

## East Kapolei Pesticide Mixing and Loading Plant











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### Contaminants of Concern

Arsenic (metal associated with historic pesticides)

Polychlorinated dibenzo-dioxins/polychlorinated dibenzo-furans  
(dioxins/furans, associated with pentachlorophenol)

Pentachlorophenol (chlorinated herbicide)

Triazine pesticides (specifically ametryn, atrazine, simazine, and  
trifluralin)

## East Kapolei Pesticide Mixing and Loading Plant

### Remedial Alternatives

No Action (\$0)



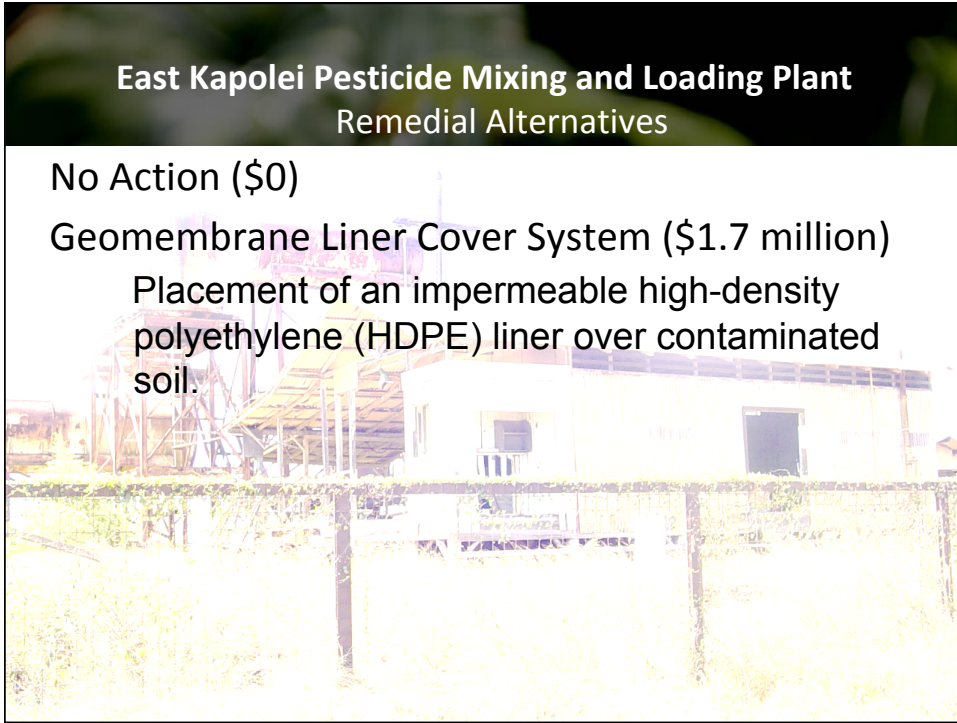


## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives

No Action (\$0)

Geomembrane Liner Cover System (\$1.7 million)

Placement of an impermeable high-density polyethylene (HDPE) liner over contaminated soil.



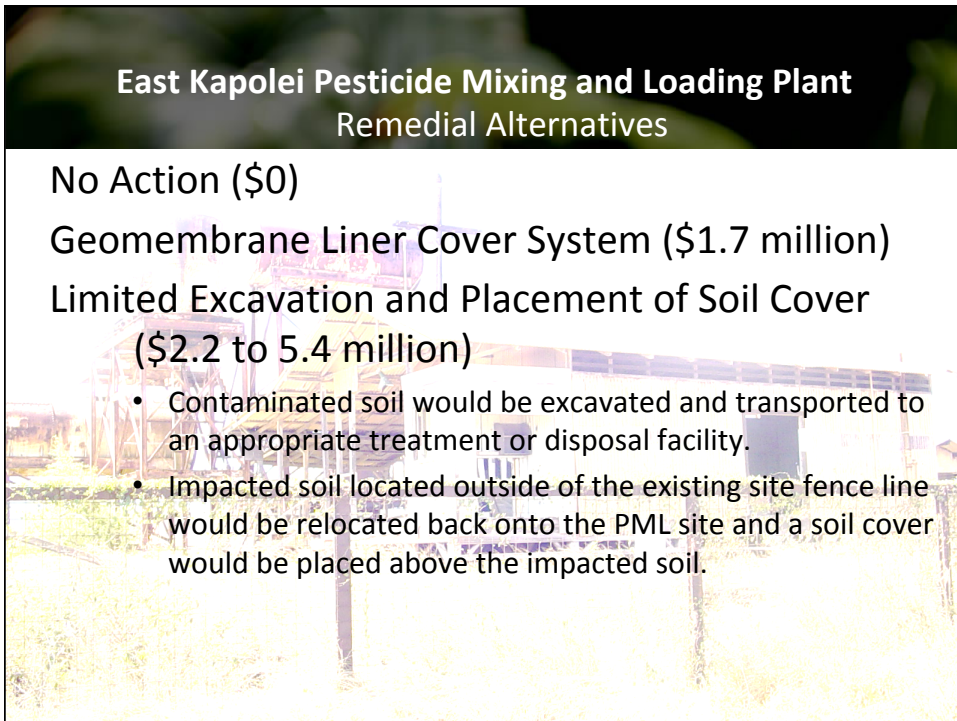
## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives

