

Stabilization and Solidification



A leader in the remediation market, AECOM's broad experience base and construction capabilities makes us a leader in stabilization/solidification.

Areas of Expertise

- Soil and sediment excavation, stockpiling for treatment
- Natural and enhanced dewatering methods
- On-site soil screening of remove oversized material to ensure proper mixing
- Handling and proper measurement of various admixtures to assure a consistent design mix
- Proper delivery of the soil/sediment with water and the designated binder material
- Operation of conveyors and discharge stackers
- On-site air emissions monitoring and control
- Treated soil reuse as backfill or structural fill
- Bearing capacity improvement
- Leachability reduction
- Chemical fixation
- *In situ* or *ex situ* mixing with pneumatic reagents or slurried grout admixtures
- pH adjustment
- Permeability reduction

More Information: AskEnvironment@aecom.com

Overview

AECOM designs and implements a wide range of remedial solutions, tailored to specific site and intended endpoint use. For large sites, dig and haul for off-site remediation can be costly and unsustainable. One option that has gained in popularity is *in situ/ex situ* stabilization/solidification.

Our Approach

AECOM is a leader in *in situ/ex situ* stabilization/solidification. Whether stabilization is to chemically fixate heavy metal contaminated soil or solidification is needed to enhance and stabilize the physical properties of soft soils for off-site disposal, AECOM has done it. We have mixed reagents/additives both *in situ* and *ex situ* and own specialized mixing equipment that allows AECOM to self-perform many stabilization and solidification projects. Our team is experienced in all aspects of this service area, including bearing capacity improvement, leachability reduction, chemical fixation, *in situ* or *ex situ* mixing with pneumatic reagents or slurried grout admixtures, pH adjustment, and permeability reduction.

To achieve the project's goals, AECOM first evaluates a number of geotechnical considerations and potential additives. Our in-house soil laboratories assess the soil/sediment stiffness and shear strength, water content, and permeability. We are able to conduct our own treatability testing to determine the most cost-effective reagents, optimum percent additive, and ultimate leachability of the mass after treatment (if required).

AECOM staff has experience utilizing the following reagents:

- Cements; flyash; kiln dust
- Lime
- Silicates
- Specialty clays/bentonite
- Various proprietary chemical additives
- Polymers
- Other natural materials (wood chips, saw dust, shredded newspaper, straw/hay, etc.)

Recently, AECOM successfully used *in situ* stabilization of site soils contaminated with lead and arsenic at a former phosphate fertilizer manufacturing facility in South Carolina. The team completed the site investigation, formulated and designed the remedy, and implemented the *in situ* stabilization. All the work was done using our in-house personnel and equipment. Following stabilization, all of the treated soils remained in place and the area was capped. This remedial approach saved the client hundreds of thousands of dollars over a conventional excavation and off-site disposal approach.

AECOM has invested in specialized equipment to perform various types of stabilization. Our equipment provides us with the ability to vigorously mix and homogenize a variety of soils and sediments. However, we also have the ability to use conventional mixing techniques (excavator/backhoe) using recognized soil mixing equipment (aka a pugmill) or utilize new innovative treatment technologies such as *in situ* injection using our own geoprobe and portable batch plant/mixing system.

Key AECOM Attributes

- AECOM has invested in specialized equipment to perform various types of stabilization, ensuring the best remedial methods for the site are incorporated.
- As a leader in the remediation field, we have a large and diverse skill set, and much of our work is performed by our own in-house personnel and equipment, saving our clients money.
- Our in-house soil laboratories and geotechnical specialists assess the soil/sediment stiffness and shear strength, water content, and permeability, ensuring the stabilization is performed correctly and will stand the test of time.

