



Del Amo Superfund Site

Soil and NAPL Cleanup Proposed Plan

June 2010

U.S. Environmental Protection Agency





Welcome / Bienvenidos

Housekeeping

- Introductions,
EPA/State/Local Officials
- Restrooms, out the doors, two rights
- Sign In
- Interpretación a Español, disponible
- Coffee and Pastries available in the back
- Please Turn off Cell Phones





Proposed Plan Meeting

- Run different than normal public meetings



Community
Involvement
Me
10 minutes



The Plan
**Dante
Rodriguez**
40 minutes



Clairifying
Questions
Everyone
15 minutes



Formal Public
Comments
You
As long as time permits

- Public Speaker Card Available from Me, raise hands
- Each speaker, initially has 3 minutes. Time permitting we will open the floor
- Formal Comments can also be submitted tonight on Paper, after tonight, via email, telephone or mailed letter





Community Involvement

New Community Involvement Items

- 1) Community Involvement Plan
- 2) Email, mailing list
- 3) Biannual updates (twice a year) on Del Amo and Montrose Operable Units
- 4) Annual general public meetings for both sites
- 5) Introduction Binders @ repositories



Community Involvement Plan

- Guide to Community Involvement
- Based on Community Interviews in 2008
- A living document, Appendix G, Operable

Unit Specific plans
and New CI techniques
will be added

U.S. Environmental Protection Agency
Montrose Superfund Site and Del Amo Superfund Site
Community Involvement Plan April 2010

Community Involvement in Cleanup Decisions

Public safety and a healthy environment are important to the Harbor Gateway community located in Los Angeles County, California. The United States (U.S.) Environmental Protection Agency (EPA) has been working with other government agencies, local agencies, environmental and community organizations, local businesses, and interested residents to ensure the protection of both the environment and public health in the areas surrounding two Superfund sites: the Montrose Superfund Site and the Del Amo Superfund Site (Sites). Over the next several years, EPA will continue the investigation and cleanup process related to these Sites.

When EPA begins work at any Superfund site, we develop a **Community Involvement Plan (CIP)** to assist it with sharing information regarding the site. Because the Montrose and Del Amo Superfund Sites are located in the same community, EPA has prepared one CIP to address community outreach for both Sites. Moreover, the Montrose Superfund Site includes multiple **operable units (OUs)**, or

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Email List

- EPA will use email for updates for announcements that might not need a factsheet
- 200 addresses and growing
- Emails will be sent from official EPA address, mine
- Will always end in **@epa.gov**





Biannual Progress Reports

- Provides consistent updates on select Operable Units for both Montrose & Del Amo
- Gives you a view at the months ahead
- Every OU explained
- Similar to update done for Navajo Nation

 **Health and Environmental Impacts of Uranium Contamination in the Navajo Nation**
EPA Progress in Implementing a 5-Year Cleanup Plan

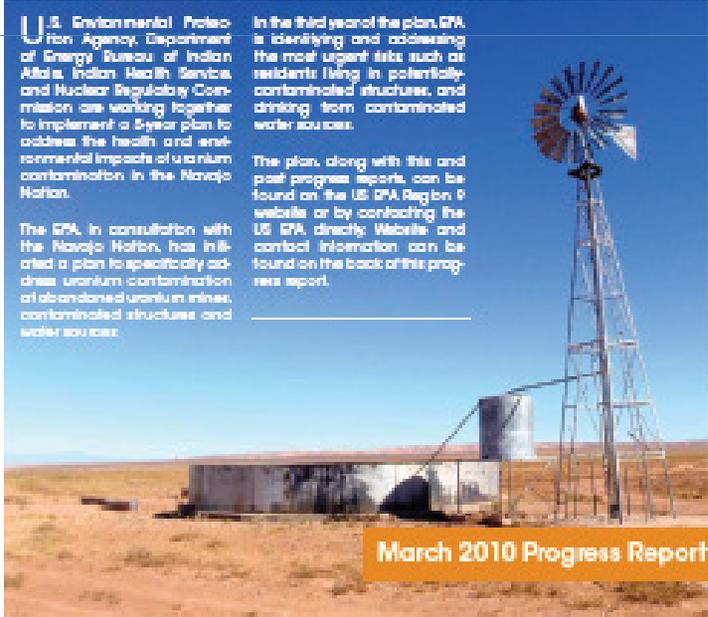


U.S. Environmental Protection Agency, Department of Energy, Bureau of Indian Affairs, Indian Health Service, and Nuclear Regulatory Commission are working together to implement a 5-year plan to address the health and environmental impacts of uranium contamination in the Navajo Nation.

The EPA, in consultation with the Navajo Nation, has initiated a plan to specifically address uranium contamination of abandoned uranium mines, contaminated structures and water sources.

In the third year of the plan, EPA is identifying and addressing the most urgent risks such as residents living in potentially contaminated structures, and drinking from contaminated water sources.

The plan, along with this and past progress reports, can be found on the US EPA Region 9 website or by contacting the US EPA directly. Website and contact information can be found on the back of this progress report.



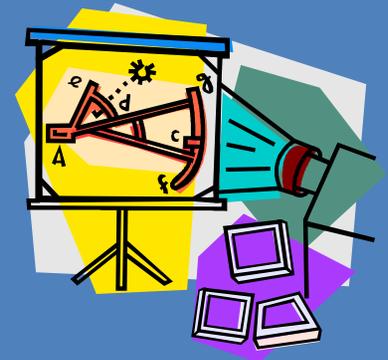
March 2010 Progress Report



Annual General Meetings

- Updates done for both sites, all OU's, in one meeting
- Entire site team in attendance*
- Follows new national CI directives, one site, one team
- One stop shop for updates, questions & concerns

*If staff is available to attend

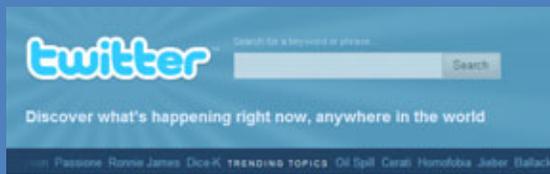




The Future of Community Involvement



- Facebook page, web 2.0 social networking site. Become fans of Superfund cleanups to get faster updates



- Twitter account, tweet, tweet, its Montrose / Del Amo!
- and more...

Welcome to the Del Amo Superfund Site Proposed Plan Public Meeting

June 30, 2010



Presentation

- History
- Investigation & Findings
- Remedy Options
- Preferred Option



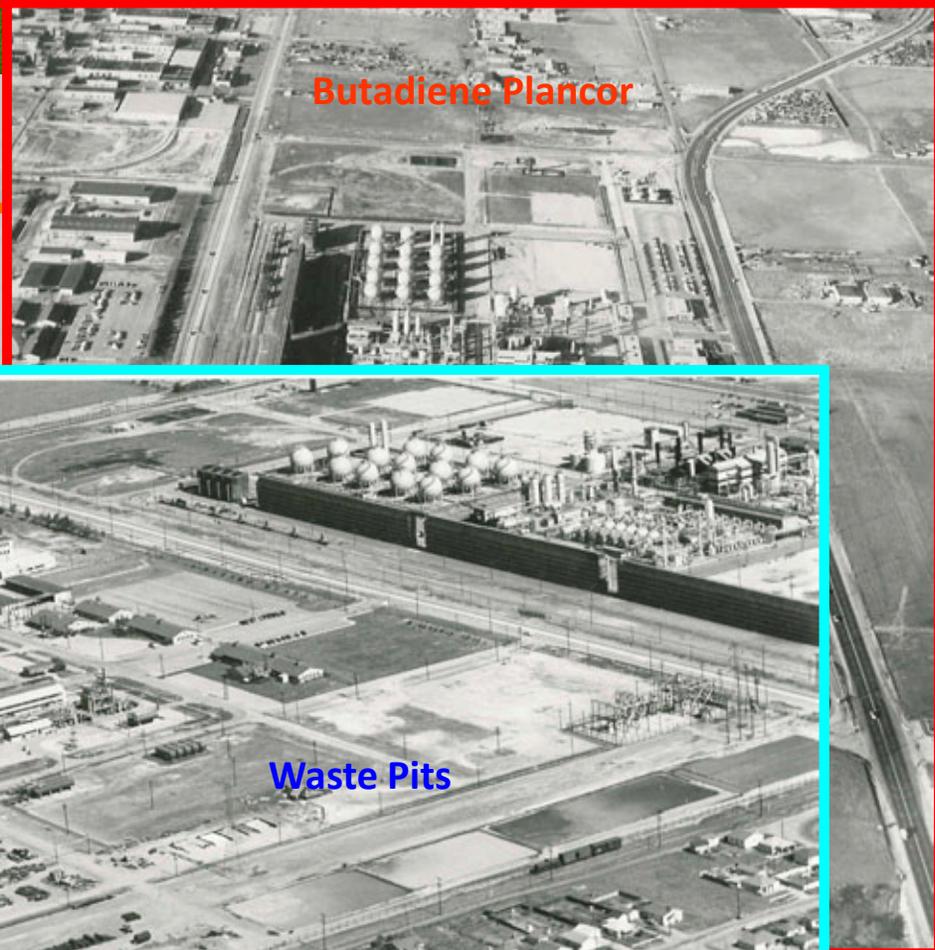
History



Del Amo Rubber Plant -- 1950s



Styrene Plancor

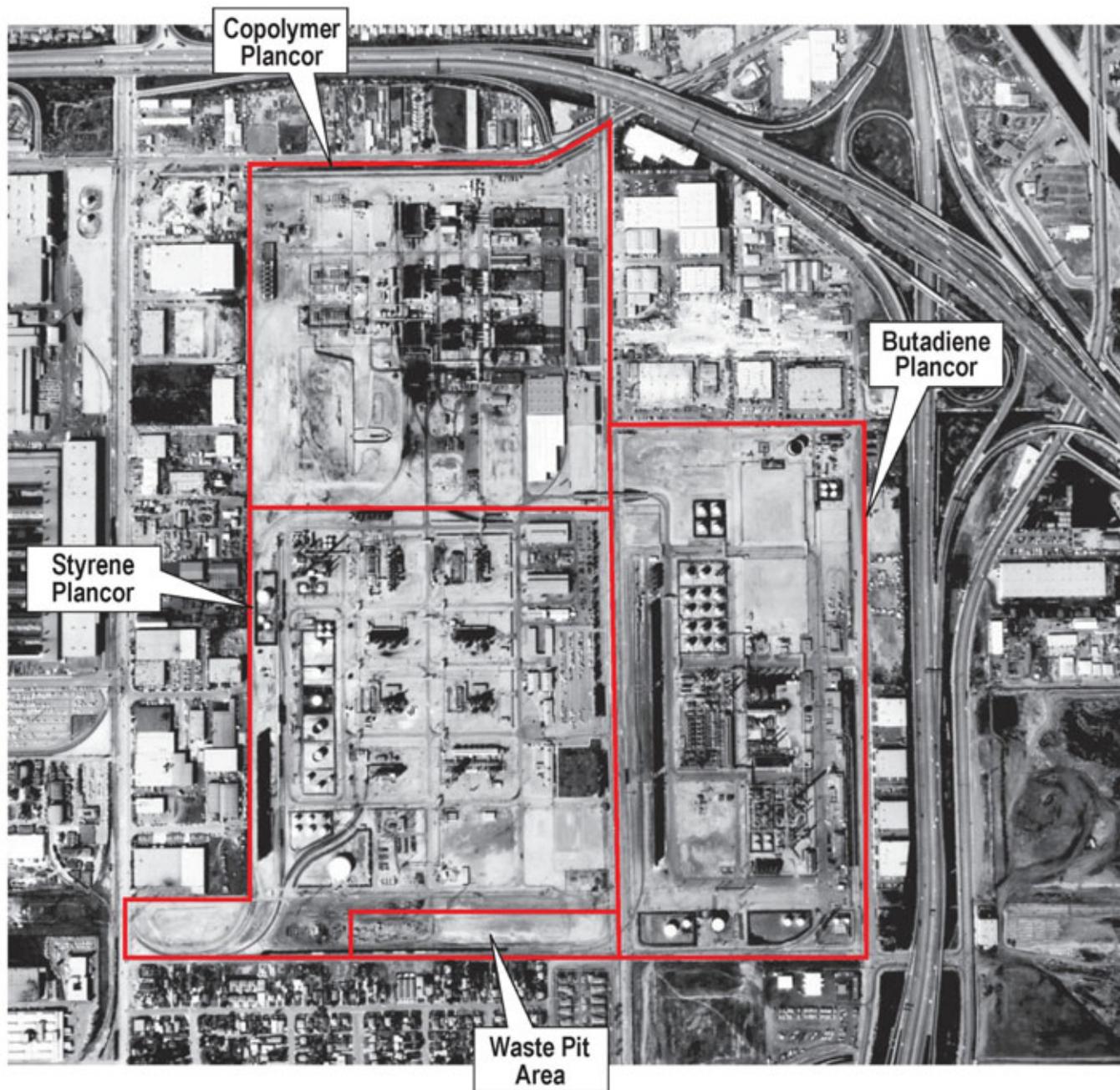


Butadiene Plancor



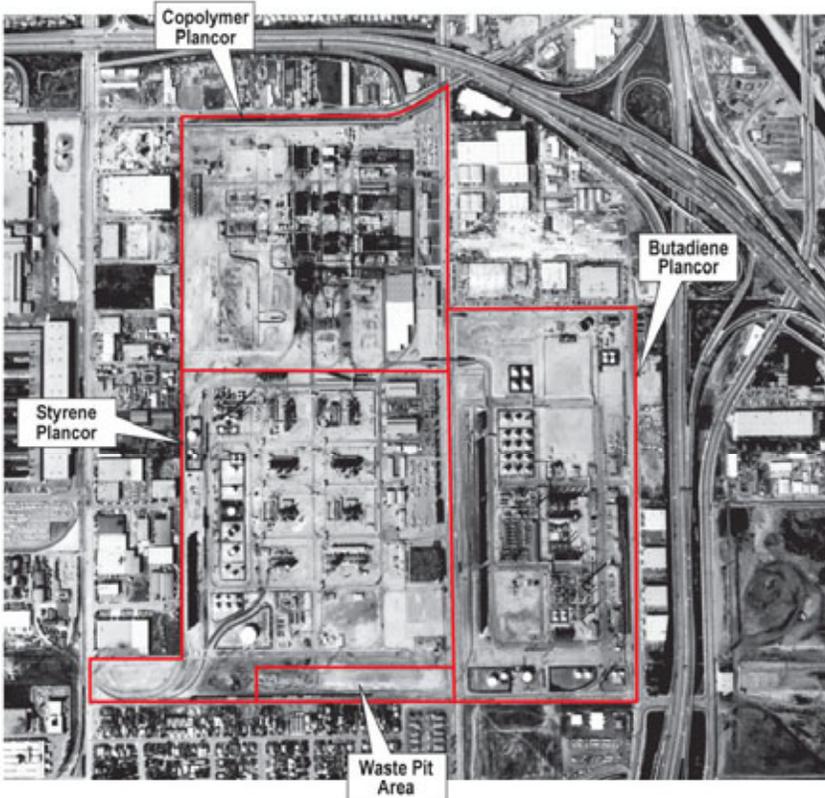
Waste Pits





1971

2010



1971 photograph showing synthetic rubber plant shortly before it was decommissioned.



2010 photograph showing business park development.

