

Expedited Site Assessment Tools For Underground Storage Tank Sites

A Guide For Regulators



Expedited Site Assessment Tools For Underground Storage Tank Sites

A Guide For Regulators

United States Environmental Protection Agency
Office of Underground Storage Tanks, OSWER

March 1997

Acknowledgments

The U.S. Environmental Protection Agency's (EPA's) Office of Underground Storage Tanks (OUST) would like to thank the numerous individuals who contributed to this document. Because of the broad range of subjects covered, the authors required the input of experts from many different disciplines and perspectives. The principal authors are Robert Hitzig (U.S. EPA), Roy Chaudet (Logistics Management Institute), and Murray Emarson (Emarson, Fowler, and Watson, Inc.). In addition, Susan Kraemer (ICF Kaiser) is a contributor to the initial development of the document. Internal technical review was provided by Dana Tulis and Hal White (both of OUST).

A group of experts drawn from U.S. EPA headquarters, regional offices and laboratories, as well as other federal departments, state regulatory agencies, universities, and private industry reviewed this document extensively. The most significant contributors to the technical review process included Gilberto Alvarez (U.S. EPA), David Ariail (U.S. EPA), Jay Auxt (Hogentogler and Company, Inc.), Kent Cordry (GeoInsight), Jeff Farrar (Department of Interior), Blayne Hartman (Transglobal Environmental Geochemistry), Dana LeTourneau (Spectrum Geophysics), Barry Lesnik (U.S. EPA), Aldo Mazzella (U.S. EPA), Duncan McNeill (Geonics Limited), David and Gillian Nielsen (The Nielsen Environmental Field School, Inc.), H. James Reisinger II (Integrated Science and Technology, Inc.), Willie Staudt (Land Tech Remedial, Inc.), and Tom Zdeb (Woodward Clyde Consulting).

Other individuals who provided valuable comments for improvement of the manual include Al Bevolo (Ames Laboratory), Michael Billa (Rizzo Associates, Inc.), Ken Blom (NORCAL, Inc.), David Borne (Sandia National Laboratories), Russell Boulding (Boulding Soil-Water Consulting), Jim Butler (Geotech, Inc.), Kevin Carter (Ensys Environmental Products, Inc.), Thomas Christy (Geoprobe Systems), Gerald Church (Transglobal Environmental Geochemistry), Jeff Daniels (Ohio State University), Dominick DeAngelis (Mobil Oil Corporation), Brendon Deyo (Home Engineering and Environmental Services), Gary Dotzlaw (FCI), Jeff Erikson (Mobil Oil Corporation), Chi-Yuan "Evan" Fan (U.S. EPA), John Gregg (Gregg In Situ, Inc.), Doug Groom (Geometrics, Inc.), Peter Haeni (U.S. Geological Survey), John Hanby (Hanby Environmental Laboratory Procedures, Inc.), Mark Hathaway (Northeast Research Institute LLC), Sam Heald (Geophysical Survey Systems, Inc.), Paul Henning (Quadrel Services, Inc.), Ross Johnson (Geometrics, Inc.), Steve Kane (Photovac Monitoring Instruments), Bruce Kjartanson (Iowa State University), Eric Koglan (U.S. EPA), Bill Kramer (Handex Corporation), Donald Lavery (General Analysis Corporation), Al Liguori (Exxon Research and Engineering Company), Ted B. Lynn (Dexsil Corp.), Sriram Madabhushi (South Carolina Department of Health

and Environmental Control), Don Marrin (Independent Consultant), Ray Maytejczyk (Viking Instruments), Finn Michelson (OYO Geosciences), Chris O'Neill (New York Department of Environmental Conservation), Emil Onuschak, Jr. (Delaware Department of Natural Resources and Environmental Control), Gary Placzek (U.S. Geological Survey), Gary Robbins (University of Connecticut), Dan Rooney (Vertek), Charlita Rosal (U.S. EPA), Greg Reuter (Handex Corporation), Mark Shaver (ORS Environmental Systems), Tom Starke (Department of Energy), Sandy Stavnes (U.S. EPA), Mike Taylor (Land Tech Remedial, Inc.), Glenn Thompson (Tracer Research Corporation), James Ursic (U.S. EPA), Mark Wrigley (W.L. Gore & Associates, Inc.), Katrina Varner (U.S. EPA), and Mark Vendl (U.S. EPA).

Special thanks are also due to Kate Becker (OUST) for her editorial review of the document and to Denise Mason (Einarson, Fowler, and Watson, Inc.) for developing many of the graphics.

Robert Hitzig
Office of Underground Storage Tanks
March 1997

Contents

Chapter Number	Title	Page
I.	Introduction	I-1
II.	Expedited Site Assessment Process	II-1
III.	Surface Geophysical Methods	III-1
IV.	Soil-Gas Surveys	IV-1
V.	Direct Push Technologies	V-1
VI.	Field Methods For The Analysis Of Petroleum Hydrocarbons	VI-1
	Appendix A: Data Requirements For Corrective Action Evaluations	A-1
	Appendix B: Table of U.S. EPA Test Methods For Petroleum Hydrocarbons	B-1
	Abbreviations	Abbreviations-1
	Glossary	Glossary-1