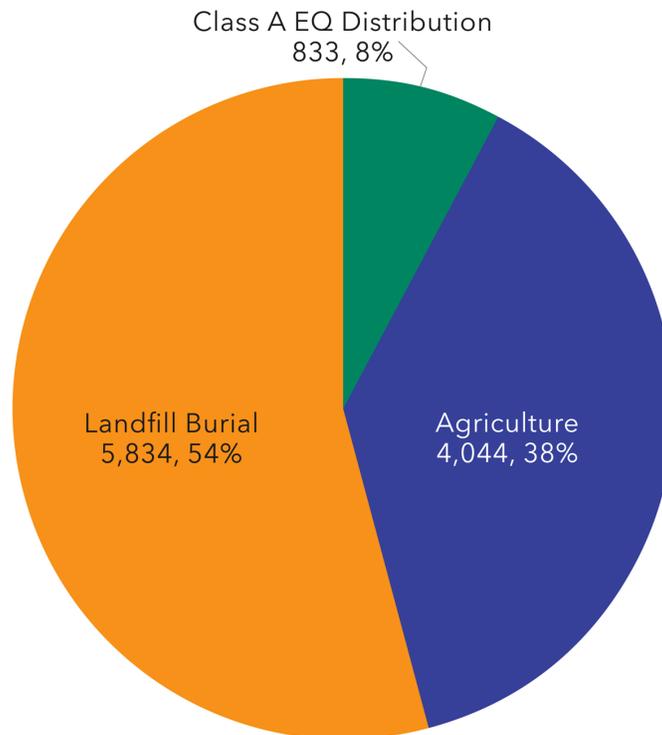
Composting biosolids is common, and the following facilities use biosolids in their composting process: Glacier Gold Compost - Flathead County; Garden City Compost - Missoula, Missoula County; Lewis & Clark County Class II Landfill - Helena, Lewis & Clark County; Butte-Silver Bow County Class II Landfill - Rocker, Silver Bow County. These compost products are locally sold and distributed; for example, a 1.5 cubic foot bag of Glacier Gold sells for \$7.00 in 2021.

Landfill disposal can be challenging, and, in Montana, it presents the same concerns as found nationwide: costs, requirements for meeting paint filter tests and other standards, and the difficulty of integrating relatively wet waste into the landfill without causing slumps and excessive leachate. For example, in 2018, the Flathead County Solid Waste Board was discussing local Kalispell biosolids: "The material is 15 to 20% solids and 80 to 85% liquid. It does pass the paint filter test so there are not any free standing liquids. The material flows like pudding and is very difficult to process. We 'paint' it on the slope and then try and soak up the material with household refuse or dig a hole in the refuse and dump it in and cover with refuse as well as possible."

Most of the smaller communities in the state rely on lagoon systems for treating wastewater and storing solids. Those tend to be cleaned out only every 10 – 30 years. Usually, the Montana

Department of Environmental Quality (MT DEQ) helps remind the facilities of the need to remove solids (e.g. see details about Cascade, below). MT DEQ staff monitor lagoons annually. In 2018, there were three lagoon cleanouts reported yielding more than 1,000 dmt of biosolids that were landfilled (e.g. Vaughn: 442 dmt) or land applied (e.g. Harlem: 760 dmt). There may have been additional lagoon cleanouts that year that were not reported to MT DEQ.

Montana Biosolids Use & Disposal 2018
(dry metric tons, %)
Total: 10,700



Agency/Department Oversight, Regulations, and Permitting

The MT DEQ oversees biosolids management, but there are no formal state regulations. MT DEQ staff in the engineering section help ensure compliance with the federal U.S. EPA Part 503 biosolids regulations, providing review and guidance to municipal biosolids management programs and forwarding questions to the EPA Region 8 biosolids coordinator in Denver.

MT DEQ does not require permitting of biosolids management facilities or land application sites. Water resource recovery facilities (WRRFs) are not required to submit any biosolids report to the state. However, MT DEQ has a biosolids land application form that they use with facilities to help ensure compliance with the federal Part 503 regulations.

Pressures on Biosolids Management and Land Application

Pressures on biosolids in MT as of 2018 include the following, which were selections by the state coordinator from a preset list in the NBDP state survey:

1. AGRICULTURAL ISSUES – soil compaction, difficulty with timing, stockpiling, etc.
2. COST – beneficial use options are least expensive
3. ENVIRONMENTAL ISSUES – impacts to soils, organisms, public health, contaminants (pathogens, metals, organic chemicals, etc.)
4. MANAGEMENT ISSUES – hauling distances
5. NUISANCE ISSUES – odors, truck traffic, dust, etc.

As of 2018, the beneficial use of biosolids was staying the same in Montana, and this trend continues in 2021.

Septage Management

The NBDP estimates that 20% of Montana residents and small businesses rely on onsite wastewater systems (septic systems) for wastewater treatment. Septage can be land applied in Montana, and septage haulers treat septage by alkaline stabilization and land apply it directly, in accordance with federal requirements at 40 CFR Part 503. About 63% of Montana septage is land applied. A small percentage is dewatered and landfilled, and the rest is delivered to WRRFs.

