

# Pasco Landfill Cleanup Options

Focused Feasibility Study  
Comment period 9/12 – 10/12/18

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Public Involvement

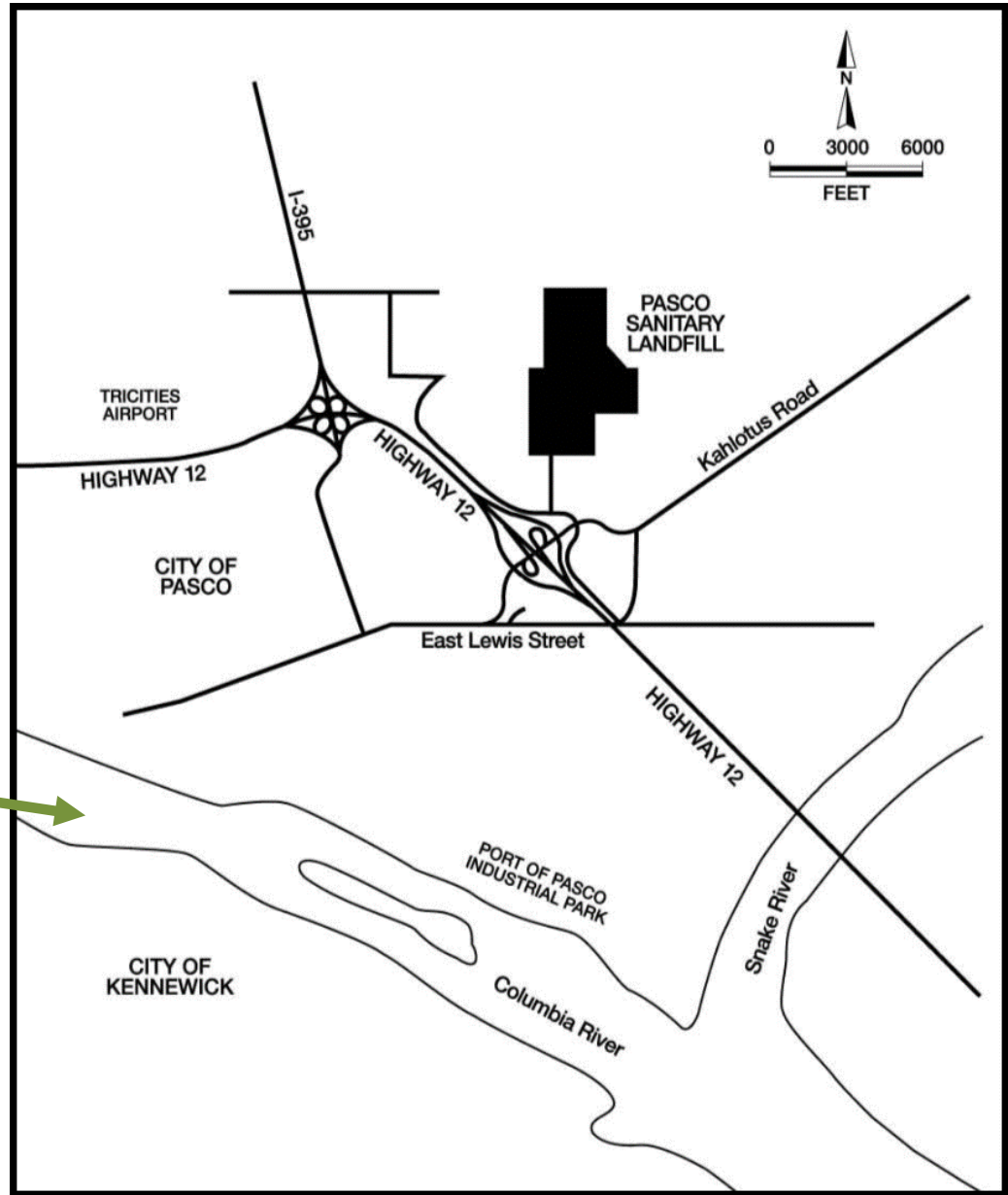
Toxics Cleanup Program, Eastern Region

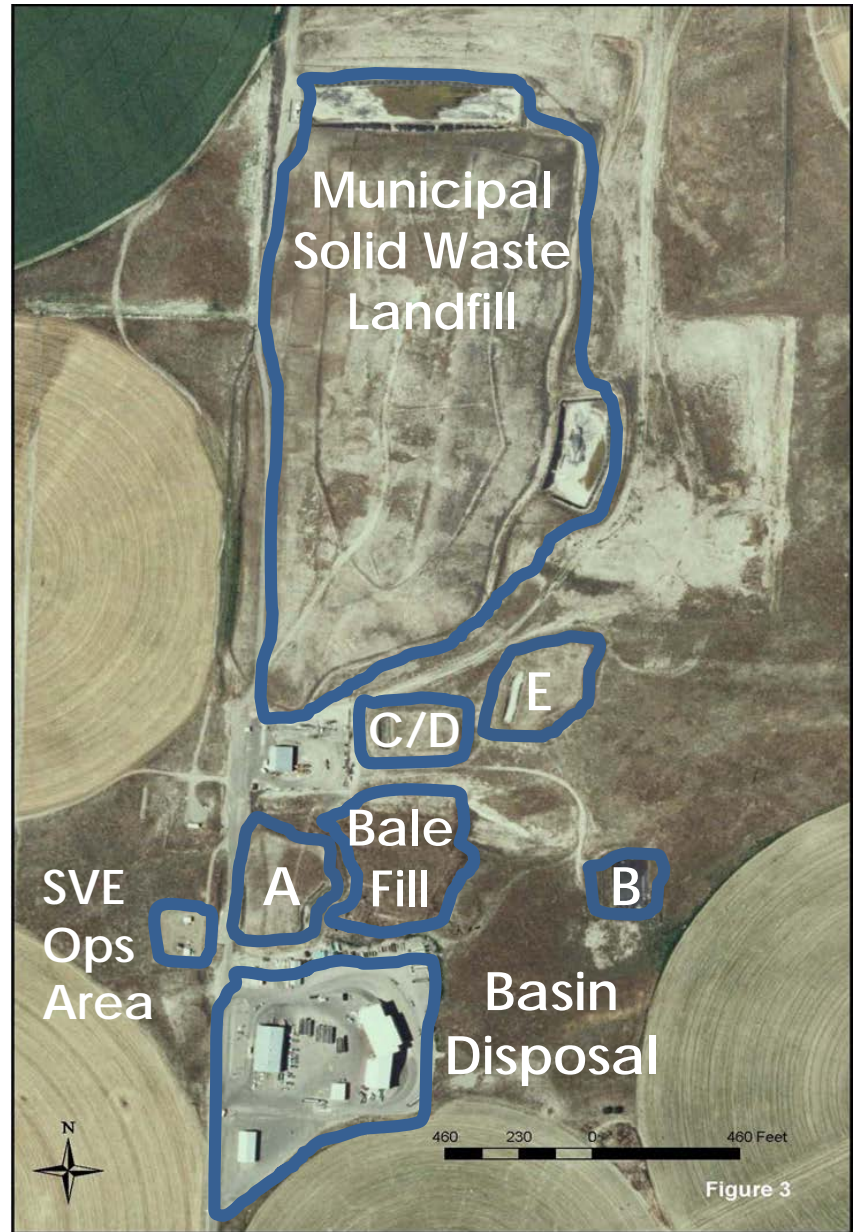
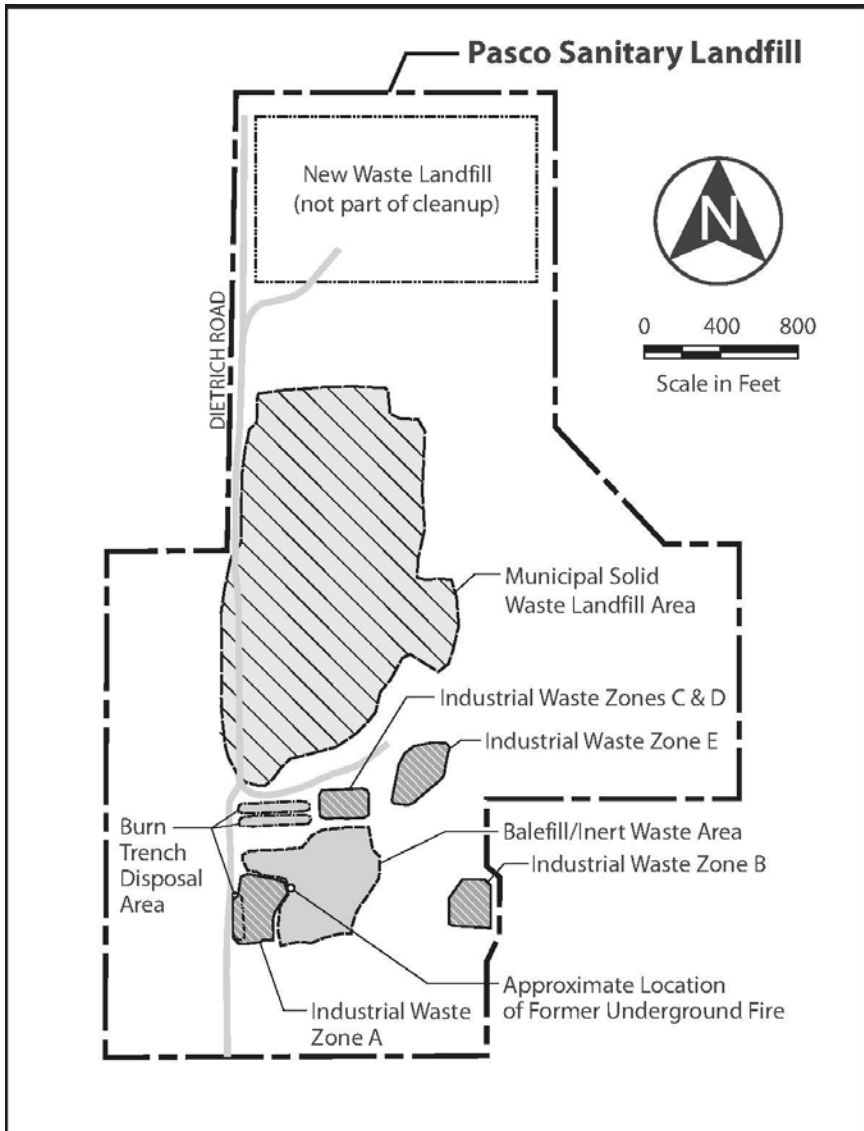