**CURRENT AND FORMER
DEVELOPMENT**

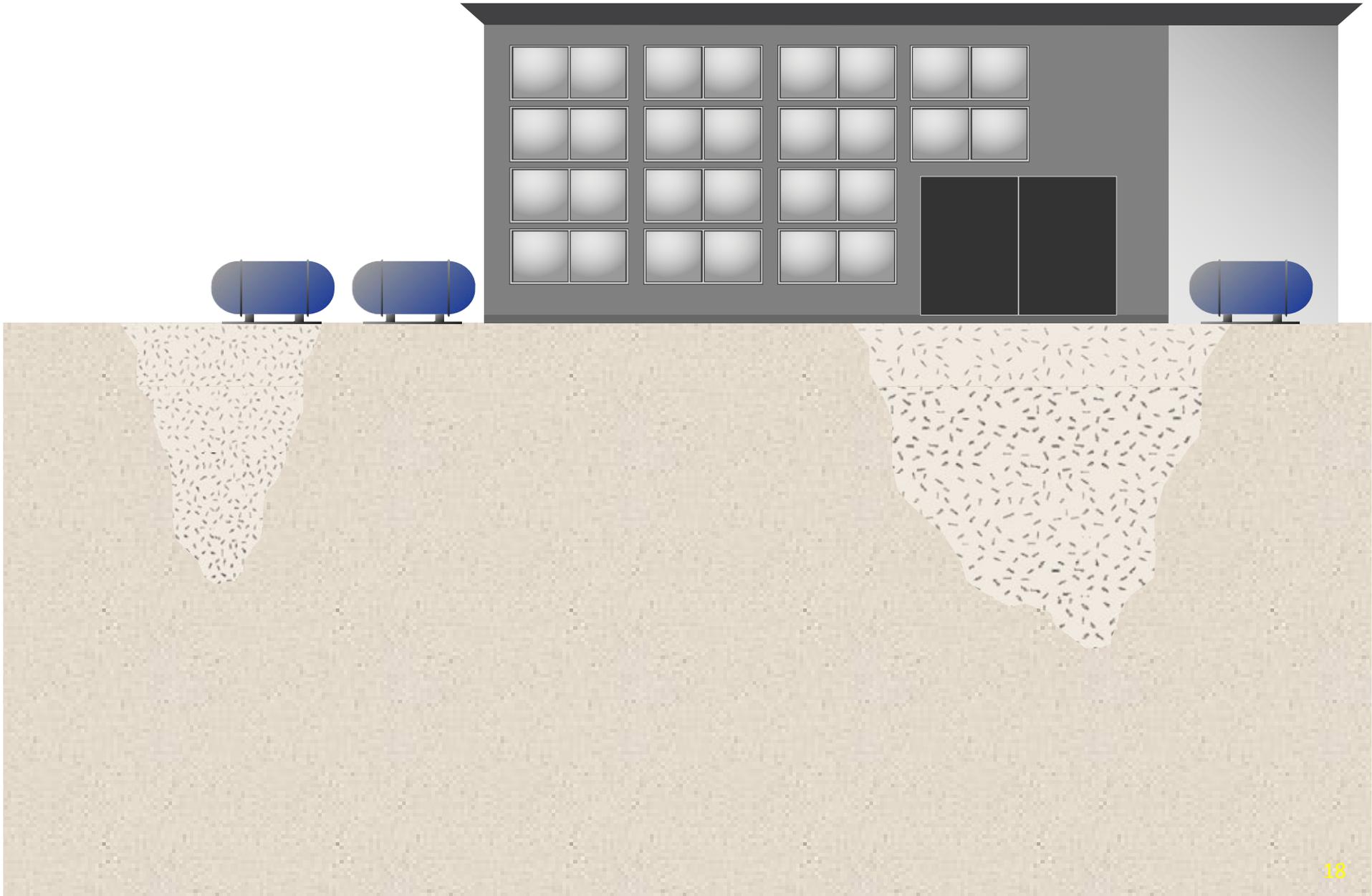
Del Amo Superfund Site

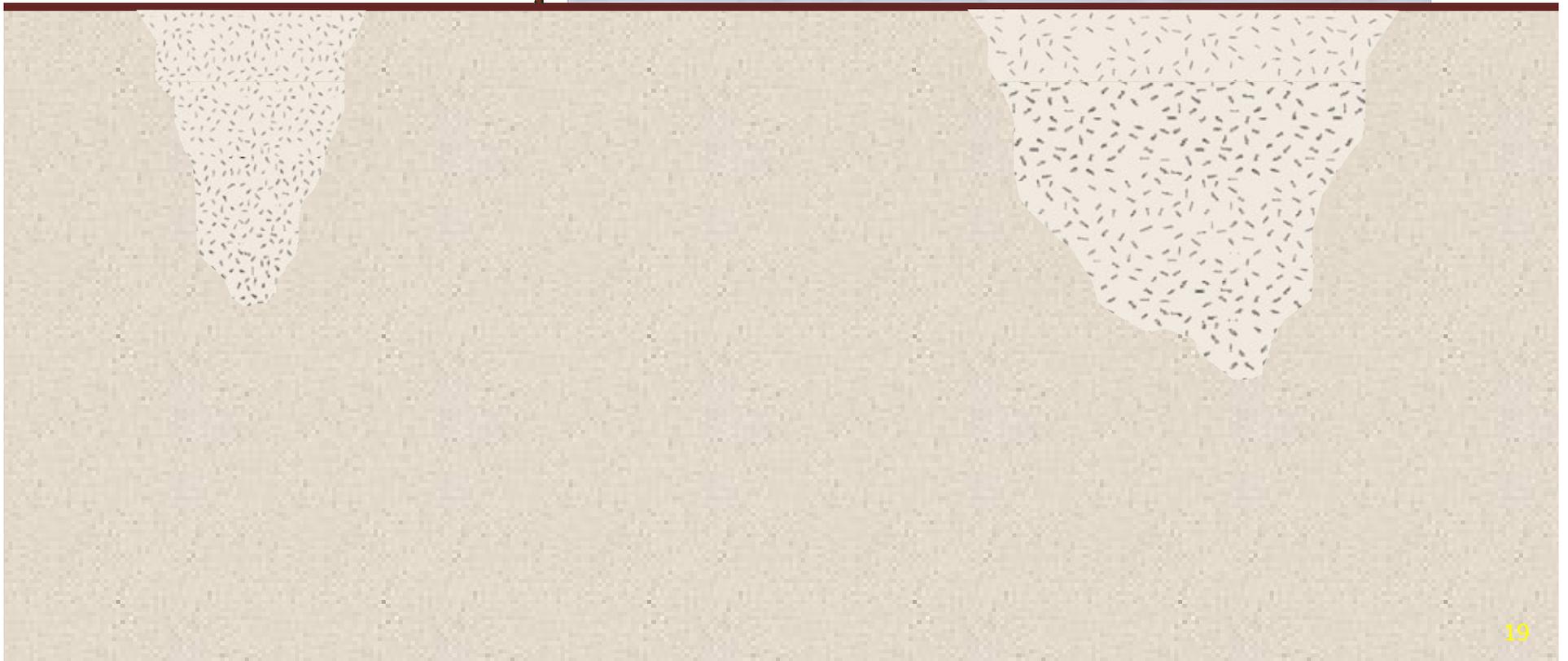


Investigation & Findings

- Part 1: Soil & NAPL
- Part 2: Waste Pits Area
- Part 3: Groundwater





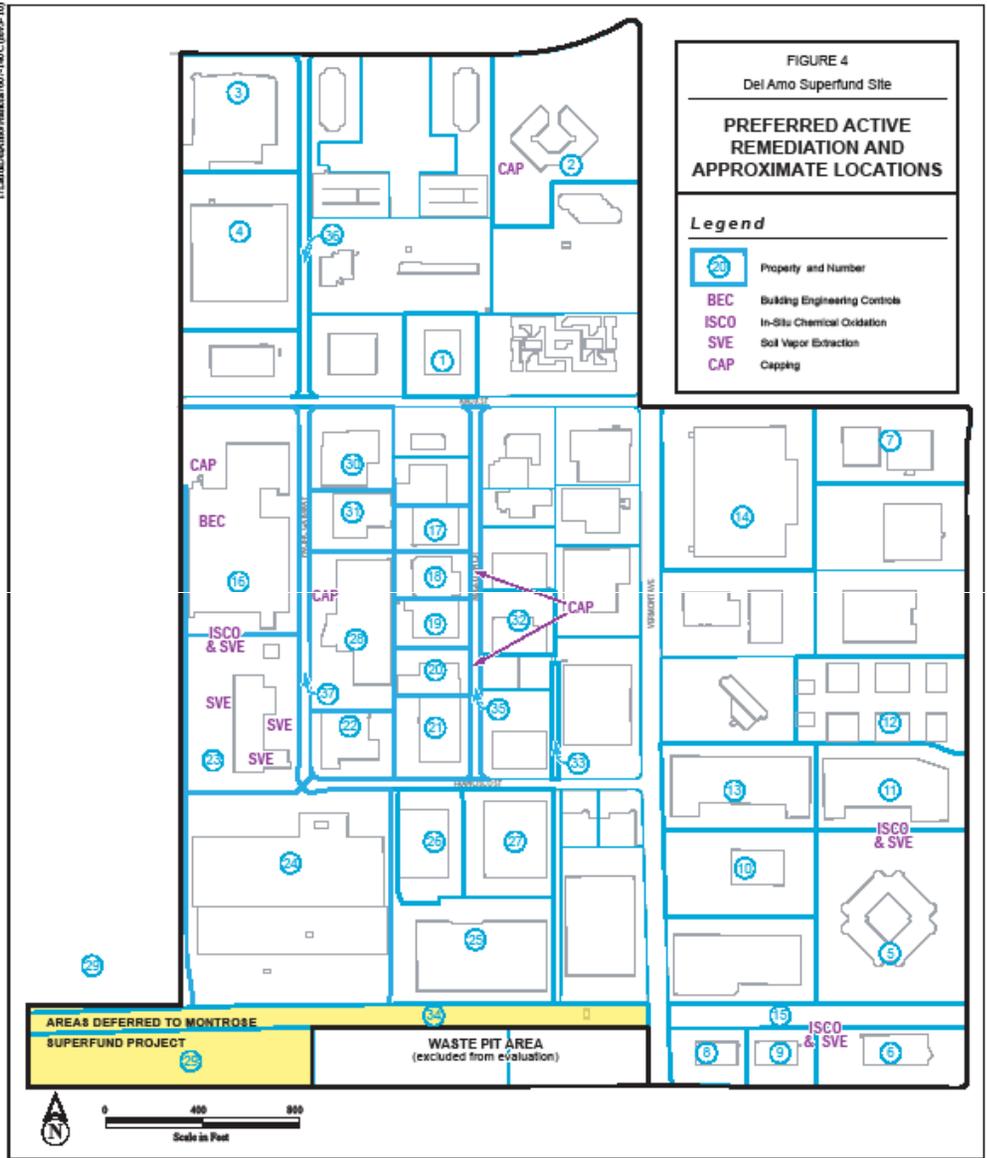


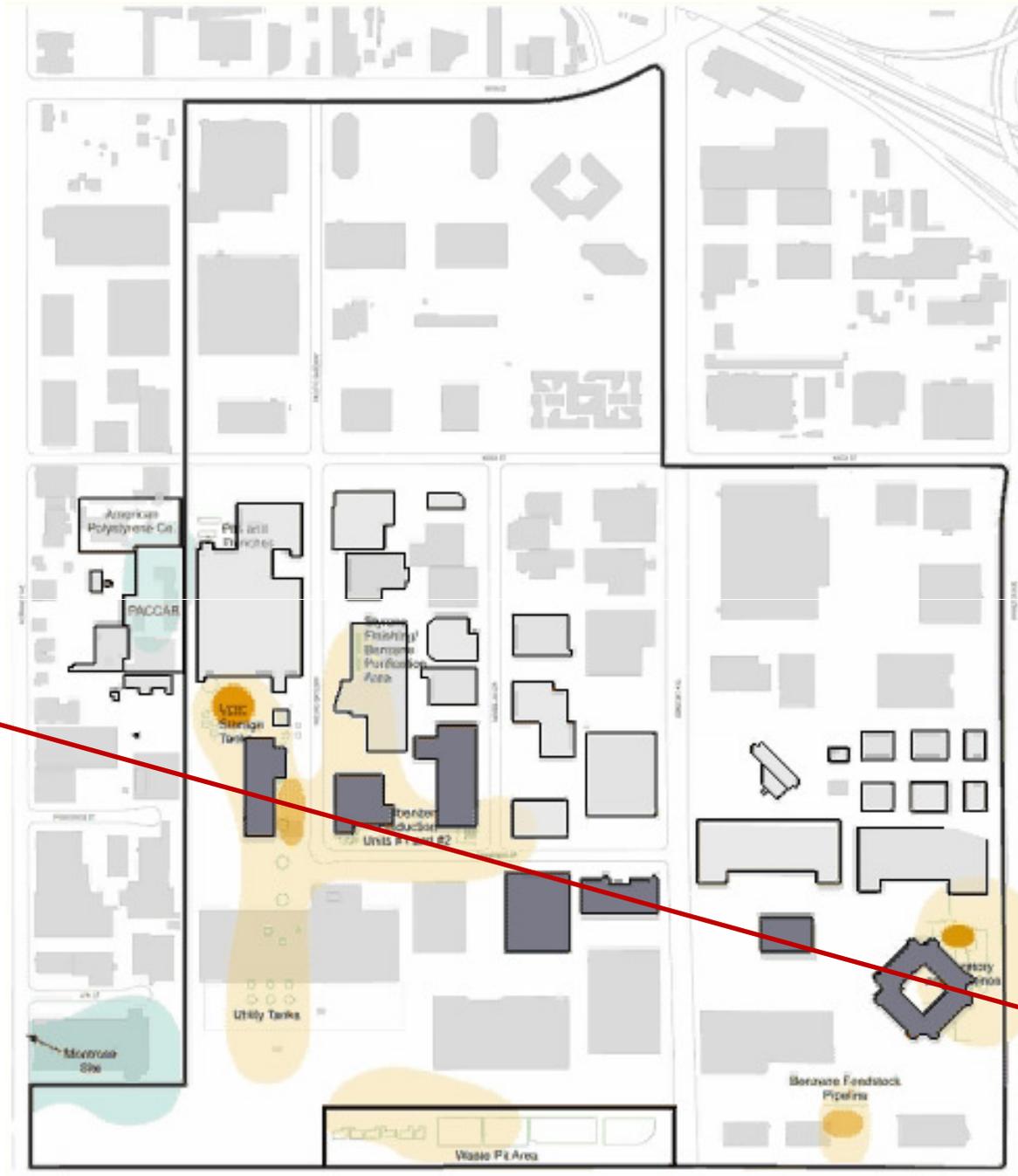
Volatile Organic Compounds (VOCs)

