Scomi Oiltools provides solidification and stabilisation as a method for the treatment and disposal of drill cuttings and other drilling wastes. They are often used in conjunction although their meanings have subtle differences as described below:

**Solidification** – Is an absorption process where contaminants, typically oils, are taken into the absorbent material in the same way a sponge takes on water. In general, solidification is the addition of absorbents such as soil, fly ash, kiln dust, cement, clays or sawdust to the drilling waste. The solidified product will have improved properties such as strength, compressibility and a reduced permeability.

**Stabilisation** – Is an adsorption process whereby contaminants are electrochemically bonded to the stabilising agents. Contaminants that are stabilised within the matrix are less likely to be released into the environment. This process is particularly relevant to the stabilisation of heavy metals and oils that would otherwise be rapidly available to the environment through leaching.

**FEATURES AND BENEFITS**

- **Cost** – Can be a relatively inexpensive method of treating and disposing of drill cuttings.
- **Environmental Impact** – Solidification reduces leaching of drill cuttings into surrounding soil to comply with Louisiana State wide Order 29 B.
- **Chemical** – Other than the inert cement and clay, no chemicals are required that would need post process cleaning.
- **Heavy Metals** – Stabilisation is one of the few methods available for treatment of wastes with leachable metals.

The Scomi Oiltools Solidification and Stabilisation Process is based upon two field proven techniques as follows:

- **In-situ Backhoe mixing** – Using a traditional backhoe, the solidification or stabilisation process can be achieved with minimal equipment and manpower.
- **Ex-situ Ploughshare mixing** – Using the Ploughshare mixer, the mixing process is more efficient thus maximising waste to additive contact. Both batch and continuous ploughshare mixers are available.

Both systems can offer a cost effective solution for the treatment and disposal of WBM and OBM contaminated drill cuttings. The reasons for this are:

- The machinery required is easily operated and maintained.
- Relatively few man hours are required for the actual processing.
- No chemical waste that requires further treatment is produced.
CONCEPT

The ability to solidify or stabilise a particular waste stream and the effectiveness of the treatment is dependent on the waste type and treatment reagent factors. Typically, representative samples of the waste are laboratory tested to determine the most suitable formulation prior to field implementation. Selection of the formulation is normally based on key criteria such as leachate quality and strength of the final product.

Solidification and stabilisation often requires the use of specialised equipment and chemical reagents. The processes involve significant materials handling upstream and downstream of the mixing unit. Some waste streams may contain contaminants that can inhibit the solidification/stabilisation processes.

For the solidification / stabilisation process to take place it is important to closely monitor the waste produced at the rigsite for levels of salt water and oil. This will help to minimise the use of reagents and optimise the process, thereby reducing costs and the environmental impact.

Thus, it is with the skill and expertise that Scomi Oiltools has developed over the last 20 years that allows us to, provide safe, cost effective and environmentally sound solidification and stabilisation processes.

Scomi Oiltools’ many years of experience ensures that the right type and quantity of chemicals are selected for the process, providing the most cost effective and environmentally sound solidification and stabilisation process.

APPLICATION

Solidification and stabilisation techniques can be used on aqueous and non-aqueous waste streams. The techniques may be applied to both water based drill cuttings containing free water and to non-aqueous drill cuttings containing hydrocarbons, salts and metals.

Oily drill cuttings that have been stabilised are generally buried in a lined pit and sealed in plastic or a concrete pit to isolate the solids from the environment.

SPECIFICATIONS

The following is a listing of the basic requirements for a successful project:

**Typical land area requirements:**
For every 1.13 m$^3$ of drill cuttings produced, 1 sq. m of land is required; or
for every 249.66 US Gallons of drill cuttings produced, 1 sq. yd of land is required.

**Land specification:**
Above seasonal high water table.

**EXAMPLE OF STABILISATION PROCESS FOR OBM CONTAMINATED DRILL CUTTINGS**

1. Clay cells are excavated and lined with concrete.
2. Organophilic Clay is added to Contaminated Solids and mixed thoroughly.
3. Cement is injected and mixed thoroughly.
4. The cell is filled.
5. Each cell is buried with an Earth Cap.

Regional Contact Points

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