SOUTHEAST CONFERENCE

Overview of Solid Waste Regulations

Southeast Alaska Regional Municipal Solid Waste Management Strategy

January 2026

CONTENTS

ABBREVIATIONS

AAC ..... Alaska Administrative Code

C&D ..... Construction and Demolition

CFR..... Code of Federal Regulations

DEC ..... Alaska Department of Environmental Conservation

EPA ..... Environmental Protection Agency

MSW ..... Municipal Solid Waste

MSWLF..... Municipal Solid Waste Landfill

MOLO ..... Manager of Landfill Operations

PFAS ..... Per- and Polyfluoroalkyl Substances

RCA ..... Regulatory Commission of Alaska

RCRA ..... Resource Conservation and Recovery Act

4 Cs ..... Control, Consolidation, Compaction, Cover

EXECUTIVE SUMMARY

This report provides a comprehensive overview of the federal, state, and local regulatory frameworks that govern solid waste management in Southeast Alaska, with a focus on requirements relevant to the development and operation of landfills, transfer stations, composting facilities, waste-to-energy systems, and other waste handling infrastructure. The purpose of this document is to support coordinated regional planning under the Southeast Alaska Regional Municipal Solid Waste Management Strategy by summarizing the complex regulatory environment in a clear, accessible format for decision-makers, planners, operators, and partner communities.

Alaska's solid waste system is regulated primarily through the Alaska Department of Environmental Conservation (DEC) under 18 AAC 60, which establishes design, siting, operational, and closure standards for Municipal Solid Waste Landfills (Class I–III), monofills, biosolids land application, environmental monitoring, and waste handling practices. These state regulations function alongside federal requirements under the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 258, and Clean Air Act performance standards for incinerators and combustion units. Additional federal requirements apply through the National Environmental Policy Act (NEPA), National Pollutant Discharge Elimination System (NPDES), and hazardous waste regulations under 40 CFR Parts 260–279, influencing permitting pathways, environmental review, and compliance expectations.

Local governments in Southeast Alaska also impose critical land-use and waste management requirements through municipal codes that regulate storage, handling, collection, and disposal of waste; establish user fees; prohibit illegal dumping and open burning; and control nuisance conditions such as wildlife attraction, odors, and pest activity. Borough powers under Alaska statute determine the degree of authority each local government has to implement comprehensive waste management programs. Together, these regulations establish the minimum legal standards for safe and environmentally responsible waste handling throughout the region.

Beyond permitting, the report highlights several practical considerations for solid waste facility planning, including zoning constraints, stormwater management requirements, federal wetland permitting under the U.S. Army Corps of Engineers, methane migration and landfill gas controls, odor management, and the unique logistical challenges associated with Southeast Alaska's geography and climate. These considerations are essential to site selection, facility design, community compatibility, and long-term system sustainability.

To support users who require a deeper level of regulatory detail, the report includes an appendix summarizing a broad set of applicable federal, state, and local regulations extracted and adapted from the *Juneau Solid Waste Disposal Facility Feasibility and Capital Costs Technical Memorandum* prepared by Jacobs Engineering Group (March 2025). Together, the main report and the accompanying appendix provide a clear foundation for understanding the statutory and practical requirements that shape solid waste planning across Southeast Alaska.

PURPOSE

This document provides high-level summaries of regulations and guidance related to solid waste management.

SEASWA AUTHORITY

SEASWA was created under Alaska law (AS 29.35.800–29.35.925) to help communities in Southeast Alaska work together to manage garbage and recycling. It has legal authority to handle solid waste through storage, collection, transportation, sorting, recycling, and disposal. Its mission is to protect public health and the environment, save energy, and reduce pollution.

However, SEASWA's powers are not unlimited. It must follow the rules set by the cities that join it and cannot act outside those rules. These limitations are defined in the enabling acts passed by each participating entity. Additionally, SEASWA is subject to Alaska's Open Meetings Act, which requires that its meetings be open to the public and its decisions made transparently.

Explanation of Alaska State Statutes AS 29.35.800–29.35.925

These laws are called the Regional Solid Waste Management Authority Act. They allow cities and boroughs in Alaska to work together to manage garbage and recycling through a shared organization like SEASWA. Below is a short summary of each section:

AS 29.35.800 – Purpose

Explains why regional solid waste authorities exist. Their job is to help communities manage waste in ways that protect health, save energy, and reduce pollution.

AS 29.35.805 to AS 29.35.865 – Formation and Powers

Covers how a regional authority is created and what it can do. This includes building and running waste facilities, collecting and sorting trash, recycling, setting fees, applying for grants, and making agreements with other groups.

AS 29.35.870 – Public Purpose and Tax Status

Says that the authority is a public organization. It doesn't have to pay state or local taxes, but it can choose to make payments instead of taxes if needed.

AS 29.35.875 to AS 29.35.920 – Governance and Operations

Describes how the authority is managed. It must have a board with members from each participating community. The board makes decisions, sets budgets, and ensures the authority follows public meeting laws and operates transparently.

AS 29.35.925 – Short Title

Gives the official name for these laws: Regional Solid Waste Management Authority Act.

LANDFILLS

Alaska permits three types of landfills; only Class I and Class III are present in Southeast.

Class I Landfills

Criteria for a Class I Landfill[1]:

- Accept more than 20 tons of waste per day
- Municipal solid waste (MSW) cells are lined
- Waste covered with 6 inches of soil everyday
- Leachate (waste + water) collection
- Surface or groundwater monitoring (usually 2 times per year)
- Air monitoring
- Manager of Landfill Operations (MOLO) certified Landfill Manager or Operator

Permitting

To obtain a Class I landfill permit in Alaska, applicants must follow the procedures established by the Alaska Department of Environmental Conservation (DEC) through its Solid Waste Program. A Class I landfill typically serves larger communities and receives more than 20 tons of municipal solid waste per day. The permitting process begins with the

[1] Talking Trash with the ADEC Solid Waste Program (2021 presentation)

submission of an application that includes information about the facility's location, design, operations, environmental monitoring, and closure plans. Applicants must also provide supporting documentation such as engineering drawings, groundwater and gas monitoring plans, and financial assurance demonstrating the ability to fund closure and post-closure care. Once submitted, the application undergoes a technical review by DEC staff, and a public notice period may be required to gather input from stakeholders. If the application meets all regulatory requirements, DEC issues a permit valid for up to five years, outlining specific operational and compliance conditions. Permit holders are responsible for maintaining compliance through regular reporting and inspections and must renew the permit before it expires to continue operations.[2]

Leachate Collection and Treatment Systems

Leachate is a liquid formed when water filters through waste materials, especially in landfills, and picks up contaminants like heavy metals, organic compounds, and pathogens. To prevent its formation and migration, engineered landfill systems use composite liners, leachate collection systems, and final cover layers. Additional strategies include minimizing water infiltration through stormwater diversion and daily waste covering, as well as pretreatment and containment systems.