Montana Septage Management 2018
(% estimated)
Total: 11,827,000 gallons

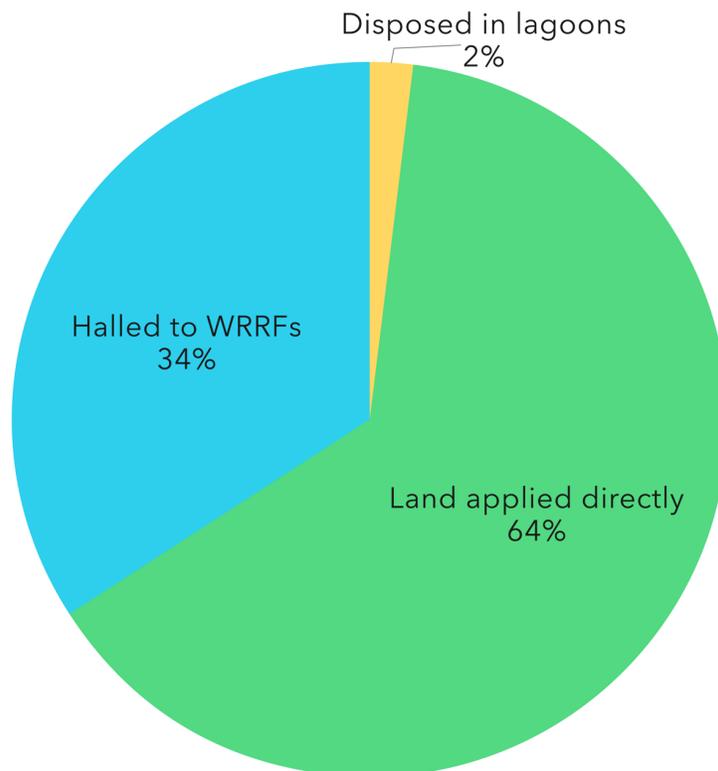


Table 1. Montana Septage Management

Quality of state septage data	Moderate
Septage haulers based in state:	156
In-state separate preparers (not WRRFs) taking septage:	0
WRRFs required to take septage?	No
WRRFs that accept septage:	50
Septage received at WRRFs in 2018 (gallons):	11,827,000
Other outside wastes accepted at WRRFs:	no data
Is fats/oil/grease (FOG) a significant issue?	Yes
Is it regulated?	Yes
How?	septage regulations
	wastewater permits/regulations
Is there a proactive program to collect FOG?	No
Can septage be land applied in state?	Yes
If yes, what treatment is required?	Meet Part 503 and the following additional state requirements:
	No requirements above and beyond Part 503 except that the program recently implemented a septage land application monitoring (SLAM) project. Site soils will be sampled prior to licensing and re-sampled every 3-5 years after that. Existing sites will also be sampled to gain an understanding of impacts of septage land application in the state.
Most recent septage regulations update:	2019
Full-time equivalent (FTE) at state agency for septage:	0.5
Notes from MT biosolids coordinator:	
<p>“Data provided is estimated from septic tank pumper logs submitted twice annually. 0.5 FTE septage management program at MT DEQ. Separate preparers/septage only treatment facilities unknown. Montana does not require reporting on holding tanks, drying beds, or other private septage treatment facilities. However, when the end product wastes are land applied or disposed of at a landfill or WWTP, the volume is reported to DEQ. Therefore, all volume estimates are for landfills, WWTPs, and land application.”</p> <p>“We offer courtesy reviews of Part 503 land application plans and offer concurrence. Our Region 8 EPA contact for Part 503 questions is Paul Garrison in Denver. We refer questions to him and recommend that consultants and communities contact him when there are questions we don't know the answer to.”</p>	

Major WRRFs, Separate Preparers, and Notable Projects

- **Missoula** has gained national attention because of its wastewater resource recovery efforts, which include:
 - Use of up to a million gallons per day of treated effluent as irrigation in summer months for 160 acres of hybrid poplar raised for commercial wood products.
 - Composting biosolids with city green waste.
 - Biogas generated in solids treatment supplies about 25% of the WRRF's electricity. Missoula compost is used in mine reclamation, for landscaping, and for farms and gardens. Missoula leaders see these programs as vital to helping achieve the City's goals of 100 percent clean electricity by 2035 and eliminating net greenhouse gas emissions.
- **Billings, Bozeman, and Great Falls** are the largest facilities in Montana that send wastewater solids to local landfills.
- **Cascade** provides an example of the process of managing wastewater solids in a small lagoon system. MT DEQ recently recommended removal of solids from the Cascade lagoon: "At 2.2 feet of measured depth, sludge in the primary lagoon cell has accumulated to greater than the design depth of 2 feet. Lagoon capacity is reduced when the sludge layer encroaches on needed treatment volume, shortening detention time and negatively impacting effluent quality... Sludge from the primary lagoon cell will be removed and land-applied at the Town's wastewater spray irrigation site in accordance with Federal 40 CFR 503 sludge disposal regulations, or hauled to a landfill. The land application of sludge will enhance soil conditions and provide beneficial reuse of the biosolids. The project is proposed for construction in the fall of 2019...The use of geofabric bags for sludge drying is therefore the preferred alternative to dewater sludge from the Town's lagoon" (http://deq.mt.gov/Portals/112/Public/Notices/Documents/Cascade_FONSI-EA.pdf).
- **The MT State Prison** in Deer Lodge recently land applied its lagoon solids, which had accumulated for more than 25 years, as is typical for smaller lagoon systems.

References

Most of the data and information contained herein were kindly provided by MT DEQ biosolids coordinator and others at MT DEQ. Additional data were compiled from the U.S. EPA ECHO biosolids electronic reporting database for 2018. Further information was obtained from the following sources:

Missoula: <https://missoulacurrent.com/outdoors/2018/10/missoula-treatment-future/?print=print>

Flathead communities wastewater treatment & biosolids management:
https://flathead.mt.gov/wastewater_management/documents/FlatheadCotreatingwastewaterinthehead.pdf

Bozeman: <https://www.bozeman.net/government/wastewater-treatment>