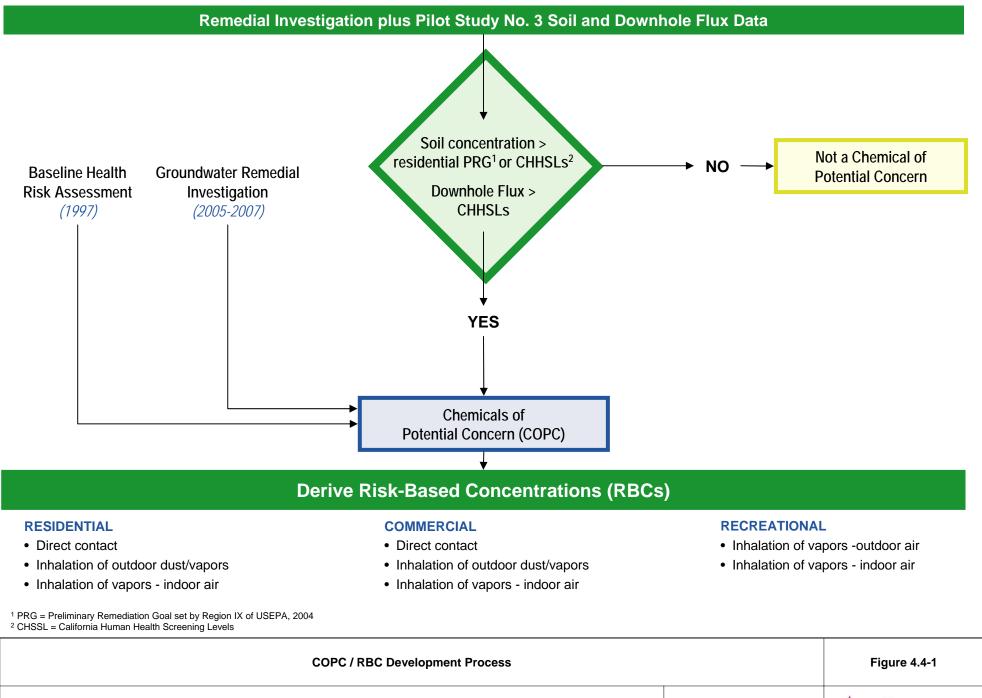
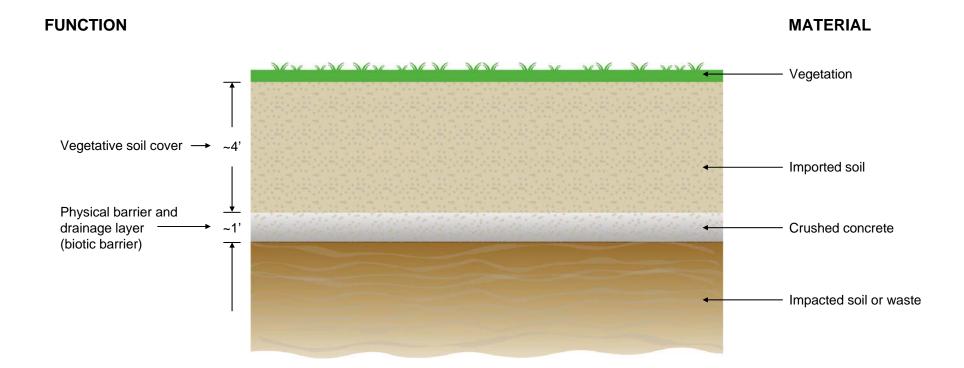
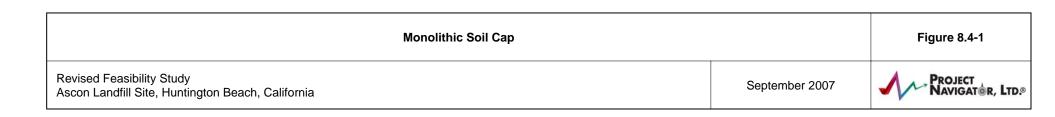
Recent Environmental Investigations	1996-1997	1999	2000	2001	2002	2003	2004-2006
Remedial Investigation (RI)	<b>RI</b> (ESE, 1997)				GARFR (Project Navigator, Ltd., 2002b)		Groundwater RI (Geosyntec, 2005- 2007) Pilot Study No.3 (Project Navigator, Ltd. and Geosyntec, 2004, 2005) Soil Vapor Invest. (Geosyntec, 2006)
Risk Assessment (RA)	<b>BHRA</b> (ESE, 1997)				Air Pathway Evaluation (Geosyntec, 2002) Ambient Air Monitoring (Geosyntec, 2002)	Perimeter Air Monitoring (Geosyntec, 2003)	Pilot Study No.3 (Project Navigator, Ltd. and Geosyntec, 2004, 2005) Groundwater RA (Geosyntec, 2005- 2007)
Feasibility Study (FS)		Pilot Studies (J&W, 1998, 1999)	Soil/Waste FS (Environ, 2000)		IROF (Project Navigator, Ltd., 2002) WMCROF (Project Navigator, Ltd., 2002) TM No.1 (TM1ROF) (Project Navigator, Ltd., 2002)		Pilot Study No.3 (Project Navigator, Ltd. and Geosyntec, 2004, 2005)
Remedial Action Plan (RAP)			Soil/Waste Draft RAP (Environ, 2000)		Soil/Waste Draft RAP (Project Navigator, Ltd., 2002)		

Recent Environmental Investigation History	Figure 4.1-1	
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	PROJECT Navigat@r, Ltd.®



