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How To Evaluate Alternative Cleanup Technologies For Underground Storage Tank Sites

A Guide For Corrective Action Plan Reviewers

Chapter I
Introduction

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Background

As of September 2016, more than 532,000 releases from leaking underground storage tanks (USTs) have been reported nationwide. Cleanups have been initiated at more than 510,000 of these sites, and more than 461,000 sites have been cleaned up. The backlog of sites still to be cleaned up is more than 70,000.

EPA promotes faster, more effective, and less costly alternatives to traditional cleanup methods. EPA's Underground Storage Tanks program continues to work with state and local governments to encourage the use of the most appropriate cleanup technology for every site. When this guide was first published in 1994, it covered the first eight technologies listed in the table of contents (Chapters II through IX). The guide was updated in 1995 to add two additional technologies (Chapters X and XI). Back then, these ten technologies were referred to as alternative technologies because although they had the ability to make cleanups faster, more effective, and less costly than traditional options, they were not widely used. The guide was updated in May 2004 to add two new technologies (chemical oxidation-Chapter XI, and enhanced aerobic bioremediation-Chapter XII) to the suite of alternative technologies. We updated the guide in November 2016 to add enhanced anaerobic oxidative bioremediation (Chapter XIV).

Purpose Of This Guide

The purpose of this guide is to help you – state and local regulators –in your review of corrective action plans (CAPs) that propose alternative cleanup technologies. The guide does not advocate the use of one technology over another; rather it focuses on appropriate technology use, taking into consideration site-specific conditions and the nature and extent of contamination. While the guide focuses on the remediation of leaking underground storage tank sites, some of its basic concepts can be applied at hazardous substance and hazardous waste sites as well.

The guide is designed to enable you to answer two basic questions when reviewing a CAP:

- Has an appropriate cleanup technology been proposed?
- Does the CAP provide a technically sound approach to the cleanup?

Scope And Limitations

This guide is intended to provide technical guidance to state regulators who oversee cleanups and evaluate CAPs. The document does not represent the issuance of formal policy or in any way affect the interpretation of the regulations.

The text focuses on engineering-related considerations for evaluating each technology. It does not provide instruction on the design and construction of remedial systems and should not be used for designing CAPs. Nor should it be used to provide guidance on regulatory issues such as securing permits and establishing cleanup standards, health and safety issues, state-specific requirements, or cleanup costs.

This document is not intended to be used as the sole reference for CAP review. Rather, it is intended to be used along with published references, guidance from others more experienced with alternative technologies, information from training courses, and current journals. The material presented is based on available technical data and information and the knowledge and experience of the authors and the peer reviewers.

How To Use This Guide

The guide contains discussions of 13 alternative cleanup technologies. We included a table of contents in each chapter to help you locate the information you need.

Each chapter contains the following which can help expedite or improve the review process:

- Flow charts to help you understand the review process and decisions for each technology
- Checklists to help you determine whether the CAP contains all of the necessary information and factors needed to evaluate each technology
- References, located near the end of each chapter, which provide sources of additional information
- Tables that present advantages and disadvantages of each technology, initial screening criteria, and other data specific to each technology

How To Obtain Copies Of The Guide

The document is available in electronic format (PDF) from the Publications section of EPA's UST website at <https://www.epa.gov/ust/how-evaluate-alternative-cleanup-technologies-underground-storage-tank-sites-guide-corrective>.