INTERNATIONAL Projects

Hydrocarbon Soil Remediation, Hovedstadens Jordrens, Copenhagen, DK

SITUATION

Over the past century, the land use in the Copenhagen area has changed dramatically. Initially, land was used for farming in the surrounding communities and residential use in the main city area. Later, these properties were changed into manufacturing areas as the industrial revolution took hold and progressed for many years. Recently, these properties have become disused and are changing back into residential areas and recreational parks. This redevelopment construction has created an abundance of contaminated soils associated with the previous manufacturing and industrial use. In Copenhagen, the contaminated soils are managed at an off-site soil management firm. This allows construction to continue and soils can be managed for a set fee. However, this has resulted in a significant volume of soils to be managed at the local Copenhagen soil management facilities.

Because hydrocarbon soils are generally conducive to low-cost bioremediation, the soil management firms prefer to use this approach. However, bioremediation typically takes much longer to implement (i.e., time consuming) and generally can't achieve the desirable low levels (i.e., Class I). The time consumption has resulted in an increased quantity of soils on-site and little movement of soils off-site due to the slow remedial process.

CBA'S TECHNOLOGY AND APPROACH

CBA's innovative technology was considered to provide a pathway toward achieving the lower concentrations in the soils after the bioremediation had been performed. The primary objective was to utilize the EX-SITU soil treatment technology that could meet treatment objectives in accordance with the Denmark's soil treatment criteria. This treatment could be done by applying heat and hot-air for the lighter fraction hydrocarbons and a chemical amendment for the heavier compounds. CBA focused on treating the soils in separate piles that would be selectively removed following treatment.

RESULTS

At the request of the client, CBA began EX-SITU soil treatment work on a test pile in late May. Pre-treatment results indicated TPH levels of 5,000 ppm in one of the samples. CBA completed EX-SITU soil treatment by use hot-air treatment on TPH contaminated soils in a very rapid fashion. While performing under adverse working conditions, including heavy precipitation, it was determined that the soils actually contained the heavier hydrocarbon compounds (C25 – C35) which required chemical amendment as well as heat. CBA ordered the appropriate chemical mix and was able to completely mix the pile within one day.

Based on historical information, this type of rapid mixing process with the MITU will render the soils as Class I (Clean Fill).

Project Manager: Bruce L. Bruso
Site Manager: Jorgen Ravn
Cost: $