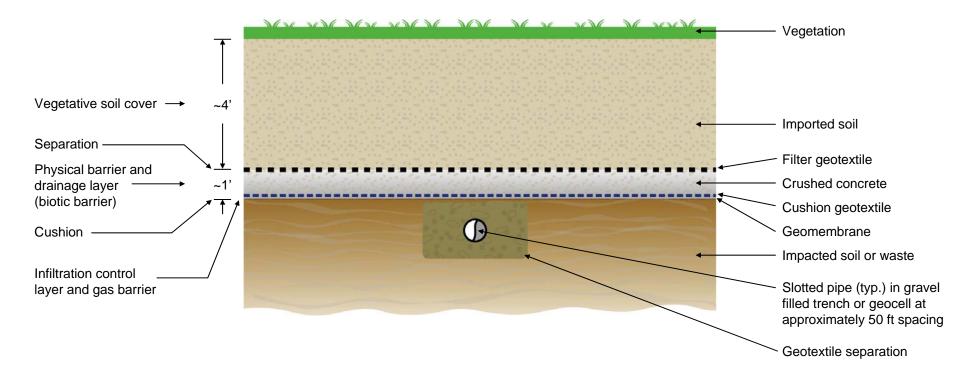


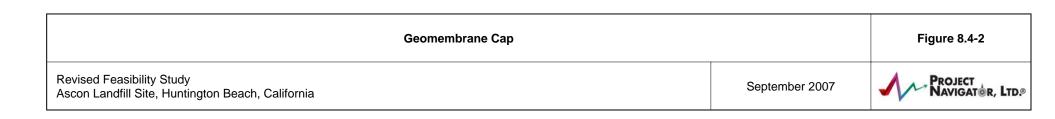






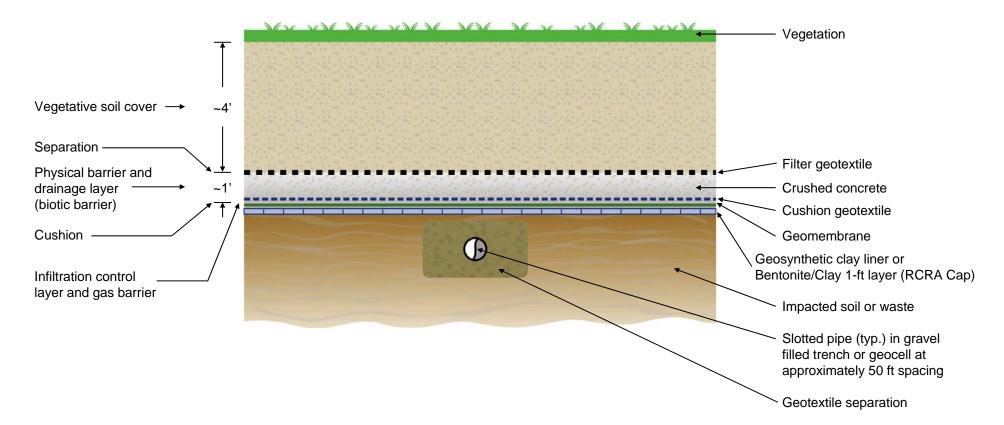
#### MATERIAL



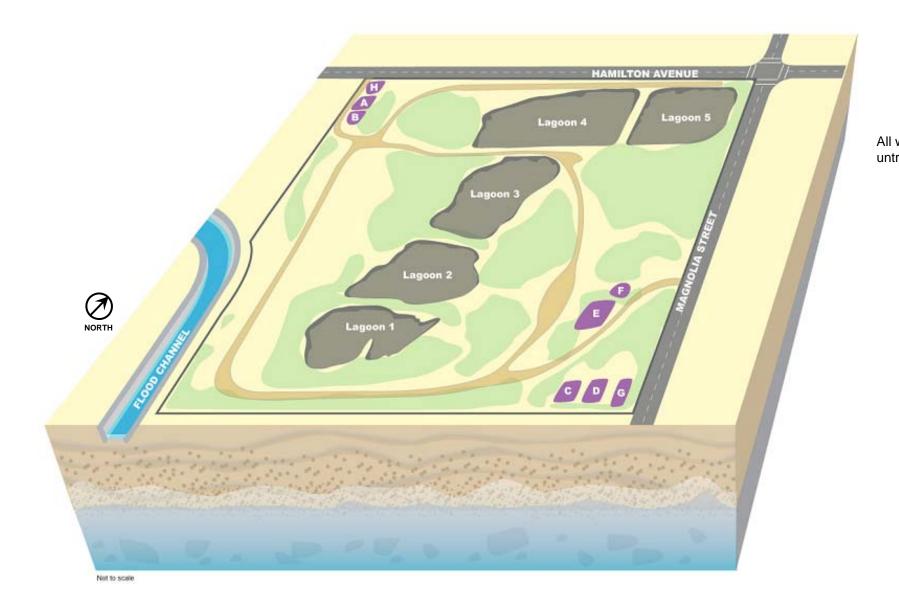




#### MATERIAL

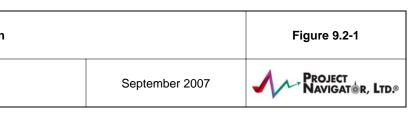


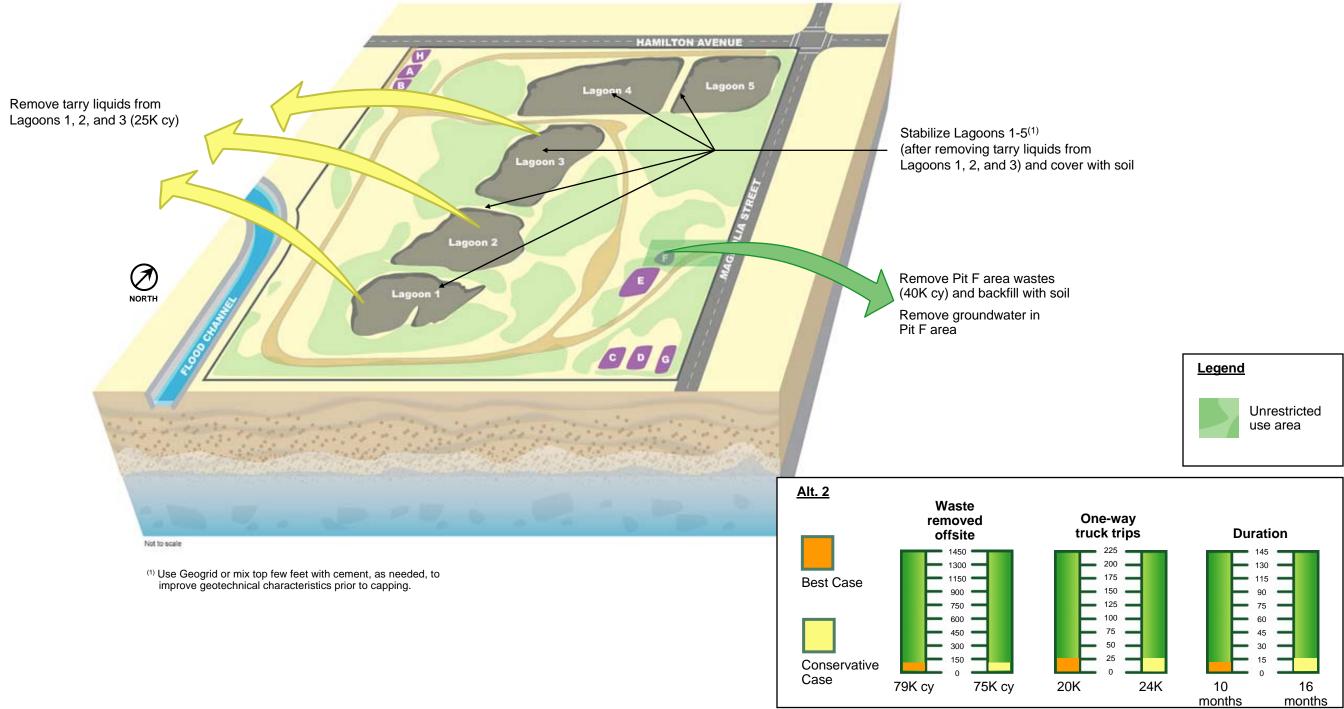
RCRA-Equivalent and RCRA Cap		Figure 8.4-3
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	Project Navigat & R, Ltd.®



Alternative 1 – No Action

Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California All waste materials remain onsite, untreated and uncovered

