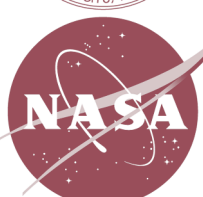


REMEDIATION CASE STUDIES AND TECHNOLOGY ASSESSMENTS FACT SHEET



The Federal Remediation Technologies Roundtable (FRTR) promotes interagency cooperation to advance the use of innovative technologies for the remediation of hazardous waste sites. One of the FRTR's priorities is the documentation and distribution of cost and performance information for completed and ongoing remediation projects. Primary members of the FRTR include the U.S. Department of Defense (DoD), Department of Energy (DOE), Department of Interior (DOI), National Aeronautics and Space Administration (NASA), and the U.S. Environmental Protection Agency (EPA).

The remediation case studies and general technology assessment reports published by the FRTR are available at www.frtr.gov. These reports provide site-specific information about actual technology applications based on information provided by federal and state agencies. Site managers, regulators, technology vendors, contractors, and the public can benefit from these experiences to improve technology selection and operation. This fact sheet describes the status of cost and performance activities, including recent additions of completed case studies and reports.

For 2004, the FRTR has announced the release of 118 new remediation case study reports and technology assessments in four focus areas. These include 19 cost and performance case study reports describing the use of remediation technologies; 24 reports describing the use of site characterization and monitoring technologies; 73

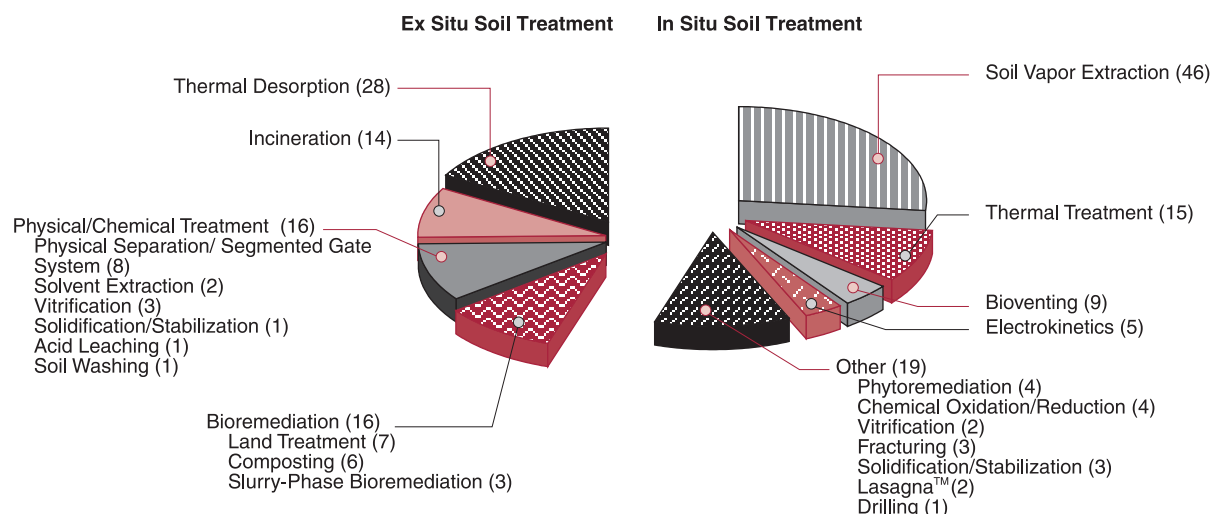
case studies describing long-term monitoring/optimization of remediation technologies; and 2 reports describing the assessments of remediation technologies at hazardous waste sites.

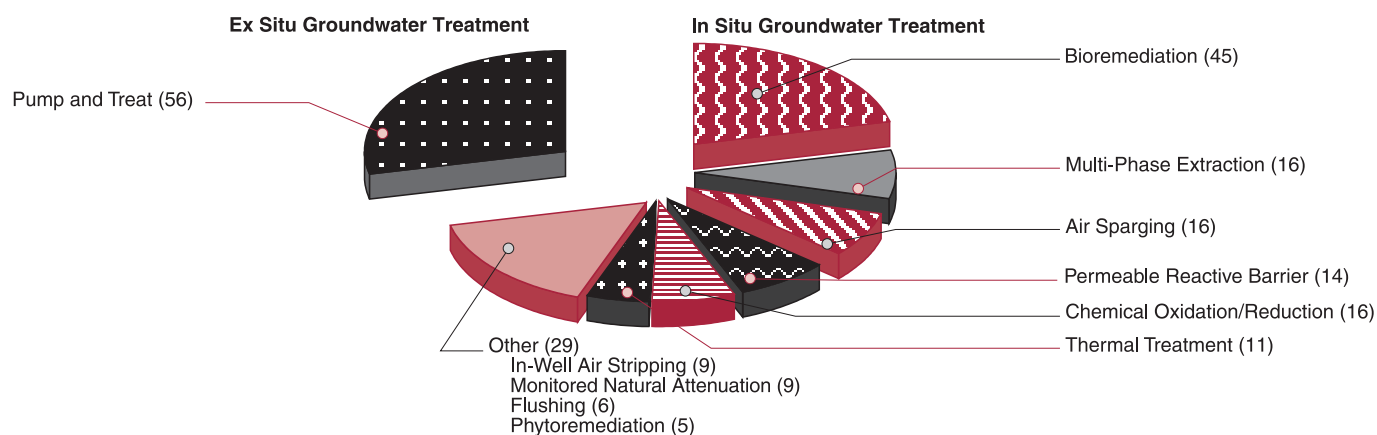
The four focus areas for remediation case studies and technology assessments represent a wide spectrum of technology deployment in the field, ranging from large-scale demonstrations to full-scale applications at single sites and at multiple sites, and long-term technology optimization.