No Action (\$0)

Geomembrane Liner Cover System (\$1.7 million)

Limited Excavation and Placement of Soil Cover  
(\$2.2 to 5.4 million)

- Contaminated soil would be excavated and transported to an appropriate treatment or disposal facility.
- Impacted soil located outside of the existing site fence line would be relocated back onto the PML site and a soil cover would be placed above the impacted soil.





## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives

No Action (\$0)

Geomembrane Liner Cover System (\$1.7 million)

Limited Excavation and Placement of Soil Cover  
(\$2.2 to 5.4 million)

Thermal Desorption and Placement of Soil Cover  
(\$7.2 million)

Contaminated soil is treated by thermal conductance to volatilize organic compounds and capturing the resultant contaminant vapors. The vapors are then treated.



## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives

No Action (\$0)

Geomembrane Liner Cover System (\$1.7 million)

Limited Excavation and Placement of Soil Cover  
(\$2.2 to 5.4 million)

Thermal Desorption and Placement of Soil Cover  
(\$7.2 million)

Excavation and Offsite Treatment/Disposal (\$6.8 to  
17.0 million)

The contaminated media would be transported to a facility designed to minimize the future release of contaminants for treatment and/or disposal.



## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives Analysis

Effectiveness - the degree to which the action meets threshold criteria and remedial objectives

- Overall Protection of Human Health and the Environment
- Compliance with ARARs (Applicable or Relevant and Appropriate Requirements)
- Reduction of Toxicity, Mobility, and Volume
- Long-Term Effectiveness
- Short-Term Effects

## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives Analysis

Effectiveness

Implementability

- Technical Feasibility - availability of equipment, facilities, and specialists; reliability of the technology
- Administrative Feasibility - availability of necessary approvals; community acceptance

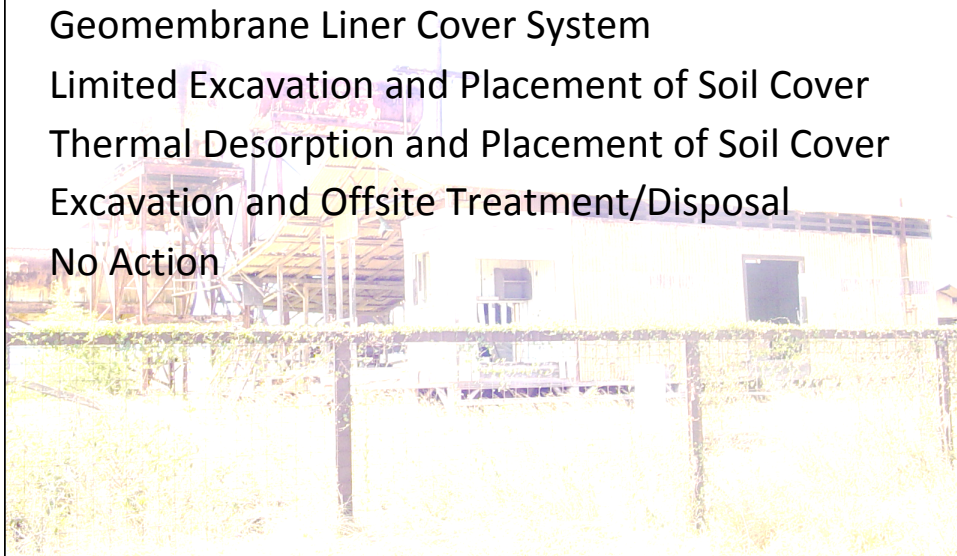
## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives Analysis