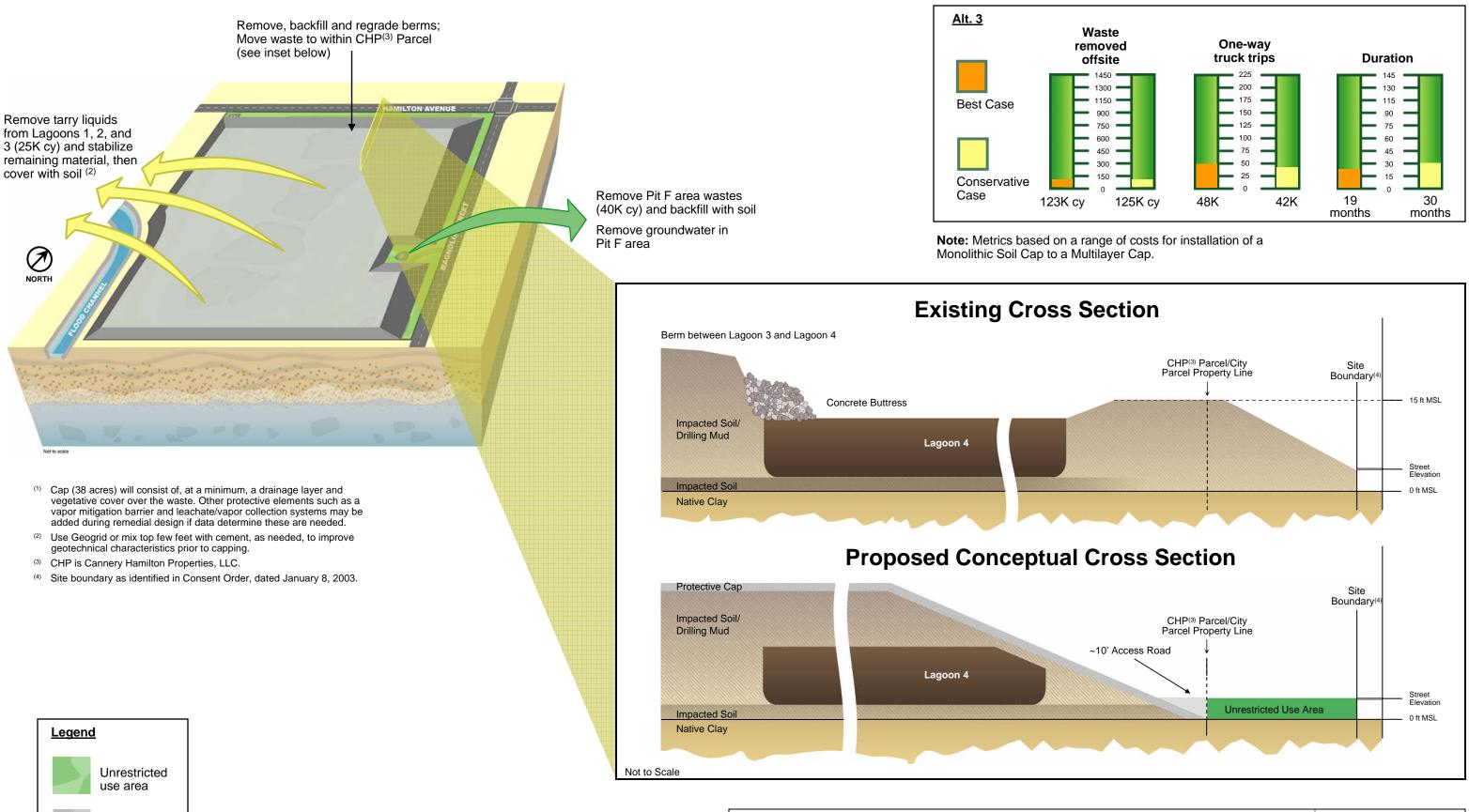




Alternative 2 – Limited Waste Re

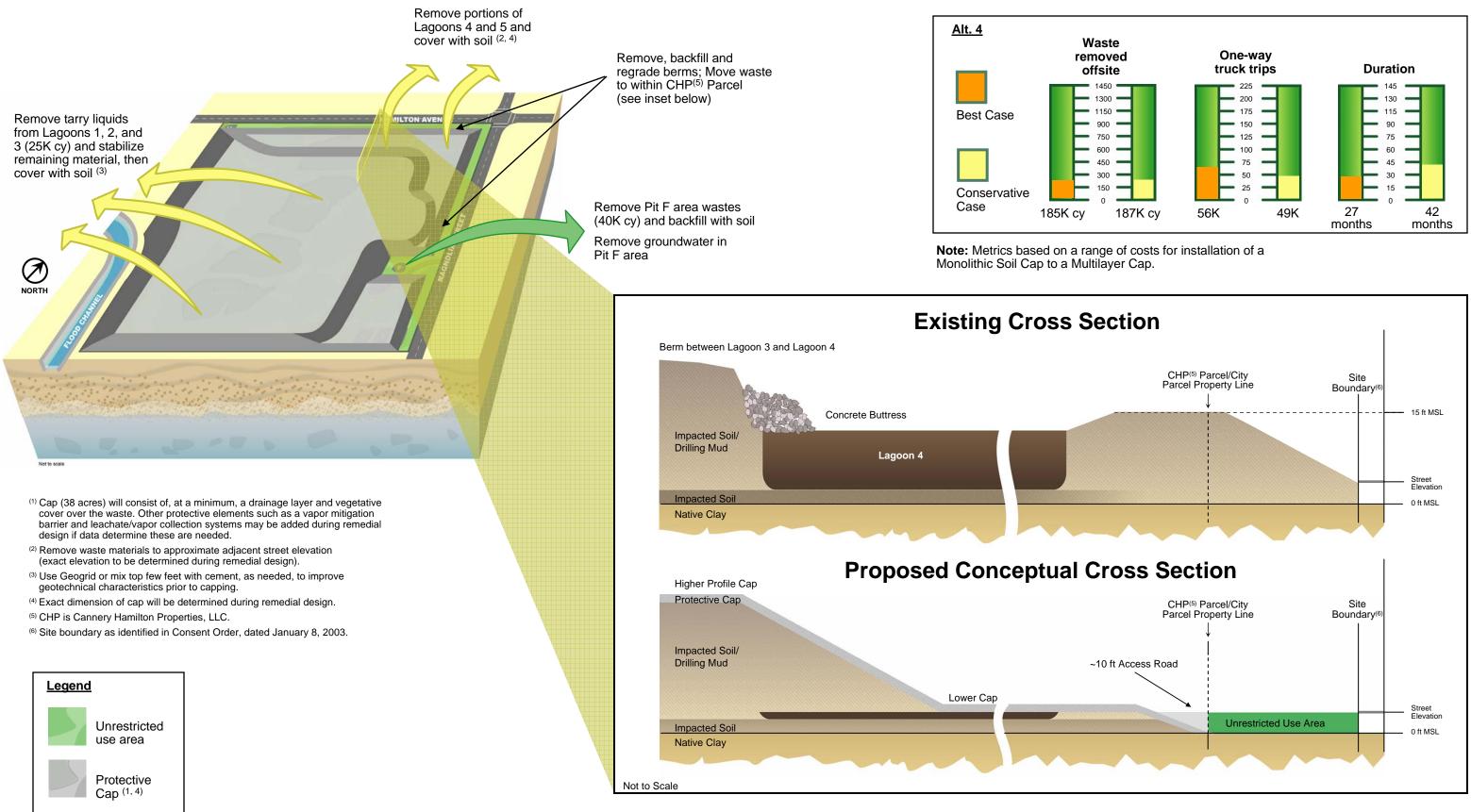


emoval		Figure 9.2-2
	September 2007	Project Navigat@r, LtD.®



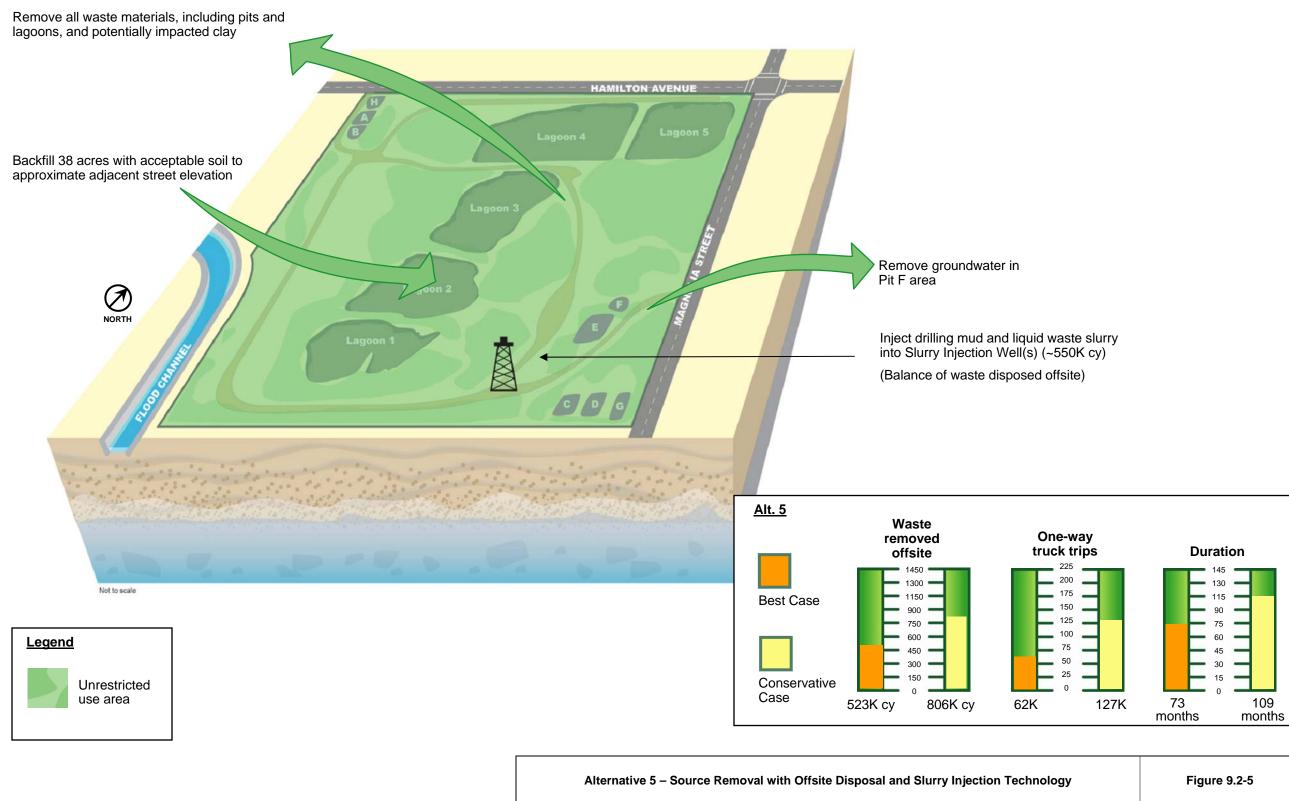
Protective Cap<sup>(1)</sup>

Cap		Figure 9.2-3
	September 2007	PROJECT Navigat@r, Ltd.®

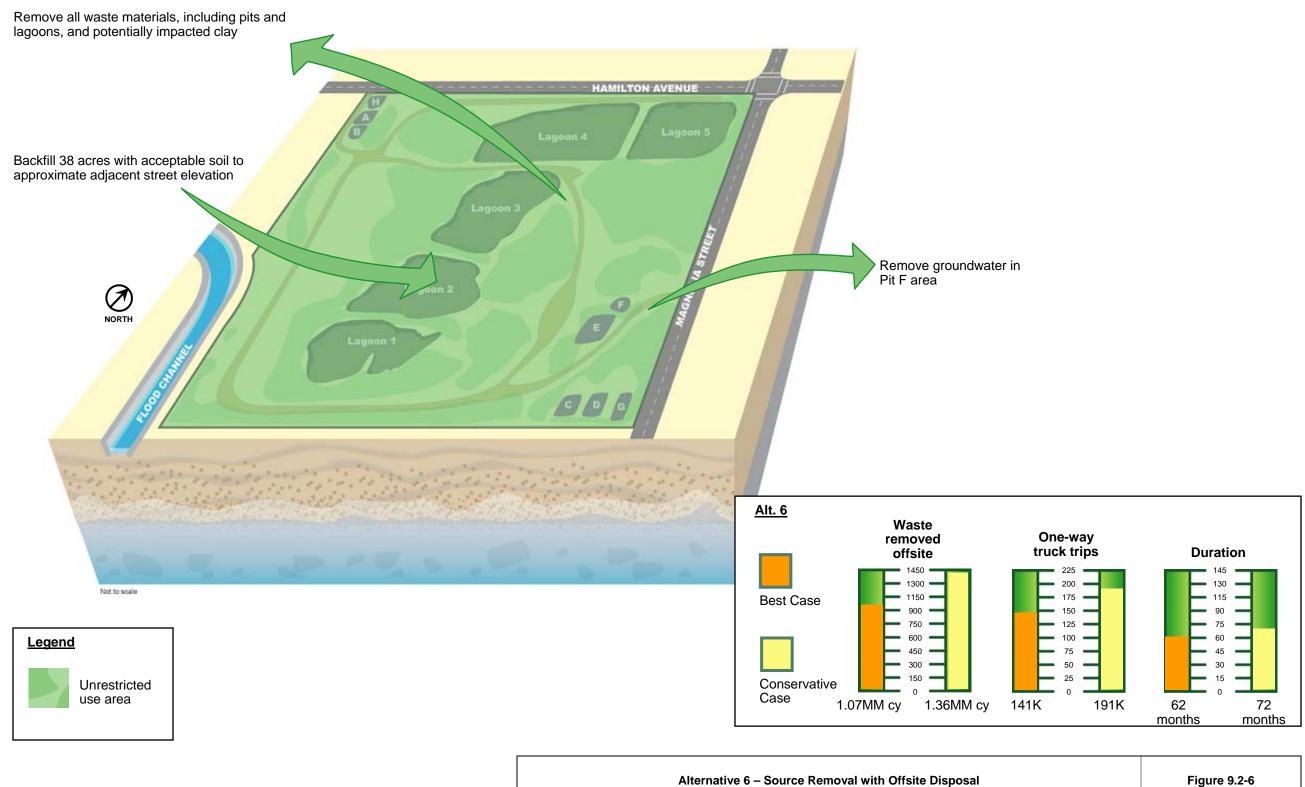


	Alternative 4 – Partial Source Removal wit
Revised Feasibility Stuc	ly
Ascon Landfill Site, Hun	tington Beach, California

th Protective C	ар	Figure 9.2-4
	September 2007	PROJECT Navigat@r, LtD.®



nd Slurry Injec	tion Technology	Figure 9.2-5	
	September 2007	PROJECT Navigat@R, Ltd.®	



fsite Disposal		Figure 9.2-6
	September 2007	Project Navigat@r, Ltd.®

Screening Criteria	Nine Evaluation Criteria	
	Overall Protection of Human Health and Environment	
	Compliance with ARARS	
Effectiveness	Long-term Effectiveness and Permanence	
	Reductions in Toxicity, Mobility, and Volume Through Treatment	
	Short-term Effectiveness	
Implementability	Implementability	
Cost	Cost	
	State Acceptance	
	Community Acceptance	

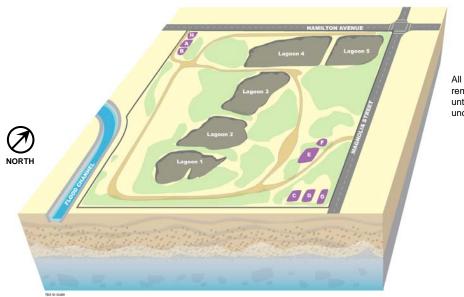
**Role of Criteria During Remedy Selection** 

- "Threshold" Factors
- "Primary Balancing" Factors
- "Modifying" Considerations

Reference: Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, EPA, October 1988

Relationship of Screening Criteria to Nine Evaluation Criteria		Figure 9.3-1
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	PROJECT Navigat@r, Ltd.®