# Site Location

Dietrich Road near the intersection of Kahlotus Road and U.S. Highway 12

Columbia River





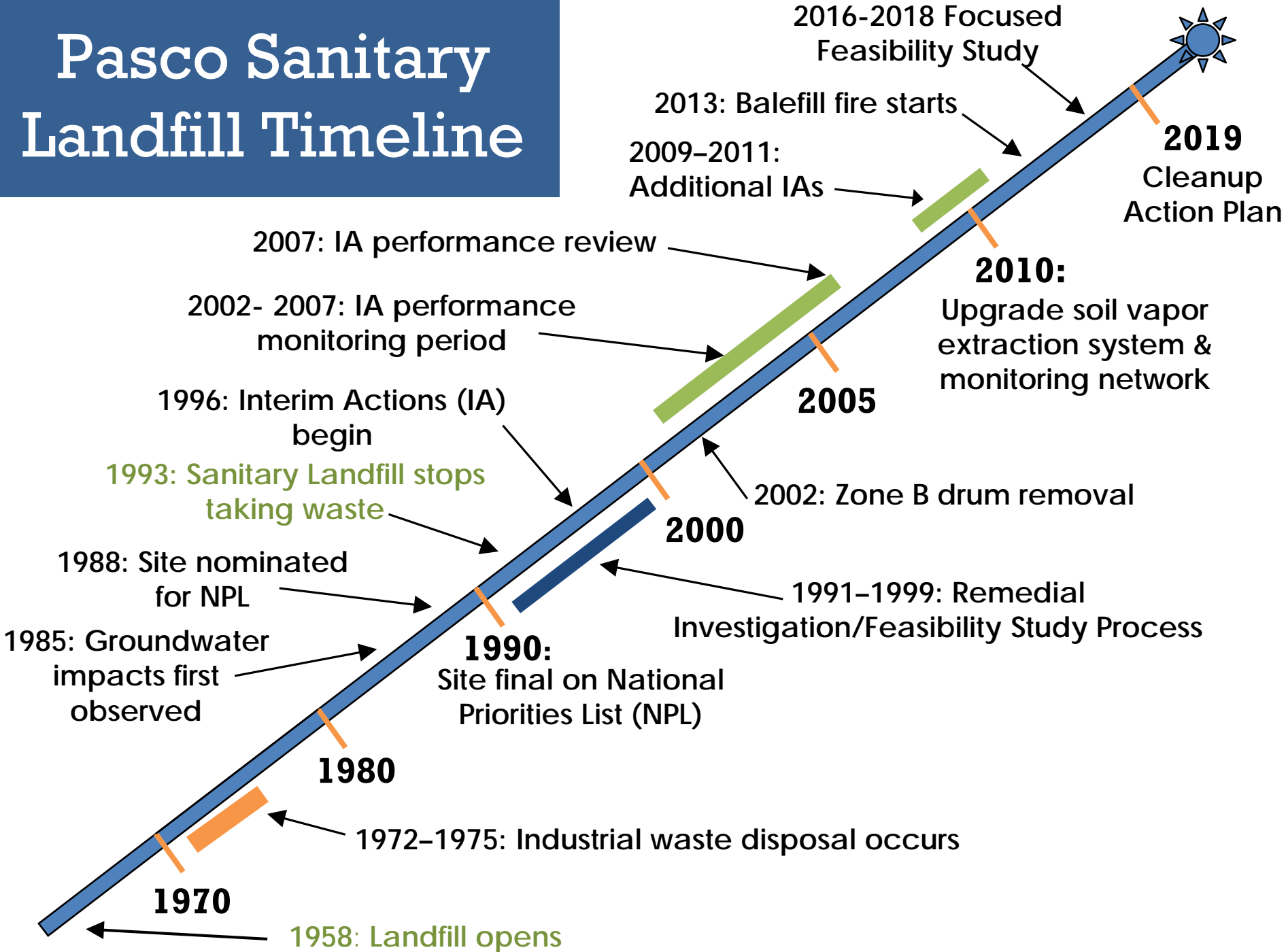
SVE = Soil vapor extraction

# Site History & Features

- **Industrial Wastes (1972 – 1975)**
  - Zone A: 35,000 – 40,000 drums mixed industrial waste
  - Zone B: Herbicide wastes (~5,000 drums)
  - Zone C/D: Various sludges/resins (>3,000,000 gallons)
  - Zone E: Chlor-alkali wastes (~11,000 tons)
- **Municipal Landfill (1958 – 1993)**
  - Burn trenches (1958–1971)
  - Balefill and Inert Waste Area (1976–1993)
  - Septic tank wastes, sewage sludge (1976–1989)
- **Offsite Plume (1985 – present)**
  - Groundwater protection ordinance in place



# Pasco Sanitary Landfill Timeline



# Who are Potentially Liable Persons?

- **Current owner and operator** with any ownership interest or exercises any control
- **Owner and operator at the time of release**
- Persons who owned the hazardous substance and arranged for disposal, treatment or transport (**generators**)
- Persons who transported the hazardous substance (**transporters**)
- **Manufacturers of hazardous substance that cause pollution** when used according to their instructions



# Pasco Landfill Potentially Liable Persons

- Advance Electroplating
- Basin Disposal Company
- Boeing Company
- Philip Environmental, Inc.
- Burlington Environmental, Inc.
- Chemical Processors, Inc.
- Resource Recovery, Inc.
- Burlington Northern, Inc.
- Carr Aviation
- Collier Carbon and Chemical
- Chempro of Oregon
- Crown Cork and Seal Company, Inc.
- E.I. du Pont de Nemours and Co., Inc.
- Franklin County
- Freightliner Corporation, a Subsidiary of Daimler-Benz of North America Holding Company
- Georgia-Pacific Corporation
- Glidden Corporation, a Subsidiary of ICI Americas, Inc.
- Harbor Oil, Inc.
- ICI Canada, Inc.
- Intalco Aluminum Corporation
- James River Paper Company, Inc.
- Kalama Chemical Company
- Leonard and Glenda Dietrich
- Minnesota Mining and Manufacturing Company
- Morton Chemical Company
- National Service Industries, Inc.
- Pasco Sanitary Landfill, Inc.
- Franklin Land Recovery, Inc.
- Puget Sound Naval Shipyards
- The O'Brien Corporation
- Oregon Cutting Systems Division of Blount, Inc.
- PACCAR, Inc.
- Precision Castparts Corporation
- Piute Energy & Transportation Company
- PPG Industries
- Rhone-Poulenc Company
- Sandvik Special Metals
- Simpson Timber Company
- UARCO Incorporated
- United States Air Force
- United States Department of Agriculture, Forest Service
- United States Department of Interior, Bureau of Reclamation
- Weyerhaeuser Corporation
- Wood Treatment Chemical Company



**More than 30 PLPs!!**



# Selecting a Cleanup Remedy

## Threshold requirements

- Protect human health and the environment
- Comply with cleanup standards
- Comply with state and federal laws
- Provide for compliance monitoring