Effectiveness  
Implementability  
Estimated Costs

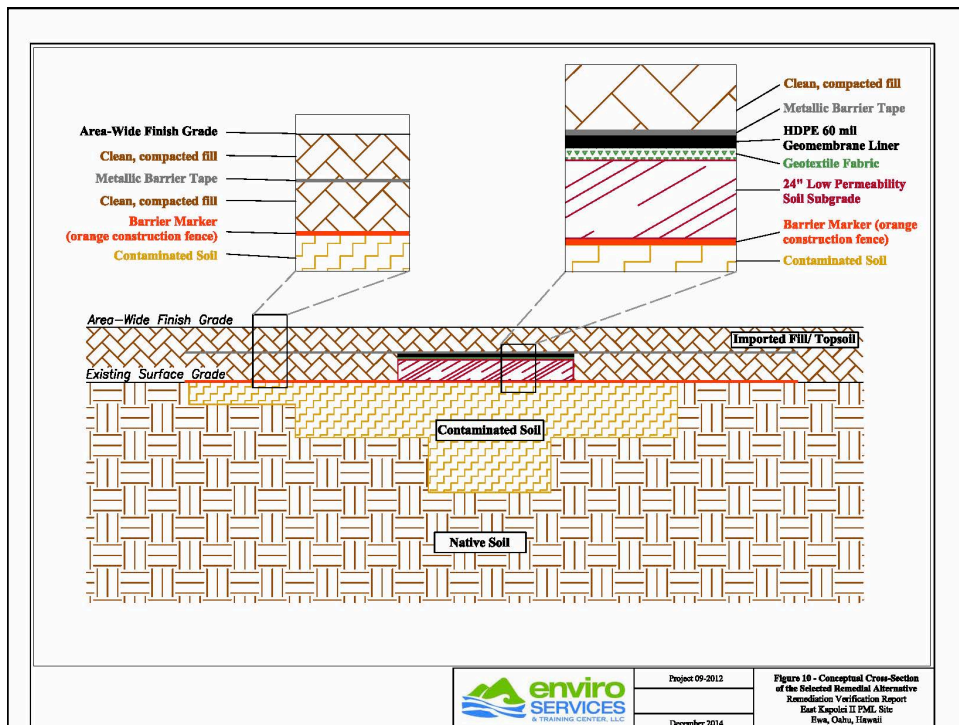
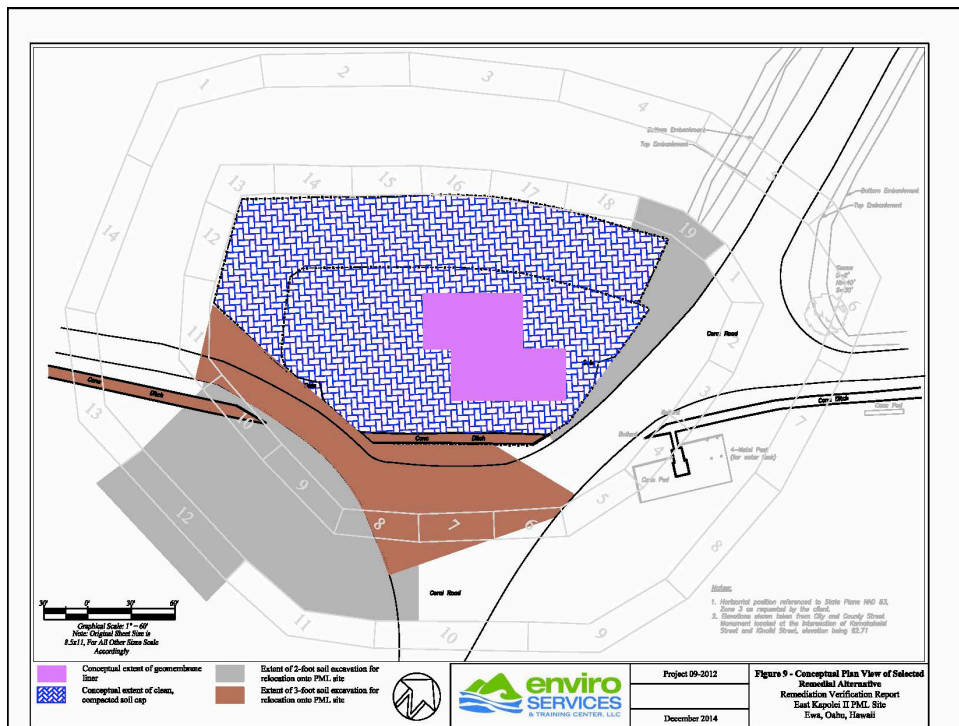


## East Kapolei Pesticide Mixing and Loading Plant Remedial Alternatives Ranking

Geomembrane Liner Cover System  
Limited Excavation and Placement of Soil Cover  
Thermal Desorption and Placement of Soil Cover  
Excavation and Offsite Treatment/Disposal  
No Action