# **Alternative 1: No Action**



All waste materials remain onsite, untreated and uncovered

	Dispose Offsite (cy)	Remain Onsite (cy)
Tarry Liquids	0	25,000
Minimally Impacted Fill	0	364,000
Impacted Soil	0	291,000
Drilling Mud (All)	0	496,000
Pit Wastes	0	57,000
Lagoon 4 and 5 Wastes	0	59,000
Construction Debris	0	69,000
Impacted Clay	0	61,000

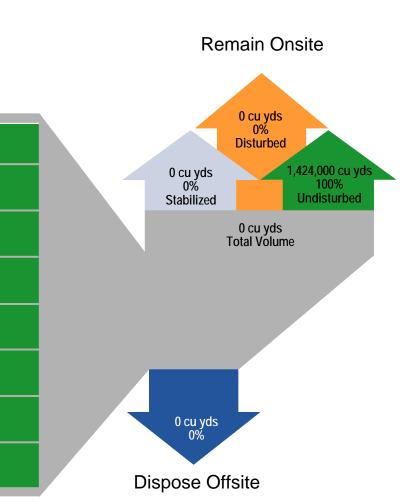
#### Legend

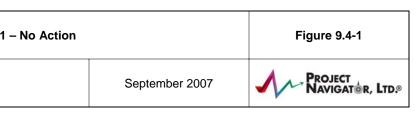
Material disposed offsite – Landfill/waste recycler Partially disturbed materials left onsite

Undisturbed material remaining in situ

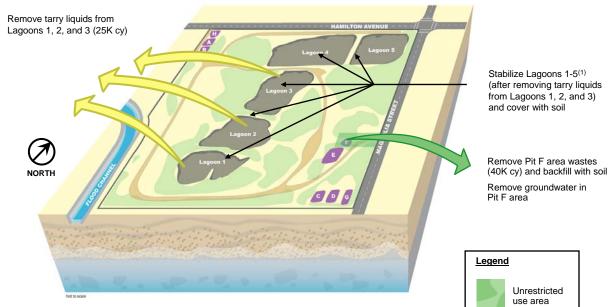
Stabilized material left onsite

Material Disposition for Alternative 1 – No Action





# **Alternative 2: Limited Waste Removal**



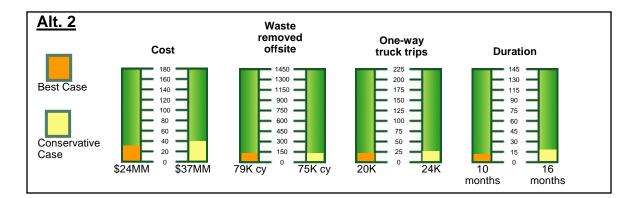
<sup>(1)</sup> Use Geogrid or mix top few feet with cement, as needed, to improve geotechnical characteristics prior to capping.

_	Dispose Offsite (cy)		
Tarry Liquids	25,000		
Minimally Impacted Fill	13,000		
Impacted Soil	0		
Drilling Mud (all except Lagoons 4 and 5)	0		
Pit Wastes	41,000		
Lagoon 4 and 5 Wastes	0		

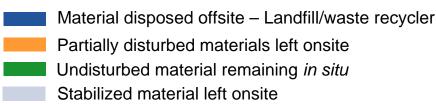
**Construction Debris** 

Impacted Clay

Unrestricted



### Legend



### Note

Concrete around Lagoons 1, 2, and 3 will be disturbed during lagoon infilling (quantity undetermined)

#### **Dispose Offsite Remain Onsite** (cy) (cy) 28,000 Tarry Liquids 56,000 0 Minimally Impacted Fill Impacted Soil 6,000 Drilling Mud (all except 40,000 0 Lagoons 4 and 5) 41,000 Pit Wastes 40,000 0 Lagoon 4 and 5 Wastes 0 **Construction Debris** 0 Impacted Clay

Material Disposition for Alternative 2 - Limite

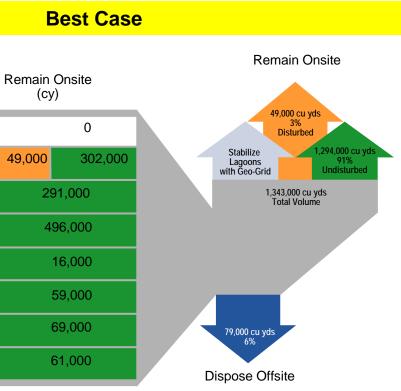
0

0

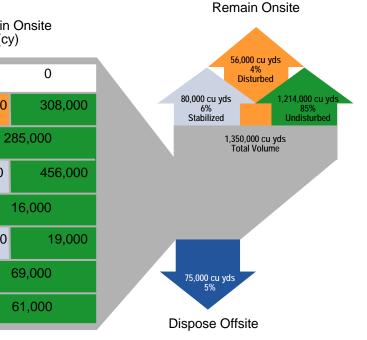
**Revised Feasibility Study** Ascon Landfill Site, Huntington Beach, California

(cy)

49,000

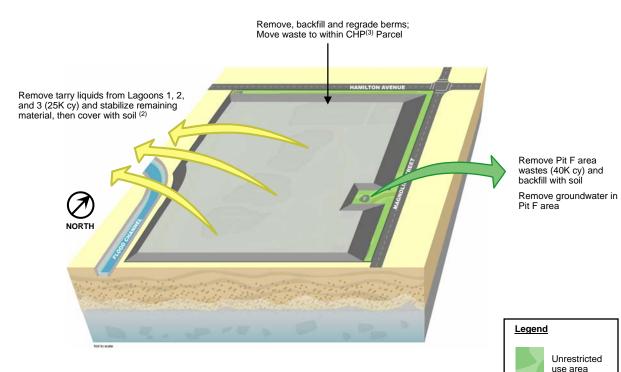






ted Waste Removal		Figure 9.4-2
	September 2007	PROJECT Navigator, Ltd.

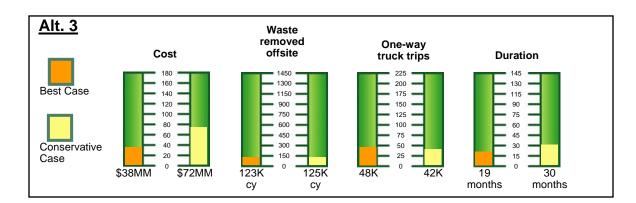
# **Alternative 3: Protective Cap**



	Dispose Offsite (cy)	Remain Onsi (cy)
Tarry Liquids	25,000	
Minimally Impacted Fill	13,000	110,000
Impacted Soil	20,000	271,00
Drilling Mud (all except Lagoons 4 and 5)	22,000	474,00
Pit Wastes	41,000	16,00
Lagoon 4 and 5 Wastes	1,500	57,50
Construction Debris	0	23,000
Impacted Clay	0	61,00

 $^{\left(1\right)}$  Cap (38 acres) will consist of, at a minimum, a drainage layer and vegetative cover over the waste. Other protective elements such as a vapor mitigation barrier and leachate/vapor collection systems may be added during remedial design if data determine these are needed.

- <sup>(2)</sup> Use Geogrid or mix top few feet with cement as needed, to improve geotechnical characteristics prior to capping.
- <sup>(3)</sup> CHP is Cannery Hamilton Properties, LLC.



Unrestricted use area

Protective Cap<sup>(1)</sup>

### Legend

Material disposed offsite - Landfill/waste recycler

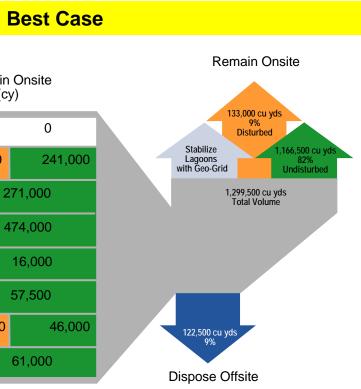
Partially disturbed materials left onsite

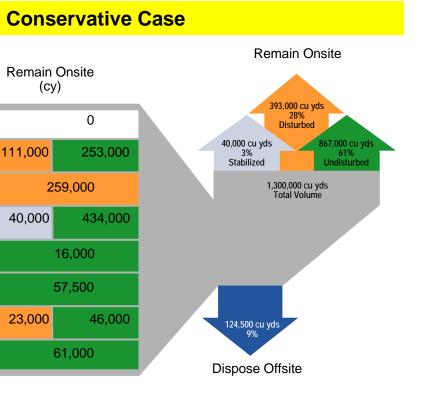
Undisturbed material remaining in situ

Stabilized material left onsite

	Dispose Offsite (cy)	Remain Ons (cy)
Tarry Liquids	28,000	
Minimally Impacted Fill	0	111,000
Impacted Soil	32,000	259,0
Drilling Mud (all except Lagoons 4 and 5)	22,000	40,000
Pit Wastes	41,000	16,0
Lagoon 4 and 5 Wastes	1,500	57,5
Construction Debris	0	23,000
Impacted Clay	0	61,0

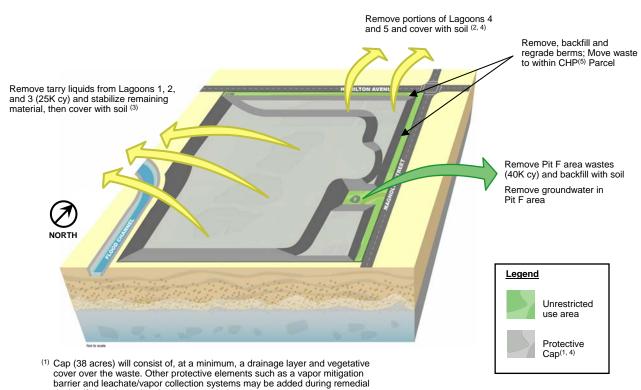
Material Disposition for Alternative 3 – I





Protective Cap		Figure 9.4-3
	September 2007	PROJECT Navigatér, Ltd.®

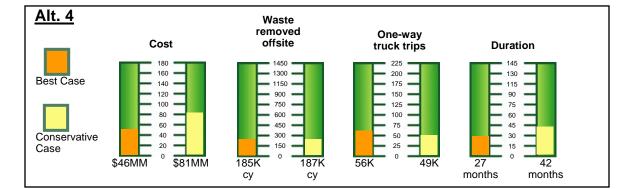
# **Alternative 4: Partial Source Removal with Protective Cap**