## Other significant requirements

- Use permanent solutions to fullest extent practicable
- Provide reasonable restoration time frame
- Consider public concerns





# A feasibility study identifies potential cleanup options.

## What does “focused” mean?

The Focused Feasibility Study builds upon the Pasco Landfill Feasibility Study completed in 1999:

- Uses information learned from interim cleanup actions completed over the past 15+ years
- The nature and extent of environmental impacts at the site are similar
- The remedial action objectives are consistent

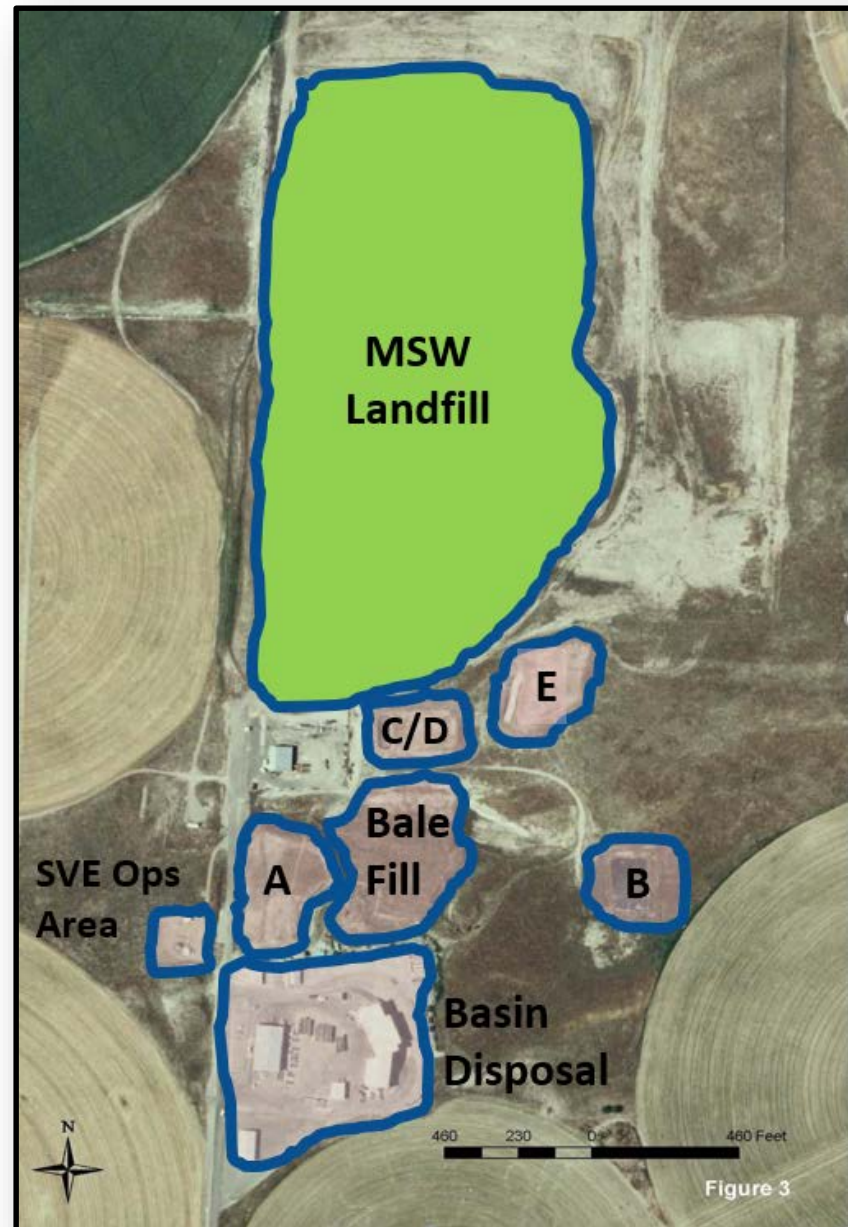
Washington’s cleanup standards have changed since 1999, so we needed to re-evaluate cleanup options.





# Cleanup options: Municipal Solid Waste Areas

# Municipal Solid Waste (MSW) Landfill



# Municipal Solid Waste Landfill

History: Household and commercial garbage, septic sludges

Proposed Action:

- Maintain engineered cover
- Landfill gas collection and treatment (flare) system
- Fencing & signs

