



Division of
Environmental Health

Solid Waste Program

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The ADEC Solid Waste Program defines **polluted soil** as: *Soil that is placed into a landfill, that is not a regulated hazardous waste, and that was excavated during a spill response or leaking underground storage tank action or to comply with an approved contaminated site cleanup plan under 18 AAC 75 or 18 AAC 78; or, a residue or other material that is placed into a landfill and that is not a regulated hazardous waste but contains a hazardous substance in a concentration exceeding the applicable soil cleanup levels set out in 18 AAC 75.341, Table B1 or Table B2.*

Disposal of polluted soil can require careful planning and coordination for proper management. Disposal of polluted soil in a landfill requires meeting the requirements outlined in the Solid Waste Regulations, Title 18, Chapter 60, section 025 of the Alaska Administrative Code (18 AAC 60.025), and effectively communicating with the landfill and the Solid Waste Program.

While polluted soils can be disposed in some landfills – no landfill in Alaska is required to accept polluted soil even if it meets all 18 AAC 60.025 regulatory requirements. Contact the landfill to determine their disposal requirements and costs prior to starting your cleanup project. Do not assume landfill disposal is an option without first asking the landfill if they will consider accepting it.

LANDFILL DISPOSAL OPTIONS FOR POLLUTED SOIL

Class I Landfill or Industrial Waste Landfill

Class I landfills and industrial waste landfills are the most highly regulated solid waste facilities in Alaska. They require a liner, leachate collection system, and environmental monitoring to ensure that any potential hazardous constituents are contained. Polluted soil can be disposed in any of these permitted landfills that have fully compliant liner, leachate, and monitoring systems without prior approval from the ADEC Solid Waste Program or a demonstration under 18 AAC 60.025(d-e). However, landfills may impose their own restrictions or testing requirements (*e.g., polluted soil generated outside of the Borough or Municipality is not acceptable, or may require special conditions*) so check with the landfill operator and ADEC Solid Waste Program before beginning your project to confirm the landfill as a disposal option.

Class II Landfill

Class II landfills are smaller and generally more remote than Class I landfills, do not typically have liners or leachate collection systems, and perform more limited environmental monitoring. Many Class II landfills





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do not accept polluted soil due to their limited disposal capacity and concerns with additional monitoring for hazardous constituents that may be required. Polluted soil may be disposed in a Class II landfill only with prior approval from the landfill and the ADEC Solid Waste Program. Consideration is made on a case-by-case basis and requires a demonstration in accordance with 18 AAC 60.025(d-e).

Class III Landfill

Class III landfills serve the most remote communities in Alaska. They are unlined facilities with very limited capacity and environmental monitoring. Class III landfills are unique in that disposal or beneficial use of polluted soil is allowed but primarily intended to facilitate the cleanup of small spills within the local community. Disposal of polluted soil in a Class III landfill must be carefully considered to weigh the relative risk and benefit to the community.

The ADEC Solid Waste Program will approve **disposal** of polluted soil from a petroleum spill in a permitted Class III landfill if the following specific criteria are met:

- The polluted soil must originate from the cleanup of a single petroleum spill incident (not consolidated from multiple sites) within the community served by the Class III landfill.
- The volume of the polluted soil is less than 500 cubic yards.
- The soil contains only petroleum contaminants [gasoline range organics (GRO), diesel range organics (DRO), and residual range organics (RRO)] that do not exceed the following maximum concentrations:
 - GRO - 900mg/kg
 - DRO - 2,000mg/kg
 - RRO - 4,500mg/kg
- A request using the [Disposal of Low-Level Petroleum Polluted Soil Approval Request Form for a Class III Landfill](#), with laboratory data report(s) attached, is submitted and **signed by both the landfill owner and the generator of the polluted soil**.

Disposal of Low-Level Petroleum Polluted Soil Approval Request Form for a Class III Landfill
Alaska Department of Environmental Conservation
Solid Waste Program

Criteria 18 AAC 60.025(d):
Soil must be generated within the community it is being disposed and contain only petroleum contaminants to qualify for this approval.
Total quantity of soil to be disposed must be less than 500 cubic yards. Contact ADEC if your project contains more than this amount for other disposal options.

1. General Information:

Project Name	
Community Name	
Quantity of Soil (cubic yards)	

2. Sampling Results for Polluted Soil: At least three samples must be taken for the first 100 cubic yards and five samples for up to 500 cubic yards.
Attach a copy of the laboratory results.

Highest Level of Gasoline Range Organics (GRO)	(< 900 mg/kg)
Highest Level of Diesel Range Organics (DRO)	($< 2,000$ mg/kg)
Highest Level of Residual Range Organics (RRO)	($< 4,500$ mg/kg)

3. Signatures: By signing below, the Responsible Party and the Landfill Owner certify under penalty of perjury that all of the information in this application is true, accurate and complete.