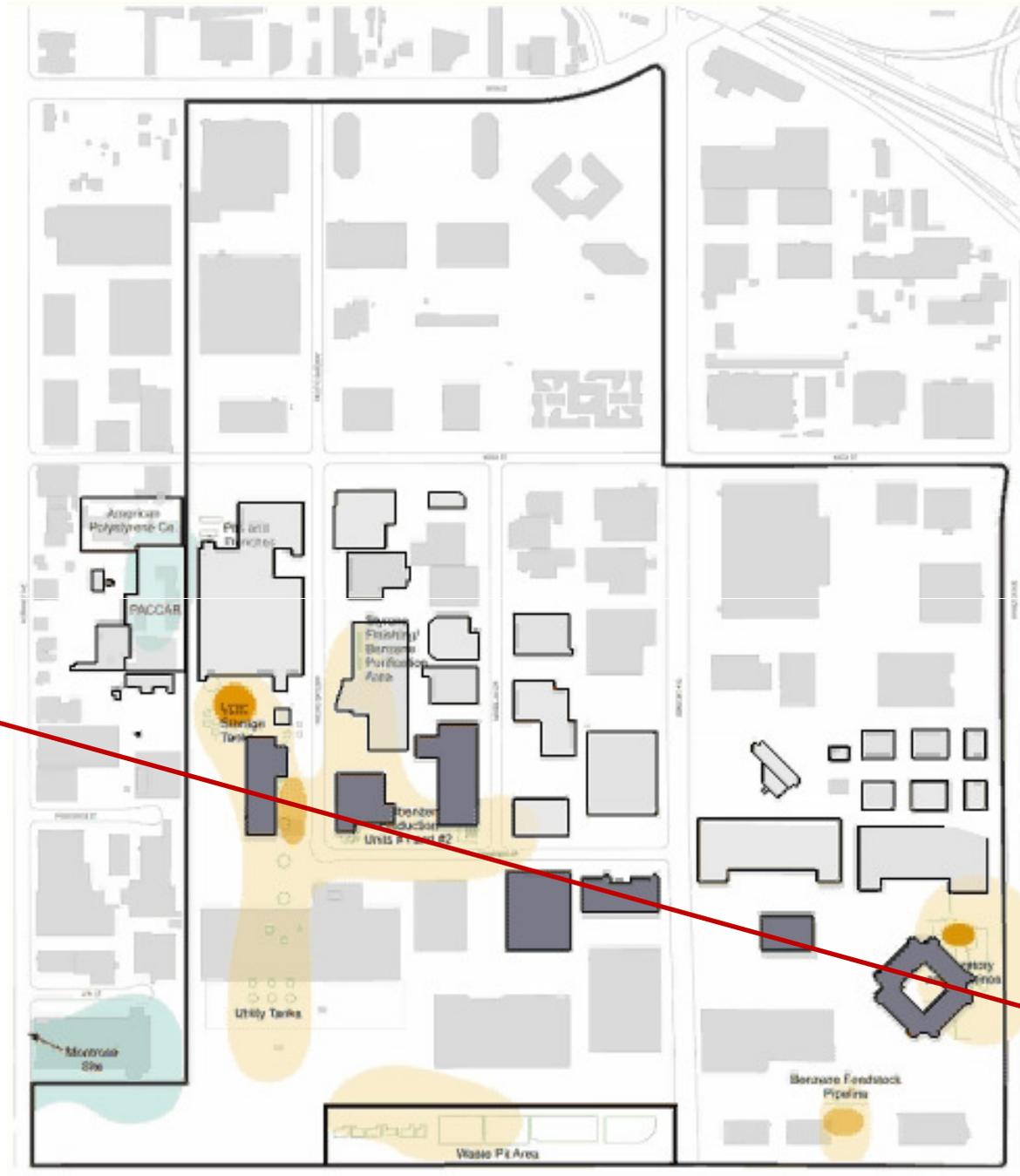


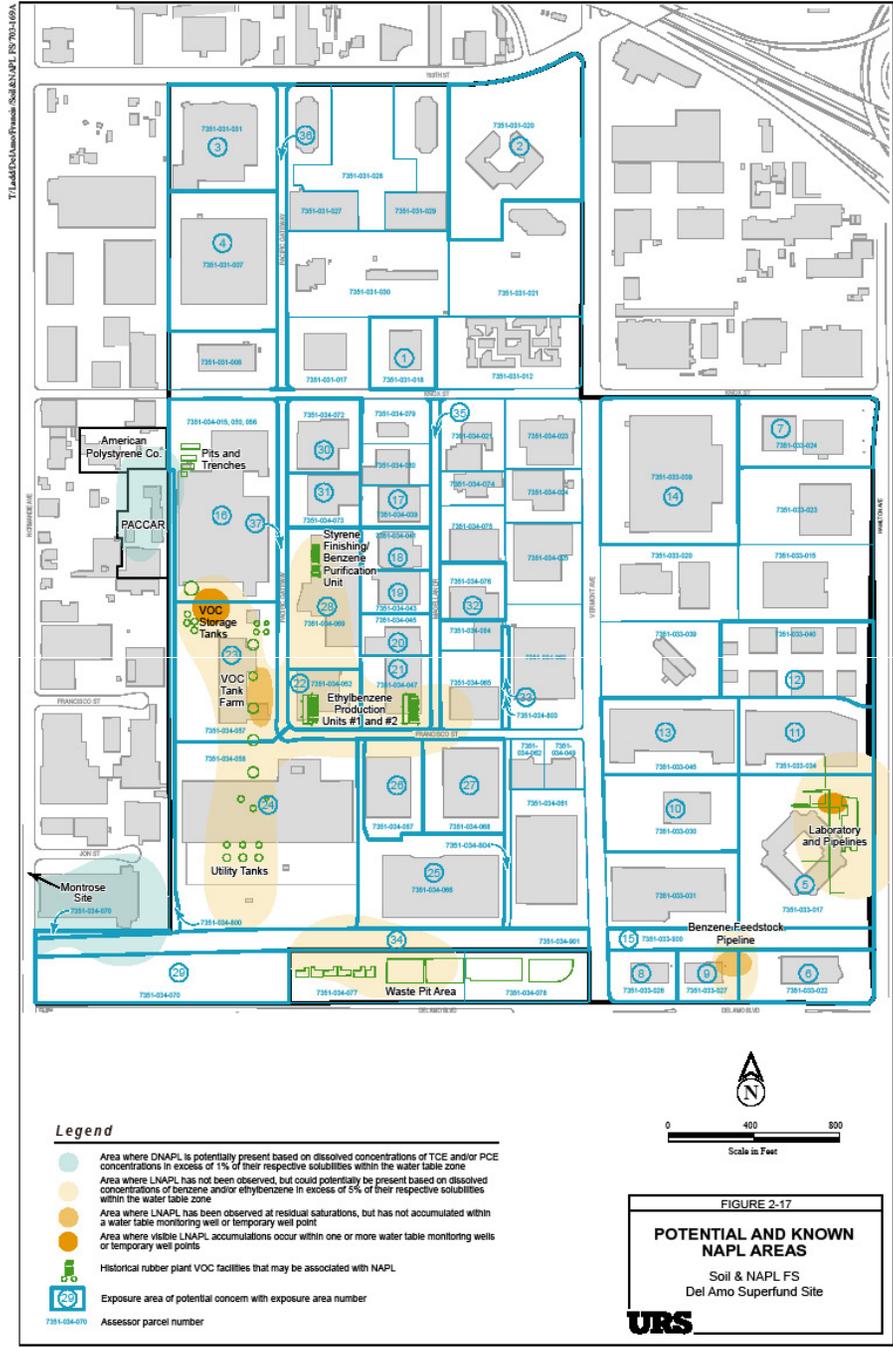
Polycyclic Aromatic Hydrocarbons (PAHs)











Hazards

- Deep soil affects groundwater
- Shallow soil



Remedial Options

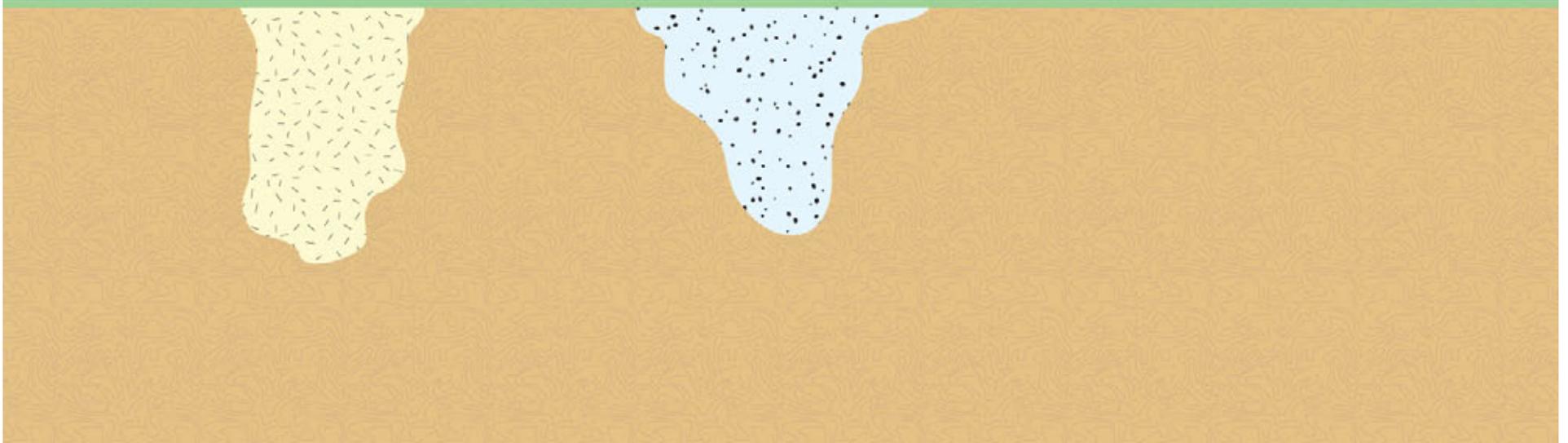


Remedial Options

	OPTION 1	OPTION 2			
Outdoor Shallow Soil	NO ACTION	Institutional Control: - Permit Review			
Shallow Soil Beneath Buildings					
Deep Soil					



Institutional Controls



Remedial Options

	OPTION 1	OPTION 2			
Outdoor Shallow Soil	NO ACTION	Institutional Control: - Permit Review			
Shallow Soil Beneath Buildings					
Deep Soil					



Remedial Options

	OPTION 1	OPTION 2	OPTION 3		
Outdoor Shallow Soil	NO ACTION	Institutional Control: - Permit Review			
Shallow Soil Beneath Buildings					
Deep Soil					

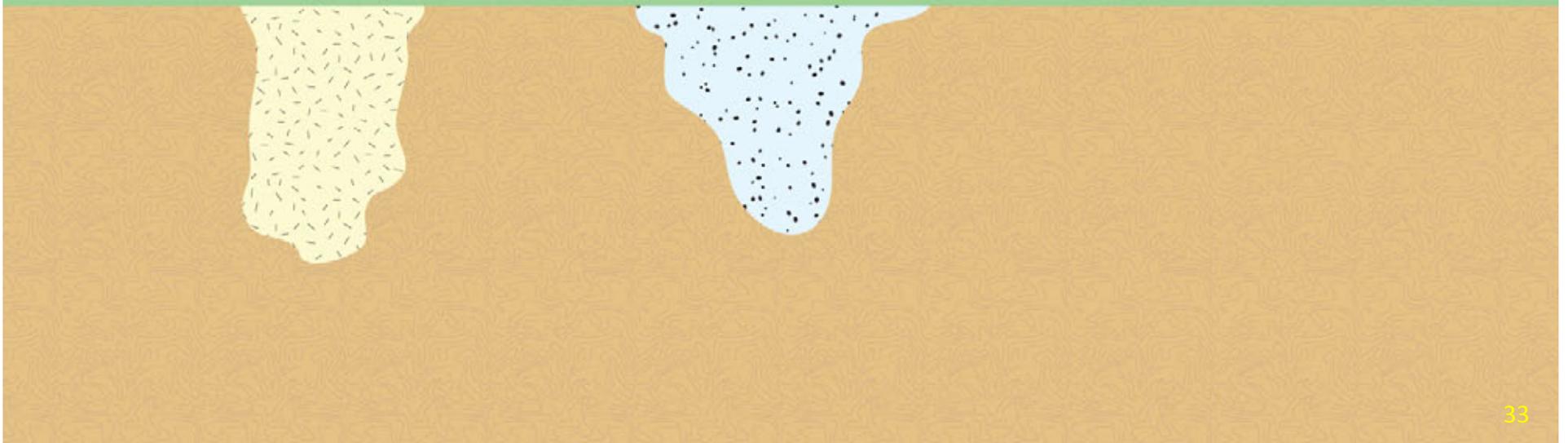


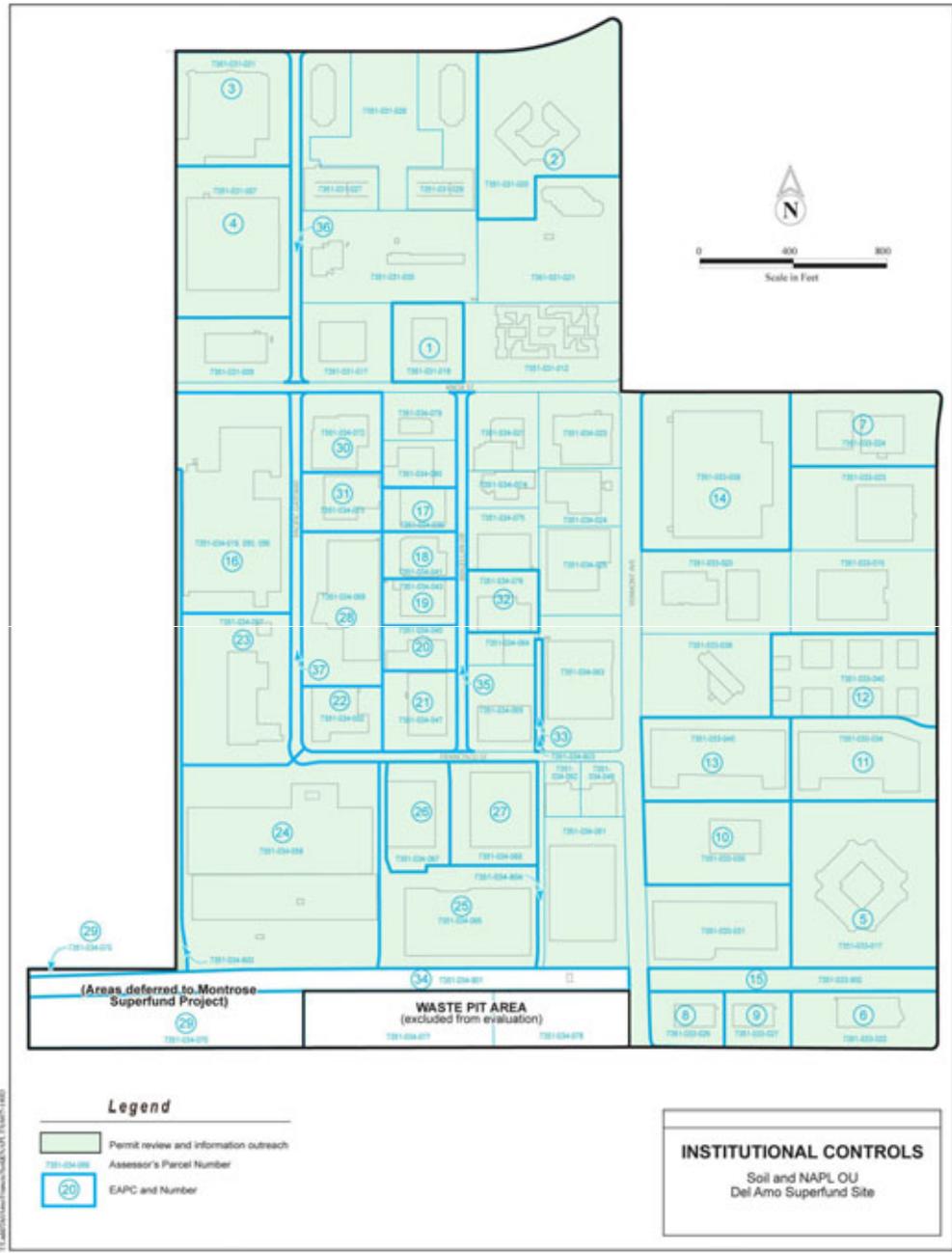
Remedial Options

	OPTION 1	OPTION 2	OPTION 3		
Outdoor Shallow Soil	NO ACTION	Institutional Control: - Permit Review	Institutional Control: - Permit Review - Zoning - Covenant		
Shallow Soil Beneath Buildings					
Deep Soil					