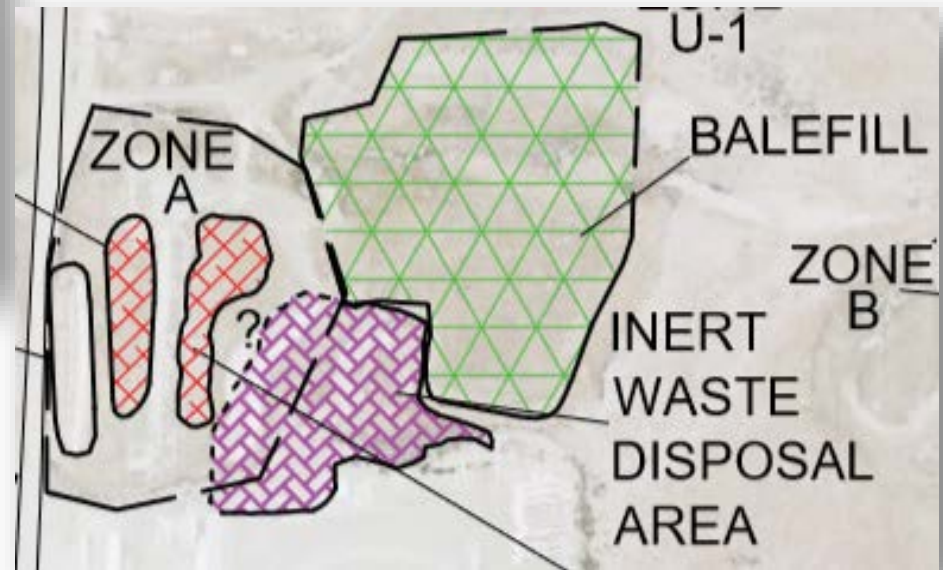
Cost = \$1.4 million



The flare unit burns off landfill gas



# Balefill/Inert Waste Area





# Balefill/Inert Waste Area

History: Household waste and construction debris

Proposed Action:  
Improve and maintain soil cover over waste

Cost = \$500,000



Surface-exposed Balefill Area wastes



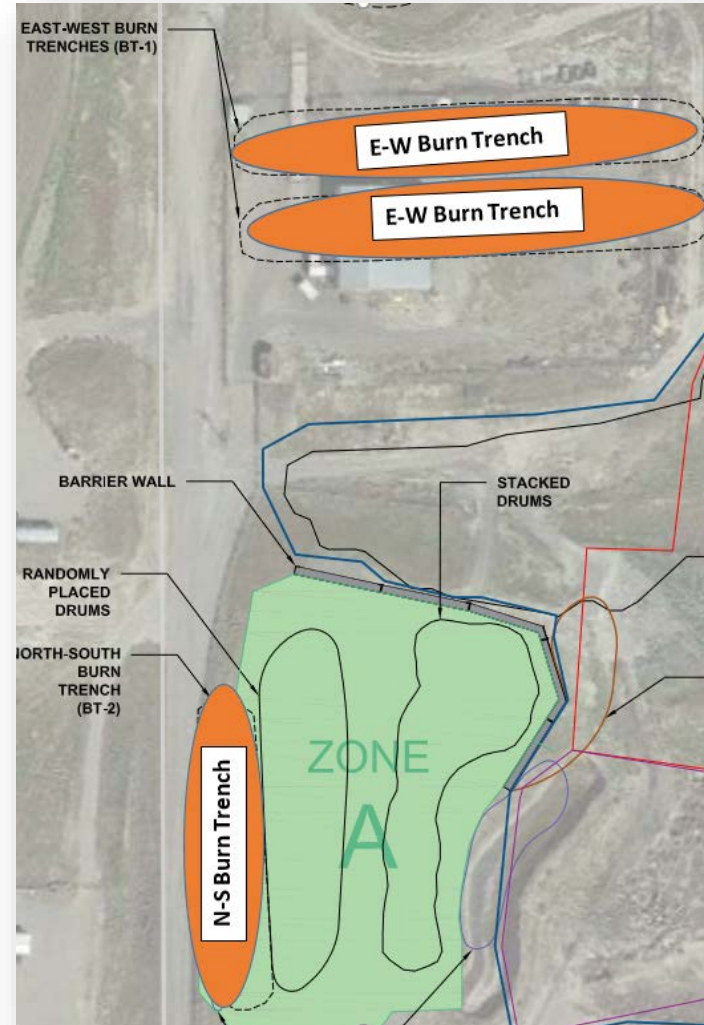
# Burn Trenches

History: Household and commercial garbage was burned

Proposed Action:

- Regular inspections
- Maintain soil cover
- Fencing & signs

Cost = \$10,000

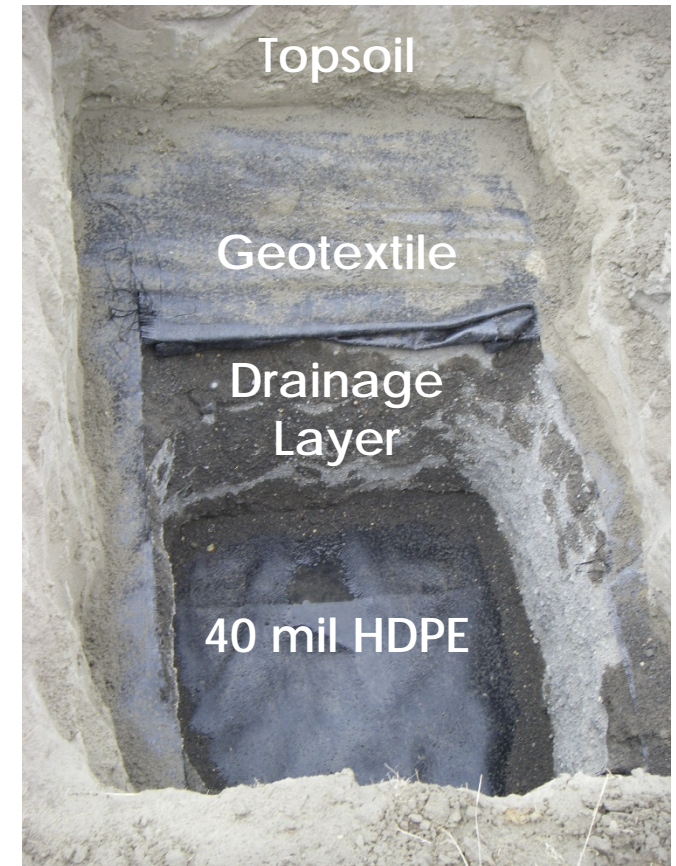




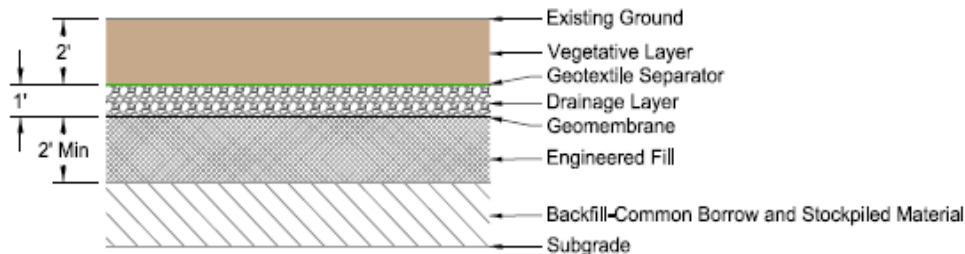


# Cleanup options: Industrial Waste Areas

# RCRA C cover systems installed in 2001/2002 at Zones A-E and MSW Landfill



Zone A cover system  
test pit



1 RCRA Cap Cover System  
2 SCALE: 1" = 5'

Multi-layer covers minimize water infiltration and potential for contact with waste materials



