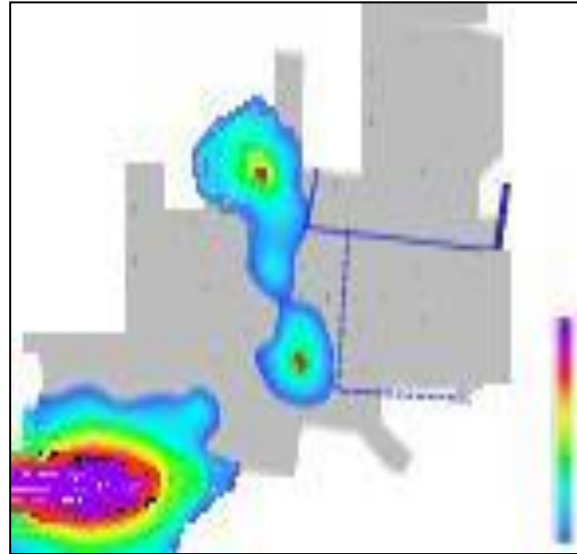


Bio Remediation of Petroleum Terminal Project

Arecon investigated and remediated a Petroleum Terminal located in Burlington, New Jersey. Initially, Arecon delineated the vertical and lateral extent of petroleum hydrocarbons contained in the soil at the site. This was accomplished with a soil vapor study that used GoreSorber®. The GoreSorber® is a passive sampling device that uses a Gore-tex® membrane and a sorbent to allow passive sampling of soil gas, yielding results for a wide range of organic compounds at low concentrations. The GoreSorber® was installed onsite on a predetermined sampling grid. After a specified time the GoreSorber® were removed and analyzed. Based on the analysis for the detected compounds isopleths were created like the example shown to the right.



A remediation plan was developed using the isopleths. Additionally, based on the organic species, Arecon investigated and identified micro organism that could bio remediate the petroleum hydrocarbon containing soil. This would avoid cost related to transportation and disposal cost if the soil had to be removed from the site in addition to long term liabilities related to off-site disposal. However because the soil type was not a well draining, in situ treatment was not believed to be an option. Therefore, Arecon designed a strategy that involved excavating the affected soil and treating them ex-situ.

The remediation involved excavating the hotspots. Post excavation samples were collected to assure that the excavation removed all of the petroleum containing soil. The four (4) photographs below show some of the areas where excavation occurred:



Excavated soil was mixed with microbes into wind row piles. The piles were mixed and nutrients were added to promote microbial growth for a specified period of time. The wind row piles are shown in the photograph to the right. Post treatment samples were collected to assure petroleum hydrocarbon was removed below applicable cleanup standards. Once treatment was verified the soil was returned to the excavated areas. A *“No Further Action”* determination was issued for the innovative delineation and onsite soil remediation project.