	Disposed Offsite (cy)	Remain (c	
Tarry Liquids	25,000		
Minimally Impacted Fill	0	148,000	:
Impacted Soil	32,500	19,500	
Drilling Mud (All)	122,000	4	74,0
Pit Wastes	57,000		
Lagoon 4 and 5 Wastes	48,000		11,0
Construction Debris	0	23,000	
Impacted Clay	0		61,0

	Disposed Offsite (cy)	Remain On (cy)
Tarry Liquids	28,000	
Minimally Impacted Fill	0	241,000
Impacted Soil	31,500	259,5
Drilling Mud (All)	122,000	40,000
Pit Wastes	57,000	
Lagoon 4 and 5 Wastes	48,000	11,0
Construction Debris	0	23,000
Impacted Clay	0	61,0

Material Disposition for Alternative 4 – Partial Source Removal with Protective Cap		Figure 9.4-4
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California	September 2007	PROJECT Navigatier, Ltd.®



### Legend



Material disposed offsite - Landfill/waste recycler

Partially disturbed materials left onsite

Undisturbed material remaining in situ

Stabilized material left onsite

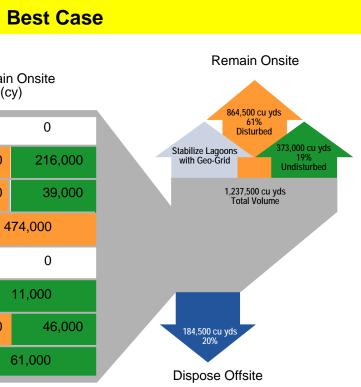
design if data determine these are needed.

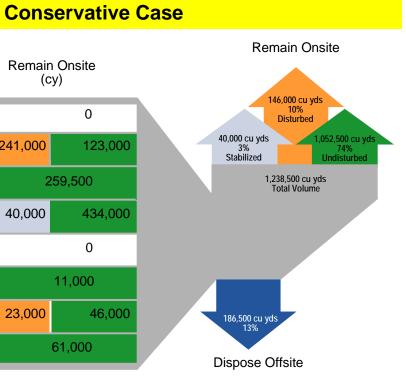
geotechnical characteristics prior to capping.

<sup>(5)</sup> CHP is Cannery Hamilton Properties, LLC.

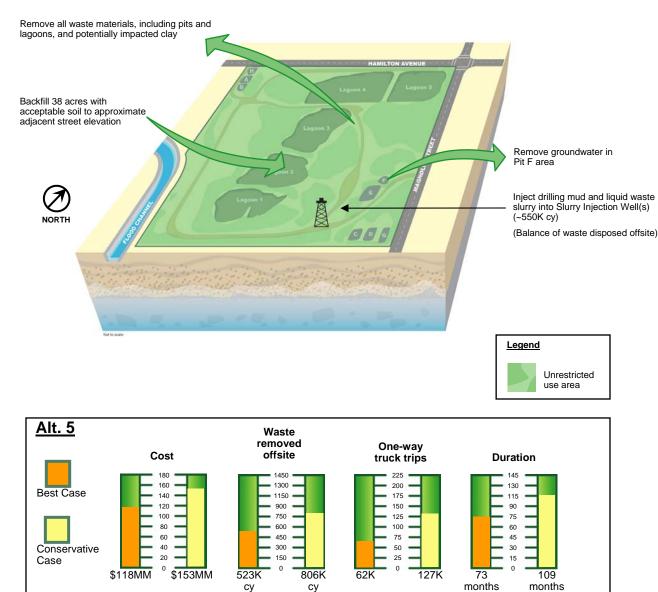
<sup>(2)</sup> Remove waste materials to approximate adjacent street elevation (exact elevation to be determined during remedial design). <sup>(3)</sup> Use Geogrid or mix top few feet with cement, as needed, to improve

<sup>(4)</sup> Exact dimension of cap will be determined during remedial design.





# Alternative 5: Source Removal (with Offsite Disposal and SIT)





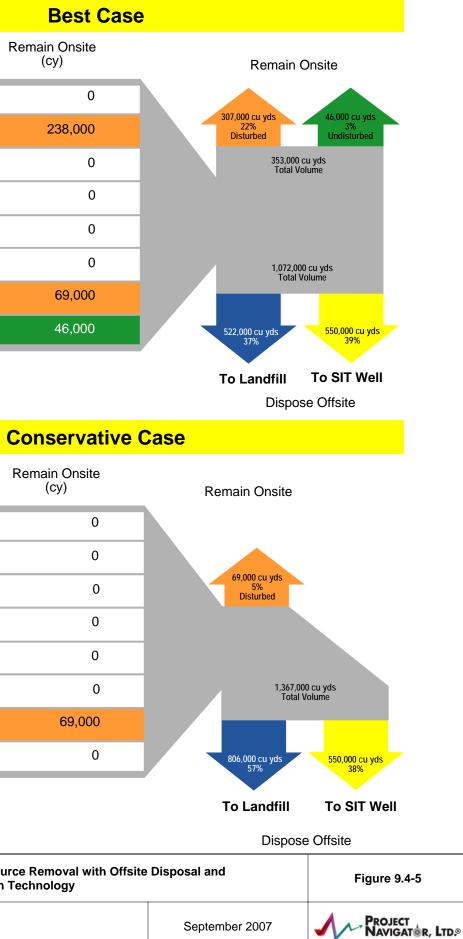
Material disposed offsite – Landfill/waste recycler Partially disturbed materials left onsite

- Undisturbed material remaining in situ
- Material disposed offsite SIT

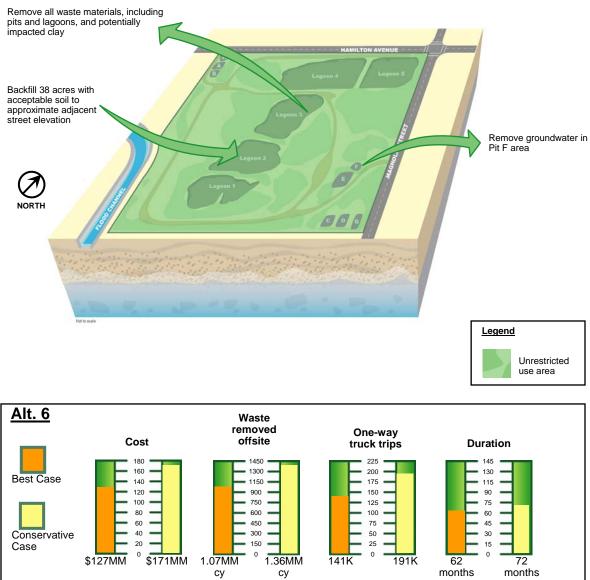
		Bes
	Disposed Offsite (cy)	Remain On (cy)
Tarry Liquids	28,000	
Minimally Impacted Fill	126,000	238,0
Impacted Soil	291,000	
Drilling Mud (All)	33,000 <mark>463,000</mark>	
Pit Wastes	57,000	
Lagoon 4 and 5 Wastes	59,000	
Construction Debris	0	69,0
Impacted Clay	15,000	46,0

			Conserv
	Dispose (c		Remain On (cy)
Tarry Liquids		28,000	
Minimally Impacted Fill	:	364,000	
Impacted Soil	2	291,000	
Drilling Mud (All)	33,000	463,000	
Pit Wastes		57,000	
Lagoon 4 and 5 Wastes	59,000		
Construction Debris	0		69,0
Impacted Clay		61,000	

Material Disposition for Alternative 5 –Source Removal with Offsite Disposal and Slurry Injection Technology



# **Alternative 6: Source Removal** (with Offsite Disposal)



су

Legend
--------

\$127MM



Material disposed offsite - Landfill/waste recycler Partially disturbed materials left onsite

1.07MM

су

Undisturbed material remaining in situ

Disposed Offsite (cy)	Remain Ons (cy)
25,000	
126,000	238,0
291,000	
496,000	
57,000	
59,000	
0	69,0
15,000	46,0
	(cy) 25,000 126,000 291,000 496,000 57,000 59,000 0

months

191K

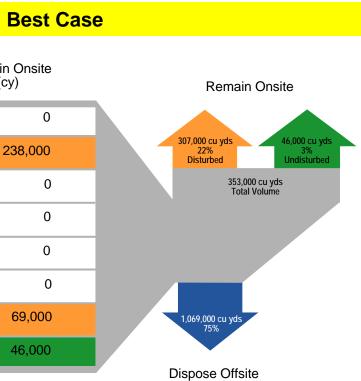
62

months

	Disposed Offsite (cy)	Remain On (cy)
Tarry Liquids	28,000	
Minimally Impacted Fill	364,000	
Impacted Soil	291,000	
Drilling Mud (All)	496,000	
Pit Wastes	57,000	
Lagoon 4 and 5 Wastes	59,000	
Construction Debris	0	69,
Impacted Clay	61,000	

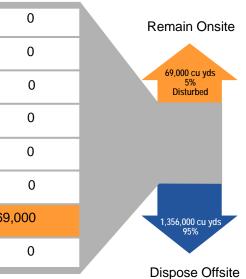
Material Disposition for Alternative 6 - Source Remo Revised Feasibility Study

Ascon Landfill Site, Huntington Beach, California



## **Conservative Case**

nsite



noval with Offs	ite Disposal	Figure 9.4-6
	September 2007	PROJECT Navigatier, Ltd.®

Remedial Alternative	Remedy Description	Remedy Construction Cost (\$ MM)	Operational and Maintenance (\$ MM)	Total Present Worth Cost (\$ MM)	Volume of Waste Removed from Site (1,000cy) (1)	Estimated # of One Way Truck Trips (1,000 trucks) – Waste and Import	Estimated Duration of Remedy Construction (months)
Alt. 1	No Action	\$0	\$0	\$0	0	0	0
Alt. 2	Limited Waste Removal	\$14.4 - \$27.3	\$9.9	\$24.3 - \$37.2	75 - 79	20 - 24	10 - 16
Alt. 3 <sup>(2)</sup>	Protective Cap	\$27.1 - \$51.6	\$11.2 - \$20.6	\$38.3 - \$72.2	123 - 125	42 - 48	19 - 30
Alt. 4 <sup>(3)</sup>	Partial Source Removal with Protective Cap	\$34.8 - \$60.4	\$11.2 - \$20.6	\$46.0 - \$80.9	185 - 187	49 - 56	27 - 42
Alt. 5	Source Removal with Offsite Disposal and Slurry Injection Technology	\$114 - \$148	\$4.6	\$118 - \$153	523 - 806	62 - 127	73 - 109
Alt. 6	Source Removal with Offsite Disposal	\$122 - \$167	\$4.6	\$127 - \$171	1,070 – 1,355	141 - 191	62 - 72

#### Notes

<sup>(1)</sup> For Alt. 5 - Includes only solid material disposed offsite - not liquid waste injected via slurry injection well(s).

