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THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 966



Dunn Field – Revised Proposed Plan

Former Memphis Depot Dunn Field Revised Proposed Plan Public Comment Meeting

Facilitated by:



Michael Dobbs, Chief

Environment, Safety and Occupational Health Office
Defense Distribution Center

Public Comment Meeting

November 13, 2008

2008 11 13 RPP Public Meeting Presentation

Warfighter Support

Stewardship

Growth & Development

Leadership

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PUBLIC COMMENT MEETING

Presentation: Dunn Field Revised Proposed Plan

- 30 minutes approximately
- Points of clarification (on presentation only) will be addressed following the presentation

Public Comment: Dunn Field Revised Proposed Plan

- All public comments will be transcribed and reviewed by the Base Realignment and Closure Cleanup Team (BCT)
- Comments will not be addressed tonight
- Responses will be included in the Responsiveness Summary of the final Record of Decision Amendment



Dunn Field – Revised Proposed Plan

Former Memphis Depot Dunn Field Revised Proposed Plan

Presented by:



Tom Holmes, Project Manager
engineering-environmental Management Inc.

2008 11 13 RPP Public Meeting Presentation

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PRESENTATION OVERVIEW

Remedial Action Objectives

Selected Remedy in 2004 Dunn Field Record of Decision
(ROD)

Status of Selected Remedy Components

Proposed Changes to the 2004 Dunn Field ROD

Why Air Sparging/SVE?

What is Air Sparging?

Screening Criteria

Opportunities to Comment

Points of Clarification



REMEDIAL ACTION OBJECTIVES



Dunn Field Area





REMEDIAL ACTION OBJECTIVES

- The objectives that remedial actions must meet to protect human health and the environment according to the intended future land use
- The Revised Proposed Plan does not change the Remedial Action Objectives (RAOs) from the 2004 Dunn Field ROD
- The changes in the Revised Proposed Plan will help achieve the RAOs for subsurface soil and groundwater



REMEDIAL ACTION OBJECTIVES

- Subsurface Soil
 - Prevent direct inhalation of indoor air vapors from subsurface soils in excess of industrial worker criteria
 - Reduce or eliminate further impacts to the shallow aquifer from the VOCs in the subsurface soil
- Groundwater
 - Prevent human exposure to contaminated groundwater
 - Prevent further off-site migration of VOCs in groundwater
 - Clean up shallow (fluvial aquifer) groundwater to drinking water quality to be protective of the deeper Memphis aquifer



SELECTED REMEDY IN 2004

DUNN FIELD ROD

- Excavation, Transportation & Disposal (ET&D)
 - Soil and material contained within disposal sites located in the western half of Dunn Field
- Soil Vapor Extraction (SVE)
 - Reduce volatile organic compound (VOC) concentrations in subsurface soils to levels that are protective of the intended land use (industrial) and groundwater



SELECTED REMEDY IN 2004

DUNN FIELD ROD

- Zero-Valent Iron (ZVI) Injection
 - Injection into groundwater under Dunn Field to treat chlorinated volatile organic compounds (CVOCs) in the most contaminated part of the groundwater plume
 - ZVI breakdowns CVOCs by a chemical reaction
- ZVI Permeable Reactive Barrier (PRB)
 - To treat CVOCs within areas of the off-site groundwater plume with higher CVOc concentrations
 - Plume flows through wall and the ZVI breaks down CVOCs



SELECTED REMEDY IN 2004

DUNN FIELD ROD

- Monitored natural attenuation (MNA) and long-term groundwater monitoring (LTM)
 - To document changes in plume concentrations, to detect potential migration to off-site areas or into deeper aquifers and to track progress toward remedial goals
- Land use controls
 - Consisting of deed and/or lease restrictions; Notice of Land Use Restrictions; Memphis/Shelby County zoning restrictions and Memphis/ Shelby County Health Department groundwater well restrictions



STATUS OF SELECTED REMEDY COMPONENTS

Area	Selected Remedy	Status/Changes
<u>Disposal Sites</u>	ET&D	Completed per ROD in March 2006
<u>Subsurface Soil</u>	SVE	Remedy modified to include thermal enhancement and ET&D of two shallow areas. •Conventional SVE in fluvial sands began in July 2007 (3,000 pounds removed); •Thermal-enhanced SVE in loess began in May 2008 (12,000 pounds removed); •Initial ET&D completed in January 2008; additional ET&D planned.



