

# NAPL Recovery

## KEY Services

### Advantages

*Full-scale, integrated approach to NAPL recovery implemented at numerous sites.*



*Cost-effective approaches maximize NAPL recovery.*



*Full-scale groundwater recirculation/reinfiltration experience results in minimized groundwater treatment costs.*



*Groundwater/NAPL capture modeling approaches proven at numerous NAPL recovery sites.*



*Defensible programs with defined endpoints are established.*



Because of past industrial practices, non-aqueous phase liquids (NAPLs) are present at many remedial sites. The regulatory community recognizes both the physical limitations associated with removal of NAPL from the subsurface and the potential for long-term groundwater and soil vapor degradation posed by NAPL. As a result, NAPL recovery, to the extent practical, is often required as an interim remedial measure or as part of an integrated final remedy.

**K**ey Environmental Inc., (KEY) has implemented unique solutions to address the scientific and engineering challenges associated with NAPL recovery. NAPL recovery programs have been pilot tested and fully implemented at numerous sites with excellent results. KEY's approach to NAPL recovery has evolved during the last four years to a level unmatched in the industry. Features of our experience includes:

- The cost of implementing most NAPL recovery systems is due in large part to groundwater treatment and management requirements. Because of this, KEY developed a vertical recirculation well approach that avoided Underground Injection Control (UIC) regulations while providing cost-effective groundwater management.

Vertical recirculation has been used at sites located in Youngstown, OH; North Little Rock, AR; Charleston, SC; Texarkana, TX; and Nashua, NH.

- KEY leveraged the vertical recirculation approach to obtain regulatory approval for more effective horizontal groundwater recharge/flooding programs at Charleston, SC and Texarkana, TX sites.
- Excel® computer-based software was developed to assist in the design of NAPL recovery well systems. The software evaluates the potential effectiveness of in-well NAPL and groundwater separation for dual-phase extraction systems. Using this software, KEY has developed a large-diameter NAPL recovery well approach, which provides exceptional