Class III Landfills

Criteria for Class III Landfill[3]:

- Accept less than 5 tons of waste per day
- Waste should be covered with 6 inches of soil often enough to control issues (windblown litter etc.)
- MSW Cells are not lined
- No leachate collection
- No water monitoring (unless required)
- No air monitoring (unless required)
- Landfill Operators should have at least Rural Alaska Landfill Operator (RALO) training

[2] See also Resources, Waste and Greenhouse Gas Emissions (EPA)
[3] Talking Trash with the ADEC Solid Waste Program (2021 presentation)

Permitting

Class III landfill permits are valid for five years. Applying for a permit includes three components: (1) the application form, (2) an operations plan, and (3) landowner documentation or consent.

The application form collects information such as property details, contact information, environmental data (like proximity to water sources and prevailing wind direction), and maps or site plans. The operations plan outlines how the landfill will be managed on a day-to-day basis, including waste handling, safety measures, and maintenance practices. Landowner documentation confirms that the applicant has the legal right to use the land for landfill operations—either through ownership or written consent from the landowner.

DEC provides templates and assistance for completing these forms, and simplified applications are available for communities with fewer than 50 people. The permit also includes agreements for closure and post-closure care, ensuring that the landfill can be safely shut down when full.

CONSIDERATIONS FOR SOLID WASTE FACILITIES[4]

Construction of a solid waste facility requires careful consideration of several regulatory and planning elements that extend beyond solid-waste-specific permitting.

Federal and State Authorizations

Many projects require authorization from the U.S. Army Corps of Engineers when construction affects wetlands, streams, or other waters. These requirements are common in Southeast Alaska where wetland impacts are difficult to avoid. Early coordination helps determine potential mitigation needs and allows project designers to adjust site plans before permit submission.

Construction activities that disturb one acre or more of soil must obtain coverage under the Alaska Department of Environmental Conservation's Construction General Permit for stormwater. Facilities typically exceed this disturbance threshold. Operators must prepare

[4] See also
USACE Alaska District – Regulatory Permits, ADEC Construction General Permit (CGP), DCRA Planning & Land Use Resource Desk, 18 AAC 60.805 – Landfill Gas Monitoring (Legal Information Institute), US EPA LMOP Program Page, Municipal Solid Waste Landfills – Operating Practices (EPA), Composting – EPA Sustainable Management of Food, Alaska DEC Solid Waste Program

and follow a Stormwater Pollution Prevention Plan with erosion and sediment controls, monitoring, and documentation throughout construction.

Local Land Use Approvals and Zoning

Most communities require land use approvals before construction of a new landfill or other waste facility. These approvals may include conditional use permits, zoning consistency reviews, setbacks, road access standards, and buffer requirements. Because each municipality maintains different standards, coordination with local planning staff early in project development is essential.

Landfills should be located in areas designated for industrial or heavy public facility use. They should also be sited with enough separation from existing and future residential development. As communities expand, homes constructed near older landfill sites have led to conflicts related to odors, wildlife, and concern about landfill gas migration. Proper zoning and long-range land use planning help avoid these conflicts.

Landfill Gas and Methane Safety

Methane is explosive at relatively low concentrations and can migrate underground if not controlled. Incidents in other states have shown that methane can move offsite and accumulate in nearby homes or enclosed structures. Alaska's landfill gas rules are designed to prevent this risk by requiring monitoring and corrective actions when methane hazards are present. When selecting new sites, adequate buffers and thoughtful separation from property boundaries and residential zones remain the primary means of protecting the public.

Odor Management and Community Compatibility

Odors will occur at landfills even when daily cover and gas collection systems are used. These impacts can cause community complaints and reduce acceptance of the facility. Establishing appropriate spacing, using vegetative buffers or berms, and considering prevailing wind direction during siting can help reduce odor impacts.

Composting operations may also cause odor issues, particularly at community-scale sites located near homes or businesses. Best practices include choosing an appropriate location, managing moisture and aeration, and maintaining carbon-to-nitrogen balance. Many communities address these concerns by specifying where composting is allowed within zoning codes and by applying operational standards to ensure compatibility with surrounding land uses.

REGULATORY FRAMEWORK

Local Code Summaries

Waste management practices and regulations vary widely across Southeast Alaska's communities. Given the large number of municipalities in the region, this document focuses on summarizing the local waste management codes for those communities facing the highest costs for waste handling and disposal. By highlighting Thorne Bay, Wrangell, Skagway, Petersburg, Gustavus, Sitka, and Craig, we provide a targeted overview of the regulatory frameworks and operational approaches that most impact regional planning, budgeting, and service delivery in areas where waste management expenses are most significant.

Thorne Bay Municipal Code Title 13 – Utilities (Section 13.70 – Solid Waste)[5]:

Chapter 13.70 establishes the framework for the City of Thorne Bay's solid waste utility service, defining key terms, authorizing the city to operate the service, and requiring participation from eligible customers. It outlines the types of service offered including residential, commercial, contract, and special contracts and specifies customer application procedures, service requirements, and rules for handling materials such as aluminum, ash, and other special wastes. The chapter also details access to the landfill, prohibited substances, rules against unauthorized use of containers, and comprehensive billing provisions covering billing periods, disputes, payment deadlines, and delinquency procedures. Additionally, it addresses service discontinuation, restoration, customer responsibilities for equipment, and penalties for violations, ensuring the proper management and regulation of the community's solid waste system.

