NATIONAL BIOSOLIDS DATA PROJECT

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NEW MEXICO

BIOSOLIDS MANAGEMENT 2018 - STATE SUMMARY

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In New Mexico...

- *The state's largest cities manage their wastewater solids with anaerobic digestion (AD) and composting programs; this includes Albuquerque, Las Cruces, Santa Fe, and Carlsbad. Exceptional quality (EQ) biosolids compost from these facilities largely goes to municipal properties (dedicated land application sites / surface disposal) and sale to the general public.*
- *Land application mostly occurs on sites with no associated crop, making land application and surface disposal different only in the permitting and monitoring required based on site specifics. Surface disposal accounts for the majority of biosolids not beneficially reused.*
- *Because New Mexico is an arid state, water reclamation takes precedence over solids reclamation in most wastewater treatment processes.*

Biosolids Management in New Mexico

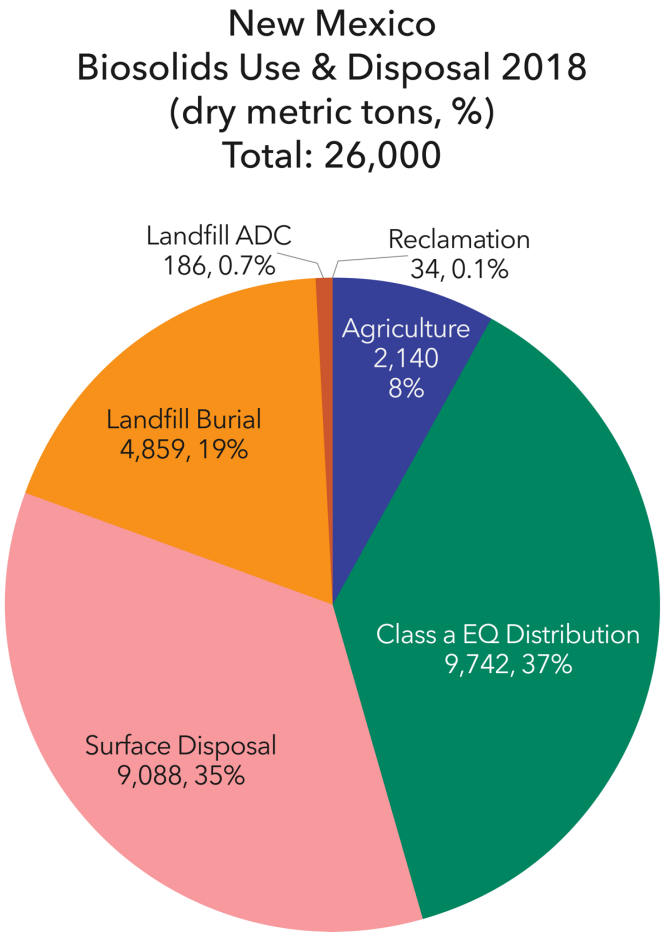
New Mexico is a large state with a few densely-populated areas and large swathes of open, unpopulated land. Like other states in the arid southwestern U.S., reclaiming water takes precedence over recycling solids in the wastewater treatment process. That being said, there are several successful biosolids recycling programs in New Mexico. Anaerobic digestion and biosolids composting are especially prominent in the larger cities, and more than ⅓ of NM's biosolids are composted.

Land applied biosolids in New Mexico mostly go to sites without an associated crop – i.e. land that is not in active agricultural use. The solids dry out, and some are collected and applied elsewhere as soil amendment (see Hobbs, below), but most stay put. Nutrient uptake is not a consideration in these cases, and there are associated groundwater testing and monitoring requirements, since substantial nutrients are concentrated in one area. The top of the groundwater table at most of these sites is close to 100 feet deep or more. Some land application is on rangeland and supports native vegetation.

For biosolids that are not beneficially reused, surface disposal is the most common form of disposal. "Surface disposal" of wastewater solids in New Mexico can mean different things, and permitting is handled on a site-by-site basis by the NM Environment Department (NMED). For most facilities, especially smaller ones, solids are dispersed on dedicated sites near the facility. The solids dry out, and most are left there, though some are then collected for beneficial use (see Hobbs, below). NMED regulators have some concern about some "sacrifice areas" – remote sites where numerous facilities dispose of their solids over and over again.