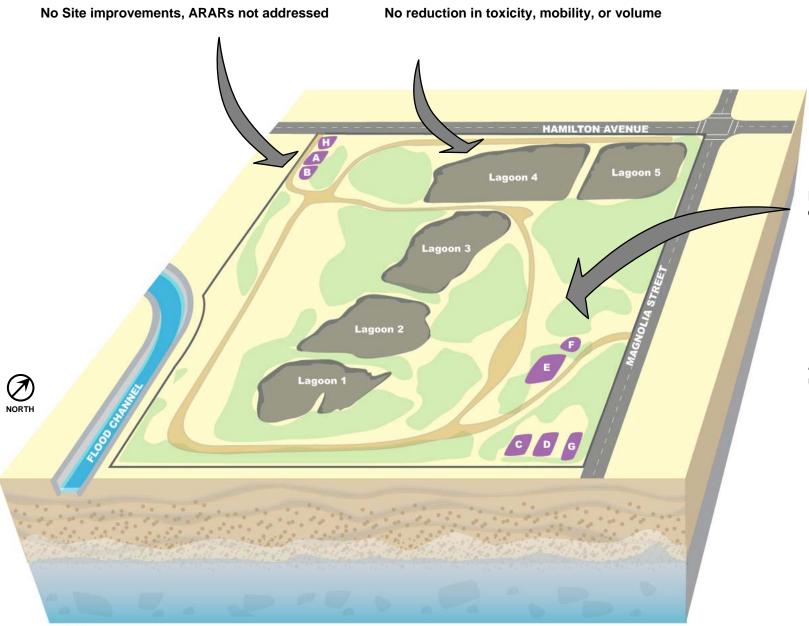
<sup>(2)</sup> Metrics for Alt. 3 – Protective Cap based on a range from estimates developed for installing a 38-acre Monolithic Soil Cap and Multilayer Cap (Appendix R).

<sup>(3)</sup> Metrics for Alt. 4 – Protective Cap based on a range from estimates developed for installing a 38-acre Monolithic Soil Cap and Multilayer Cap (Appendix R).

Cost Estimates, Volumes, Truck Trips, Durations for

for Remedial A	lternatives	Figure 9.4-7
	September 2007	PROJECT Navigat@r, Ltd.®

Detailed	Alternative 1	
Nine NCP Criteria	Considerations	No Action
Overall Protection of Human Health and the Environment	Protection of human health	Does not provide
	Protection of the environment	Does not provide
Compliance with ARARs	Compliance with chemical-specific ARARs	Does not comply
	Compliance with action-specific ARARs	Does not apply
	Compliance with location-specific ARARs	Does not apply
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Does not apply
Long-term Effectiveness and Permanence	Magnitude of residual risk	
	Adequacy and reliability of controls	
	Approximate volume of wastes remaining at the Site	
Reductions in Toxicity, Mobility and Volume through Treatment		
	Amount of hazardous substances destroyed or treated	
	Expected reductions in toxicity, mobility and volume	
	Degree to which treatment is irreversible	
	Type and quantity of residuals remaining after treatment	
Short-term Effectiveness	Protection of community during remedial actions	
	Protection of workers during remedial actions	
	Environmental impacts	
	Time until remedial action objectives are achieved	
	Approximate # of truck trips required (waste + imported soil)	
	Levels of air emissions control during removal and handling	
mplementability	Ability to construct and operate the technology	
	Availability of goods and services	
	Reliability of the technology	
	Ease of undertaking additional remedial actions	
	Ability to monitor effectiveness of remedy	
	Ability to obtain approval from agencies	
	Coordination with other agencies	
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	
Cost	Present worth costs	
State Acceptance	DTSC acceptance of preferred remedy for the Site	
Community Acceptance	Community acceptance of preferred remedy	



Not to scale

Evaluation of Alternative 1 – No

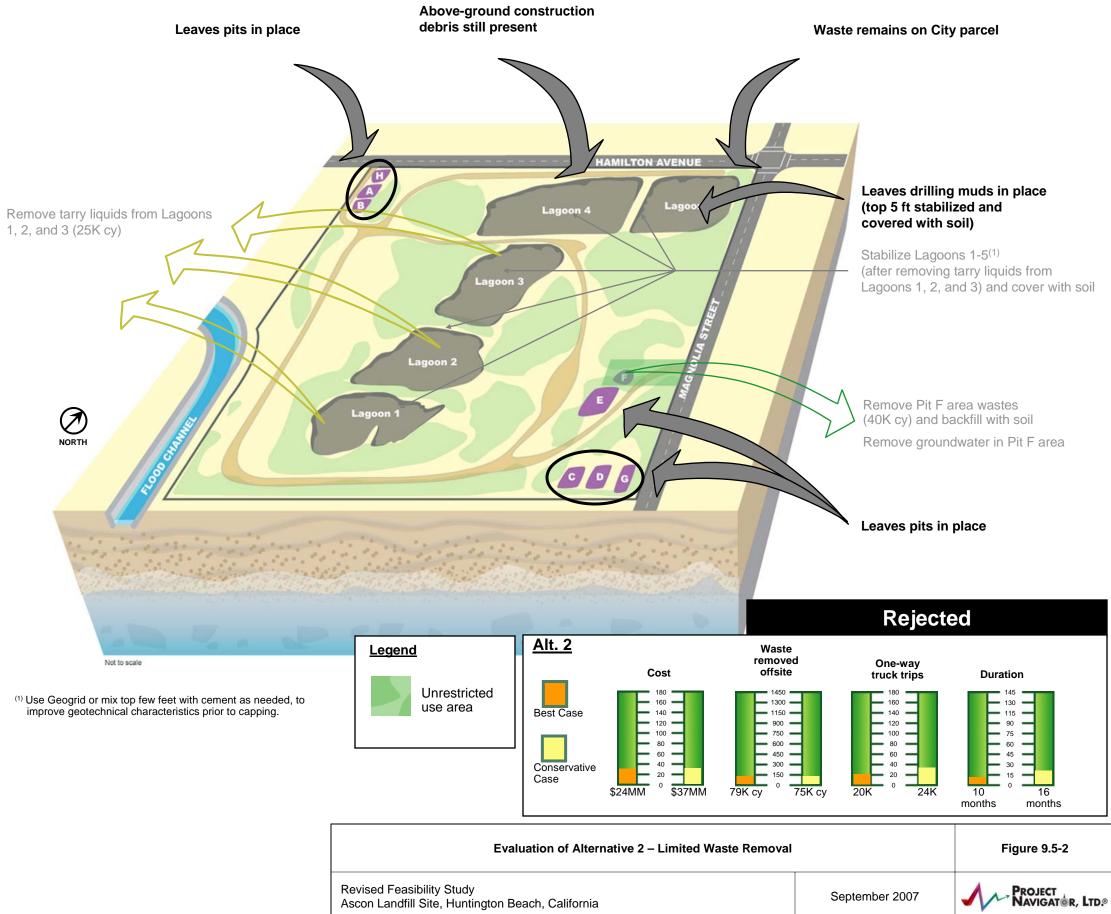
Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California Does not protect public health, environment

# All waste materials remain onsite, untreated, and uncovered

# Rejected

o Action		Figure 9.5-1
	September 2007	Avigater, Ltd.

Detailed Evaluations Criteria Alternative 2					
Nine NCP Criteria	Considerations	Limited Waste Removal			
Overall Protection of Human Health and the Environment	Protection of human health	Does not provide			
	Protection of the environment	Does not provide			
Compliance with ARARs	Compliance with chemical-specific ARARs	Does not comply			
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance.			
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance.			
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance.			
Long-term Effectiveness and Permanence	Magnitude of residual risk				
	Adequacy and reliability of controls				
	Approximate volume of wastes remaining at the Site				
Reductions in Toxicity, Mobility and Volume through Treatment					
	Amount of hazardous substances destroyed or treated				
	Expected reductions in toxicity, mobility and volume				
	Degree to which treatment is irreversible				
	Type and quantity of residuals remaining after treatment				
Short-term Effectiveness	Protection of community during remedial actions				
	Protection of workers during remedial actions				
	Environmental impacts				
	Time until remedial action objectives are achieved				
	Approximate # of truck trips required (waste + imported soil)				
	Levels of air emissions control during removal and handling				
Implementability	Ability to construct and operate the technology				
	Availability of goods and services				
	Reliability of the technology				
	Ease of undertaking additional remedial actions				
	Ability to monitor effectiveness of remedy				
	Ability to obtain approval from agencies				
	Coordination with other agencies				
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities				
Cost	Present worth costs				
State Acceptance	DTSC acceptance of preferred remedy for the Site				
Community Acceptance	Community acceptance of preferred remedy for the Site				