Wrangell Municipal Code Title 15, Chapter 15.18 – Garbage[6]:

Chapter 15.18 of the Wrangell Municipal Code establishes rules for how garbage and refuse must be contained, handled, collected, and disposed of within the borough. It defines key terms and requires all residential and commercial properties to use approved, pest proof containers that are properly maintained, placed in accessible locations, and kept clean and secure to prevent wildlife access and nuisance conditions. The chapter prohibits dumping offensive refuse and restricts burning to only clean, burnable materials while banning the burning of hazardous or smoke producing substances. It assigns the sanitation department responsibility for collection, inspections, equipment, and operation of municipal waste facilities, and establishes the sanitation fund as a separate enterprise

[5] City of Thorne Bay Municipal Code Book
[6] City of Wrangell Municipal Code Title 15

fund with limits on how funds may be used. Collection fees, disposal fees, and monofill permit fees are set by assembly resolution, with mandatory collection service for all customers unless formally waived. It also outlines collection frequency, customer responsibilities for notifying the borough, standards for maintaining waste facilities, and penalties including daily infractions and fines up to 500 dollars for violations.

Skagway Municipal Code Title 13, Chapter 13.20 – Solid Waste Collection and Disposal[7]:

Chapter 13.20 explains how Skagway manages trash and other solid waste to keep the community healthy and clean. It requires everyone to properly prepare and store their garbage in approved containers and set it out the right way for pickup. The municipality is in charge of collecting, moving, and disposing of waste, and no one else is allowed to haul trash without permission. The rules describe what can be collected, how waste must be handled, where it can be disposed of, and how residents and businesses sign up for service. The chapter also covers billing, payment rules, when service can be stopped, and what happens when someone ignores the guidelines. Overall, it lays out how the community should deal with waste so that Skagway stays safe, tidy, and environmentally responsible.

Petersburg Municipal Code Title 14, Chapter 14.12 – Sanitation[8]:

Chapter 14.12 outlines how Petersburg manages public sanitation services, including the safe and efficient handling of solid waste to protect community health and the environment. It establishes the borough's responsibility for providing sanitation services, sets expectations for residents and businesses regarding proper waste handling, and defines the rules for maintaining clean and sanitary conditions across the community. The chapter also authorizes the borough to create regulations, operate sanitation facilities, and enforce compliance to ensure that waste is collected, transported, and disposed of in a safe and organized manner.

Gustavus Municipal Code Title 6, Chapter 6.03 – Waste Disposal and Recycling[9]:

Chapter 6.03 describes how the City of Gustavus manages waste disposal and recycling through its community-run Disposal and Recycling Center. The code outlines the services the center must provide, including accepting and reselling reusable items, collecting and processing recyclable materials, accepting organic waste for composting, handling

[7] Municipality of Skagway Municipal Code
[8] Petersburg Municode Codification
[9] Gustavus Municode Codification

household and business trash and demolition debris, and managing certain hazardous wastes. It also allows the center to offer additional services such as storing septic waste if properly permitted. The chapter emphasizes that these services support both environmental stewardship and community needs by making responsible waste handling accessible, reducing landfill use, and enabling local reuse and recycling efforts.

Sitka General Code Title 15, Chapter 15.15 – Solid Waste Treatment and Refuse Collection[10]:

Chapter 15.15 lays out how Sitka manages the handling, collection, and disposal of solid waste to maintain public health, cleanliness, and orderly service across the community. It sets rules for how often trash must be collected, how residents and businesses must prepare and contain their waste, and where containers must be placed for pickup. The chapter establishes the city's policies and rates for solid waste disposal, including required waste fees, acceptable and unacceptable waste types, and specific charges for scrap metal, appliances, construction debris, and other special materials. It also provides guidelines for container sizes, deposits, special collections, and transfer station drop-off allowances and fees. Finally, it includes definitions to clarify who must use the service and how different property types are classified, ensuring consistent application of the regulations throughout Sitka.

Craig Municipal Code Title 8, Chapter 8.04 – Garbage and Refuse Regulations[11]:

Chapter 8.04 establishes the rules for how garbage and refuse must be stored, handled, collected, and billed within the City of Craig. It defines key terms such as garbage, rubbish, refuse, and ashes, and requires every household, business, and institution to keep refuse in approved containers that are clean, secure, and accessible to collectors. The chapter authorizes the city to provide regular waste collection, set rates, and charge property owners directly, with unpaid charges becoming a lien against the property. It prohibits unauthorized dumping, burning without a permit, and using another person's refuse container without consent. Billing for utility services may be combined, with clear procedures for payment, delinquency notices, termination of service, and restoration requirements. Violations of the chapter are treated as non-criminal infractions and may result in fines.

[10] City and Borough of Sitka General Code
[11] Craig Municipal Code Title 8

Borough Powers

In Alaska, boroughs are regional governments that come in three main types: home rule, first class, and second class. Each type has different levels of authority when it comes to managing waste.

Home rule boroughs have the most power. According to Alaska Statute 29.04.010, a home rule municipality has all legislative powers not prohibited by law or its charter. This means they can make rules and set up programs for waste and recycling as long as those actions aren't blocked by state law or their own charter. They must have a charter, which is like a local constitution that voters approve. This gives them the freedom to run recycling programs, build waste facilities, and manage garbage without needing extra permission. The specific limits on what they can do are listed in Alaska Statute 29.10.200.

First class boroughs follow state law instead of a charter. They can take on more duties, including waste management, by passing local laws and may not need voter approval to do so. Their powers are explained in Alaska Statute 29.35.200, which lists what first class boroughs are allowed to do under state law.

Second class boroughs have the least power. They also follow state law but must get voter approval to take on new responsibilities, including waste management. Their ability to manage garbage and recycling is more limited and often depends on what voters agree to. Their powers are described in Alaska Statute 29.35.210.