HIGHLIGHTS

- Four focus areas providing information on technology applications:
 - 361 Remediation technology cost and performance case studies
 - 145 Site characterization and monitoring reports
 - 73 Long-term monitoring/optimization case study reports (new)
 - 54 Remediation technology assessment reports
- The new collection of 73 optimization reports, covers technologies such as pump and treat, soil vapor extraction, and monitored natural attenuation
- On-line system providing ability to search or view all the case studies and assessment reports (www.frtr.gov)

EXHIBIT 1: SOIL REMEDIATION CASE STUDIES BY TECHNOLOGY





REMEDICATION TECHNOLOGY COST AND PERFORMANCE CASE STUDIES

The FRTR has added 19 new remediation case studies for a total of 361. These remediation technology cost and performance case studies cover a wide range of technology types and contaminants. Each report (about 10-40 pages in length) provides information about site background and hydrogeology, a description of the technology design and operation, data about cost and performance, information about lessons learned from the project, and points of contact.

The remediation case studies include more than 30 different technologies for treating soil and groundwater contamination, with 168 reports addressing soil cleanup and 203 reports concerning groundwater. Exhibits 1 and 2 show the specific soil and groundwater technologies covered by the site remediation reports, along with the number of reports for each technology.

Abstracts (2 pages in length) are provided for each of the case studies summarizing key information about the site-specific technology application. Abstracts for the new reports are available in the eighth volume of Abstracts of Remediation Case Studies (542-R-04-012, June 2004). The 361 reports and associated abstracts, along with additional related FRTR resources, are available on-line at www.frtr.gov and on CD-ROM (542-C-04-004, June 2004).

SITE CHARACTERIZATION AND MONITORING REPORTS

The FRTR has added 24 new site characterization reports, including Triad/field-based site characterization, contaminant analyses, and geophysical techniques. (The Triad is an innovative approach to site assessment that consists of systematic planning, dynamic work plans, and on-site analytical tools. See www.triadcentral.org for additional information about the Triad.) The 145 reports cover the full range of site characterization and monitoring techniques with many focused on technologies used in the investigation stage of site cleanup.

HIGHLIGHT OF NEW REMEDIATION CASE STUDY

Historic Navy testing operations at Area I of the Naval Air Engineering Station Site, Lakehurst, New Jersey, resulted in contamination of groundwater with chlorinated solvents at a concentration of approximately 900 Fg/L. A pilot test using Bimetallic Nanoscale Particle (BNP) injection was conducted at the site from October 2001 to March 2002. BNP consists of submicron particles of zero valent iron (Fe^0) with a trace coating of palladium that acts as a catalyst. The goal of the test was to reduce chlorinated solvent concentrations within the assumed treatment area, and evaluate groundwater chemistry changes elicited by the BNP reactions. Results from the test showed that the BNP reduced total volatile organic carbon (VOC) concentrations in the groundwater by approximately 74%. In addition, changes in geochemical data show that groundwater chemistry was affected and that reducing conditions were created in the target plume. Based on these results, full scale application of BNP was recently conducted at the site, and monitoring is currently underway to determine its effectiveness.

LONG-TERM MONITORING/OPTIMIZATION CASE STUDY REPORTS

The FRTR recently began compiling case studies prepared by federal agencies about long-term monitoring and/or optimization of remediation technologies. Reports include activities at single sites and at multiple sites. A total of 73 new FRTR case studies are now available in the optimization section of the FRTR web site. These reports describe long-term management/optimization efforts that have been either implemented or evaluated, and cover techniques such as groundwater monitoring program evaluation, plume capture evaluation, and hydraulic optimization.