Detaile	d Evaluations Criteria	Alternative 3
Nine NCP Criteria	Considerations	Protective Cap
Overall Protection of Human Health and the Environment	Protection of human health	Encapsulation of waste minimizes the mobility and transport of contaminants and potential for human contact.
	Protection of the environment	Encapsulation of waste minimizes the mobility and transport of contaminants and potential for impacts to the external environment.
Compliance with ARARs	Compliance with chemical-specific ARARs	Will comply. A portion of waste will be removed offsite and remaining impacted materials will be encapsulated. Groundwater remediation/vapor mitigation as required.
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance.
Long-term	Magnitude of residual risk	High
Effectiveness and Permanence	Adequacy and reliability of controls	Moderate to High
	Approximate volume of wastes remaining at the Site	High
Reductions in Toxicity, Mobility, and	Treatment process used and materials treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
Volume through Treatment	Amount of hazardous substances destroyed or treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
	Expected reductions in toxicity, mobility and volume	High reduction in mobility due to encapsulation. Slight (about 10%) reduction in volume due to offsite disposal.
	Degree to which treatment is irreversible	Stabilization treatment has a high degree of irreversibility since metals are bounded in a matrix that is resistant to chemical and physical changes.
	Type and quantity of residuals remaining after treatment	Ouantity of residuals is low due to encapsulation. Encapsulated waste includes impacted native and fill materials, drilling muds, and construction debris
Short-term Effectiveness	Protection of community during remedial actions	Yes – use of foam suppressants water spray, and/or tent structures will be used as needed. Also perimeter air monitoring will be conducted to mitigate offsite impacts.
	Protection of workers during remedial actions	Yes. Workers will use proper PPE, receive Health and Safety and site-specific training, and air monitoring (at work face and Site perimeter) will be conducted.
	Environmental impacts	Above measures will be taken to minimize offsite air emissions and releases; clay layer will not be breached during excavation of Lagoon 4 and 5.
	Time until remedial action objectives are achieved	1.5 to 2 years
	Approximate # of truck trips required (waste + imported soil)	Moderate
	Levels of air emissions control during removal and handling	Low
Implementability	Ability to construct and operate the technology	Moderate, depending on availability of cap materials, trucks and potential need for shoring. Technologies are proven, off-the-shelf.
	Availability of goods and services	Moderate – due to cap materials, trucks.
	Reliability of the technology	High
	Ease of undertaking additional remedial actions	Moderate – would need to remove cap for complete source removal.
	Ability to monitor effectiveness of remedy	Moderate to High
	Ability to obtain approval from agencies	Moderate
	Coordination with other agencies	Moderate
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	Moderate to High
Cost	Present worth costs	Moderate
State Acceptance	DTSC acceptance of preferred remedy for the Site	TBD
Community	Community acceptance of preferred remedy	TBD

### Remove, backfill and regrade berms; Protective Cap reduces waste mobility Move waste to within CHP Parcel<sup>(3)</sup> and provides protection from infiltration/vapors <sup>(1)</sup> HAMILTON AVENUE Remove tarry liquids from Lagoons 1, 2, and 3 (25K cy) and stabilize remaining material, then cover with soil<sup>(2)</sup> OLIA STRE NORTH <u>Alt. 3</u> **Legend** Not to sc Cost Unrestricted Entire Site (final cover) is About 90% of waste use area Best Case graded for drainage remains onsite 80 Protective <sup>(1)</sup> Cap (38 acres) will consist of at a minimum a drainage layer and Cap (1) 40 -Conservative vegetative cover over the waste. Other protective elements such Case as a vapor mitigation barrier and leachate/vapor collection \$72MM \$38MM systems may be added during remedial design if data determine these are needed.

<sup>(2)</sup> Use Geogrid or mix top few feet with cement as needed, to improve geotechnical characteristics prior to capping.

<sup>(3)</sup> CHP is Cannery Hamilton Properties, LLC.

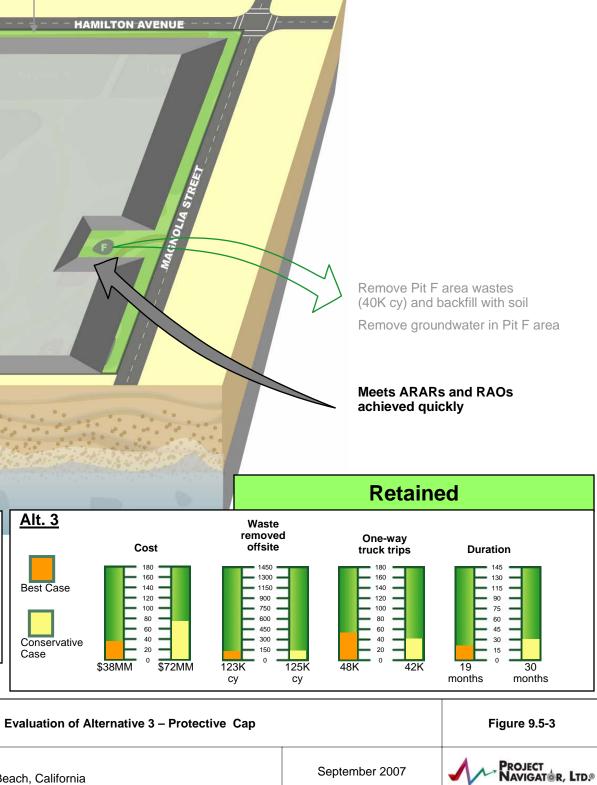
#### Note:

Metrics based on a range of costs for installation of a Monolithic Soil Cap to a Multilayer Cap.

Revised Feasibility Study

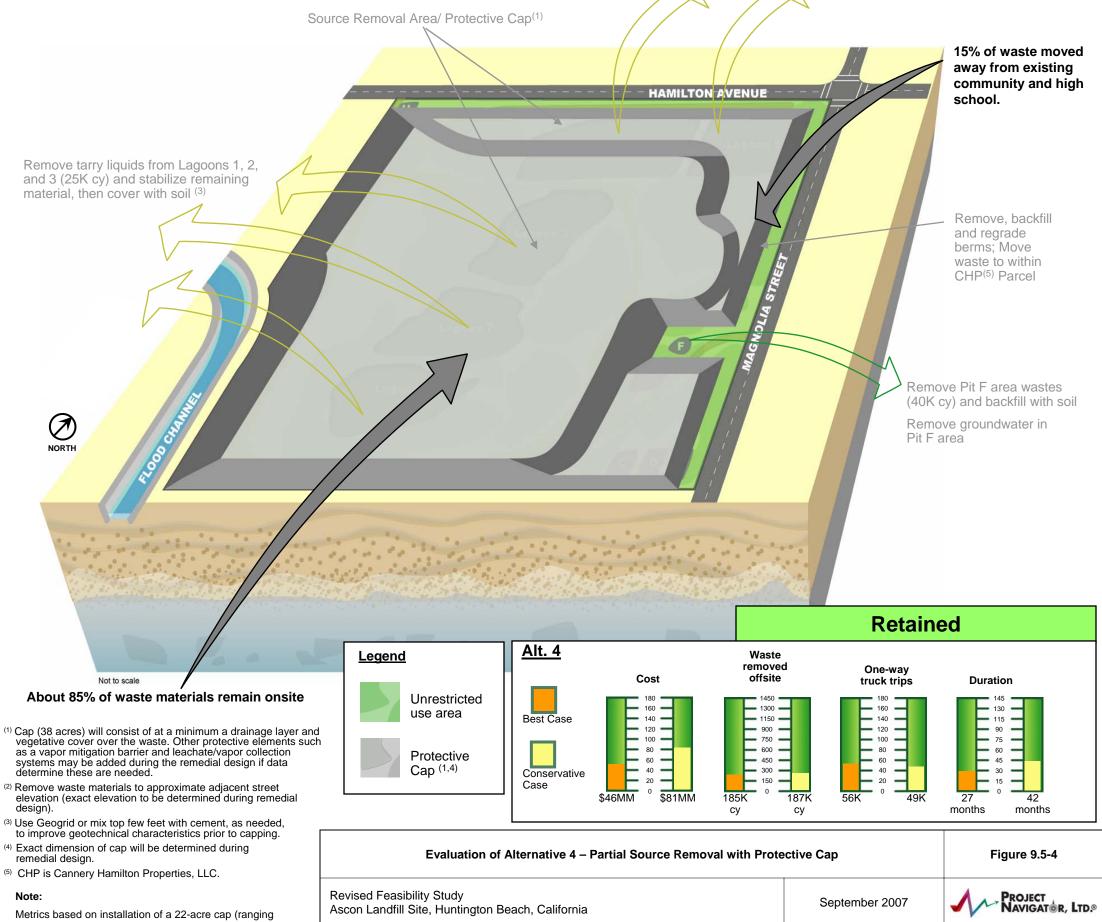
Ascon Landfill Site, Huntington Beach, California

#### Protection of public health and environment, meets ARARS



Detaile	d Evaluations Criteria	Alternative 4
Nine NCP Criteria	Considerations	Partial Source Removal with Protective Cap
Overall Protection of Human Health and the Environment	Protection of human health	Encapsulation of waste minimizes the mobility and transport of contaminants and potential for human contact. A portion of waste materials closest to offsite receptors will be removed and disposed offsite. Remediation of groundwater/vapor mitigation as required.
	Protection of the environment	Encapsulation of waste minimizes the mobility and transport of contaminants and potential for impacting the environment. A portion of waste materials closest to offsite receptors will be removed and disposed offsite. Remediation of groundwater/vapor mitigation as required.
Compliance with ARARs	Compliance with chemical-specific ARARs	Will comply. A portion of waste will be removed offsite and remaining impacted materials will be encapsulated. Groundwater remediation/vapor mitigation as required.
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance.
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance.
Long-term	Magnitude of residual risk	Moderate to High
Effectiveness and Permanence	Adequacy and reliability of controls	Moderate to High
	Approximate volume of wastes remaining at the Site	Moderate to High
Reductions in Toxicity, Mobility,	Treatment process used and materials treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
and Volume through Treatment	Amount of hazardous substances destroyed or treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.
	Expected reductions in toxicity, mobility and volume	High reduction in mobility due to encapsulation and low reduction in volume due to offsite disposal.
	Degree to which treatment is irreversible	Stabilization treatment has a high degree of irreversibility since metals are bounded in a matrix that is resistant to chemical and physical changes.
	Type and quantity of residuals remaining after treatment	Quantity of residuals is high - more than 85% of waste materials are encapsulated onsite. Encapsulated wastes include impacted native materials and fill, drilling muds, and construction debris.
Short-term Effectiveness	Protection of community during remedial actions	Yes – use of foam suppressants, water spray, and/or tent structures will be used as needed. Also, perimeter air monitoring will be conducted to mitigate offsite impacts.
	Protection of workers during remedial actions	Yes. Workers will use proper PPE, receive Health and Safety and site-specific training, and air monitoring (at work face and Site perimeter) will be conducted.
	Environmental impacts	Above measures will be taken to minimize offsite air emissions and releases. Clay layer will not be breached in source removal areas.
	Time until remedial action objectives are achieved	2.25 to 3 years
	Approximate # of truck trips required (waste + imported soil)	Moderate
	Levels of air emissions control during removal and handling	Low to Moderate
Implementability	Ability to construct and operate the technology	Moderate to highly implementable, depending on availability of cap materials, trucks. Technologies are proven, off-the-shelf.
	Availability of goods and services	Moderate – due to cap materials, trucks.
	Reliability of the technology	High
	Ease of undertaking additional remedial actions	Moderate – would need to remove cap for complete source removal.
	Ability to monitor effectiveness of remedy	Moderate to High
	Ability to obtain approval from agencies	Moderate to High
	Coordination with other agencies	Moderate to High
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	Moderate to High
Cost	Present worth costs	Moderate
State Acceptance	DTSC acceptance of preferred remedy for the Site	TBD