State Regulations

Solid Waste Management (18 AAC 60)

Article 1 – General Standards, Requirements, and Limitations

This article outlines the foundational rules for managing solid waste in Alaska. It defines the scope and applicability of the regulations and includes provisions for the beneficial use of solid waste, such as using it as structural fill or as an ingredient in manufactured products. It also sets standards for the accumulation, storage, treatment, and transport of waste. Special categories like hazardous waste, polluted soil, medical waste, and discarded vehicles are addressed, along with requirements for protecting wellheads and drinking water sources.

Article 2 – Waste Disposal Permits

This section establishes the requirement for obtaining a permit to operate any solid waste disposal facility. It details the application process, including design approval and the

option to apply for a comprehensive solid waste management permit. It also outlines the responsibilities of permit holders and the conditions under which permits may be issued, modified, or revoked.

Article 3 – Municipal Solid Waste Landfills

This article establishes the design, construction, operation, and closure standards for municipal solid waste (MSW) landfills in Alaska. It outlines technical requirements for different classes of landfills (Class I, II, and III), based on the volume and type of waste received and the population served. The article includes provisions for site selection, liner systems, leachate collection, groundwater monitoring, daily and intermediate cover, and gas control. It also addresses operational practices such as waste compaction, access control, signage, and recordkeeping. Closure and post-closure care requirements ensure long-term environmental protection, including final cover design, maintenance, and monitoring. The article aims to safeguard public health and the environment by ensuring that MSW landfills are properly engineered and responsibly managed throughout their lifecycle.

Article 4 – Monofills

This section governs the design, operation, and permitting of monofills, which are landfills that accept only one type of non-hazardous solid waste—such as ash, construction and demolition debris, or specific industrial byproducts. The article establishes criteria to ensure that these facilities are engineered and managed to prevent environmental contamination. It includes requirements for site selection, waste characterization, liner systems (if applicable), leachate control, and monitoring. Operational standards address access control, recordkeeping, and cover material use. Closure and post-closure care provisions are also included to ensure long-term protection of soil and water resources. This article ensures that monofills are used appropriately and safely for waste streams that do not require the full regulatory framework of a municipal solid waste landfill.

Article 5 – Land Application of Biosolids

This section establishes the regulatory framework for the land application of biosolids, which are treated sewage solids or septage intended for beneficial use as soil amendments. The article outlines the standards for treatment, pathogen reduction, and vector attraction reduction in accordance with federal 40 CFR Part 503 requirements. It includes provisions for site selection, application rates, public access restrictions, and monitoring to ensure that land application does not pose a risk to public health or the environment. Operators must obtain a permit, maintain detailed records, and follow operational best practices to prevent contamination of surface water, groundwater, and

nearby properties. This article ensures that biosolids are safely and effectively used to enhance soil productivity while maintaining environmental safeguards.

Article 6 – User Fees

This article authorizes the Alaska DEC to charge fees for services like permit reviews, inspections, and regulatory oversight. It outlines how fees are calculated, billed, and collected, ensuring that solid waste program costs are shared by regulated entities.

Article 7 – Monitoring and Corrective Action Requirements

This section outlines the requirements for environmental monitoring and corrective actions at solid waste facilities. It mandates groundwater monitoring, leachate sampling, and gas detection where applicable, particularly for Class I and II landfills. The article specifies how to establish background conditions, sampling frequency, and analytical methods. If contamination is detected, operators must implement a corrective action plan approved by the Alaska DEC. These provisions are designed to detect and respond to environmental impacts promptly, ensuring protection of public health and surrounding ecosystems.

Article 8 – General Provisions

This article allows the Alaska DEC to grant waivers from specific provisions of the solid waste regulations, except for those required under federal law for Class I municipal solid waste landfills. This section also includes definitions that clarify key terms used in the waiver process, ensuring consistent interpretation and application.

Landfill Gas Monitoring (18 AAC 60.805)

18 AAC 60.805 pertains to landfill gas monitoring regulations in Alaska. Key points include:

- **Monitoring Requirement**: If the department determines a potential landfill gas hazard exists at a landfill facility, the owner or operator must implement a landfill gas monitoring program
- **Monitoring Frequency**: Monitoring must be conducted at least quarterly and in compliance with a written plan approved by the department
- **Methane Monitoring**: The program must ensure that methane gas concentrations do not exceed 25% of the lower explosive limit in facility structures and the lower explosive limit at the facility property boundary
- **Monitoring Devices**: The program must utilize monitoring devices in facility structures and subsurface probes at the facility boundary or an alternate location approved by the department
- **Response to Exceeding Limits**: If methane levels exceed the set limits, the owner or operator must immediately notify the department and take necessary steps to reduce or dissipate the concentrations to protect public health, safety, and welfare

Groundwater Monitoring

The Groundwater Sampling and Monitoring Wells Guidance[12] from the ADEC is a regulatory resource designed to support compliance with 18 AAC 60, which governs solid waste management in Alaska.

This guidance outlines the expectations and best practices for:

- Designing and installing groundwater monitoring wells,
- Conducting groundwater sampling at solid waste facilities,
- Ensuring data quality and consistency in environmental monitoring.

Its primary purpose is to help facility operators, consultants, and regulators ensure that groundwater monitoring programs are scientifically sound, legally compliant, and protective of public health and the environment. It also supports the development of Quality Assurance Project Plans (QAPPs) and helps standardize procedures across the state.

Surface Water Monitoring

The Surface Water Monitoring Technical Memorandum[13] issued by the Alaska DEC provides detailed guidance for solid waste facility operators on how to comply with surface water monitoring requirements under 18 AAC 60.810. This regulation is part of Alaska's broader solid waste management framework and is intended to ensure that surface water—such as streams, ponds, and other bodies of water potentially affected by landfill runoff—is protected from contamination.

The memo clarifies that surface water monitoring is required when there is a reasonable expectation that runoff from a solid waste facility could carry pollutants into nearby water bodies. It defines surface water broadly to include any water exposed to the atmosphere, including springs or wells influenced by surface water. Facilities that meet these criteria must develop a site-specific monitoring plan, which must be approved by ADEC. This plan should include detailed descriptions of the site's hydrology and geology, the rationale for sampling locations, the timing of sample collection (including both high and low flow conditions), and the analytical methods to be used.