HIGHLIGHT OF LONG-TERM TECHNOLOGY OPTIMIZATION

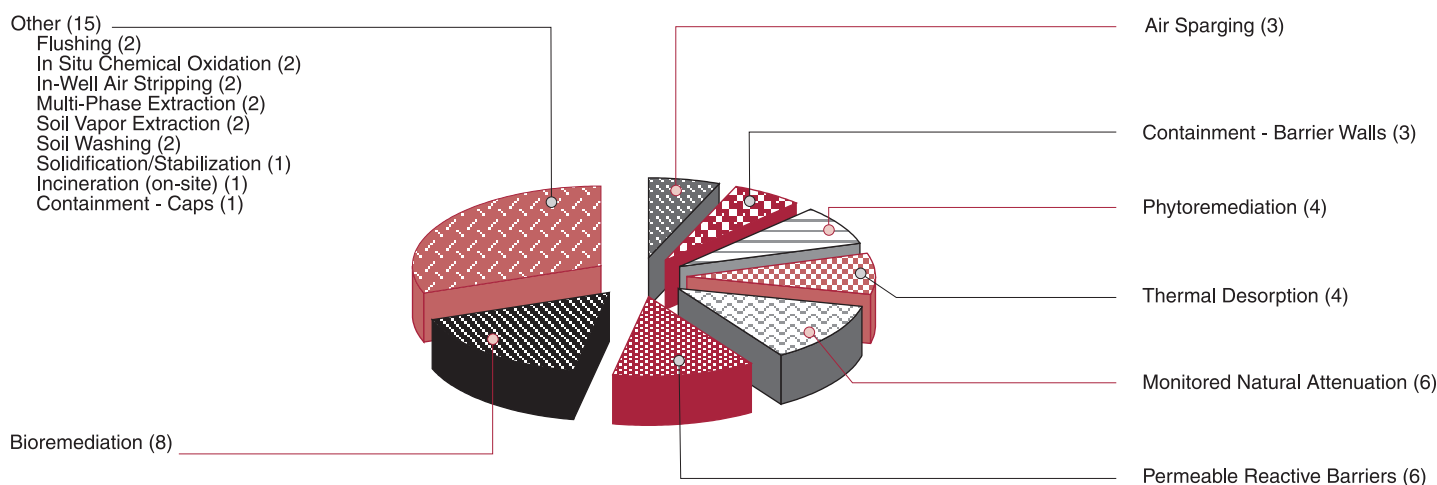
Many agencies are striving to optimize and manage pump and treat systems in the long-term and have developed different approaches to achieve this. Many of the long-term management/optimization reports discuss these approaches, which include Remedial System Evaluation (RSE), Remedial Process Optimization (RPO), and Remedial Action Operation (RAO).

Technology Regulatory Council (ITRC). As technologies mature, federal agencies and states are moving beyond documenting individual projects to providing more comprehensive analyses about technologies that have been used at multiple sites. These reports provide a summary of findings about the use of a technology based on practical field experience across multiple sites, including lessons learned. Some of these reports contain information about the design, implementation, and selection of a technology. Currently, there are 54 FRTR remediation technology assessment reports covering 16 technology types and 3 contaminant/site-type focus areas, including arsenic, Dense Non-Aqueous Phase Liquids (DNAPLs), and Underground Storage Tank (UST) sites/fuel-contaminated sites.

REMIEDIATION TECHNOLOGY ASSESSMENT REPORTS

The FRTR is compiling general technology assessment reports prepared by federal agencies and the Interstate

EXHIBIT 3: REMEDIATION TECHNOLOGY ASSESSMENT REPORTS



REMIEDIATION CASE STUDIES AND TECHNOLOGY ASSESSMENTS - ORDERING INFORMATION

The following FRTR documents are available free-of-charge from the U.S. EPA/National Service Center for Environmental Publications (NSCEP), while supplies last. To order, mail a request to:

U.S. EPA/National Service Center for Environmental Publications
P.O. Box 42419
Cincinnati, OH 45242

or FAX to (513) 489-8695. Also, telephone orders may be placed at (800) 490-9198 or (513) 489-8190.

- FRTR Cost and Performance Remediation Case Studies and Related Information CD-ROM, Fifth Edition, June 2004 (EPA-542-C-04-004)
- Abstracts of Remediation Case Studies, Volume 8, June 2004 (EPA-542-R-04-012)
- Guide to Documenting and Managing Cost and Performance Information for Remediation Projects, Revised Version, October 1998 (EPA-542-B-98-007).

Remediation Case Studies and Technology Assessments

Fact Sheet

June 2004



*Federal
Remediation
Technologies
Roundtable*



Solid Waste and
Emergency Response
(5102G)

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