2.1.5 Enhanced Bioremediation

The capability of the MITU to mix soils in place, without excavation, or to mix soils in above ground situations make it the ideal technology for landfarming and enhanced bioremediation applications. Although the use of the MITU technology along with bio-enhancement reagents is not the conventional in-situ method often employed, the combination of these technologies can significantly reduce the overall treatment time.

Above Ground Soil Mixing
MITU 12

In enhanced bioremediation, the activity of naturally occurring microbes is stimulated by the addition of nutrients, oxygen, or other amendments to enhance the biodegradation or contaminant desorption from subsurface materials. The trenching action of the MITU alone stimulates microbial activity and contaminant desorption by aerating the soil and creating a significantly larger soil surface area. In order for biodegradation to occur, the waste must come into contact with the bacteria cell's outermost coating. The trenching action of the MITU helps facilitate contact between the biomass and the waste or substrate.

Regardless of the amendments utilized for stimulating microbial activity, oxygen release compounds, macro nutrients, or additional substrates, the MITU technology ensures a thorough homogeneous mixture of the reagents throughout the soil matrix. The MITU is also capable of utilizing its on-board heat generation system to increase soil temperatures to optimum ranges.

In-Place Soil Mixing
MITU-LVR

CBA has discussed the application of several bio-enhancing reagents with their respective developers, such as, Regenesis' ORC™ and HRC™ compounds and FMC's PermeOx®. It is generally believed that applying these amendments with the MITU will increase their effectiveness. The traditional in-situ use of these products has proven to be successful, but is often limited by the application techniques. The effectiveness of these compounds is greatly reduced in dense, less permeable soils; however, the MITU has the ability to homogeneously deliver these amendments in most types of soil.