Reclamation of Petroleum Products, Solids and Contact Waters:

Description of AECs Birmingham, AL Petroleum Reclamation Facility
Process Description

AEC handles three main products in the Reclamation Process.

- Tank Bottom Solids
- Petroleum Contact Water
- Transmix fuels
**Tank Bottom Solids**

- Solids consisting of sand, dirt, emulsified product, solidified fuel and rust scale, that accumulate at the base of petroleum storage tanks.

- The solids are removed during tank cleaning and must be managed.
**Petroleum Contact Water (PCW)**

Water which has been in contact with petroleum products allowing dissolved fractions of petroleum constituents to be released into the water.

i.e.,
- containment basin water
- hydrostatic test water
- contaminated groundwater
- tank bottom solids water
Transmix

By definition, Transmix is a mixture of gasoline and diesel fuels that result from various sources such as the following:

- pipeline transfers
- cross contamination of tanks
- barge transfers
- errors in unloading at service stations
- comingling of treated recycle streams
AEC Facilities
AEC Reclamation Process

- Handle only light petroleum products
  - Tank Bottom Sludge
  - Petroleum Contact Water

- Produce only -
  - Treated water to POTW
  - Transmix – gasoline and diesel
  - dry solids to non-hazardous landfill
AEC Reclamation Process

Petroleum Contact Water ———— Refined Petroleum Tank Bottom Material

Offloading Stations
Offloading Stations

The Offloading Station contains separate locations for PCW, Transmix, and Tank Bottom Solids offloading in containment areas.
AEC Reclamation Process

Separation Processes

- Petroleum Contact Water
- Refined Petroleum Tank Bottom Material
- Liquids Separation Process
  - Product Water Mixture
  - Solids Separation Process
    - Solids
The Separation Process includes an oil/water separator, a specially designed solids holding tank, a filtrate recovery tank and a product recovery information system.
AEC Reclamation Process

Solids Processing and High Temperature Drying
Solids Processing Building

The Solids Processing Building contains a filter press, a chilled two-stage vapor recovery system, high temperature dryer, and off-gas oxygen analysis system. This building was designed as an explosion-proof area.
Plate and Frame Filter Press
High Temperature Drying System

Allied Energy uses a high temperature dryer with two-stage vapor recovery system that ensures a very dry final powder product and recycles any vapors back to the recovery system.
AEC Reclamation Process

Biological processing for PCW

- Biological Treatment
- Liquids Separation Process
- Petroleum Contact Water
- Refined Petroleum Tank Bottom Material
  - Solids Separation Process
  - Filter Press
  - Dryer/Vapor Recovery System
  - Solids
  - Wet Filter Cake
- Product Water Mixture
- Mixture

PCW = Product Contact Water
Petroleum Contact Water Treatment

Petroleum Contact Water is processed using a Biological Sequential Batch Reactor. Processed petroleum contact water is appropriately sampled and discharged under a State Indirect Discharge permit.
Biological Sequential Batch Reactor
Transmix Distillation Operations

In April 2009, AEC began operation of a transmix distillation column capable of processing 4500 barrels of transmix per day.
Transmix Recovery Tanks

All transmix from the reclamation process is stored on-site and goes to the new Transmix distillation facility. This approach enables AEC to reclaim this fuel and use it for the original intended purpose as is required by the RCRA Reg’s.
Transmix Distillation Operations

AEC’s lab has the ability to evaluate the composition of incoming materials using a gas chromatograph, and analyze for sulfur and octane as part of the quality control and compliance efforts.
Petroleum Marketing Terminal

AEC maintains a full service petroleum marketing terminal that includes four loading lanes, blending operations and on-site QA/QC lab.