To ensure scientific rigor and regulatory compliance, the memo requires that sampling and analysis follow established federal protocols, including EPA's SW-846 methods, 40 CFR 136, and the Department of Defense Quality Systems Manual (DOD QSM v5.1). These standards help ensure that the data collected is accurate, reproducible, and suitable for

[12] Groundwater Sampling and Monitoring Wells Guidance
[13] Surface Water Monitoring Technical Memorandum

regulatory decision-making. Overall, the memo serves as a critical tool for ensuring that solid waste facilities in Alaska monitor and manage their potential impacts on surface water resources effectively and consistently.

Incinerators[14]

In Alaska, the DEC regulates solid waste incinerators through its Solid Waste Program under 18 AAC 60. Facilities must obtain a solid waste disposal permit, which includes a detailed review of the incinerator's design, emissions controls, ash handling, and environmental safeguards. The permitting process ensures that incinerators do not pose risks to public health or the environment.

In addition to solid waste permits, facilities may also require air quality permits under DEC's Air Permits Program, especially if emissions exceed certain thresholds. The state's regulatory approach includes design review, operational inspections, environmental monitoring, and compliance assistance.

Air Quality (18 AAC 50.055)[15]

18 AAC 50.055 is part of Alaska's air quality regulations and is designed to limit visible emissions from industrial sources to protect public health and environmental quality. DEC requires that only burnable waste[16] be incinerated, and that burning be conducted in a controlled, contained manner using properly maintained equipment. Open burning of hazardous or prohibited materials is not allowed.

Key Provisions of 18 AAC 50.055

- **Visible Emissions Standard**: Emissions (excluding water vapor) must not reduce visibility through the exhaust by more than 20% averaged over any six consecutive minutes, unless specific exceptions apply
- **Applicability**: The rule applies to a wide range of industrial processes and fuel-burning equipment, including boilers, turbines, and engines.
- **Monitoring and Compliance**: Facilities must monitor emissions using approved methods and maintain records to demonstrate compliance.
- **Exceptions and Special Cases**: The regulation includes provisions for temporary exceedances and alternative standards under certain conditions.

[14] See also EPA proposes stronger air pollution standards for large facilities that burn municipal solid waste
[15] See also Burning Waste in Class III Landfills
[16] DEC provides guidance on burnable and non-burnable waste

Waste Hauling and Transportation[17]

Under Alaska Statute § 29.35.050, municipalities are granted the authority to establish and manage garbage and solid waste collection and disposal systems. They may do this for the entire municipality or designated districts and can require all residents or property occupants to use these systems. Municipalities have the flexibility to provide these services directly or through contracts, and they may fund them using available municipal resources. They are also empowered to impose user fees and enforce compliance through penalties.

However, municipalities cannot displace existing waste service providers who hold valid certificates from the Regulatory Commission of Alaska unless they purchase the provider's certificate, equipment, and facilities at fair market value or acquire them through eminent domain. Importantly, this requirement applies only to certificated public refuse utilities. Commercial freight carriers such as Alaska Marine Lines and other barge companies are not certificated refuse utilities because they operate as commercial transportation providers rather than public refuse utilities. The RCA regulates only those entities that choose to operate as certificated refuse utilities under an approved tariff, meaning freight carriers fall outside RCA jurisdiction unless they specifically apply for and receive a refuse utility certificate, which they generally do not because their waste hauling activities occur under private commercial contracts rather than as a regulated utility service. An exception exists for intermediate transfer sites, which municipalities may establish without purchasing the assets or certificate of an existing certified carrier.

The Regulatory Commission of Alaska (RCA) plays a limited but important role in preventing high waste hauling prices in rural Alaska, primarily through its oversight of regulated utilities and its consumer protection functions. While the RCA does not regulate all refuse service providers, it does oversee those that are certified and operate under approved tariffs. These tariffs define the rates, service areas, and terms under which refuse utilities must operate, and any changes to rates must be reviewed and approved by the RCA to ensure they are just and reasonable.

In rural Alaska, where waste hauling costs are often elevated due to geographic isolation, limited infrastructure, and seasonal access, the RCA's oversight helps prevent price gouging by requiring transparency and justification for rate increases. Certified carriers must demonstrate that their proposed rates reflect actual costs and are not excessive. Additionally, the RCA's Consumer Protection and Information Section can investigate

[17] See also What the RCA Regulates and General Information

complaints related to billing, service quality, and rate disputes, offering a layer of accountability for rural residents.

However, many rural communities are served by non-regulated or municipally operated systems, which fall outside the RCA's direct jurisdiction. In these cases, affordability is often addressed through local governance, grant funding, and regional cooperation. For example, the DEC supports rural communities through operational guidance, backhaul programs, and technical assistance to improve cost efficiency and reduce reliance on long-haul waste transport.

Composting[18]

Composting at landfills in Alaska is regulated under the DEC solid waste management framework through 18 AAC 60. While composting is not addressed in a standalone section, any composting activity conducted at or near a landfill must be permitted and managed to prevent environmental harm. This includes demonstrating control over leachate, odor, and vectors.

Recycling[19]

DEC provides operational guidance[20] to ensure recycling programs are effective and do not lead to contamination or illegal dumping. This includes recommendations for signage, community education, and controlled access.

Federal Regulations[21]

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act (RCRA) first appeared as an amendment to the Solid Waste Disposal Act of 1965; it has been modified and strengthened several times since. The minimum national criteria required by RCRA are codified in 40 CFR Part 258—Criteria for Municipal Solid Waste Landfills and are intended to protect human health and the environment.

Overview

40 CFR Part 258 establishes the minimum national standards to ensure the protection of human health and the environment for all Municipal Solid Waste Landfill (MWSLF) units,

[18] See also What Is Food Waste?
[19] See also Reduce, Reuse, Recycle in Alaska
[20] Solid Waste Management for Rural Alaska: Operational Guidance
[21] See also Regulatory and Guidance Information by Topic: Waste, Resource Conservation and Recovery Act (RCRA) Regulations, EPA proposes stronger air pollution standards for large facilities that burn municipal solid waste

including new, existing, and laterally expanded facilities. It applies to landfills that receive municipal solid waste and, in some cases, sewage sludge. The rule does not apply to landfills that stopped accepting waste before October 9, 1991, or to certain facilities that stopped receiving waste before specific deadlines, provided they meet final cover requirements.