Landfills must be permitted to accept biosolids/sewage sludge; there are 19 landfills permitted as such in NM, but only 10 reported receiving biosolids in 2018. For that year, NM landfills reported accepting 28,797 wet tons of NM biosolids.

Some of NM's wastewater solids are managed by private facilities that may treat, haul, and/or dispose of solids for WRRFs – there are maybe 10-15 of these private facilities in the state.



Regulatory Agency and Oversight

New Mexico follows the federal biosolids rule, 40 CFR Part 503, which is administered by EPA Region 6. According to the state biosolids coordinator: "NMED does not have a discrete biosolids regulatory program. We do not have primacy of the NPDES program and do not directly implement 503. Some biosolids review is conducted during normal NPDES Compliance Evaluation Inspections and inspections conducted under Ground Water Quality Bureau discharge permit inspections."

Biosolids may be regulated by NMED through one or more of these Department bureaus; NMED decides on a case-by-case basis what's required for permitting, monitoring, and testing:

1. Ground Water Quality Bureau, which issues Groundwater Quality Discharge permits for all wastewater solids and biosolids land application and surface disposal sites, of which there are 26 – 30 statewide.
2. Surface Water Quality Bureau, which issues NPDES-type permits; any facility generating wastewater solids must have a sludge disposal plan in its NPDES permit, as well as necessary permits (e.g. groundwater discharge permit).
3. Solid Waste Bureau: Landfills must be permitted to receive wastewater solids/sewage sludge, and must report annually to the Solid Waste Bureau on quantities of wastewater solids/biosolids received, differentiating between in-state and out-of-state solids, but not specifically which WRRF they came from.

All major and minor WRRFs plus separate preparers managing biosolids/wastewater solids through land application are required to submit reports to NMED. If a WRRF land applies biosolids and holds a Groundwater Quality Discharge permit, it is required to test land application sites regularly to monitor groundwater for nitrogen (N). Sites typically have the top of the groundwater table at 100 or more feet deep. N is the basis of New Mexico's agronomic loading rate, and the application rate can be up to 125% of the N plant uptake for the crop being grown. If there is no uptake or crop associated with the land application site, a facility can apply up to 200 lbs. per acre per year of N. Most land application occurs on sites with no associated crop, making the practice similar to surface disposal. Differences in permitting and monitoring for land application and surface disposal can, therefore, be minimal, and often depend on site-specific variables such as depth of ground water, relative location, underlying geology, etc.

U.S. EPA's Region 6 biosolids person retired in recent years; that person conducted most of the inspections of sites where bulk biosolids are applied or injected, so inspections are now limited to what the NMED Ground Water Quality Bureau is able to do.

Pressures on Biosolids Management and Land Application

Pressures on biosolids in NM as of 2018 include the following, selected by the state coordinator from a preset list in the NBDP state survey:

1. COST – disposal options are least expensive

Some municipalities are seeing a buildup of solids being stored at the WRRF with no immediate solution for what to do with them. Deming is an exception: the town has four sludge lagoons that need to be cleaned out, but they can dispose of the solids in their municipal landfill.

Septage Management in New Mexico

Land application of septage must be done in accordance with Part 503 and also requires a NMED groundwater permit. NMED mostly considers it surface disposal, because the majority of septage applied is not applied for any beneficial purposes and only for disposal (this is similar to some of the land application of biosolids that happens, which also involves application to sites on which there is no crop growing – although, in some instances, there is native vegetation). NM's approved septage surface disposal facilities have a total authorized discharge volume of approximately 370,000 gallons,

so that is the maximum amount of septage that could have been land applied in 2018. Likely the large majority of septage went to WRRFs for treatment.

Table 1. New Mexico Septage Management

Quality of state septage data	None
Septage haulers based in state:	170
In-state separate preparers (not WRRFs) taking septage:	0
WRRFs required to take septage?	No
WRRFs that accept septage:	several
Septage received at WRRFs in 2018 (gallons):	no data
Other outside wastes accepted at WRRFs:	no data
Is fats/oil/grease (FOG) a significant issue?	no data
Is it regulated?	no data
How?	no data
Is there a proactive program to collect FOG?	no data
Can septage be land applied in state?	Yes
If yes, what treatment is required?	Meet Part 503 and the following additional state requirements:
	Land application of septage must be done in accordance with Part 503 and also requires a NMED groundwater permit. NMED mostly considers it surface disposal.
Most recent septage regulations update:	there are no state septage regulations
Full-time equivalent (FTE) at state agency for septage:	0
Notes: NBDP estimates ~15 million gallons of septage may have been generated in NM in 2018, based on the number of households and percent on septic systems, and assuming 5% were pumped out that year and each is 1000 gallons.	