## East Kapolei Pesticide Mixing and Loading Plant Documentation

Dec 2000	Extent of Contamination Oahu Sugar Company Site
Sep 2004	Phase I Environmental Site Assessment at East Kapolei Brownfield
Aug 2007	Site Investigation and Preliminary Remedial Alternatives Analysis Report
Dec 2007	East Kapolei Affordable Housing Project, Final Site Assessment Report
Jan 2009	Phase I Environmental Site Assessment East Kapolei Brownfield Sites
Mar 2009	Architectural Inventory Survey
Oct 2009	Community Involvement Plan
Nov 2009	Site Demolition and Hazardous Material Disposal Plan
Dec 2009	Site Investigation Work Plan
Mar 2010	Site Investigation Report and Environmental Hazard Evaluation
May 2010	Remedial Alternatives Analysis Report
Aug 2010	Final Response Action Memorandum
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Jun 2011	Groundwater Sampling and Monitor Well Closure Report
Jan 2012	Contaminated Soil Handling and Management Plan
Jul 2014	Construction Quality Assurance Report
Dec 2014	Remediation Verification Report
Mar 2015	Environmental Hazard Management Plan



## **East Kapolei Pesticide Mixing and Loading Plant Documentation – Identify Extent of Contamination**

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## East Kapolei Pesticide Mixing and Loading Plant Documentation – Determine Course of Action

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## East Kapolei Pesticide Mixing and Loading Plant Documentation – Confirm Work Completed

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## East Kapolei Pesticide Mixing and Loading Plant Documentation – Institutional Controls

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## East Kapolei Pesticide Mixing and Loading Plant

### Costs

Phase 1 Environmental Assessment	\$24,630
Phase 2 Environmental Assessment	\$175,622
Environmental Engineering	\$597,800
Structure Demolition & Disposal	\$202,400
Site Remediation	\$690,600

### Sources of Funds

Brownfields Assessment Grant (US EPA)	\$165,000
Brownfields Cleanup Grant (US EPA)	\$200,000
Hawaii Brownfields Revolving Loan Fund (State DBEDT)	\$200,000
DHHL Trust Fund	\$1,090,800
Other State Funds	\$35,252

## East Kapolei Pesticide Mixing and Loading Plant “Take-aways”

Include Environmental Assessment in planning process

- Early identification of potential contaminants allows for scheduling remediation concurrent with other activities.
- Expect a long, detail-intense process requiring systematic documentation.



## East Kapolei Pesticide Mixing and Loading Plant “Take-aways”

Include Environmental Assessment in planning process  
Help is available



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## East Kapolei Pesticide Mixing and Loading Plant “Take-aways”

Include Environmental Assessment in planning process

Help is available

Environmental Engineer



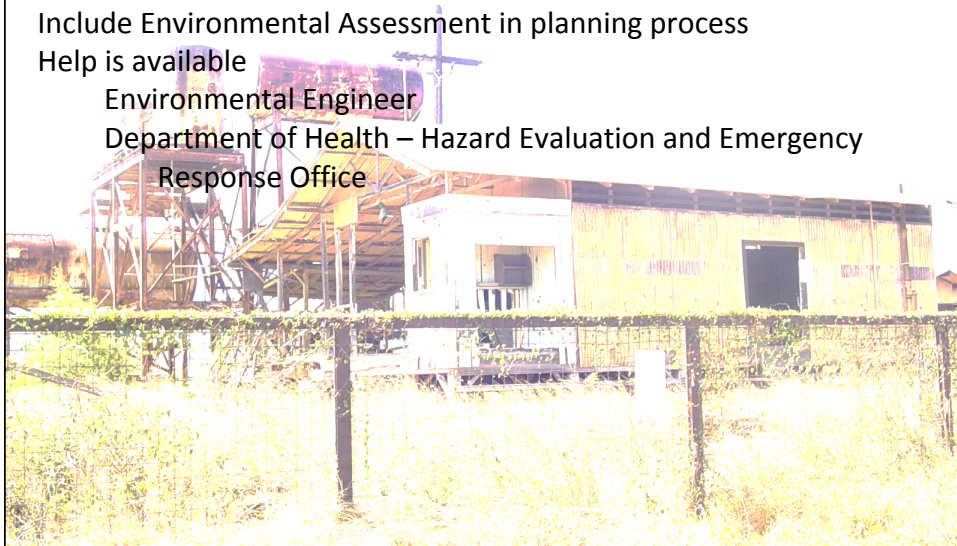
## East Kapolei Pesticide Mixing and Loading Plant “Take-aways”

Include Environmental Assessment in planning process

Help is available

Environmental Engineer

Department of Health – Hazard Evaluation and Emergency  
Response Office





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Include Environmental Assessment in planning process

Help is available

Environmental Engineer

Department of Health – Hazard Evaluation and Emergency  
Response Office

Department of Business Economic Development & Tourism –  
Office of Planning (Brownfields Revolving Loan Fund)

No interest

Discount at repayment = 20%, not to exceed \$200,000.

Currently \$1.53 million available.

## East Kapolei Pesticide Mixing and Loading Plant “Take-aways”

Include Environmental Assessment in planning process

Help is available

Environmental Engineer

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Response Office

Department of Business Economic Development & Tourism –  
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U.S. Environmental Protection Agency, Region 9