STATUS OF SELECTED REMEDY COMPONENTS

Area	Selected Remedy	Status/Changes
<u>Groundwater</u>		
Source Areas	ZVI injection in most contaminated areas	ZVI injections to be made in areas with total CVOCs exceeding 1,000 ug/L, after thermal-enhanced SVE.
Off Depot	Installation of a PRB	PRB to be replaced by air sparging (AS) and SVE following ROD Amendment. AS/SVE to be implemented in 2009 as part of the Off Depot remedial action.
Site-wide	MNA and LTM	To be implemented in 2009 as part of the Off Depot remedial action.
<u>Site-wide Land Use</u>	Land use controls	To be implemented in 2009 as part of the Off Depot remedial action.



PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD

- Additional information gathered since the 2004 Dunn Field ROD led to a reassessment of components of the Selected Remedy
- Additional information based on:
 - Groundwater monitoring
 - Remedial design investigations
 - Remedy implementation



PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD

- Three categories of post-ROD changes:
 - Fundamental: Change in overall treatment approach. Requires a ROD Amendment
 - Significant: Change to a component within same overall cleanup approach. Requires an Explanation of Significant Differences
 - Minor: Change to remedy specifications without significant impact to scope, performance or cost. Requires a note in the Administrative Record



PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD

- The RPP was prepared because of the proposed Fundamental change to the Off Depot Groundwater Component of the Selected Remedy:
 - Use of Air Sparging with SVE to treat CVOCs in off-site areas for the Off-Depot groundwater plume instead of a Permeable Reactive Barrier



PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD



PRB location in
2004 ROD

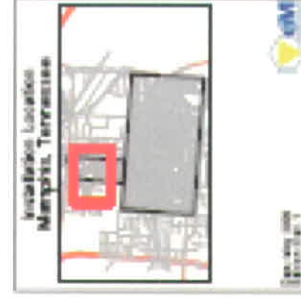


FIGURE 5
SELECTED GROUNDWATER REMEDIATION
ZONES AND IRON PRB
REV. 2 MEMPHIS DEPOT, DUNN FIELD PP

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PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD

- Post-ROD studies identified challenges with ZVI PRB:
 - Monitoring of groundwater plume west of Dunn Field
 - Area of high CVOCs extended farther from Dunn Field
 - Low groundwater gradient and thicker saturated zone would impact PRB installation at planned location
 - ZVI PRB Implementation Study
 - Variable clay surface
 - High groundwater velocities
 - Construction challenges
 - Supplemental technologies required



PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD

- Significant and Minor changes to the Selected Remedy:
- Groundwater
 - Length and treatment objective for Air Sparging/SVE
 - ZVI injections in groundwater at Dunn Field Source Areas with total CVOC concentrations above 1,000 ppb
 - Change in sequencing of remedy – soil treated before groundwater
- Subsurface Soil
 - Areal extent of SVE treatment in subsurface soils in Source Areas
 - Thermal-enhanced SVE in loess instead of conventional SVE
 - ET&D in two areas with shallow impacts



PROPOSED CHANGES TO THE 2004 DUNN FIELD ROD

- Significant and Minor changes are based on the following post-ROD activities:
 - Field Treatability Study to evaluate effectiveness of ZVI injections to cleanup CVOCs
 - Early Implementation of Selected Remedy using ZVI injection
 - SVE Pilot Study in the fluvial and loess deposits
 - Remedial Design Investigation of CVOC concentrations in the loess and in groundwater



WHY AIR SPARGING/SVE

- Alternatives to PRB were evaluated:
 - Enhanced Bioremediation Treatment (EBT) using injection of carbon substrate and bacteria
 - Air Sparging with Soil Vapor Extraction (AS/SVE)



WHY AIR SPARGING/SVE

- EBT Microcosm Study: Evaluated CVOC breakdown rates using different carbon sources, site sediments and groundwater, and a commercially bacteria consortia.
- Challenges identified regarding effectiveness and cost:
 - Aquifer conditions
 - Lack of field verification
 - Substrate delivery
 - Additional studies required for implementation
 - Field labor and access