HDPE = High-density polyethylene  
RCRA = Resource Conservation & Recovery Act

# Zone A Drum Repository



Figure 3





# Zone A Drum Repository

History: ~35,000 drums containing a variety of industrial wastes disposed in 1970s

FFS alternatives that include the following core cleanup components can satisfy all the threshold requirements:

- Excavate Zone A wastes
- Proper waste disposal
- Residual SVE treatment
- New engineered cover
- Robust H&S requirements and monitoring program

Cost = \$56 – 128 million



Drums of industrial waste being readied for burial - 1973



H&S = Health & safety  
SVE = Soil vapor extraction

# Zone A waste & conditions

- Impacted cover system performance
- Elevated underground temperatures and combustion concerns
- Liquid chemicals have leaked from drums and reached groundwater
- SVE alone cannot achieve remedial objectives and cleanup timeframes

\*Alternatives A1-4 and A-8 are not considered adequately protective given these conditions



# Zone A cleanup alternatives that meet threshold requirements

## A-5

- Excavate drums, debris and impacted soil to depth of ~27 feet
- Solids (bulked drums, debris, soil) moved to a new on-site lined disposal cell
- Off-site treatment and/or disposal of liquids/intact drums
- New cover & SVE

Cost = \$56 million

## A-6

Same as A-5 plus:

- Soil below excavation would be heated to enhance removal and treatment of contaminants

Cost = \$62.1 million



\*All options include groundwater monitoring, fencing and warning signs.

# Zone A cleanup alternatives that meet threshold requirements

## A-7

Same as A-5 plus:

- Excavate drums, debris and impacted soils *deeper* than 27 feet
- Solids (bulked drums, debris, soil) moved to a new on-site lined disposal cell
- Off-site treatment and/or disposal of liquids/intact drums
- New cover & SVE

Cost = \$60.3 million

## A-9

- Excavate drums and impacted soil down to ~42 feet
- Off-site disposal of all excavated materials (drums-waste-soils)
- New cover and SVE

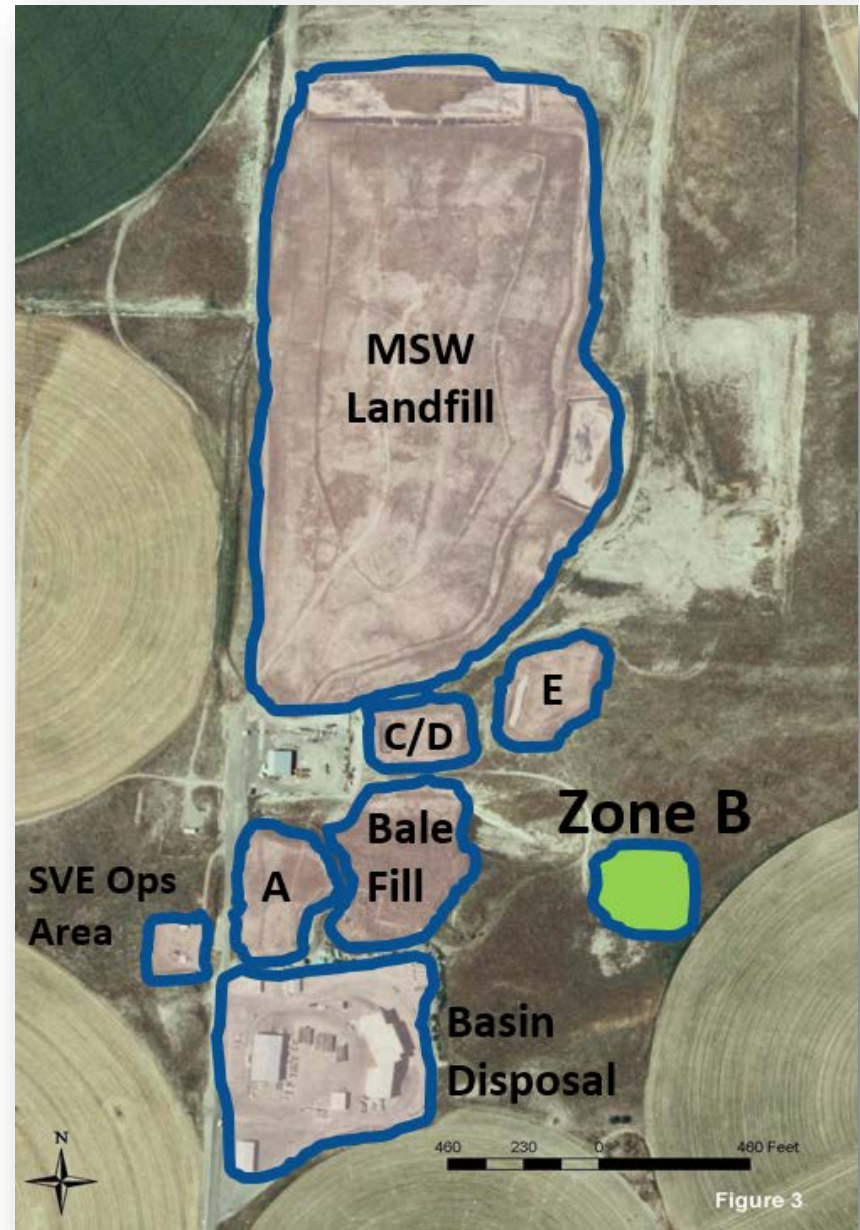
Cost = \$128.1 million



\*All options include groundwater monitoring, fencing and warning signs.