Institutional Controls



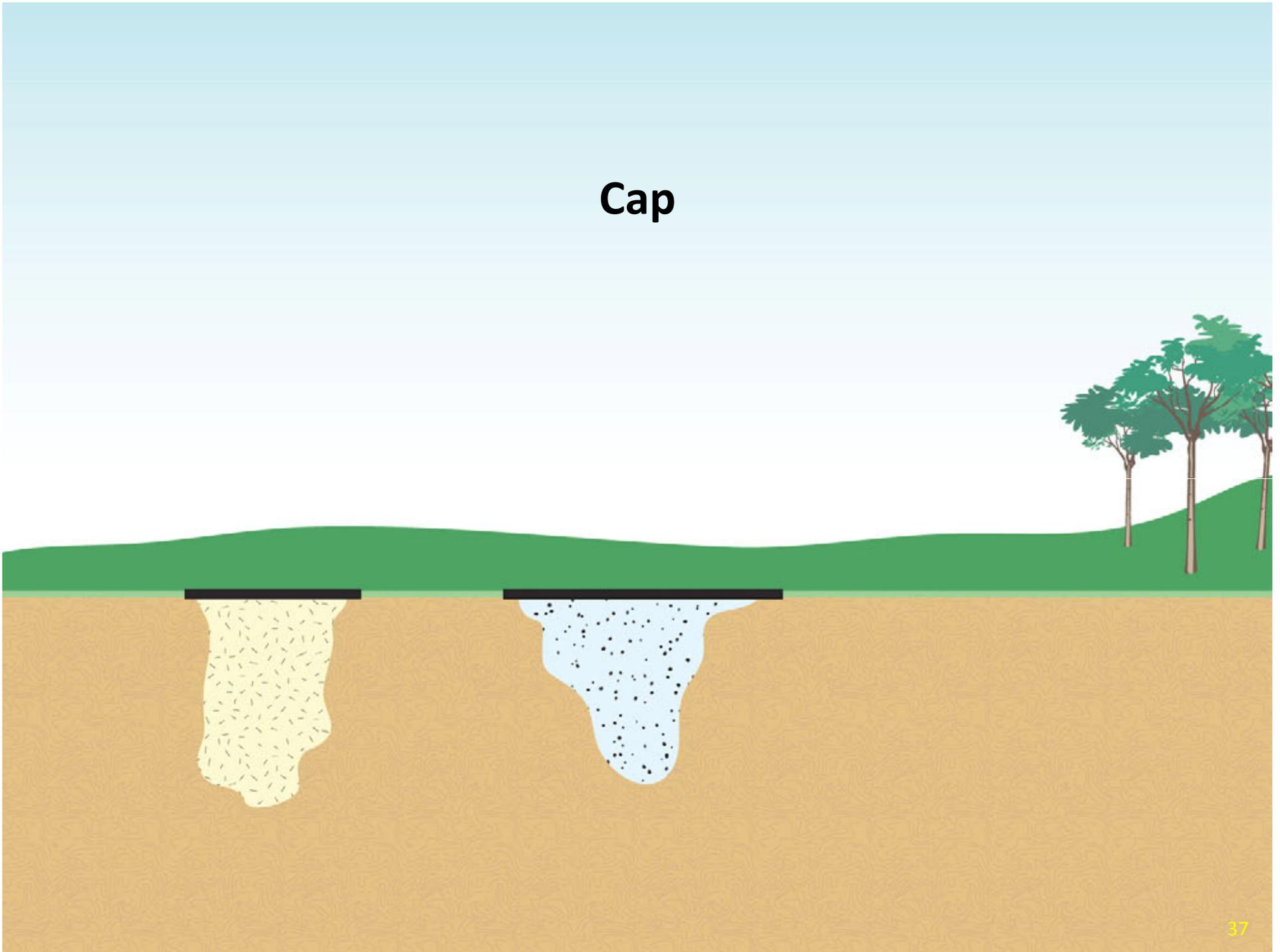


Remedial Options

	OPTION 1	OPTION 2	OPTION 3		
Outdoor Shallow Soil	NO ACTION	Institutional Control: - Permit Review	Institutional Control: - Permit Review - Zoning - Covenant Cap		
Shallow Soil Beneath Buildings					
Deep Soil					



Cap



Remedial Options

	OPTION 1	OPTION 2	OPTION 3		
Outdoor Shallow Soil	NO ACTION	Institutional Control: - Permit Review	Institutional Control: - Permit Review - Zoning - Covenant Cap		
Shallow Soil Beneath Buildings					
Deep Soil					



Remedial Options

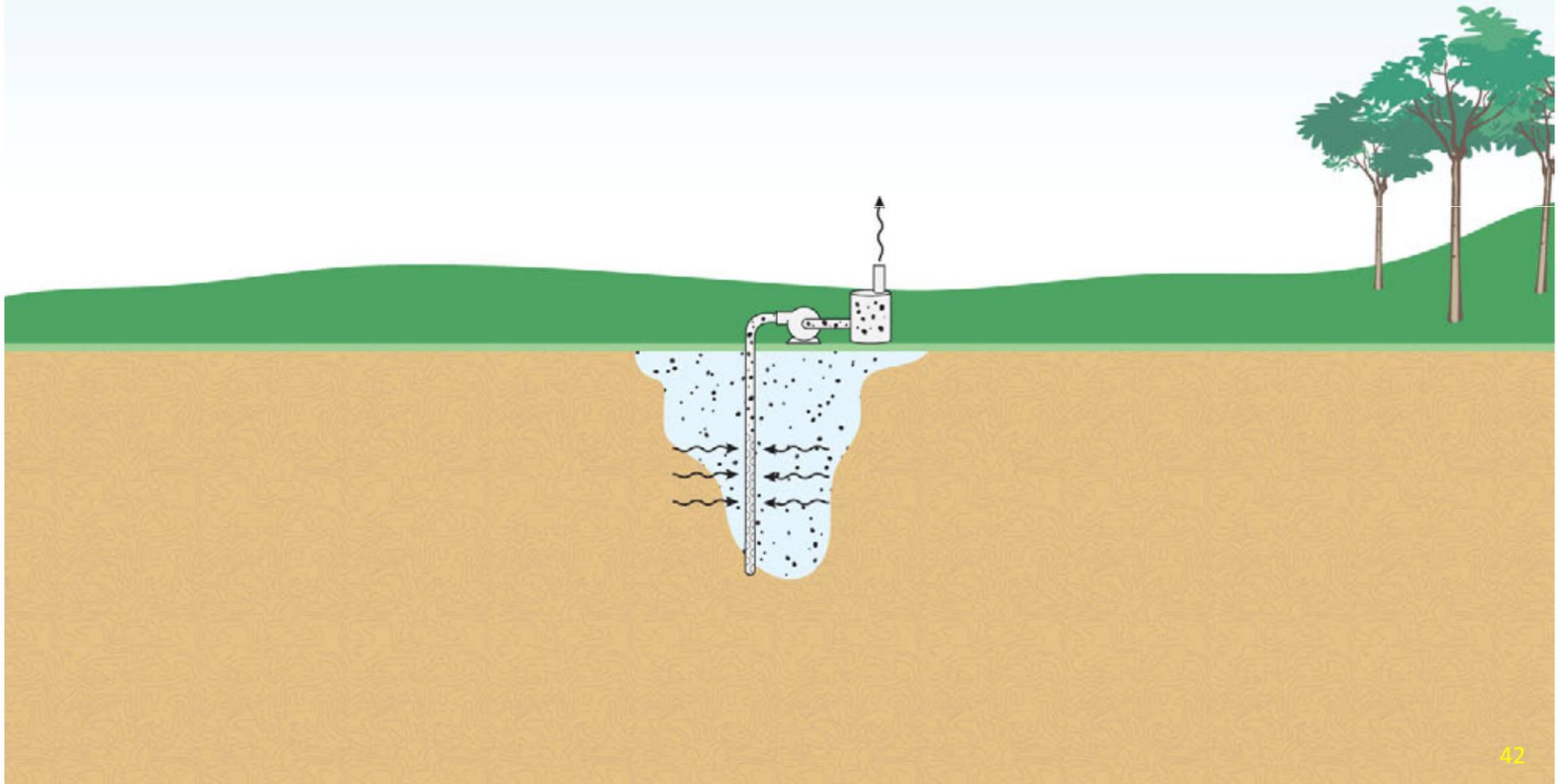
	1	2	OPTION 3		
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap		

Remedial Options

	1	2	OPTION 3	OPTION 4	
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	



Soil Vapor Extraction



Remedial Options

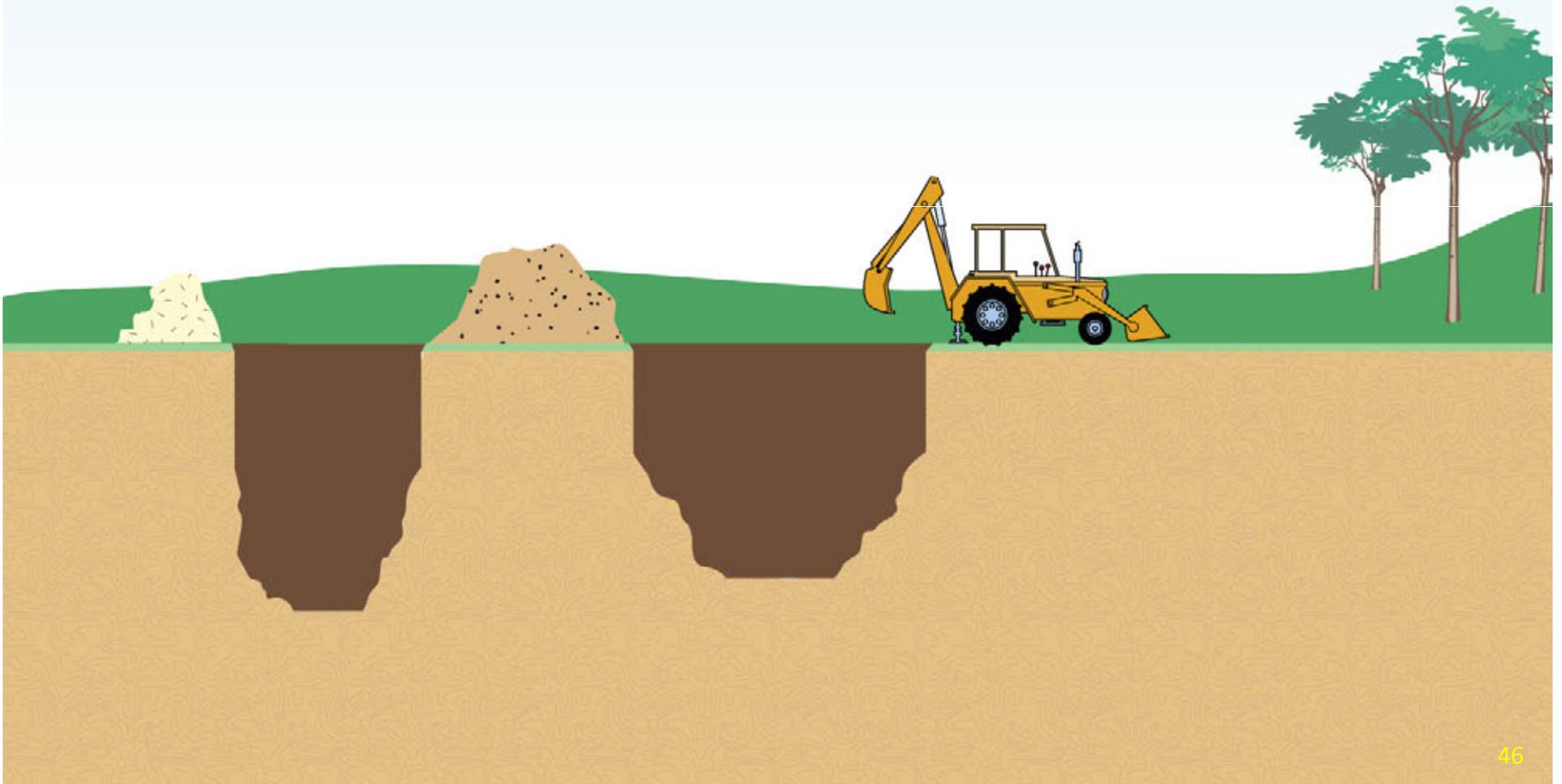
	1	2	OPTION 3	OPTION 4	
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation

Excavation, Off-Site Disposal



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation

Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation
Shallow Soil Beneath Buildings					

Remedial Options

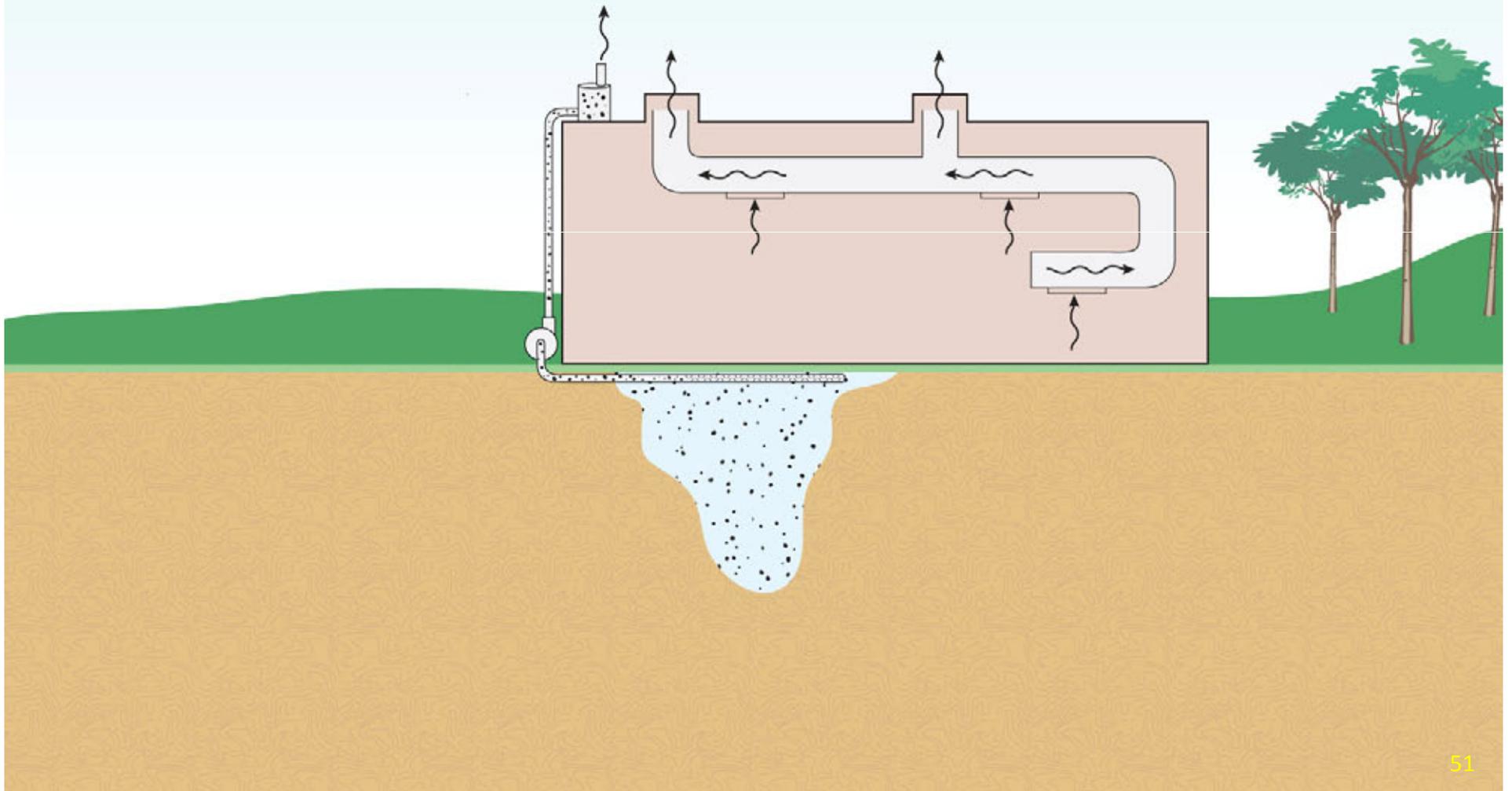
	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings					



