



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

AR File Number 688



Memphis Depot

Dunn Field Remedial Investigation (RI) Summary of Findings

Presented to
Memphis Depot Restoration Advisory Board

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February 21, 2002



Presentation Overview



- What is a Remedial Investigation?
- Conclusions from Dunn Field Remedial Investigation
 - Results of Dunn Field Risk Assessment to be presented at the March 2002 RAB meeting
- General Nature and Extent of Environmental Impact
- Dunn Field Study Areas
- Area-Specific Findings
- Next Steps on Dunn Field

The Remedial Investigation (RI)



- A regulatory process required by law
 - *Comprehensive Emergency and Response Compensation and Liability Act (CERCLA)*
- Determines the nature and extent of environmental impact caused by past operations
- Identifies potential risk to human health and the environment
- A scientific basis for future cleanup decisions
- Reviewed by State and Federal regulators
 - U.S. Environmental Protection Agency (EPA)
 - TN Department of Environment & Conservation (TDEC)

DUNN FIELD RI:

Overall Conclusions



- This investigation defines environmental conditions at Dunn Field
 - Soil sampling confirmed disposal locations (northwest quadrant)
 - Some disposal locations may contain buried containers of Volatile Organic Compounds (VOCs) and other waste materials
- Drinking water is safe
 - Affected groundwater in shallow aquifer only
- Most areas of Dunn Field are safe for current and future workers
 - Soil, surface water and sediment test results show no unacceptable risk

General Nature and Extent



- **Metals found in soil and sediment**
 - Suspected source: pesticide application and past storage of mineral ore
- **Pesticides and Polycyclic Aromatic Hydrocarbons (PAHs) in surface water and sediment**
 - Suspected source: asphalt and railroad tracks
 - No evidence of past releases
- **VOCs detected at disposal locations have moved downward through soil**
 - Found in shallow aquifer (not used for drinking)

General Nature and Extent (cont)



- **VOCs detected in shallow aquifer**
 - Not used for drinking water
 - Source: soil under disposal locations
 - Affected groundwater:
 - Southwest, west-central and northern areas of Dunn Field
 - Beyond Dunn Field to the north and west
 - VOCs in groundwater northeast of Dunn Field are not related to Depot activities (source undetermined)
- **Groundwater Pumping System is reducing VOCs in shallow aquifer**
 - Offsite monitoring wells (northwest corner) showing decrease in VOC levels

Dunn Field Study Areas



Dunn Field divided into 4 study areas based on past and possible future land uses:

- Disposal Area (14 Acres)
- Stockpile Area (30 Acres)
- Northeast Open Area (20 Acres)
- Groundwater (on and off Dunn Field)
 - *Shallow, Intermediate and Deeper aquifers*
 - *Drinking water is safe*

AREA-SPECIFIC FINDINGS: Northeast Open Area



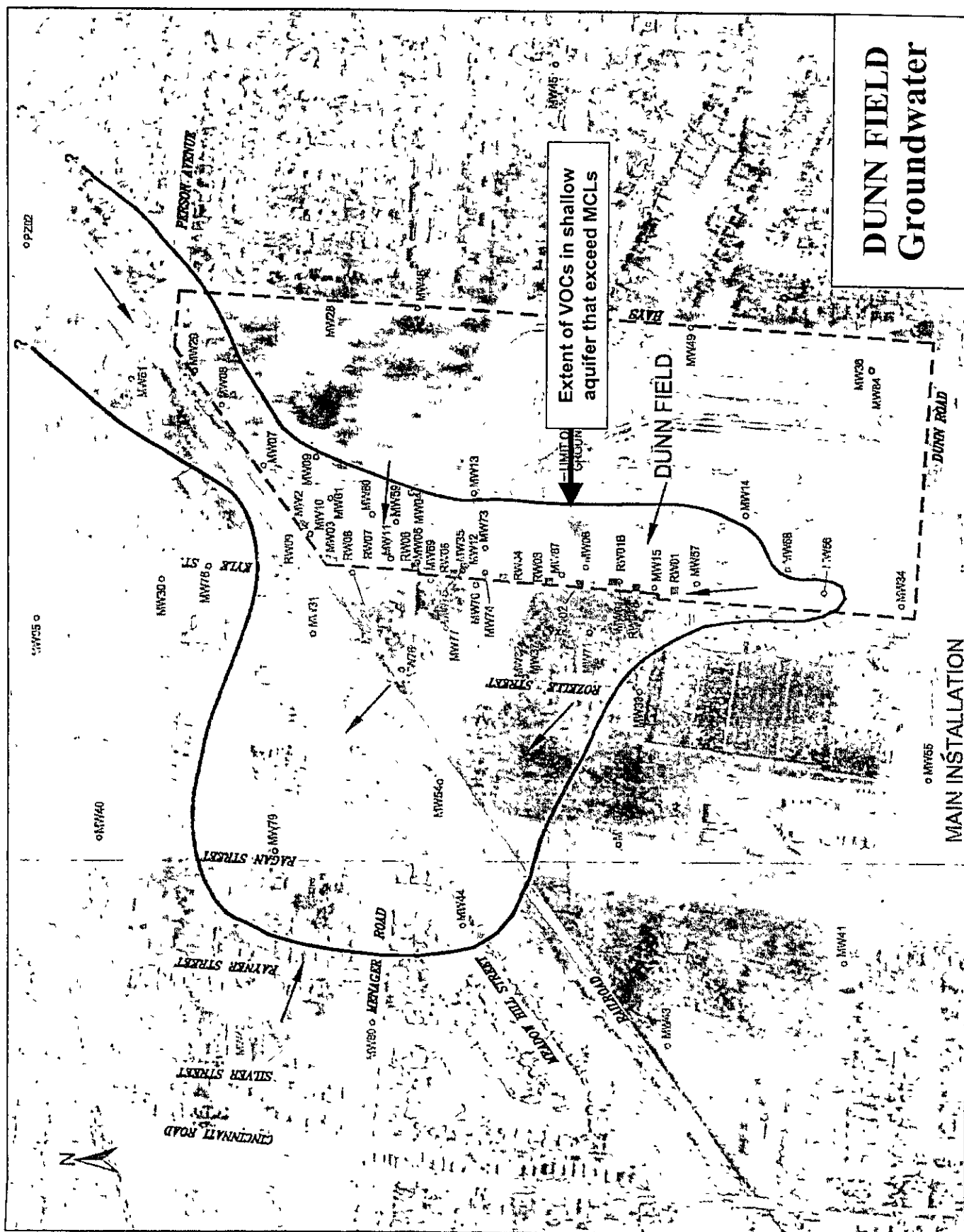
- Chemicals Of Potential Concern (COPCs) in soil, surface water and sediment
 - Metals
 - Lead from former pistol range
 - Thallium from rodenticide application
 - Other metals (chromium, antimony) are naturally occurring and slightly above screening criteria
 - Pesticide
 - Dieldrin from past application
 - VOCs
 - TCE, 1,2-DCE; 1,1,2,2-PCA; methylene chloride and total xylenes

