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SEGMENTED GATE SYSTEM

Radiological
characterization and
sorting technology



Cost-effective volume reduction
of radioactively contaminated soil



Segmented Gate System

Eberline Services' Segmented Gate System (SGS) is a cost-effective approach to soil remediation, which can function as a stand-alone technology or can be coupled with other types of soil treatment technologies. The SGS is a characterization and sorting technology that measures the radioactivity of soil as it passes through on a conveyor belt, and automatically separates the portion exceeding the cleanup standards. The key advantage to the SGS is automation, which affords a much higher degree of precision and accuracy compared with manual systems. Also, all of the soil to be treated or disposed is analyzed, not just sampled, and the level of radioactivity is documented in both the contaminated and clean streams.

Eberline Services has processed greater than 224,000 cy of soil with the SGS technology. Sites at which we've employed the SGS to reduce the volume of contaminated soil include:

- Johnston Island
- Savannah River Site
- Sandia National Laboratories
- West Valley Demonstration Project
- Pantex Plant
- Los Alamos National Laboratory
- New Brunswick, New Jersey (FUSRAP)
- Brookhaven National Laboratory
- Maywood, New Jersey (FUSRAP).



Screen Plant

- Controls size of material placed on belt
- Removes large objects that may not pass under detector arrays.



Sorting Conveyor

- Approximately 28-feet long, provides for the transport of uniform layer of soil under detector arrays
- Surge bin on front of conveyor provides temporary storage for non-uniform flow provided by screen plant
- A screed controls thickness of soil as it is deposited on conveyor
- Detector array housed in shielded box, whose height above conveyor adjusted for soil layers of varying thickness
- End of the conveyor provides holding area for soil that has passed underneath the detector array until a sorting decision is made
- Engineered controls reduce dust potential: slow belt speed of 30 fpm, covered conveyor, 10-25 percent soil moisture.



Sorting Gates

- Eight custom-shaped funnels mounted on pneumatic cylinders
- Sorting computer determines when contaminated material has reached end of conveyor belt.



Diversion Conveyors

- Contaminated soil is diverted to a stacking conveyor
- Clean soil exits through diversion gates to another stacking conveyor.

SGS Benefits

Eberline Services' SGS offers the following benefits:

- Cost-effectively reduces the volume of radioactive contamination in soil and material
- Sorts soil and material mechanically, making chemical treatment unnecessary
- Generates no secondary waste stream
- Provides 100-percent assay of all material processed.

The SGS removes radionuclides from feed materials in accordance with site release criteria, including:

- Cesium-137
- Cobalt-60
- Radium-226
- Thorium-232
- Uranium-238
- Americium-241.