

## FATE AND TRANSPORT OF ETHANOL-BLENDED FUELS

**Brent Stafford\***

Shell

3333 HWY 6 South

Houston, TX 77082

Voice: 281 544 8320

Fax: 281 544 8727

[brent.stafford@shell.com](mailto:brent.stafford@shell.com)

Concerns regarding potential impacts to environmental resources from releases of ethanol-blended fuels have increased due to the rise in use and transport of ethanol fuel blends. Potential release scenarios include ethanol-blended gasoline (10-20% v/v ethanol) or E85 (85% v/v ethanol) leaking from underground storage tanks at service stations, and fuel grade (denatured) ethanol (95-97.5% v/v ethanol) spills during transport or after reaching bulk terminals.

The hydrophilic properties of ethanol drive the environmental transport of these fuels and influence the locations and geometries of generated non-aqueous phase liquid (NAPL) secondary source zones from the gasoline or denaturant fuel fractions. Also, due to the ability of highly concentrated ethanol to dissolve NAPL, large releases of fuel grade ethanol may exacerbate impacts to groundwater or surface waters at sites with pre-existing NAPL in soils or sediments. As a result, commonly understood and utilized conceptual models used as tools for site management for released (non-ethanol blended) fuels may be inadequate for some ethanol fuel blends.

This study presents and overview of the state of knowledge on the fate and transport of released ethanol-blended fuels. Included are recent quantitative results from bench- and pilot--scale experiments and site investigations on releases of ethanol blended fuels.

###