# Zone B Herbicide- Manufacturing Residue Drum Repository



# Zone B

History: 5,000 drums of herbicide-manufacturing waste disposed offsite in 2002 (incineration)

Proposed Action:

- Maintain cover over contaminated soil
- Monitor groundwater
- Maintain fencing/signs

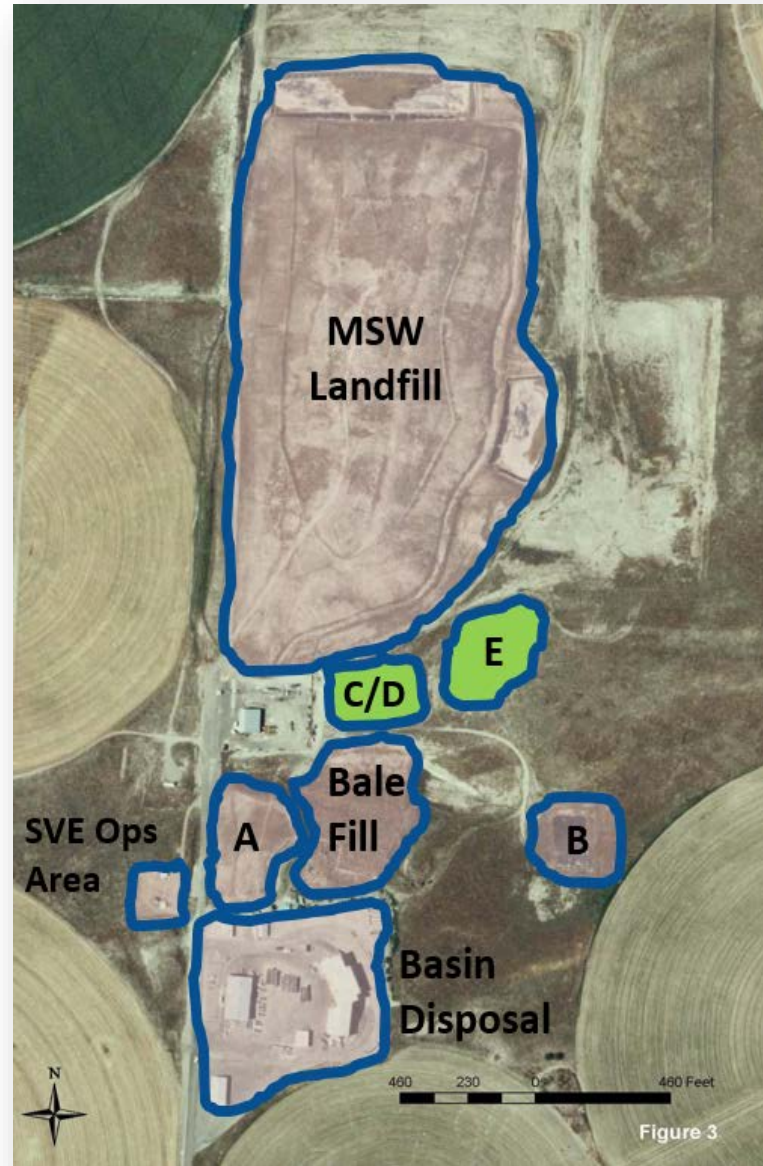
Cost = \$2.2 million



Zone B Removal Action  
February 5, 2002



# Zone C and D Industrial Waste Evaporation Ponds





# Zone C/D

History: Bulk liquid waste residues (paint, solvents, etc.)

Proposed Action:

- Maintain engineered cover over wastes
- Maintain fencing/signs
- Monitor groundwater

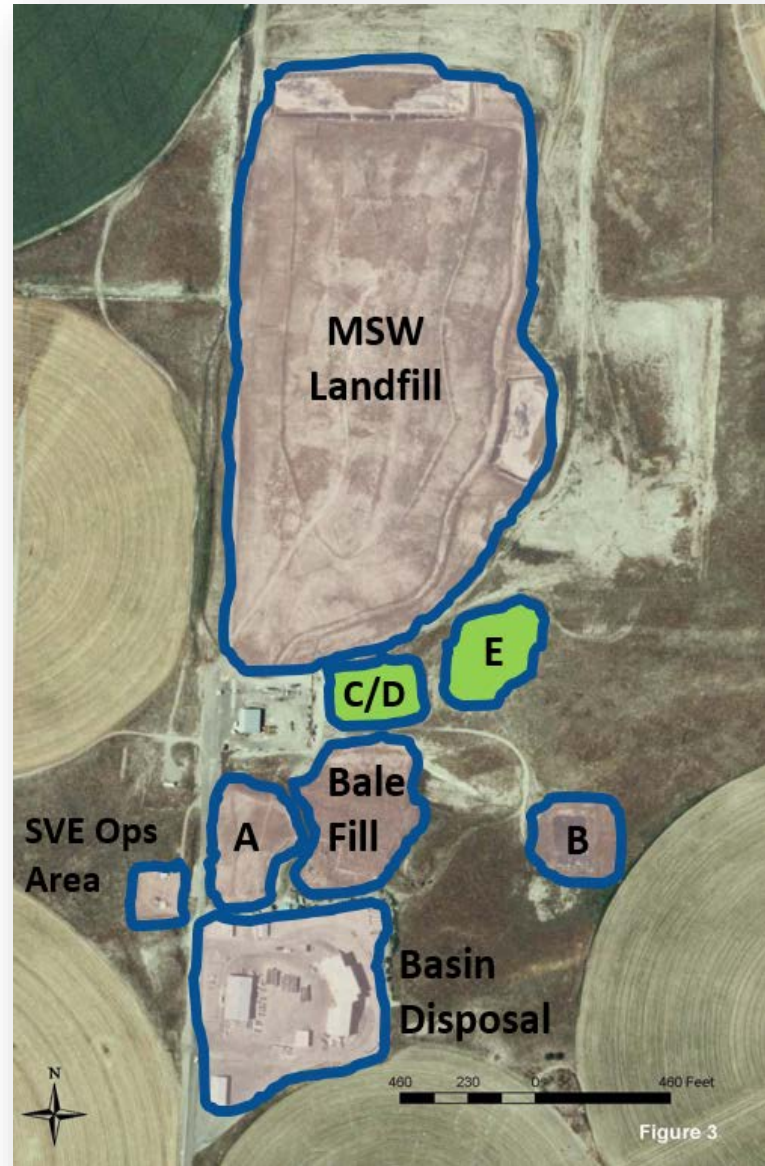
Cost = \$700,000



Zone C/D vapor monitoring



# Zone E Chlor-Alkali Waste Disposal Area



# Zone E

History: 11,000 tons of paper manufacturing sludge

Proposed Action:

