

**THE THEORY BEHIND THE ART TECHNOLOGY SUCCESS IN TREATING  
PETROLEUM & CHLORINATED COMPOUNDS, MTBE AND 1, 4 DIOXANE**

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The ART technology is based on established circulating well concepts and combines in situ air stripping, air sparging, soil vapor extraction, enhanced bioremediation/oxidation and subsurface circulation in an innovative wellhead system. The multiple remediation concepts are suited for recalcitrant compounds because the synergistic systems are attacking contaminants on a number of fronts. The multiple, in-well stripping passes and high air to water ratio achieved in the well are integral to the physical removal of contamination. The subsurface circulation process is actively flushes residual contamination from the soil matrix and mobilizes it back to the well for further treatment. The circulation and extraction processes continuously provide significant dissolved oxygen (DO) throughout the radius of influence, enhancing bioremediation/oxidation of the hydrocarbon compounds. As the physical technologies are flushing contaminants to the well for stripping, the DO is enhancing bioactivity in the subsurface.

The system is designed to accommodate a four-inch well and is cost effective when compared with other remediation technologies, both as a retrofit of new or existing remediation systems. The ART technology has been implemented at sites worldwide including industrial laundry facilities, manufacturing plants and gasoline station sites. Dramatic, immediate reduction of contaminant concentrations has occurred at each installation where other, state-of-the-art remediation technologies had fallen short of desired results. Project summaries for the ART technologies performance at petroleum, MTBE chlorinated and recalcitrant compounds sites will be presented.

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