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls		

Building Engineering Controls



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls		

Remedial Options

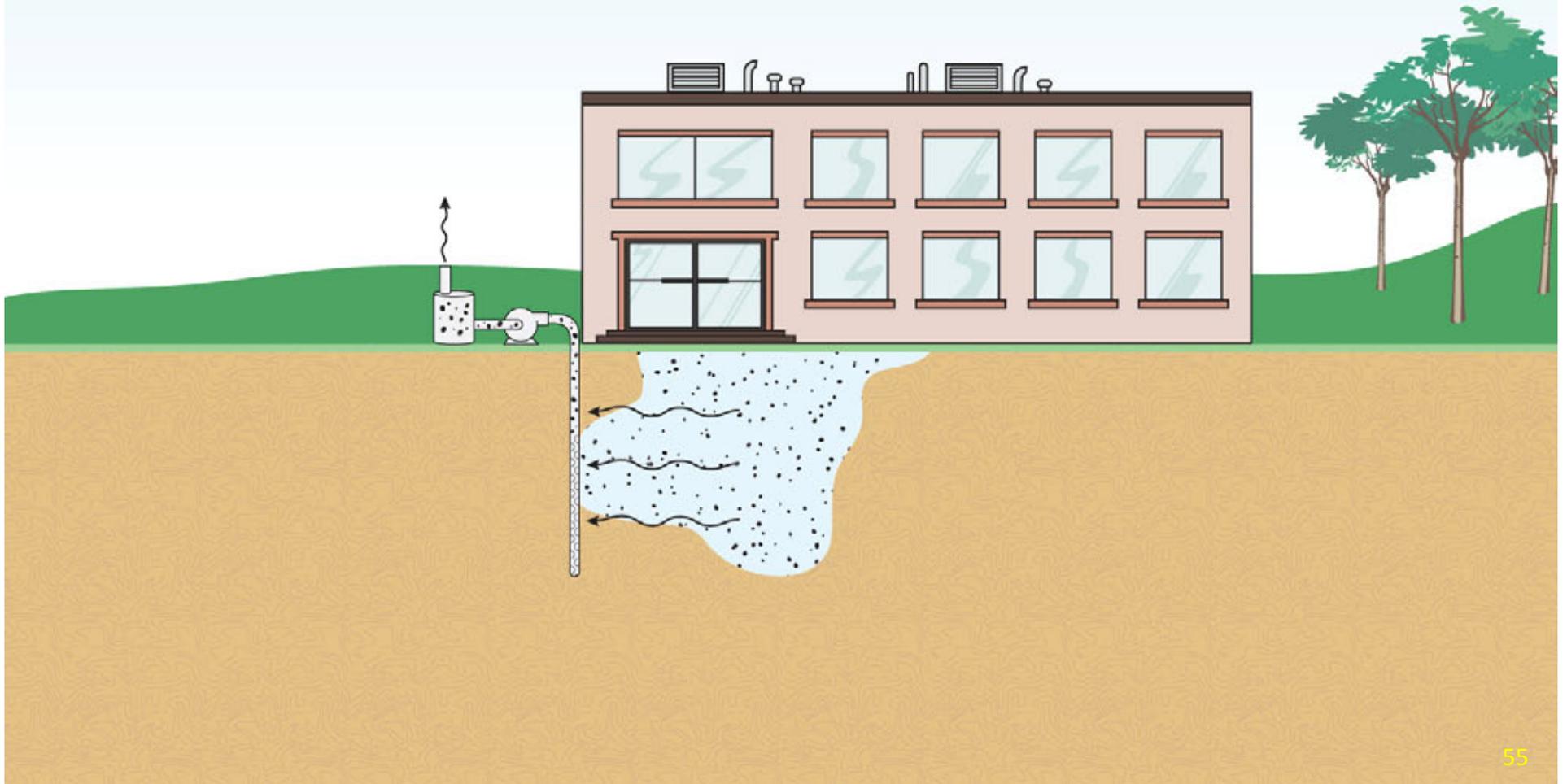
	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building)	

Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	



Soil Vapor Extraction (beneath building)



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	

Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE

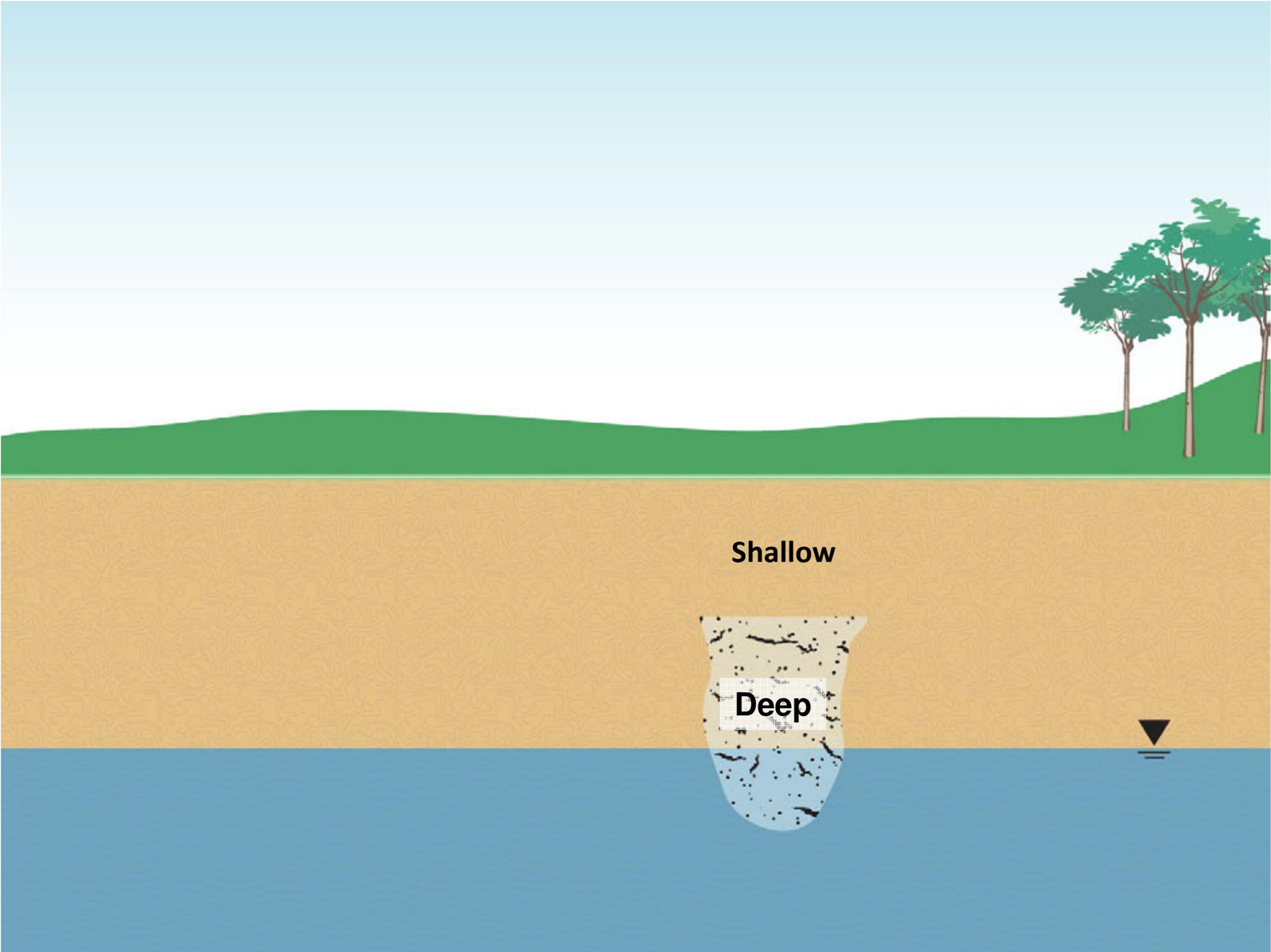
Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE
Deep Soil					

Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil					





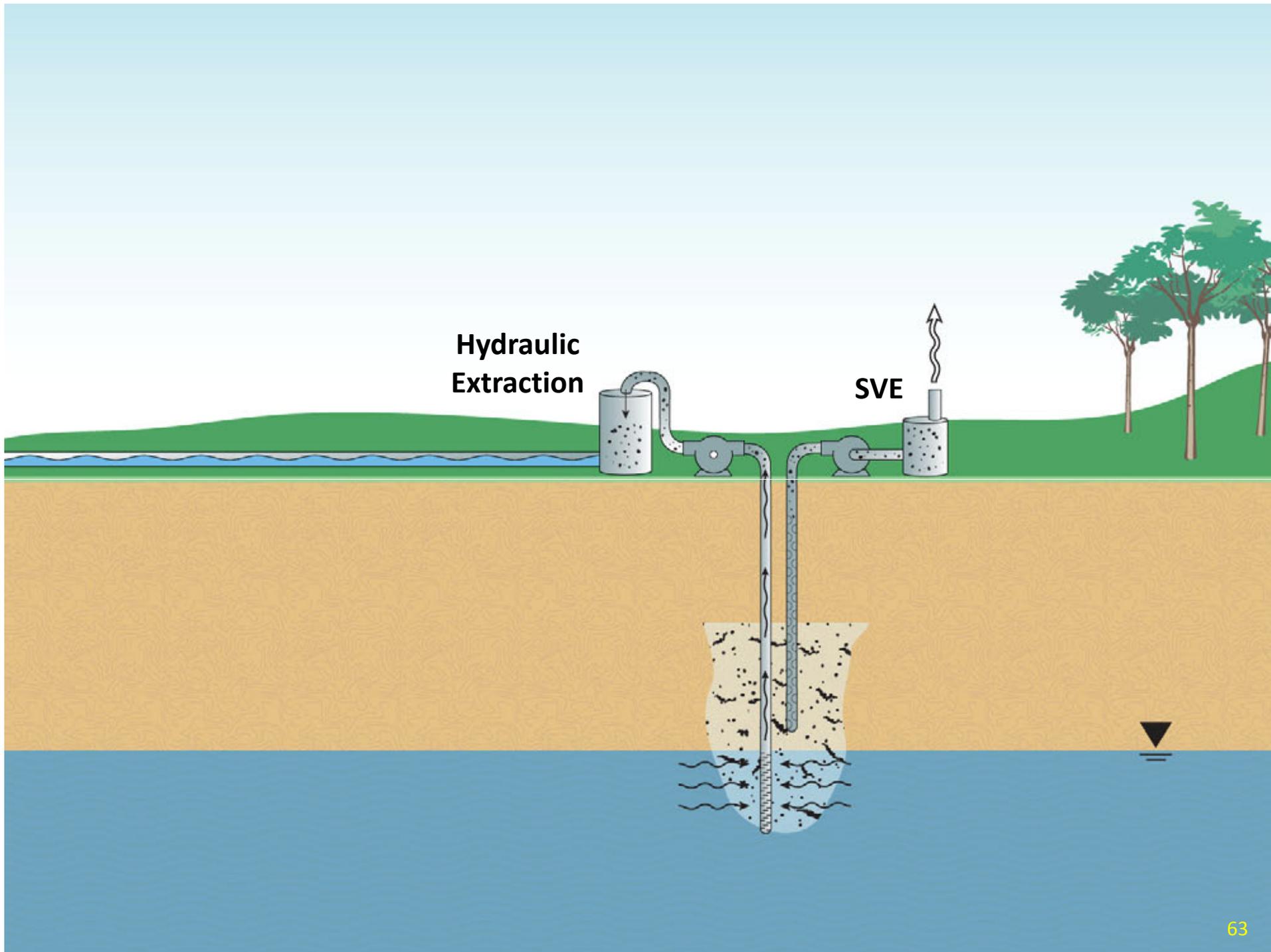
Shallow

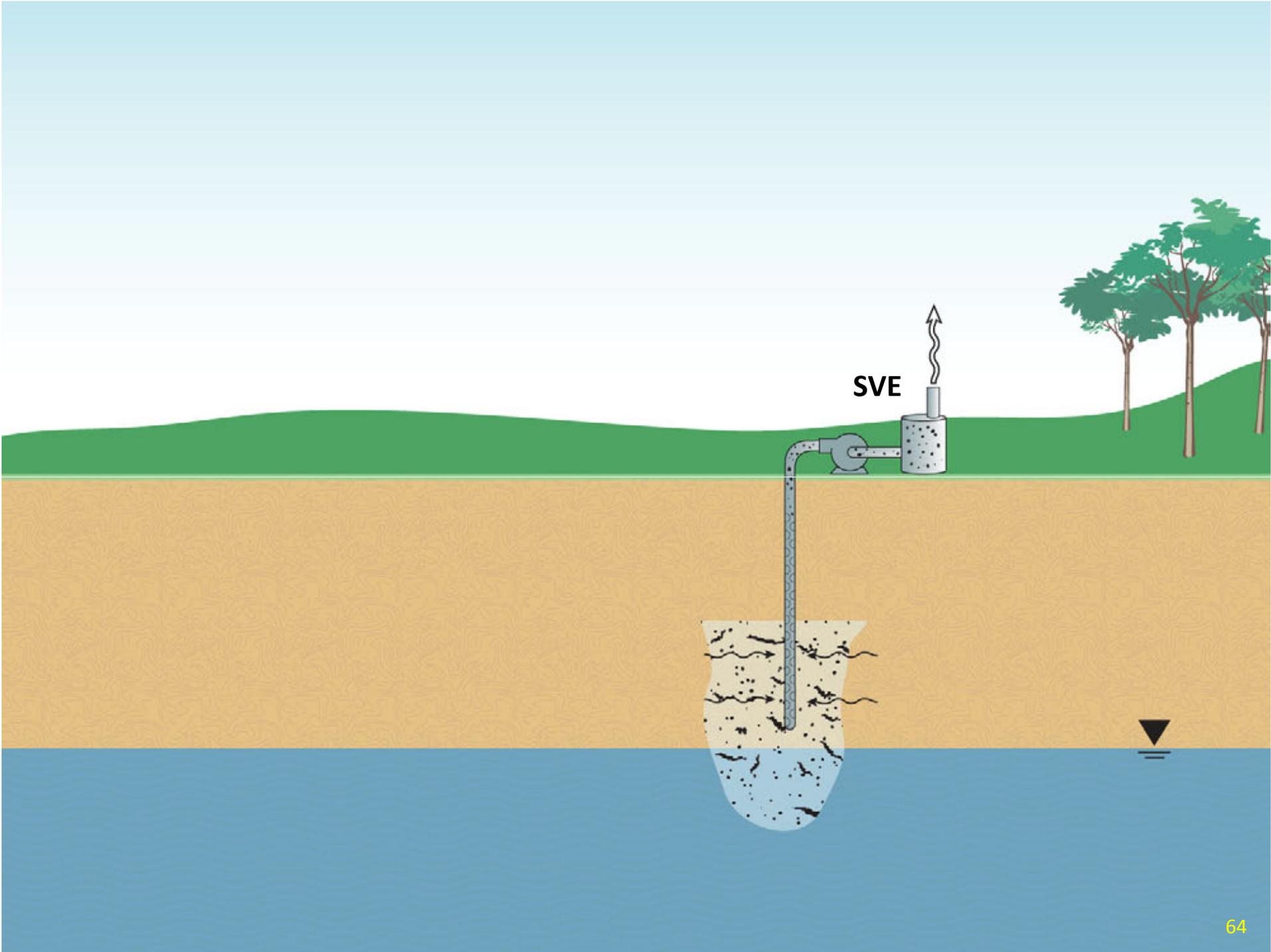
Deep

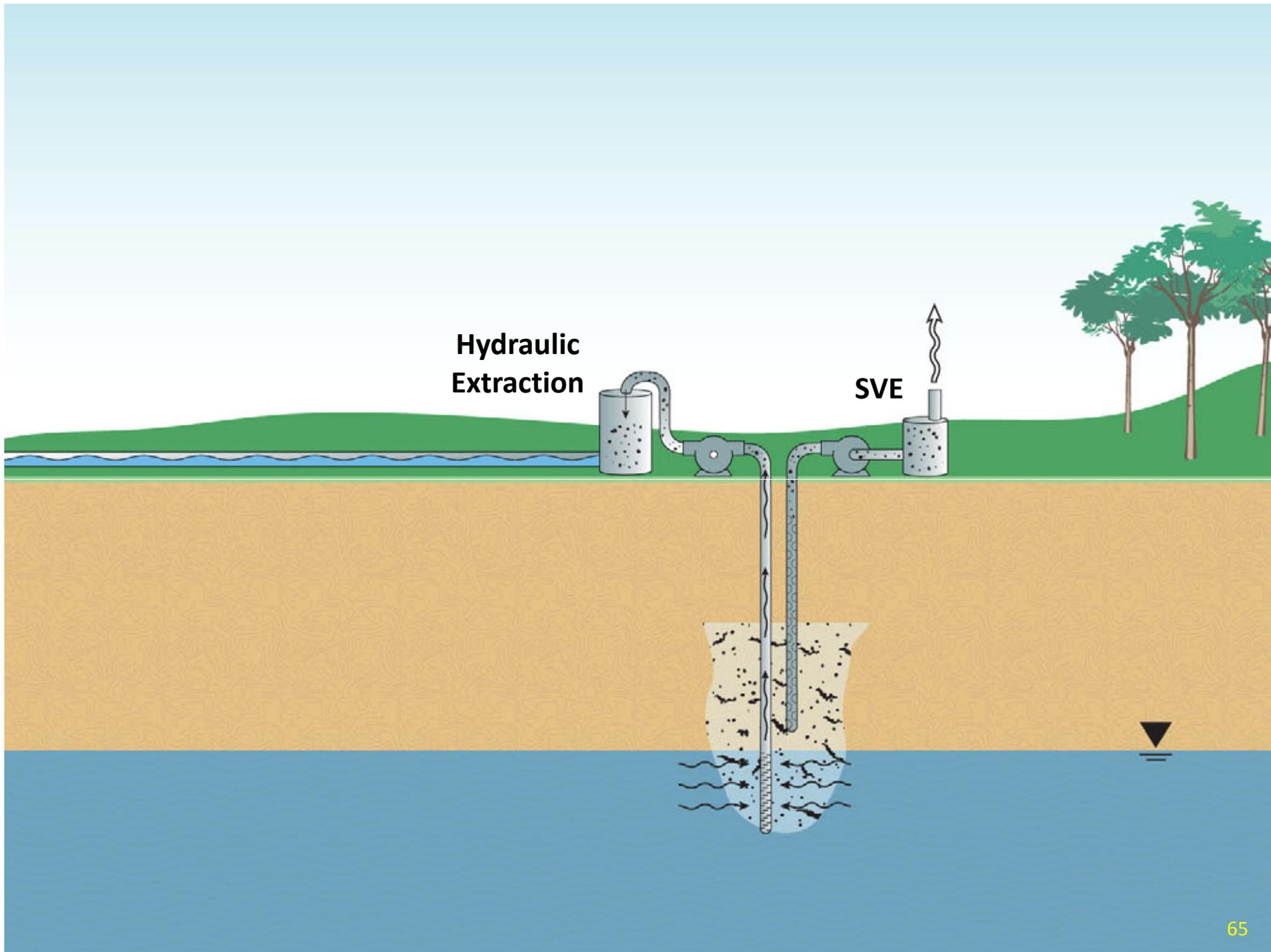
Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE Hydraulic Extraction		







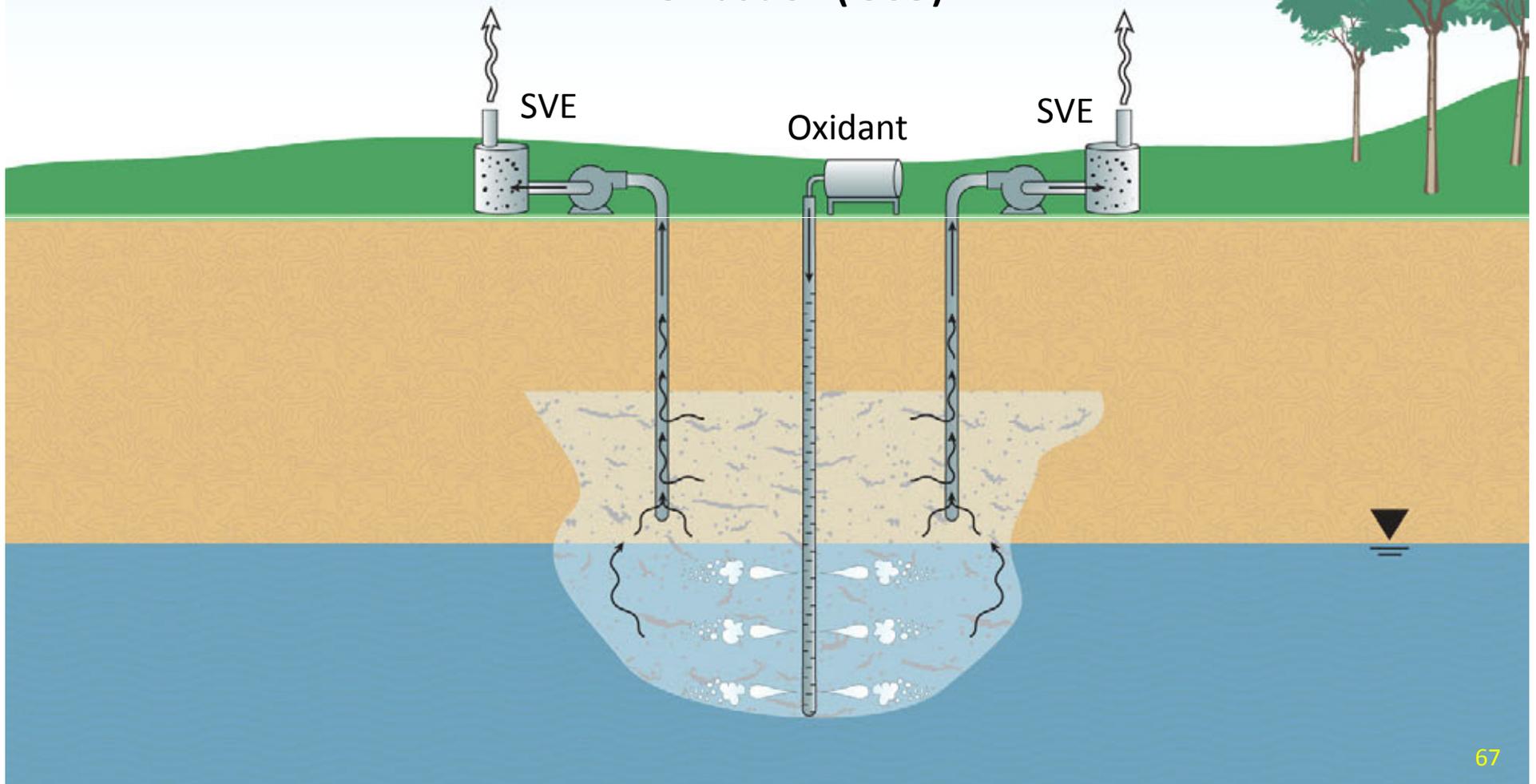


Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	



In-Situ Chemical Oxidation (ISCO)



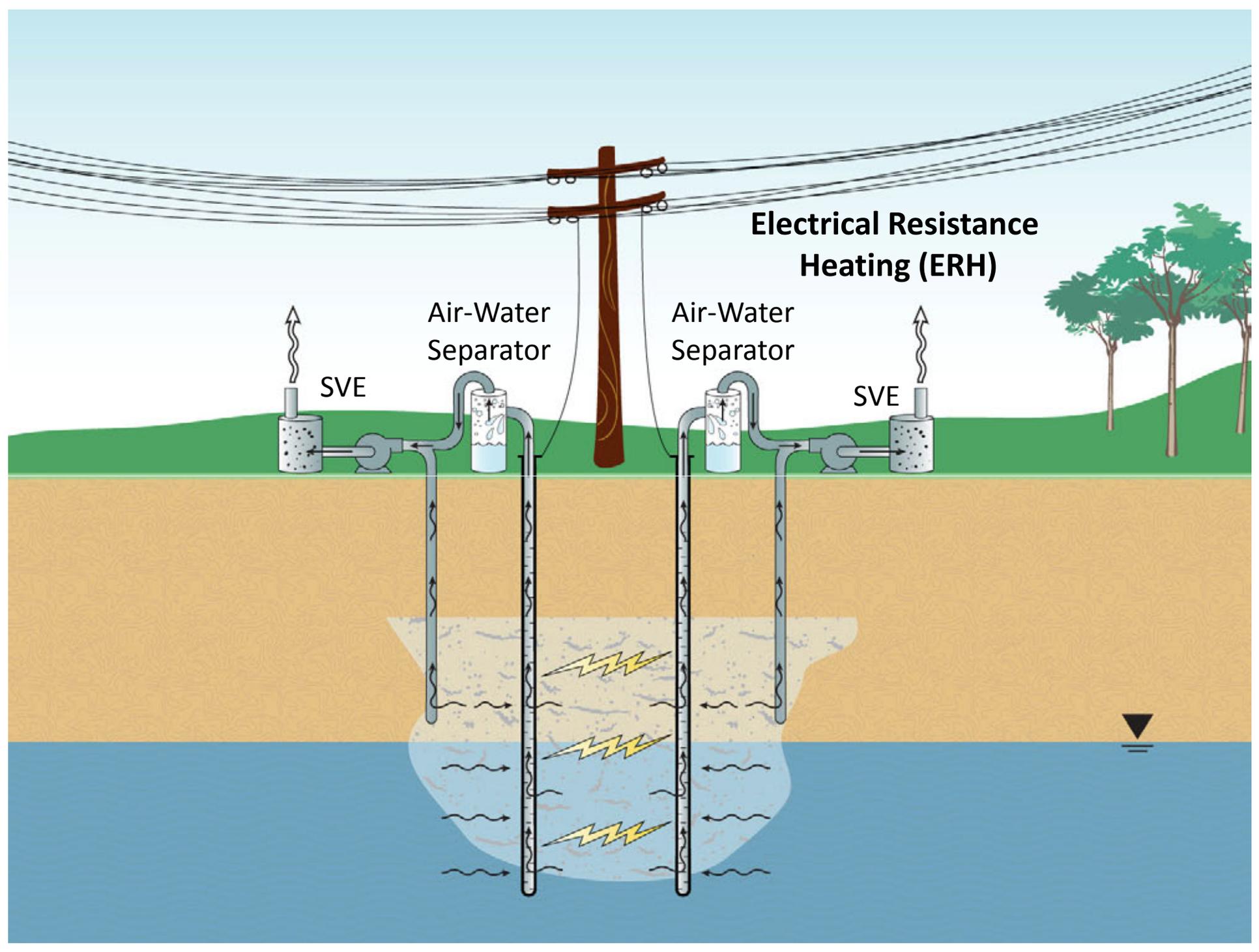
Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	

Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating

Electrical Resistance Heating (ERH)



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating



Remedial Options

	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation
Shallow Soil Beneath Buildings			Building Engineering Controls SVE (1 building)	Building Engineering Controls (1 building) SVE (1 building)	SVE
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating
Future Unknown Areas					