AREA-SPECIFIC FINDINGS:**Disposal Area**

- **COPCs in soil, surface water and sediment**
 - **Metals**
 - Arsenic and thallium from pesticide and rodenticide application
 - Other metals (aluminum, antimony, total chromium, lead) are naturally occurring and slightly above screening criteria
 - **Semi-Volatile Organic Compounds (SVOCs)**
 - 2,4,6-trichlorophenol, pentachlorophenol
 - PAHs associated with asphalt and railroad tracks
 - **Pesticide**
 - Dieldrin from past application
 - **VOCs (in soil)**
 - 1,1,2,2-PCA; 1,2-DCE; TCE; vinyl chloride; carbon tetrachloride; chloroform; PCE; 1,1,2-trichloroethane; 1,2-dichloroethane
 - Source: disposed waste (paint, solvents, etc.)

AREA-SPECIFIC FINDINGS:**Stockpile Area**

- **COPCs in soil**
 - **Metals**
 - Arsenic (from past pesticide application) detected within the range of background levels
 - Other metals (aluminum, barium, chromium, copper, lead, manganese, vanadium) are close to background levels
 - **PAHs**
 - Associated with asphalt and railroad tracks
 - **Pesticide**
 - Dieldrin from past application



AREA-SPECIFIC FINDINGS:

Groundwater● **COPCs in shallow aquifer under Dunn Field**

- Not used for drinking water
- **Metals**
 - Aluminum, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, vanadium
- **Pesticides**
 - Dieldrin and heptachlor epoxide
- **VOCs**
 - 1,1,2,2-PCA; 1,1,2-TCA; 1,1,2,2-TCA; 1,1-DCE; 1,2-DCA; 1,2-DCE; 1,2-dichloropropane; benzene; bromodichloromethane; CCl₄; chloroform; methylene chloride; PCE; TCE; vinyl chloride; carbon tetrachloride
 - Source: disposed waste in soil (paint, solvents, etc.)

AREA-SPECIFIC FINDINGS:

Groundwater (cont'd)• **COPCs in groundwater (offsite)**

- Located beneath the area to the north and west of Dunn Field in the shallow aquifer
 - *Not used for drinking water*
- **Metals**
 - aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, manganese, vanadium
- **VOCs**
 - 1,1,2,2-PCA; 1,1,2-TCA; 1,1-DCA; 1,2-DCE; 1,2-DCA; benzene; chloroform; PCE; TCE; carbon tetrachloride
 - VOCs in groundwater northeast of Dunn Field are not related to Depot activities (source undetermined)

Area-Specific Conclusions



| AREA | Safe for WORKERS | Safe for future RESIDENTS | Safe for RECREATION | COMMENTS |
|-------------------------------|--|------------------------------------|---------------------|---|
| Northeast Open Area | Yes | Yes | Yes | <u>Exception</u> : lead levels at the former pistol range |
| Disposal Area | Surface Yes Subsurface No Indoor Air: No | No | Not Applicable | No buildings currently exist over these disposal areas where workers could be exposed to VOCs from soil |
| Stockpile Area | Yes | Yes | Yes | |
| Onsite Groundwater (shallow) | For drinking No Indoor air: Yes | For drinking No Indoor air: Yes | | Shallow groundwater is not used for drinking |
| Offsite Groundwater (shallow) | For drinking No Indoor air: Yes | For drinking No Indoor air: Yes | | VOCs traveling up through soil do not present unsafe conditions for indoor air |

Next Steps at Dunn Field



Spring 2002

- Complete DRAFT Dunn Field RI Report (Rev. 1)
- Present findings of the RI Risk Assessment at the next RAB Meeting
- Complete Dunn Field Feasibility Study (FS)
 - Rev. 1 to EPA, TDEC and RAB
 - RI Report and FS placed in Information Repositories

Next Steps at Dunn Field



Summer 2002

- Final Proposed Plan for Dunn Field
 - Public Comment Period

Winter 2002

- Final Dunn Field Record of Decision expected to be signed by TDEC & EPA
- Remedial Design phase begins

Projected dates in this presentation are based on current information available and may be subject to change.



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