Responsible Party (organization):			
Address:	City:	State:	Zip:
Email:	Phone:		
Contact Name:	Title:		
Signature:	Date:		
Landfill Owner (organization):			
Address:	City:	State:	Zip:
Email:	Phone:		
Contact Name:	Title:		
Signature:	Date:		

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Revision: Polluted Soil to Class III Form
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If **all** of the above criteria cannot be met, the polluted soil may still be considered for **beneficial use** in a Class III landfill. However, approval will be granted only on a case-by-case basis as long as:

- A demonstration can be made in accordance with 18 AAC 60.025(d-e).
- The proposed use of the polluted soil will provide a direct benefit (not merely financial) to the community. The polluted soil can be used (*e.g. for building berms or as interim or final cover*) without changing the existing operations, closure, or expansion plan for the landfill.





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18 AAC 60.025(d-e) POLLUTED SOIL DEMONSTRATION

A site-specific demonstration under 18 AAC 60.025(d-e) is intended to provide assurance that there will be no potential impacts to nearby surface water or groundwater, to human health, and to the environment from the contaminants in the polluted soil. This requires analytical sampling of the polluted soil and, as appropriate, either fate and transport modeling or a leachability assessment for

the contaminants of concern within the polluted soil. Both the generator of the polluted soil and the landfill owner must sign the demonstration, it must be certified by a qualified groundwater scientist, and submitted to the ADEC Solid Waste Program for approval.

Analytical Data

Sampling must be representative of the entire volume of the polluted soil and must adequately characterize all soil contaminants and their concentrations. A Sampling and Analysis Plan (i.e. QAPP) should be developed based upon generator knowledge or site history. If such a plan was not previously approved as part of an ADEC Contaminated Sites (CS) cleanup action, it must be approved by the ADEC Solid Waste Program. Please refer to ADEC's [Field Sampling Guidance \(ADEC 2016\)](#) for guidance on proper field screening, sample collection, preservation, and analytical methods. For a CS cleanup sites, additional sampling may be required for excavated soil prior to disposal.

Sample results should be compared to the most stringent soil cleanup standards listed in 18 AAC 75 Tables B1 and B2 and must consider cumulative risks in identifying the contaminants of concern. For each contaminant of concern, the demonstration must include a site-specific fate and transport prediction that anticipates the maximum likely migration of that contaminant and must consider the potential effects on public health, safety, and welfare and the environment. Contaminant fate and transport can be demonstrated using fate and transport modelling software or, for some contaminants, may be demonstrated by comparing Toxicity Characteristic Leaching Procedure (TCLP) results to the most stringent water quality standard (*see Leachability Assessment for Petroleum Polluted Soil below*).

Fate and Transport Modeling

Fate and transport predictions must estimate the maximum potential migration for the identified contaminants of concern in the polluted soil. To be approved, the demonstration must show that the contaminants of concern will not leach to surface water or ground water or otherwise pose a threat to

"qualified groundwater scientist" means a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by professional certification or completion of accredited university programs that enable that scientist or engineer to make sound professional judgments regarding groundwater monitoring, contaminant fate and transport, and corrective action.





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human health, safety, or welfare, or to the environment. This requires assessing the analytical data in terms of the physical, biological, and chemical processes that affect the fate and transport of these contaminants in the landfill. Contaminant concentration data must be obtained through sampling and analysis. Site specific landfill data required to run the model may include, but is not limited to, precipitation, temperature, soil type, hydraulic conductivity, permeability, groundwater depth, and surface water locations.

Institutional Controls

When a landfill accepts polluted soil, the owner/operator accepts the responsibility and liability for any impacts it might cause. The landfill owner/operator must agree to implement institutional controls necessary to provide long-term protection of public health, safety, and welfare, and the environment. This may include additional access restrictions, cover requirements, or other controls as necessary.

Leachability Assessment for Petroleum Polluted Soil

If the only contaminants in the polluted soil are petroleum-related constituents, as confirmed by analytical data, ADEC recommends, in lieu of fate and transport modeling, using the Toxicity Characteristic Leaching Procedure (TCLP) (SW-846 Method 1311) to evaluate leachability of those constituents (BTEX and PAHs). The TCLP is specifically designed to assess potential contaminant mobility in the highly acidic conditions found at most landfills. The potential impact to groundwater can be assessed by comparing TCLP results to the most stringent standard listed in [18 AAC 70.020\(b\)](#), and Table I, Table II, Table III, and Table V (column A and column B) from the [Water Quality Criteria Manual](#) (collectively, the *Alaska Water Quality Standards*). A work plan should be submitted to the ADEC Solid Waste Program for approval prior to sampling to avoid potential resampling. Please note that additional analyses may be required for soils contaminated with leaded gasoline.

References

- 18 AAC 60.025 – Polluted Soil
- 18 AAC 70 Water Quality Standards
- Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances
- 18 AAC 75 Oil and Other Hazardous Substances Pollution Control
- ADEC Field Sampling Guidance, 2016
- 40 C.F.R. 261.24 Toxicity characteristic
- RCRA Waste Sampling Draft Technical Guidance (EPA530-D-02-002), 2002

