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Results of Using Biofeed® Products in Hydrocarbon Contaminated Soil for The Central Arizona Project (CAP)

ABSTRACT

Soil contaminated with hydrocarbons are of great concern as removal and remediation is expensive and time consuming. In recent years however, new techniques have been developed which enhance the activities of indigenous microbes, which when grown under the proper micro-environment can thoroughly remediate highly toxified soils in which garden plants can safely be grown. Biofeed Solutions, Inc. has such technology.

BACKGROUND

In early 1986, soil which was contaminated with diesel fuel to near saturation was placed on plastic sheeting to a depth of 24 inches and was allowed to passively remediate until May of 1995. Soil samples were then taken at random and placed in two 55-gallon drums which were then transported to the Central Arizona Water Conservation District property. The soil was mixed to create a homogenous mixture and was then placed into four shallow holding tanks for the purpose of comparing the effectiveness of remediation methods. A sample of the mixture was taken to an independent laboratory for analysis to determine the total petroleum hydrocarbons (TPH) in accordance with EPA method 418.1. The TPH was over 600 PPM in the soil.

PROCEDURE

Tank #1 was the control and was not treated with anything. Tank #2 was treated with a water-soluble fertilizer. Tank #3 received approximately .75 cubic yards of horse manure. Tank #4 was treated with a blend of Biofeed NUTREX™ and CHETROL® at a rate of 3 parts per million of each product. After the application of each treatment, the soil was watered and turned to ensure thorough mixing. Each tank was also turned on Monday of each week.

RESULTS

After 17 days, soil tests showed a reduction in TPH in all of the tanks due to weekly watering and turning of the soil which increased the oxygen levels allowing for improved biological decomposition of the hydrocarbons. However on day 38, samples tested showed a minimal decrease in TPH in all of the tanks except for the Biofeed® treated tank which showed an 80% reduction in TPH. Each tank was tested again at 60 days and showed a minimal reduction in TPH, except the Biofeed® treated tank, wherein the TPH was reduced to less than 50 PPM—a level considered safe by the U.S. EPA.

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