Remedial Options

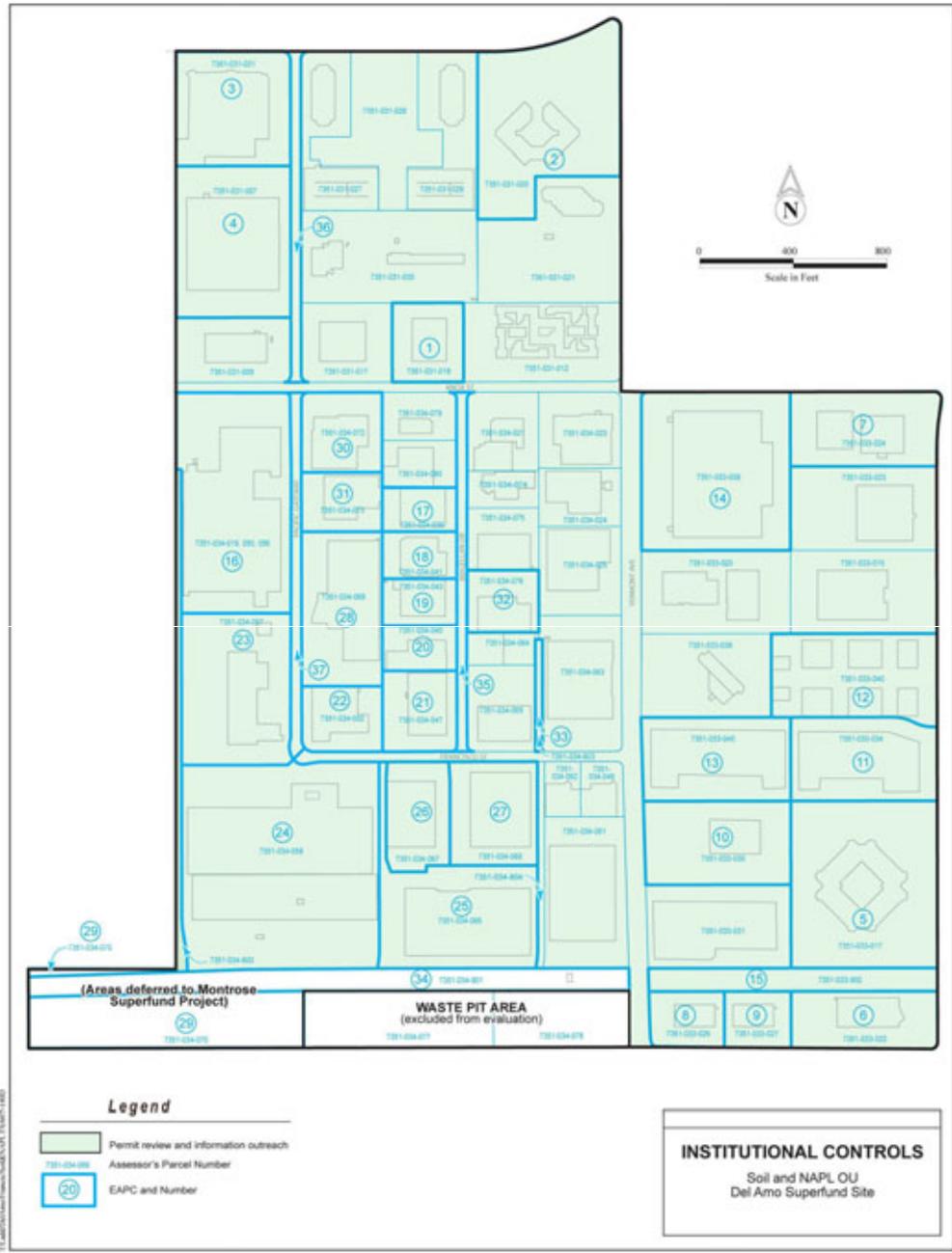
	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating
Future Unknown Areas			Excavation (if impractical, then cap or SVE)		

Preferred Option



Preferred Option

			OPTION 4	
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	
Shallow Soil Beneath Buildings			Building Engineering Controls (1 building) SVE (1 building)	
Deep Soil			SVE Chemical Oxidation	
Future Unknown Areas		Excavation (if impractical, then cap or SVE)		

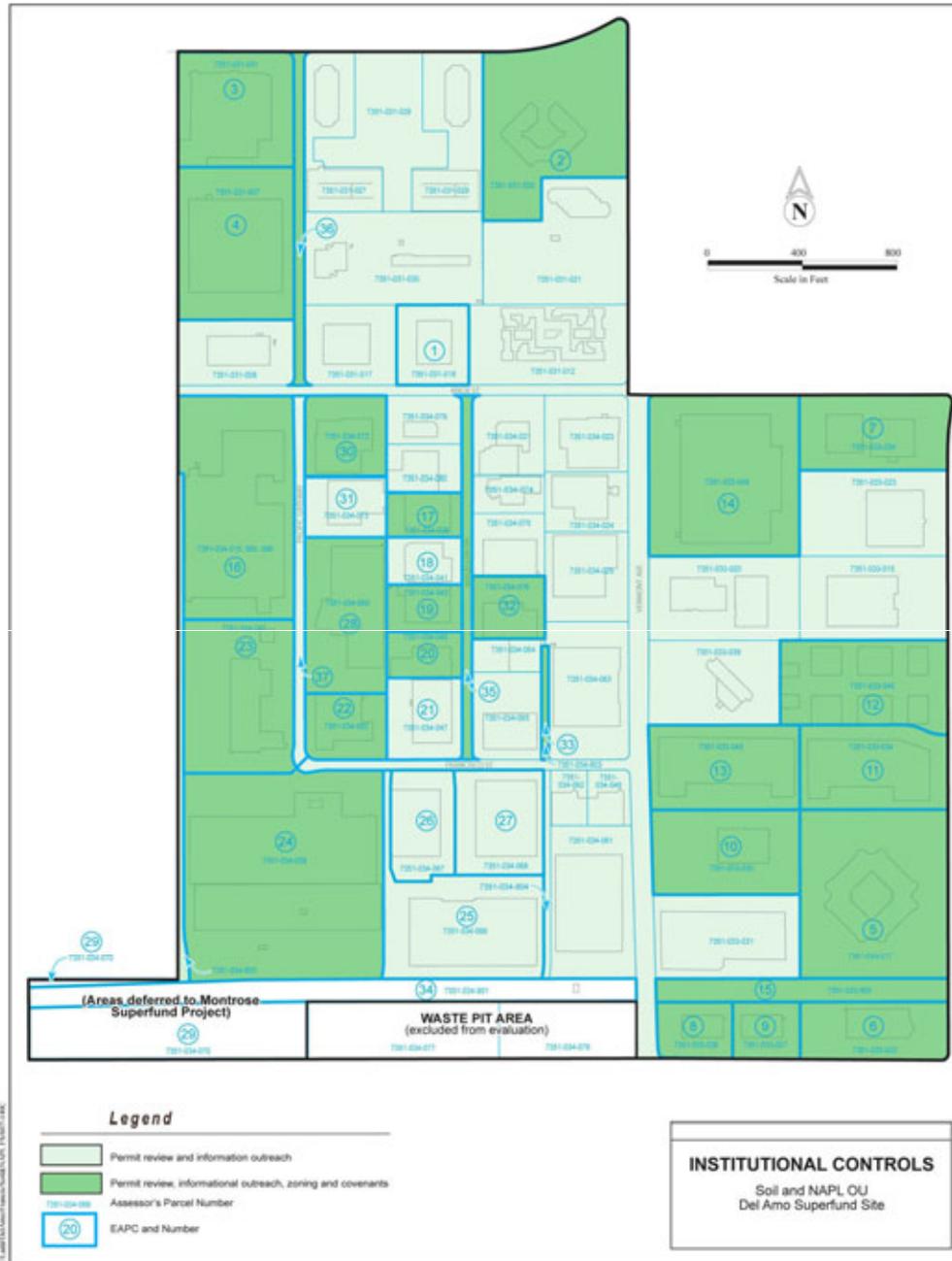


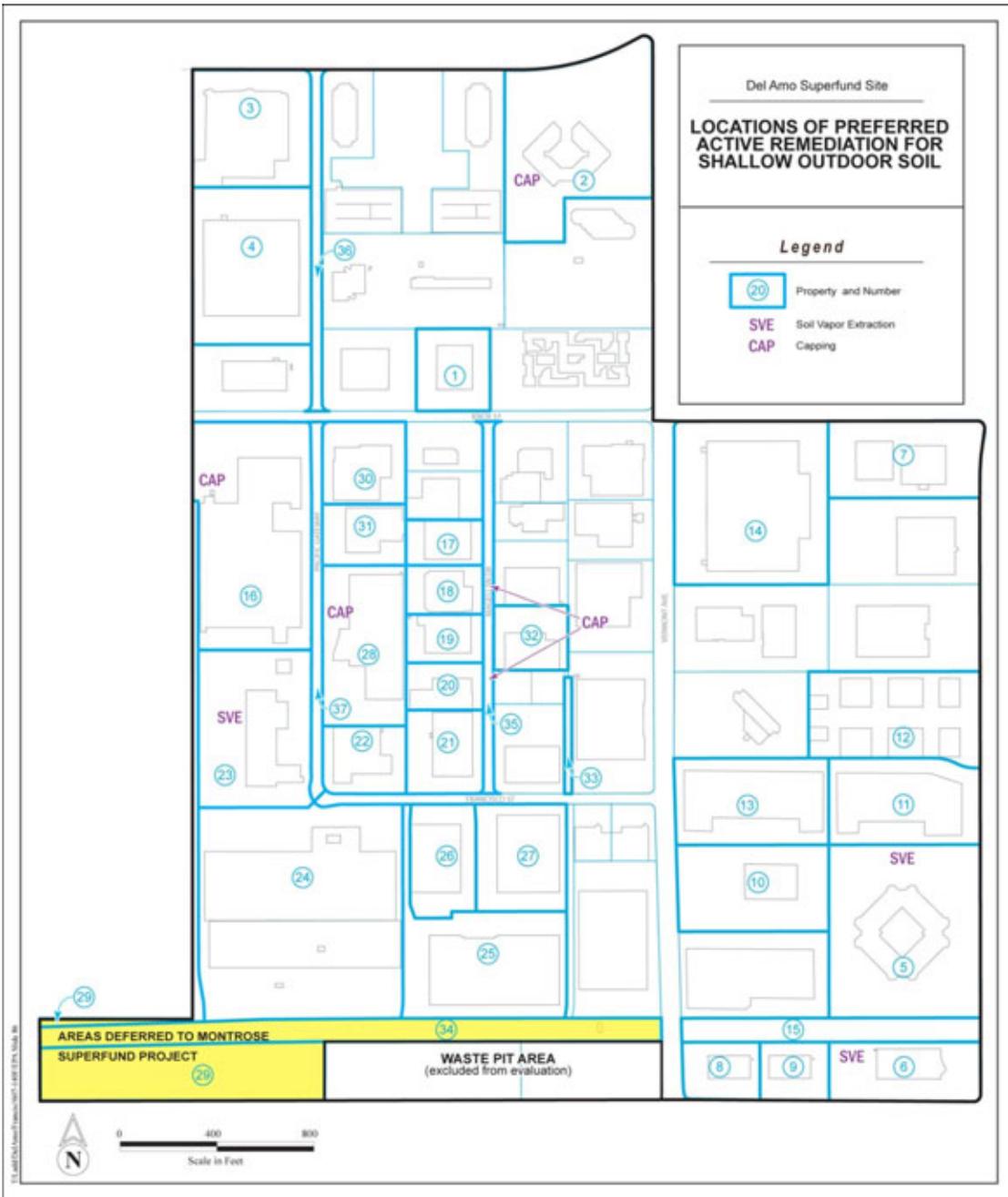
13. 10/20/2010 10:00 AM 10/20/2010 10:00 AM

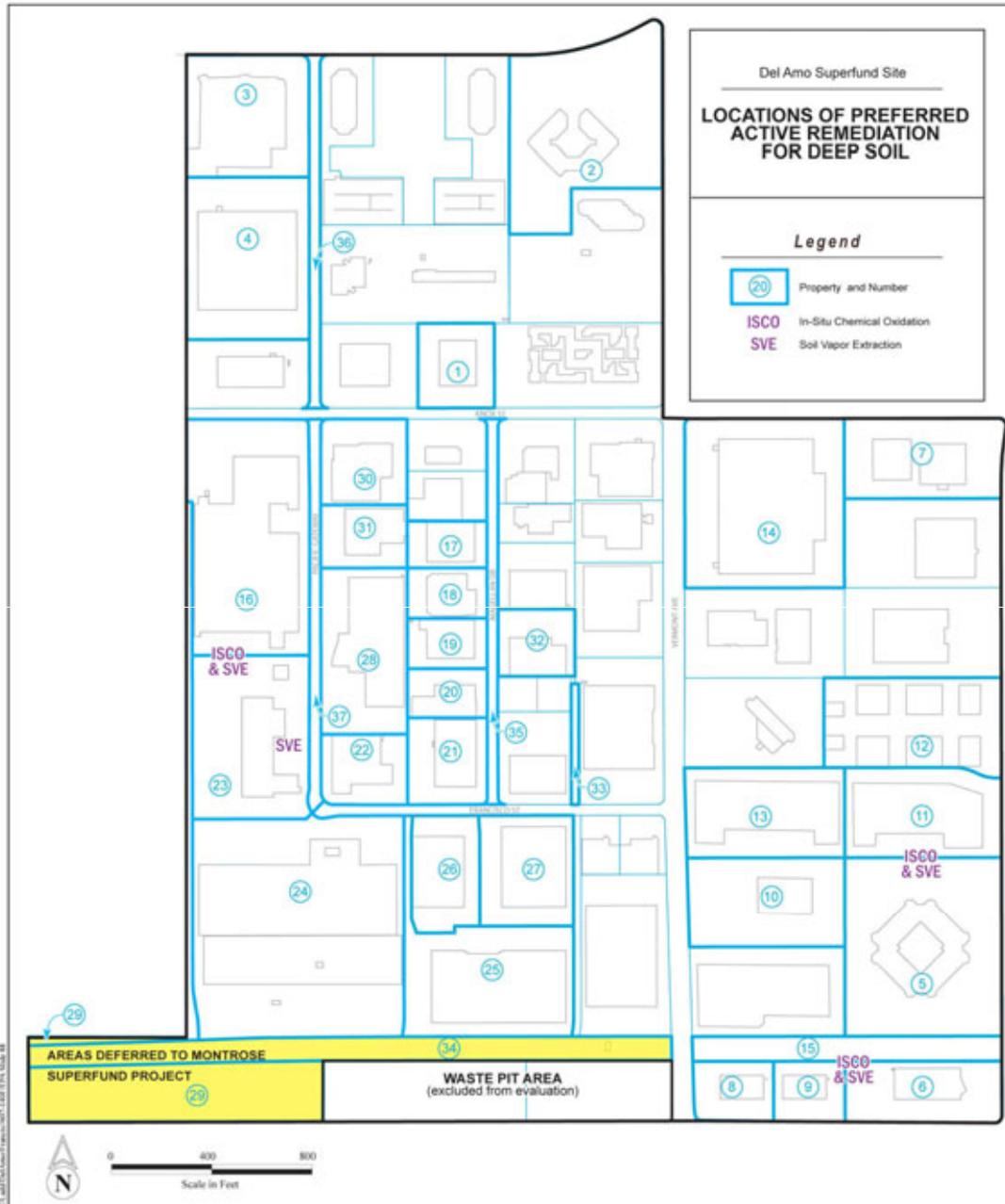
Legend

- Permit review and information outreach
- Assessor's Parcel Number
- 20 EAPC and Number