WHY AIR SPARGING/SVE

- Air Sparging/SVE is proposed because:
 - It has similarities with a ZVI PRB
 - Physical-chemical processes rather than biological
 - Large portion of plume treated with smaller area for monitored natural attenuation
 - Limited operations and maintenance activity required



WHY AIR SPARGING/SVE

- Air Sparging/SVE is proposed because:
 - Proven, effective technology currently used at many cleanup sites
 - Construction of an AS/SVE system is straightforward
 - Usual drilling methods to install the wells
 - Equipment needed is readily available
 - Successful operation of Fluvial SVE system within Dunn Field Source Areas
- Effectiveness of Air Sparging/SVE can be assessed in a relatively short time



WHY AIR SPARGING/SVE



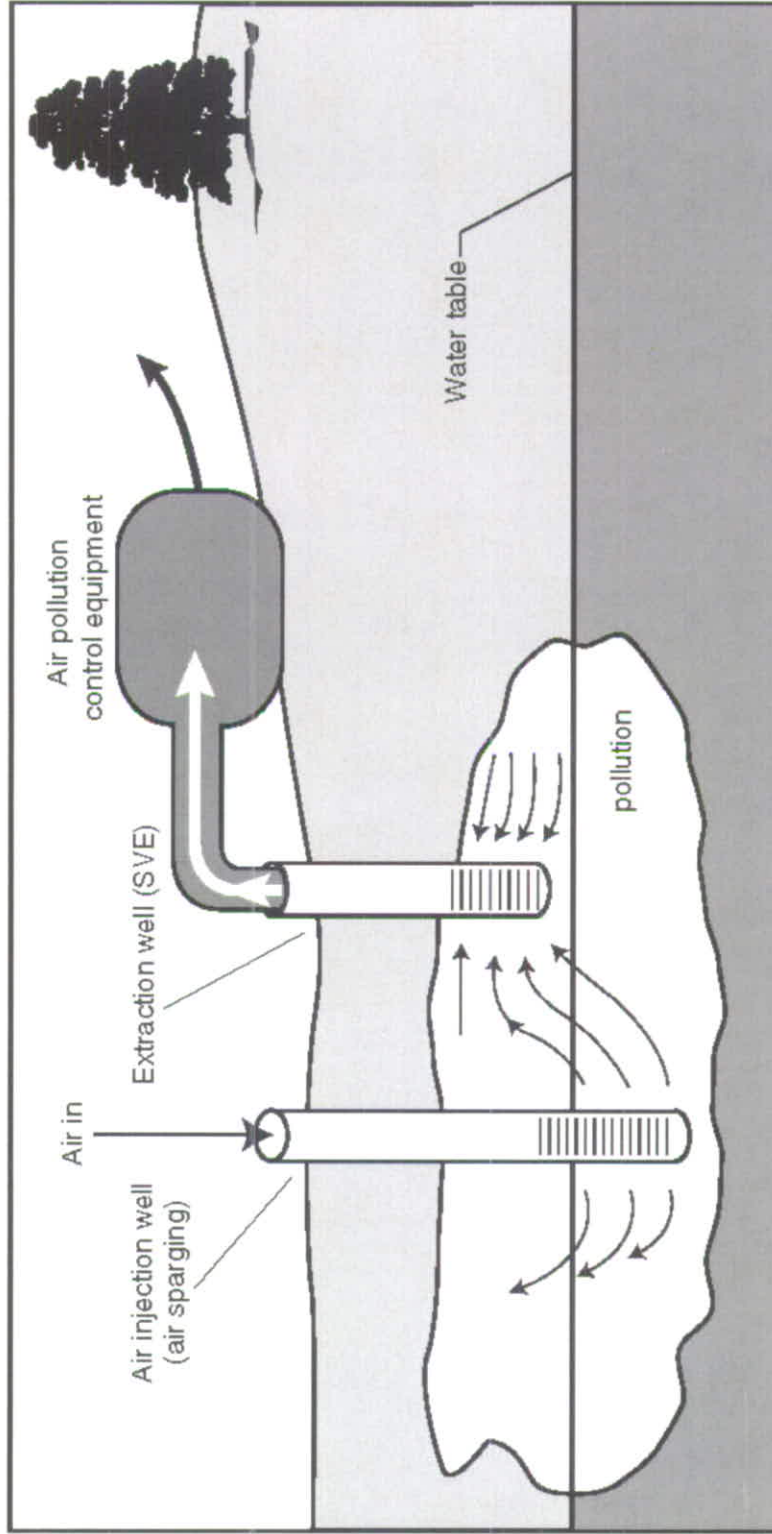


WHAT IS AIR SPARGING/SVE

- Air Sparging (AS) uses injected air to move CVOCs dissolved in groundwater into vapor above the water table
- A vacuum system (SVE) then pulls the air and CVOCs through extraction wells to a control building where air flow, pressure and CVOOC concentrations are monitored



WHAT IS AIR SPARGING/SVE





SCREENING CRITERIA

- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires that cleanup alternatives be evaluated using the following Nine Criteria:
 1. Overall protection of human health and the environment
 2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
 3. Long-term effectiveness and permanence



SCREENING CRITERIA

- Nine Criteria (continued):
 4. Reduction of toxicity, mobility and volume through treatment
 5. Short-term effectiveness
 6. Implementability
 7. Cost
 8. State acceptance
 9. Community acceptance



SCREENING CRITERIA

Screening Criteria	PRB and MNA with Institutional Controls	AS/SVE and MNA with Institutional Controls
1. Protective of Health	High	High
2. Complies with ARARs	Yes	Yes
3. Effective and Permanent	Low	High
4. Reduces Toxicity, Mobility or Volume	Yes	Yes
5. Short-term effectiveness	Medium	High
6. Implementability	Low	High
7. Total Cost	\$3,754,346	\$4,918,727
8. State Acceptance	Yes	Yes
9. Community Acceptance	Yes	Determined after public comment period



SCREENING CRITERIA