Major WRRFs and Notable Projects

Albuquerque is New Mexico's largest city, and the Southside Water Reclamation Plant is the largest WRRF in the state, treating 50-60 MGD. Their Soils Amendment Facility processes ~12,000 tons of biosolids per year; management practices include composting and land application (mostly on rangeland, supporting native vegetation). There are 89 employees between the two facilities. Biosolids are anaerobically digested and centrifuge dewatered. Biogas is captured from the AD process to use for cogeneration of electricity and heat. Roughly half of ABQ's biosolids are then mixed with green waste, wood chips, and horse bedding to be composted. "Compost Del Rio Grande" is sold to the public at $25/ton. The other half of ABQ's biosolids go to land application at its Soils Amendment Facility.

Las Cruces has three WRRFs, with the Jacob A. Hands Wastewater Treatment Facility being the largest; its solids are anaerobically digested and belt filter pressed to 20% solids. Dewatered biosolids are sent to a 5-acre concrete drying pad at the West Mesa Composting Facility to become compost, which is available free to Las Cruces residents and nearby farmers in 5-gallon buckets or in bulk. The facility makes ~800 tons of biosolids compost a year. Las Cruces' other WRRFs are the West Mesa Industrial Park Wastewater Treatment Facility (<0.5 MGD) and the East Mesa Water Reclamation Facility (1 MGD, first online in 2010). East Mesa WRF is focused on reclaiming and treating wastewater for irrigation. Plans for increasing wastewater treatment capacity for the city are in the works as of 2021.

Rio Rancho has four WRRFs and buries its biosolids in the municipal landfill. Upgrades to the city wastewater treatment system are in the works, with the goal to better clean and reclaim water for irrigation and injection into the aquifer for indirect potable reuse. In 2017, the Rio Rancho Regional Landfill (owned and operated by Waste Management) received 9,789 wet tons of biosolids – not necessarily solely from Rio Rancho's WRRFs. The Sandoval County Landfill, also located in Rio Rancho, plans to accept biosolids as part of their composting program in the future.

Santa Fe's WRRF treats its wastewater solids with anaerobic digestion (AD) and then composts them. The compost is distributed to contractors and the public. In 2018 – 2019, the AD system was upgraded, and now the captured biogas fuels a combined heat and power (CHP) system, which heats the digesters and powers the facility. This electricity, combined with that generated by the WRRF's solar panels, provides 94% of the electricity needed for WRRF operations. According to the City's website, "Compost is made from biosolids (nitrogen) from the City's Wastewater Treatment Plant, some horse bedding, and pulverized green waste (carbon) from the Caja del Rio Landfill." Compost is sold to the public at $11.50/cubic yard for screened, $9.00/cubic yard for unscreened. In the past, including in 2018, some Santa Fe wastewater solids were alkaline stabilized and injected as Class B biosolids at a city-owned "sludge injection field."

Roswell composts and land applies its biosolids.

Farmington upgraded its wastewater treatment plant in 2018, including a new solids handling facility. Jacobs partners with the City to run the WRRF.

Carlsbad's Wastewater Treatment Plant treats solids with anaerobic digestion. The biosolids are then dried on concrete drying beds before going to the composting facility, where they're mixed with wood mulch and other organics. The compost program started as a way to divert organic waste from the municipal landfill. The resulting Class A compost is used on city parks and golf courses.

Hobbs' Wastewater Reclamation Facility (WRF) underwent improvements that came online in 2010, including adding aeration basins for modified Ludzack-Ettinger (MLE) for nitrogen removal. Solids from the wastewater treatment process are dried in a centrifuge to Class B and then treated with a Fenton Environmental indirect thermal dryer to make Class A EQ quality biosolids. A nearby farmer takes 95% of the biosolids to fertilize cotton and cover crops. The same farm receives some of the plant's effluent for irrigation. The other 5% of the biosolids is bagged and given to residents to be used as a soil amendment. Hobbs has frequently won New Mexico's highest award for water

reclamation facilities since recycling 100% of its influent. Hobbs is permitted to dispose of any excess solids in the local landfill.

References

The state biosolids coordinator and others at the New Mexico Environment Department provided much data and other information for this report. Additional information was gleaned from the following sources:

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