The regulation is organized into several subparts:

- **Subpart A—General**: Defines the scope, applicability, and exemptions.
- **Subpart B—Location Restrictions**: Prohibits siting landfills in environmentally sensitive areas such as wetlands, floodplains, or near airports.
- **Subpart C—Operating Criteria**: Covers daily operations, including cover material, disease vector control, explosive gas monitoring, and access restrictions.
- **Subpart D—Design Criteria**: Requires composite liners and leachate collection systems for new units and expansions.
- **Subpart E—Groundwater Monitoring and Corrective Action**: Mandates groundwater monitoring systems and outlines steps for corrective action if contamination is detected.
- **Subpart F—Closure and Post-Closure Care**: Specifies how landfills must be closed and maintained for at least 30 years after closure.
- **Subpart G—Financial Assurance**: Requires landfill owners/operators to demonstrate financial capability to cover closure, post-closure, and potential corrective actions.

These criteria are enforceable unless a state has an EPA-approved solid waste management program that meets or exceeds these federal standards.

Subtitle C—Operating Criteria

While Class I landfills are typically regulated at the state level, if they accept hazardous waste, they fall under RCRA Subtitle C. Key federal oversight elements include:

- **Permitting**: Facilities must have a RCRA Subtitle C permit if they treat, store (for more than 90 days), or dispose of hazardous waste
- **Design and Operation Standards**: These include double liners, leachate collection systems, and groundwater monitoring to prevent contamination
- **Manifest System**: All hazardous waste must be tracked using EPA's manifest system to ensure proper disposal
- **Personnel Training**: Staff must be trained in hazardous waste handling and emergency procedures
- **Reporting and Recordkeeping**: Facilities must report any violations, spills, or non-compliance incidents to the EPA and maintain records for inspections

Subpart D—Design Criteria

40 CFR Part 258, Subpart D, establishes the federal criteria for the design, operation, and closure of MSWLFs. These regulations are intended to protect human health and the environment by setting minimum national standards for non-hazardous waste disposal. The rules apply to new and existing MSWLF units, as well as lateral expansions, and are enforced primarily by state agencies with EPA oversight. States may adopt more stringent requirements, but they must at least meet the federal baseline.

Subtitle D of RCRA prohibits also open dumping of solid waste and sets criteria for municipal solid waste landfills, including air emissions and leachate control.

Applicability of 40 CFR 258 in Alaska[22]

Alaska does not have an EPA-approved solid waste management program under the federal Resource Conservation and Recovery Act. As a result, the federal criteria for municipal solid waste landfills in 40 CFR Part 258 apply directly in the state. EPA retains oversight authority because Alaska has not received authorization to operate its own solid waste program in place of the federal standards.

Although Alaska is not formally authorized under RCRA Subtitle D, the state administers its own solid waste management rules through the Alaska Department of Environmental Conservation. These requirements are found in 18 AAC 60 and outline landfill design, permitting, monitoring, operations, and closure standards. While Alaska's rules generally align with federal criteria and include additional provisions for the state's geographic and logistical challenges, the federal requirements continue to apply because EPA authorization has not been granted.

For hazardous waste management under RCRA Subtitle C, Alaska is in the process of pursuing authorization but is not yet approved. Until authorization is complete, hazardous waste handlers in the state must comply directly with federal hazardous waste regulations.

Solid Waste Management (40 CFR Parts 260–279)

EPA's 40 CFR Parts 260–279 form the regulatory foundation for managing hazardous waste under the RCRA Subtitle C. These regulations are essential for ensuring that hazardous waste is handled safely from generation through final disposal. They are particularly relevant for planners and environmental professionals working with landfills, waste facilities, and construction projects that may generate or manage hazardous materials.

[22] EPA – RCRA State Authorization Overview, Alaska DEC Solid Waste Program, Alaska Solid Waste Regulations (18 AAC 60)

Part 260 lays out the general provisions, including definitions, procedures for petitions, and confidentiality rules. It sets the stage for the rest of the regulations by establishing the scope and structure of the hazardous waste program.

Part 261 defines what constitutes hazardous waste, including criteria for listing and delisting specific waste types. This section is critical for determining whether a material must be managed under Subtitle C and is often referenced in internal specifications for waste classification using methods like the Toxicity Characteristic Leaching Procedure.

Parts 262 through 265 cover the responsibilities of hazardous waste generators, transporters, and treatment, storage, and disposal facilities. These sections include requirements for manifesting, labeling, accumulation limits, and operational standards such as groundwater monitoring and emergency preparedness. For example, construction site waste management plans often reference these parts to ensure compliance with federal standards.

Parts 266 through 268 address special waste streams and land disposal restrictions. These include provisions for recycling certain hazardous waste, managing military munitions, and handling universal waste like batteries and fluorescent bulbs. Part 268 specifically prohibits the land disposal of certain hazardous waste unless they are treated to meet EPA standards.

Finally, Part 279 governs the management of used oil. It sets standards for generators, transporters, processors, and burners of used oil, ensuring that this common waste stream is handled in a way that protects human health and the environment.

In practice, these regulations are embedded in internal documents and workflows. For instance, specifications for solid waste services often require contractors to comply with these parts, use permitted facilities, and report any violations. Emails and training materials also reference these regulations, highlighting their importance in planning and compliance activities across Alaska, especially in rural and Class III landfill contexts.

Incinerators[23]

The U.S. Environmental Protection Agency (EPA) regulates solid waste incineration units under Sections 111 and 129 of the Clean Air Act. These rules apply to four main categories of incinerators: municipal solid waste, hospital/medical/infectious waste, commercial and industrial solid waste, and other solid waste units. The regulations are designed to control harmful air pollutants and ensure consistent environmental protection across the country.

