Design Considerations for Enhanced Reductive Dechlorination

Course Number: EN-02-902

PDH: 3

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ACRONYMS AND ABBREVIATIONS

AFCEC	Air Force Civil Engineer Center
ARTT	Alternative Restoration Technology Team
BMP	Best Management Practice
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CH_4	methane
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CO_2	carbon dioxide
COC	contaminant of concern
CQC	Construction Quality Control
CSM	conceptual site model
CVOCs	chlorinated volatile organic compounds
DB	Design-Build
DBB	Design-Bid-Build
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
DoD	United States Department of Defense
DON	United States Department of Navy
DPT	direct push technology
ER	Environmental Restoration
ERD	enhanced reductive dechlorination
ESTCP	Environmental Security Technology Certification Program
FEAD	Facilities Engineering and Acquisition Division
FEC	Facilities Engineering Command
GHG	greenhouse gas
GSR	green and sustainable remediation
ITRC	Interstate Technology and Regulatory Council
MNA	monitored natural attenuation
NAPL	non-aqueous phase liquid
NAVFAC	Naval Facilities Engineering Command
ORP	oxidation-reduction potential
P&ID	Process and instrumentation diagram
PCE	perchloroethylene
PRB	permeable reactive barrier

PV	pore volume
PVC	polyvinyl chloride
QA/QC	quality assurance and quality control
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
RAC	Remedial Action Contract
RAO	Remedial action objective
RCRA	Resource Conservation and Recovery Act
ROI	radius of influence
RPM	Remedial Project Manager
SERDP	Strategic Environmental Research and Development Program
SMART	specific, measurable, attainable, relevant, and time-bound
TCE	trichloroethylene
TTZ	target treatment zone
UFC	Unified Federal Criteria
UFGS	Unified Facilities Guide Specifications
U.S. EPA	United States Environmental Protection Agency
WBDG	Whole Building Design Guide
ZVI	zero valent iron

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1.0 PURPOSE

A recent survey of Naval Facilities Engineering Command (NAVFAC) Remedial Project Managers (RPMs) found that chlorinated solvents in groundwater remain a key issue at impacted sites and that enhanced reductive dechlorination (ERD) is a frequently selected remedy for treatment of these solvents. The results of the survey also suggested that technology transfer tools are needed to help to improve the design and performance of ERD at Navy sites.

The purpose of this course is to provide a framework for design submittals for ERD systems, including a summary of best practices for bioremediation design, tips for appropriate quality assurance and quality control (QA/QC) measures, and a listing of available standards and references. The goal is to assist in the development of improved and consistent design submittals within the U.S. Department of the Navy (DON) Environmental Restoration (ER) Program.

Purchase this course to see the remainder of the technical materials.