- Maintain engineered cover over wastes
- Maintain fencing/signs
- Monitor groundwater

Cost = \$800,000



Landfilling toxic sludges into Zone E in 1973 or 1974





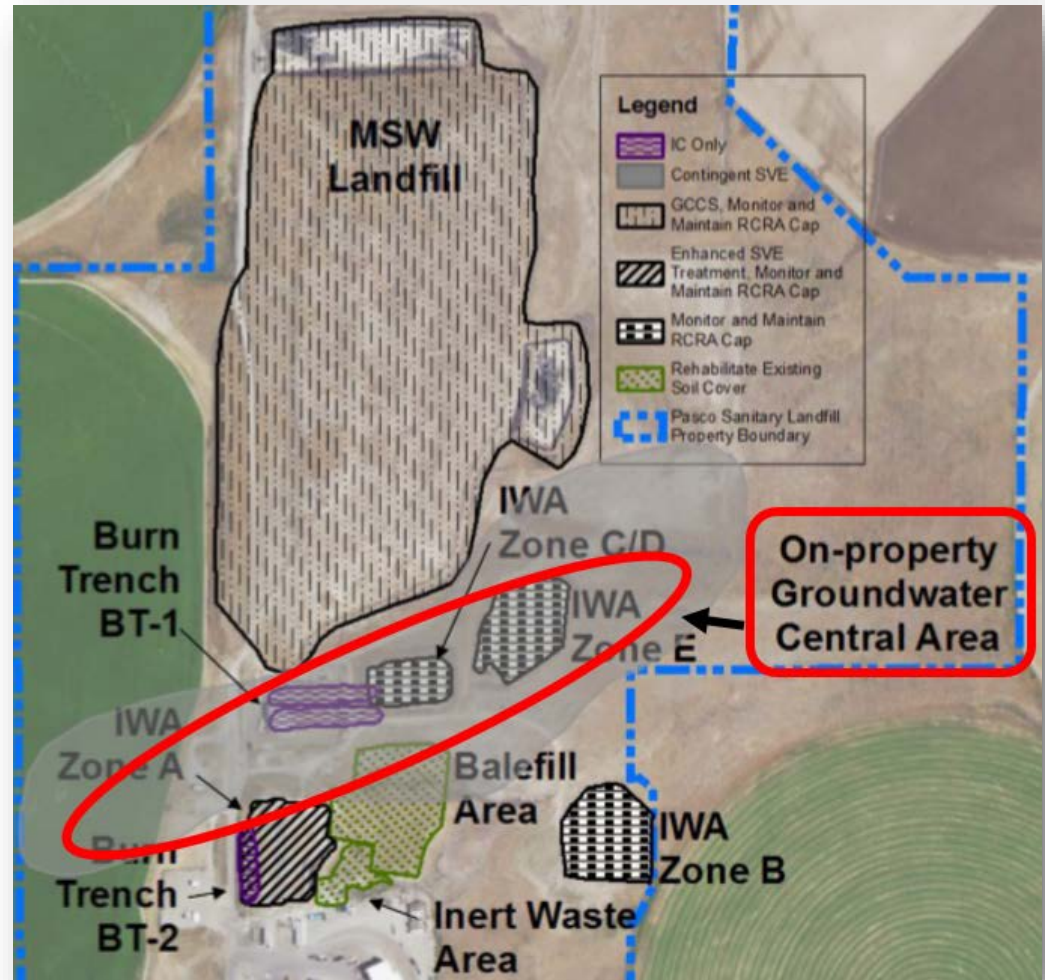
# Central Area: On-property groundwater

History: Low-level VOC contamination in groundwater

## Proposed Action:

- Focused SVE treatment if concentrations increase and require cleanup

Cost = \$1.5 million



SVE = Soil vapor extraction  
VOC = Volatile organic compounds



# Summary of PLPs' Preferred Alternatives

Area	Preferred Remedial Alternative	Total NPV Cost (\$ million)
MSW Landfill	MSW-1	\$1.4
Balefill Area and Inert Waste Disposal Areas	BA-1	\$0.5
Burn Trenches	BT-1	\$0.01
★ Zone A	A-2	\$18.3
Zone B	B-1	\$2.2
Zones C/D	CD-1	\$0.7
Zone E	E-1	\$0.8
On-property Ground Water (Central Area)	ONP-1	\$1.5

\*PLPs' preferred alternative for Zone A (A-2) is not adequate to satisfy threshold criteria and requirements



# Effective Public Comments

1. Review all documents available for public comment
2. Before drafting comments, contact Ecology or other technical experts listed on the fact sheet, as needed, to address questions/concerns
3. Be specific when writing comments
  - Could they be interpreted multiple ways?
  - Explain your reasoning with examples
  - Refer to document pages, paragraphs, etc.
4. Ensure Ecology could enact your ideas within the framework of existing laws

**TIP:** Coordinate your comments with others!



# After the comment period

We will:

- Respond to all comments
- Use public input, the FFS documents, and Ecology experience to prepare a draft cleanup action plan (dCAP)
- Hold a public comment period for the draft cleanup action plan



# Project Contacts

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