[23] See also Chapter 2 - Incinerators and Oxidizers, Burning Waste in Class III Landfills, AP-42: Compilation of Air Emissions Factors from Stationary Sources, Chapter 2.2 Sewage Sludge Incineration

Facilities are required to meet strict emission limits for nine specific pollutants: particulate matter (PM), carbon monoxide (CO), dioxins/furans, sulfur dioxide (SO_2), nitrogen oxides (NO_x), hydrogen chloride (HCl), lead (Pb), mercury (Hg), and cadmium (Cd). These limits are enforced through two main regulatory mechanisms: New Source Performance Standards for newly constructed units and Emission Guidelines for existing units. In states that do not submit their own implementation plans, the EPA enforces a Federal Implementation Plan.

To comply, incinerator operators must install pollution control technologies, conduct performance testing, continuously monitor emissions, and maintain detailed records. They must also submit regular compliance reports to the EPA or their state environmental agency. These requirements ensure that incinerators operate within safe environmental limits and help protect public health from the harmful effects of air pollution.

Solid waste incinerators are subject to specific emission standards based on their type and function. These standards apply to various categories, including municipal waste combustors, hospital/medical/infectious waste incinerators, and commercial and industrial solid waste incineration units. Such as:

1. **Municipal Waste Combustors** – Large-scale facilities that burn municipal solid waste. They are regulated under 40 CFR Part 60, Subparts Cb, Ea, and Eb, depending on their size and construction date. These rules set limits for pollutants such as particulate matter, sulfur dioxide, nitrogen oxides, lead, mercury, and dioxins/furans.
2. **Other Solid Waste Incinerators** – This category includes:
    - ♺ **Very Small Municipal Waste Combustors** (≤35 tons/day)
    - ♺ **Institutional Waste Incinerators** (e.g., at schools, prisons, or hospitals)

    These are regulated under 40 CFR Part 60, Subparts EEEE and FFFF. The June 2025 update to the OSWI rule revised emission limits for units burning ≤10 tons/day and clarified definitions of municipal solid waste. Air curtain incinerators burning only clean wood, yard waste, or lumber are exempt from Title V permitting.
3. **Sewage Sludge Incinerators** – These are regulated under 40 CFR Part 60, Subparts LLLL and MMMM, and Part 62, Subpart LLL. They apply to incinerators at wastewater treatment plants and set limits for nine pollutants, including cadmium, mercury, lead, hydrogen chloride, and dioxins/furans.
4. **Types of Incinerator Designs**:
    - ♺ **Multiple Hearth Furnaces** – Common in sewage sludge incineration; over 80% of such units use this design.

- **Fluidized Bed Combustors** – Used for both sludge and solid waste; offer efficient combustion and lower emissions.
- **Electric Infrared Incinerators** – Less common, used for specialized applications.
- **Rotary Kilns and Cyclone Furnaces** – Used in hazardous and industrial waste settings.
- **Wet Air Oxidation Units** – Sometimes used for high-moisture organic waste

MARPOL Annex V and Ship-Generated Garbage[24]

MARPOL Annex V is an international regulation that prohibits ships from discharging garbage into the ocean except in very limited circumstances. Regulation 8 of Annex V requires each country, known as a "Party," to ensure that adequate port reception facilities are available so ships can properly offload garbage without undue delay; it does not require ports to police or verify compliance. MARPOL applies only while the waste is still on the vessel. Once garbage from a ship is discharged onto land, MARPOL no longer governs it. At that point, state and local laws take over. In Alaska, this means the waste is regulated under statutes and rules such as AS 46.03.475, 18 AAC 69.035, and 18 AAC 60, which require vessels to document how they will offload and dispose of garbage, identify receiving facilities, and comply with landfill and solid waste handling standards. If waste management plans change, ships must report the changes. Together, these systems ensure that waste from maritime users, including cruise ships, is handled safely and legally from shipboard storage through final land-based disposal.

Additional Regulatory Resources

For additional detail on the full range of federal, state, and local regulatory requirements that apply to solid waste facilities, Appendix A provides a comprehensive summary adapted from the *Juneau Solid Waste Disposal Facility Feasibility and Capital Costs Technical Memorandum* prepared by Jacobs Engineering Group (March 2025). The appendix includes concise descriptions of applicable EPA, RCRA, NPDES, NEPA, ADEC, and CBJ code provisions, as well as the regulatory thresholds and applicability across landfills, transfer processing facilities, and waste-to-energy systems. This expanded reference is intended to support planners, engineers, and decision-makers who require a deeper understanding of the permitting and compliance landscape beyond the high-level summaries presented in the main text.

[24] MARPOL Annex V

OTHER TOPICS

Best Landfill Management Practices: The 4 Cs[25]

DEC promotes the 4 Cs of control, consolidation, compaction, and cover as the foundation of proper Class III landfill management.

Control refers to managing access to the landfill to ensure safety and proper use. This includes physical barriers like fences and gates, as well as operational controls such as restricted hours and staff supervision. Effective control helps prevent illegal dumping, wildlife intrusion, and the spread of contaminants.

Consolidate means gathering waste into a designated, small working face rather than allowing it to be scattered across the site. This makes it easier to manage, compact, and cover the waste, while also reducing litter, odors, and environmental risks. Consolidation is especially important in landfills without heavy equipment, where signage and community education play a key role.

Compaction involves compressing waste to reduce its volume. This is typically done using heavy equipment like dozers or excavators. Compaction extends the life of the landfill, reduces leachate production, minimizes wildlife attraction, and helps prevent uneven settlement after closure.

Cover is the practice of applying at least six inches of soil or an approved alternative material over waste. This step is essential for controlling disease vectors, odors, windblown litter, and fire risks. Covering waste regularly also helps reduce water infiltration and the formation of leachate.

Health and Air Quality Impacts of Open Burning[26]

Open burning at landfills poses significant air quality and human health concerns, particularly in rural and under-resourced regions like Southeast Alaska. According to the DEC, open burning—even when used to reduce landfill volume or deter wildlife—can release a wide range of harmful pollutants, including particulate matter (PM), sulfur dioxide (SO_2), nitrogen oxides (NO_x), carbon monoxide (CO), lead, mercury, and dioxins/furans.

[25] Solid Waste Management for Rural Alaska: Operational Guidance

[26] See EPA proposes stronger air pollution standards for large facilities that burn municipal solid waste | US EPA

These pollutants are known to contribute to respiratory and cardiovascular diseases, neurological disorders, and developmental issues, especially in vulnerable populations such as children, the elderly, and individuals with pre-existing health conditions.