INSTITUTIONAL CONTROLS
Soil and NAPL OU
Del Amo Superfund Site



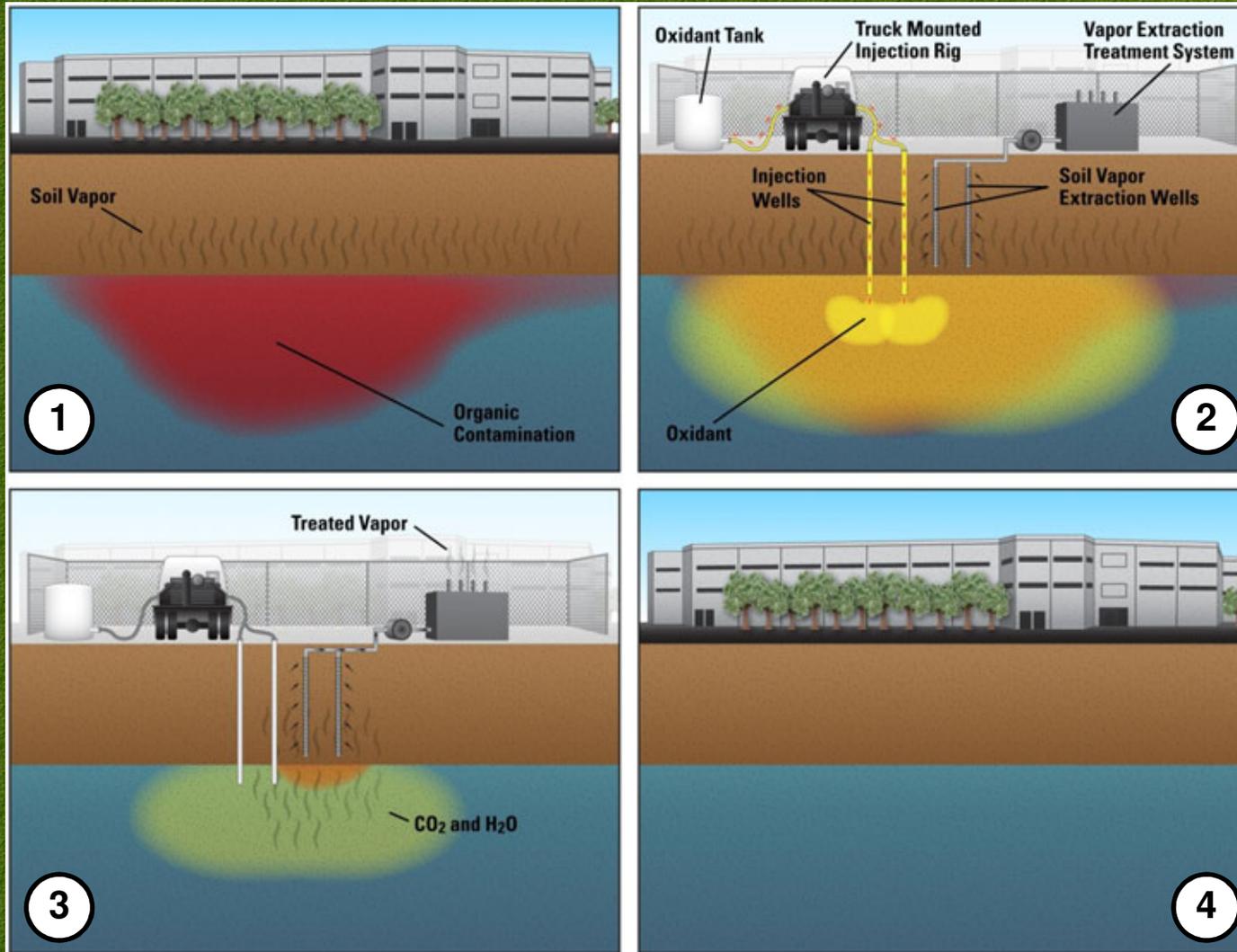




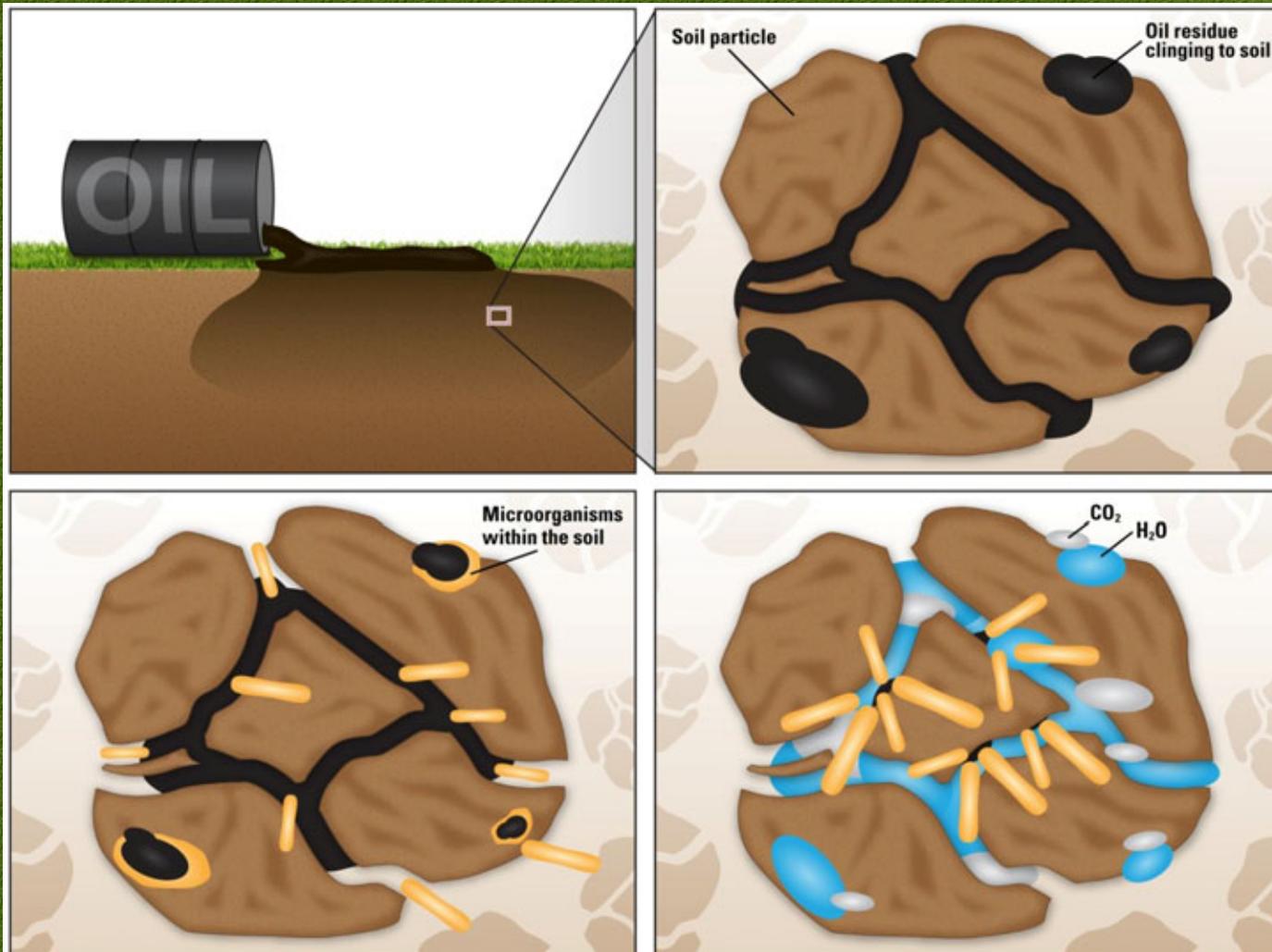




ISCO/SVE Process

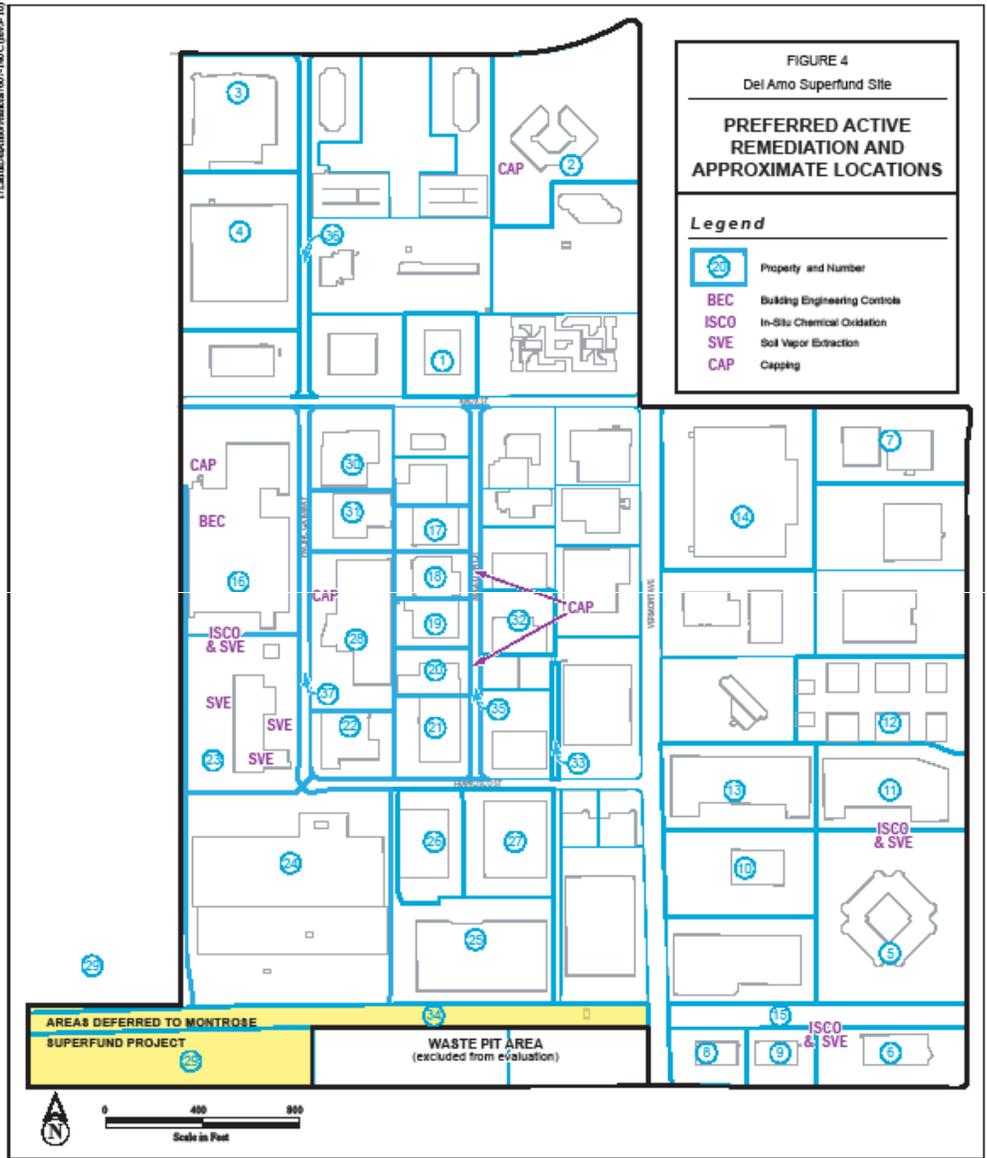


Natural Attenuation Example



Natural attenuation occurs when microorganisms living in the soil digest oil, converting it to water and carbon dioxide below the ground surface, thus cleaning the soil without human intervention.





9-Criteria Evaluation

Figure 5

EPA's Nine Evaluation Criteria For Superfund Remedial Alternatives

- 1** **Overall Protectiveness of Human Health and the Environment** determines whether an alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering controls, or treatment.
- 2** **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)** evaluates whether the alternative meets Federal and State environmental statutes, regulations, and other requirements that pertain to the site, or whether a waiver is justified. 
- 3** **Long-term Effectiveness and Permanence** considers the ability of an alternative to maintain protection of human health and the environment.
- 4** **Reduction of Toxicity, Mobility, or Volume of Contaminants through Treatment** evaluates an alternative's use of treatment to reduce the harmful effects of principal contaminants, their ability to move in the environment, and the amount of contamination present. 
- 5** **Short-term Effectiveness** considers the length of time needed to implement an alternative and the risks the alternative poses to workers, residents, and the environment during implementation. 
- 6** **Implementability** considers the technical and administrative feasibility of implementing the alternative, including factors such as the relative availability of goods and services.
- 7** **Cost** includes estimated capital and annual operations and maintenance costs, which are expressed in terms of present worth. Present worth cost is the total cost of an alternative over time in terms of today's dollar value. Cost estimates are expected to be accurate within a range of +50 to -30 percent. 
- 8** **State Acceptance** considers whether the State agrees with the EPA's analyses and recommendations, as described in the RI/FS and Proposed Plan. 
- 9** **Community Acceptance** considers whether the local community agrees with EPA's analyses and preferred alternative. Comments received on the Proposed Plan are an important indicator of community acceptance. 

**Final
Remedy**



9-Criteria Evaluation



- Overall Protection of Human Health and the Environment



- Compliance with ARARs



- Long-Term Effectiveness and Permanence

- Reduction of Toxicity, Mobility, or Volume through Treatment



- Short-Term Effectiveness

- Implementability



- Cost

- State Acceptance



- Community Acceptance





Overall Protection of Human Health and the Environment

OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5
				

NO ACTION





Overall Protection of Human Health and the Environment



Compliance with ARARs

OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5
				

NO ACTION





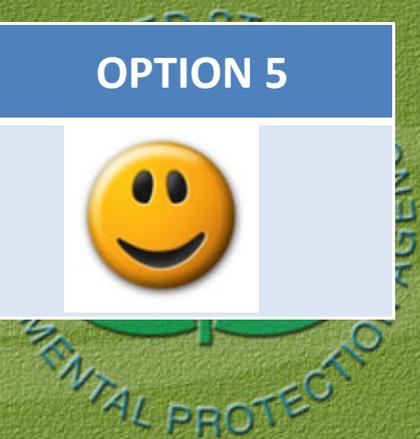
Overall Protection of Human Health and the Environment



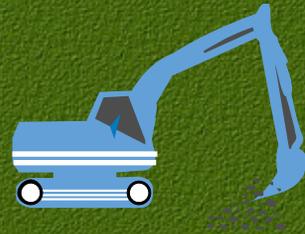
Compliance with ARARs

OPTION 1	OPTION 2	OPTION 3	OPTION 4	OPTION 5
				

NO ACTION



		OPTION 2			
		Institutional Control: - Permit Review			



Implementability



Cost



**Reduction of Toxicity, Mobility, or Volume
through Treatment**



Long-Term Effectiveness (LTE)



	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation



Implementability



Cost



Short-term Effectiveness



Reduction through Treatment



Long-Term Effectiveness



	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation



Implementability



Cost



Short-term Effectiveness



Reduction through Treatment



Long-Term Effectiveness



	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE

	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE



Implementability



Cost



Reduction through Treatment



Long-Term Effectiveness



	1	2	OPTION 3	OPTION 4	OPTION 5
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE



Implementability



Cost



Reduction through Treatment



Long-Term Effectiveness



	1	2	OPTION 3	OPTION 4	OPTION 5
Outdoor Shallow Soil			Institutional Control: - Permit Review - Zoning - Covenant Cap	Institutional Control: - Permit Review - Zoning - Covenant Cap (non-VOC areas) SVE (VOC areas)	Institutional Control: - Permit Review - Zoning - Covenant Excavation
Shallow Soil Beneath Buildings			Building Engineering Controls	Building Engineering Controls (1 building) SVE (1 building)	SVE
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE Hydraulic Extraction	SVE Chemical Oxidation	SVE Soil Heating

	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE	SVE	SVE
			Hydraulic Extraction	Chemical Oxidation	Soil Heating



Cost



Short-term Effectiveness



Reduction through Treatment



Long-Term Effectiveness



	1	2	OPTION 3	OPTION 4	OPTION 5
Deep Soil			SVE	SVE	SVE
			Hydraulic Extraction	Chemical Oxidation	Soil Heating



Cost



Short-term Effectiveness



Reduction through Treatment



Long-Term Effectiveness



Presentation

- History
- Investigation & Findings
- Remedy Options
- Preferred Option
- **NEXT STEPS:**
 - Public comments (June 15 – August 16, 2010)
 - Response to comments & Record of Decision (Spring 2011)
 - Negotiate agreement to implement (end 2011)
 - Design systems (2012)
 - Build and begin operating systems (2013)



Questions?