- The Air Sparging/SVE remedy being proposed meets the first 8 of these Criteria
- The BRAC Cleanup Team will evaluate Criteria 9 (Community Acceptance) based on comments received during the Public Comment Period



OPPORTUNITIES TO COMMENT

- The Revised Proposed Plan is now available for public review at the former Memphis Depot Information Repository located at:
Memphis Depot Business Park
DLA Memphis Community Outreach Room
2245 Truitt Street
Memphis, TN
Hours: Monday – Friday 9 a.m. until 5 p.m.

Also available on-line: www.ddc.dla.mil/memphis



OPPORTUNITIES TO COMMENT

- Public Comment Period
 - Start date: October 27, 2008
 - End date: November 25, 2008
- How to provide comments:
 - Provide verbal or written comments tonight
 - Provide verbal comments on the Community Information Line: (901) 774-3683



OPPORTUNITIES TO COMMENT

- How to provide comments (continued):
 - Mail comments to (must be postmarked by November 25, 2008):

Former Memphis Depot
BRAC Environmental Coordinator
2245 Truitt Street
Memphis, TN 38114
 - E-mail comments to: michael.dobbs@dla.mil or stacy.umstead@dla.mil



POINTS OF CLARIFICATION

- Points of clarification about the presentation only will now be addressed
- Please hold any comments regarding the Revised Proposed Plan until the Public Comment portion of tonight's meeting



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PUBLIC COMMENT GUIDELINES

- All comments will be transcribed (on the record)
- Please identify yourself, and speak clearly for the transcriptionist
- Please limit your comments to 5 minutes
- Comments will not be addressed tonight



PUBLIC COMMENT GUIDELINES

- Written responses to all comments received during the Public Comment Period will be provided in the Responsiveness Summary included in the Dunn Field Record of Decision Amendment that will be available in the Information Repository



OPPORTUNITIES TO COMMENT

- How to provide comments:
 - Provide verbal or written comments tonight
 - Provide verbal comments on the Community Information Line (901) 774-3683
 - Mail comments to (must be postmarked by November 25, 2008):
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ADMINISTRATIVE RECORD

FINAL PAGE