The EPA also enforces performance standards for new and existing waste incineration units, discouraging open burning due to its environmental and health risks, such as wildlife attraction and toxic emissions.

Microplastics and Emerging Contaminants[27]

Concerns over microplastics in landfills are increasingly recognized by environmental agencies, including the EPA, as part of a broader issue involving plastic and persistent chemical contaminants in waste streams. While direct federal regulations specifically targeting microplastics in landfills are still emerging, government research highlights several key risks and considerations.

According to the EPA, microplastics are frequently found in composts and digestates derived from food waste streams, which often end up in or are processed near landfills. These plastics originate from food packaging and other materials that break down into smaller particles during waste processing. A recent EPA-supported study found up to 300,000 microplastic particles per kilogram of grocery store food waste, and up to 3.84 microplastic particles per gram in food itself. This contamination poses potential risks to human health and the environment, especially when compost or digestate is applied to land as a soil amendment or when leachate from landfills migrates into surrounding ecosystems

The EPA also notes that microplastics can act as carriers for other harmful substances, such as per- and polyfluoroalkyl substances (PFAS), which are also commonly found in food packaging and waste. These compounds are persistent in the environment and have been detected in composts made from food waste, with concentrations varying depending on the source material. The presence of both microplastics and PFAS in landfill-adjacent waste streams raises concerns about long-term soil and water contamination, especially in areas where landfill leachate is not fully contained or treated.

Although Alaska-specific regulations on microplastics in landfills are not yet well-defined, these federal findings underscore the importance of monitoring plastic contamination in landfill operations and composting programs. They also highlight the need for improved

[27] See Emerging Issues in Food Waste Management: Plastic and Persistent Chemical Contaminants

waste sorting, packaging reduction, and investment in advanced treatment technologies to mitigate microplastic pollution.

Battery Waste and Energy Storage Materials[28]

Electric vehicle batteries and other large lithium-ion energy-storage units present unique challenges at the end of their useful life due to their potential to ignite or release hazardous chemicals. In Alaska, these batteries are managed under the federal Universal Waste Rule, which the state adopts. As a result, lithium-ion EV batteries and other hazardous rechargeable batteries may not be disposed of in household trash or landfilled under any circumstances, whereas only non-hazardous primary batteries such as alkaline cells fall outside these restrictions. Instead, they must be recycled or sent to certified facilities that can handle hazardous battery materials safely.

The Universal Waste Rule requires that lithium-ion and other rechargeable batteries be stored in strong, leak-proof containers that remain closed and are kept in an appropriate, secure location until they are shipped for recycling. Containers must be clearly labeled "Universal Waste – Batteries" so that handlers and transporters can identify the contents. Large quantities may require additional safety precautions such as fire-resistant storage, temperature monitoring, and protocols to prevent short-circuiting or thermal runaway events.

Due to Alaska's geographic isolation, many communities rely on programs such as Backhaul Alaska to consolidate and ship batteries to permitted recycling facilities in the Lower 48. This approach reduces environmental and safety risks while helping communities comply with federal handling and transportation requirements. Best practices include removing batteries carefully, storing them in a cool and dry location, avoiding any crushing or puncturing of battery casings, and utilizing manufacturer or dealer take-back programs when available. These measures protect public safety, reduce fire risks, and ensure compliance with applicable regulations governing hazardous and universal wastes.

[28] Universal Waste Rule (EPA), Battery management guidance (EPA), Backhaul Alaska (rural battery and hazardous waste logistics), DOT Hazardous Materials Regulations (relevant to battery transport)

Unpermitted and Illegal Disposal[29]

Unpermitted and illegal landfill disposal poses serious environmental, regulatory, and community planning challenges—especially in rural and ecologically sensitive areas like Alaska. According to the DEC, construction and demolition (C&D) waste must be disposed of in permitted landfills. 18 AAC 60.010(a) prohibits any solid waste disposal outside a permitted facility unless DEC has explicitly approved an alternative method under 18 AAC 60.015. This means incineration of C&D waste is not allowed unless DEC specifically authorizes it as an alternative disposal method. Disposal in unpermitted sites is illegal and can lead to enforcement actions. Even when permitted, improper disposal can reduce landfill lifespan, introduce hazardous materials, and leave communities with unmanaged waste. The EPA further defines illegal dumping as waste disposal in unauthorized areas such as stream banks, alleys, or public rights-of-way, emphasizing the need for proactive control measures

Unpermitted and illegal landfill disposal can have serious consequences for both the environment and human health. Environmentally, these sites often lack the engineered protections of regulated landfills, such as liners and leachate collection systems. As a result, contaminants like heavy metals, solvents, and pathogens can leach into the soil and groundwater, polluting drinking water sources and harming aquatic ecosystems. Surface runoff from these sites can also carry pollutants into nearby streams and wetlands, disrupting biodiversity and degrading water quality. Additionally, illegal dumping often occurs in ecologically sensitive or underserved areas, compounding the environmental damage and making remediation more difficult.

From a human health perspective, exposure to pollutants from unregulated landfill sites has been associated with a range of adverse outcomes. These include respiratory issues, skin irritation, gastrointestinal problems, and in some cases, increased risks of cancer and birth defects. People living near such sites may also experience psychological stress due to odors, pests, and the stigma associated with living near illegal dumps. The lack of oversight means that hazardous materials—such as asbestos, medical waste, or industrial chemicals—may be present without proper containment, increasing the risk of acute and chronic health effects.

Because DEC rules prohibit incineration of C&D unless specifically approved, any proposal to process C&D into pellets or fuel products must undergo DEC review under 18 AAC

[29] See Regulatory and Guidance Information by Topic: Waste, PESF 2017 ADEC Regulation of Rural Alaska Landfills, Construction and Demolition Waste in Rural Alaska, NPDES: Stormwater Best Management Practice, Illegal Dumping Control

60.015 to determine whether it qualifies as an authorized "alternative method of disposal." Addressing these risks requires coordinated efforts in enforcement, public education, and the development of accessible, compliant waste disposal options.

APPENDIX A