

GREEN TECHNOLOGIES OIL RECOVERY USING MOBILE SOLAR POWERED PRODUCT SKIMMERS

EA used solar powered separate-phase product skimmers as part of the groundwater remediation effort for petroleum-impacted sites located at Fort Drum Military Installation, New York. The skimmers were evaluated along with more aggressive bioslurping and water table depression remediation techniques and proved to be cost-effective at two remote sites on the installation.

Product skimmers can be an effective way to remove separate-phase oils (i.e., jet fuel, gasoline/diesel, lubricating oil, etc.) floating on groundwater. Several types of skimmers are available. The ones used at Fort Drum are capable of automatically adjusting the level of the pump within the well using an auto-seeking device and hose reel. The auto-seeking device allows the pump intake to automatically follow the elevation of the oil/water interface as it fluctuates and pump the separate-phase product to a 300-gallon collection tank adjacent to the well without recovering groundwater.



Green technology and environmentally friendly work practices utilized by EA during the Fort Drum remediation effort proved to be efficient and highly cost-effective. First, a renewable resource (the sun) was used to power the skimmer equipment with no carbon emissions and no need to supply electricity or compressed air to the remote remediation sites. The collection tanks and solar panels were self-contained and trailer mounted, providing flexibility to move the units as needed. This mobility enabled the use of the units for cost effective pilot testing throughout the impacted areas, and maximized their utility as a remediation tool by moving them from well to well as separate-phase product recovery rates dissipated. In addition, the mobile storage tanks could be reused at other sites within or outside of the installation once their use becomes impractical at the original sites. Finally, EA frequently utilized parts that were recovered from unused equipment located elsewhere on the installation when building remediation systems, saving money, reducing clutter in storage areas, and ultimately reducing landfill waste.

For further information about the use of solar-powered product skimmers, or EA's other environmentally friendly remediation projects, please contact Dr. Frank Barranco at fbarranco@eaest.com.