

Using Coal Ash as Fill Material

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Solid Waste Program

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Coal ash is the material left over after coal is burned. The six coal-fired power plants in interior Alaska together generate many tons of coal ash each day. Although much of that ash is disposed in landfills, the material may also be put to beneficial uses. One such use is as a fill material in place of gravel or tailings. Coal ash has been used as fill material in the past, and there is still much interest in this use today as the material can be an excellent base material beneath building foundations, driveways, and parking lots.

Concerns with Coal Ash Used as Fill

There are two main concerns in regulating the use of coal ash as fill material. One of these arises from the chemical make-up of the ash and the other from its physical characteristics.

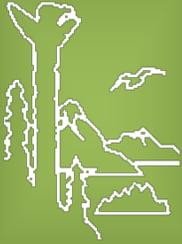
Chemically, coal contains metals that can concentrate in the ash when the coal is burned. The primary concern in regulating the use of coal ash is whether those metals will leach from the ash when it is used as fill material. Analytical testing of Alaska's coal ash indicates that there is very little risk of coal ash releasing metals into the environment. Leach testing results for Alaskan coal ash consistently documents that coal ash leachate contains metals concentrations that are either not detectable or are multiple orders of magnitude below the applicable regulatory limit. Based on these test results, the ADEC allows coal ash to be used as fill material with prior approval.

Physically, coal ash is made up of three different components: fly ash, bottom ash, and slag (e.g. "clinkers"). Fly ash is the lightest of the three and causes the greatest regulatory concern because it is easily picked up by the wind during transport and handling. This is readily avoided by covering coal ash during transport (as required by regulation); by wetting it down during loading, unloading, and spreading operations; and by covering coal ash that is stored prior to use. Any coal ash used as fill must also be completely covered by other materials (sand, gravel, topsoil, etc) at the completion of the fill project.



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ADEC Regulation of Coal Ash

Whether it is disposed in a landfill or used as fill material, coal ash is a solid waste subject to the state solid waste regulations. Just as coal ash that is disposed must go to a landfill permitted by the ADEC Solid Waste Program, the use of coal ash as fill material must be approved by the Program. Thus, before using coal ash as fill, you must get written authorization from the Solid Waste Program.

For more coal ash as fill information or questions, contact the Fairbanks office at 451-2134 or 451-2174.

Obtaining an Authorization

Obtaining an authorization to use coal ash as fill requires submitting a written proposal to the Solid Waste Program that describes the details and intent of the fill project. The Program will review the proposal and issue a letter of authorization for the fill project if the required information is provided and the project meets the criteria specified in the regulations.

To obtain authorization for a coal ash fill project, you need to submit a proposal to the Solid Waste Program in the Fairbanks office of ADEC, making sure to include the following information:

- An appraisal or estimate of the value of the property on which coal ash will be used as fill;
- The expected volume of coal ash that will be used and the source of the ash;
- How you will prevent any coal ash stored for or used in the project from becoming airborne;
- A description of the proposed future use of the site;
- An estimate of the value of the property after the coal ash has been emplaced;
- A plan explaining where and when the coal ash will be deposited on the property;
- An estimate of the expected compaction density and load bearing capacity of the finished fill;
- A list of each permit and approval issued or expected to be issued by other government agencies (e.g. a U.S. Army Corps of Engineers wetlands permit);
- Construction drawings showing:
 - Surface contours of the existing site and surface contours of the finished site;
 - The location of and details for all drainage ditches and culverts that will be installed;
 - The location of any temporary or permanent roads or ramps; and
 - The location of any pavement, sewer, plumbing, or electrical installation.

ADEC will review the proposal to determine if the project will (1) increase the value of the property, (2) not shift, erode, or settle in a way that will preclude the proposed future use of the site, (3) not create harmful leachate, and (4) not cause a threat to the public health, safety, or welfare or to the environment. If all of these criteria are confirmed, the ADEC will issue an authorization for the project that allows the use of coal ash as fill material. The ADEC recommends keeping the authorization letter with other property records. **The authorization will require that all coal ash used as fill must be completely covered by a minimum of 6 inches of soil or gravel to prevent the ash from washing out or becoming airborne.**