#### Protection of public health and environment, meets ARARS



Metrics based on installation of a 22-acre cap (ranging from a Monolithic Soil Cap to a Multilayer Cap).

Remove portions of Lagoons 4 and 5 and cover with soil  $^{(2,\ 4)}$ 

Detaile	ed Evaluations Criteria	Alternative 5	Groundwater Treatment Zones (Typical) <sup>(1)</sup>
Nine NCP Criteria	Considerations	Source Removal with Offsite Disposal and SIT	
Overall Protection of Human Health and the Environment	Protection of human health	Potential waste migration and human exposure greatly reduced by complete source removal of all waste materials except those that can be recycled onsite. Groundwater remediation/vapor mitigation as required.	Remove all waste materials, including pits and lagoons, and potentially impacted clay
	Protection of the environment	Potential waste migration and ecological exposure greatly reduced by complete source removal of all waste materials except those that can be recycled onsite. Groundwater remediation/vapor mitigation as required.	A AMELION AVENUE
Compliance with ARARs	Compliance with chemical-specific ARARs	Will comply. Complete source removal of unacceptable waste materials and groundwater remediation/vapor miligation as required.	Cover 38 acres with acceptable soil
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance	to approximate street elevation
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance	Groundwater Lagoon 3
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance	Treatment Zones (Typical)
Long-term Effectiveness and	Magnitude of residual risk	Low	
Permanence	Adequacy and reliability of controls	Moderate to High	agoon 2
	Approximate volume of wastes remaining at the Site	Low	
Reductions in Toxicity, Mobility, and Volume	Treatment process used and materials treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.	D Lagoon 1
through Treatment	Amount of hazardous substances destroyed or treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.	NORTH
	Expected reductions in toxicity, mobility and volume	High reduction in volume due to offsite disposal in deep injection wells and landfill/recycling facilities.	
	Degree to which treatment is irreversible	Stabilization treatment has a high degree of irreversibility since metals are bounded in a matrix that is resistant to chemical and physical changes.	
	Type and quantity of residuals remaining after treatment	Quantity of residuals is low due to source removal through offsite disposal. Residuals will include some minimally impacted native materials and fill.	and the second state of th
Short-term Effectiveness	Protection of community during remedial actions	Yes – use of foam suppressants water spray, and/or tent structures will be used as needed. Also, perimeter air monitoring will be conducted to mitigate offsite impacts.	4,000 - 5,000 ft
	Protection of workers during remedial actions	Yes. Workers will use proper PPE, receive Health and Safety and site-specific training, and air monitoring (at work face and Site perimeter) will be conducted.	
	Environmental impacts	Above measures will be taken to minimize offsite air emissions and releases. Clay layer will not be breached in source removal areas.	Not to scale
	Time until remedial action objectives are achieved	6 to 9 years	Significant technical, regulatory, and
	Approximate # of truck trips required (waste + imported soil)	High	public perception hurdles
	Levels of air emissions control during removal and handling	High – due to additional steps required to slurry waste.	
Implementability	Ability to construct and operate the technology	Low implementability due to significant technical, regulatory, and public perception hurdles.	Alt. 5
	Availability of goods and services	Relatively low – requires permitting, siting and installation of deep injection wells, significant makeup water and amendments for slurrying wastes, etc.	Places >500,000cy of liquid waste slurry underground, leads to residual risk that is difficult to monitor
	Reliability of the technology	High	
	Ease of undertaking additional remedial actions	None required except minimal long-term O&M.	(1) Post-remedy risk assessment will determine if this will be needed.
	Ability to monitor effectiveness of remedy	Moderate to High	
	Ability to obtain approval from agencies	Low to Very Low	
	Coordination with other agencies	Low to Very Low	\$118MM Š\$153MM
	Availability of offsite treatment, storage, and disposal (TSD) services and capacities	Moderate to High	Evaluation of Alternative 5 – Source Removal with Offsite Dispos
Cost	Present worth costs	High	Evaluation of Alternative 5 – Source Removal with Offsite Dispos
State Acceptance	DTSC acceptance of preferred remedy for the Site	TBD	Revised Feasibility Study
Community	Community acceptance of preferred	TBD	Ascon Landfill Site, Huntington Beach, California

100% of waste material removed; Unrestricted land use possible

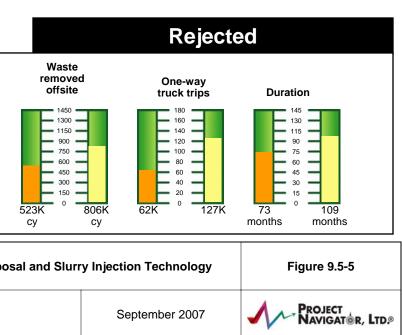
Remove groundwater in Pit F area

#### Level of air emissions control very high due to multiple handling steps required to fluidize and inject waste

Inject drilling mud and liquid waste slurry into Slurry Injection Well(s) (~550K cy) (Balance of waste disposed offsite)



Slow production = 6 to 9 years to implement (field time) plus significant time required for permitting, pilot testing



Detaile	d Evaluations Criteria	Alternative 6	
Nine NCP Criteria	Considerations	Source Removal with Offsite Disposal	100% of all waste materia
Overall Protection of Human Health and the Environment	Protection of human health	Potential waste migration and human exposure greatly reduced by complete source removal of all waste materials except those that can be recycled onsite. Groundwater remediation/vapor mitigation as required.	Remove all waste materials lagoons, and potentially imp
	Protection of the environment	Potential waste migration and ecological exposure greatly reduced by complete source removal of all waste materials except those that can be recycled onsite. Groundwater remediation/vapor mitigation as required.	
Compliance with ARARS	Compliance with chemical-specific ARARs	Will comply. Complete source removal of unacceptable waste materials and groundwater remediation vapor mitigation as required.	Cover 38 acres with accep
	Compliance with action-specific ARARs	Remedy construction and waste management activities will be in compliance	approximate street elevatio
	Compliance with location-specific ARARs	Remedy construction and waste management activities will be in compliance	Groundwater
	Compliance with to-be-considered ARARs and other criteria, advisories and guidance	Remedy construction and waste management activities will be in compliance	Treatment Zones (Typical)
Long-term	Magnitude of residual risk	Very Low	
Effectiveness and Permanence	Adequacy and reliability of controls	High	
	Approximate volume of wastes remaining at the Site	Low	
Reductions in Toxicity, Mobility, and Volume through Treatment	Treatment process used and materials treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.	
	Amount of hazardous substances destroyed or treated	Limited to stabilization of impacted materials prior to reuse and offsite treatment by disposal facility.	
	Expected reductions in toxicity, mobility and volume	High reduction in volume due to offsite disposal in landfill/recycling facilities.	NORTH
	Degree to which treatment is irreversible	Stabilization treatment has a high degree of irreversibility since metals are bounded in a matrix that is resistant to chemical and physical changes.	20
	Type and quantity of residuals remaining after treatment	Quantity of residuals is low due to source removal through offsite disposal. May include some minimally impacted native materials and fill.	
Short-term Effectiveness	Protection of community during remedial actions	Yes – use of foam suppressants water spray, and/or tent structures will be used as needed. Also, perimeter air monitoring will be conducted to mitigate offsite impacts.	a second
	Protection of workers during remedial actions	Yes. Workers will use proper PPE, receive Health and Safety and site-specific training, and air monitoring (at work face and Site perimeter) will be conducted.	
	Environmental impacts	Above measures will be taken to minimize offsite air emissions and releases. Clay layer will not be breached in source removal areas.	
	Time until remedial action objectives are achieved	5.25 to 6 years	
	Approximate # of truck trips required (waste + imported soil)	Very High	to scale
	Levels of air emissions control during removal and handling	High	
Implementability	Ability to construct and operate the technology	Moderate to highly implementable. Technologies are proven, off-the-shelf. Depends on availability of trucks and backfill.	/
	Availability of goods and services	Low to Moderate – depends on availability of trucks.	Unrestricted land use
	Reliability of the technology	High	possible (38 acres)
	Ease of undertaking additional remedial actions	None required except minimal long-term O&M.	
	Ability to monitor effectiveness of remedy	High	<sup>(1)</sup> Post-remedy risk assessment will determine if this will be needed.
	Ability to obtain approval from agencies	High	
	Coordination with other agencies	High	
	Availability of offsite treatment, storage, and disposal (TSD) services and	Low to Moderate (Truck and Landfill Capacity Issues)	
	capacities		
Cost	Present worth costs	Very High	
Cost State Acceptance		Very High TBD	

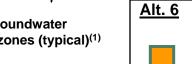
#### 0% of all waste materials removed

move all waste materials, including pits and oons, and potentially impacted clay

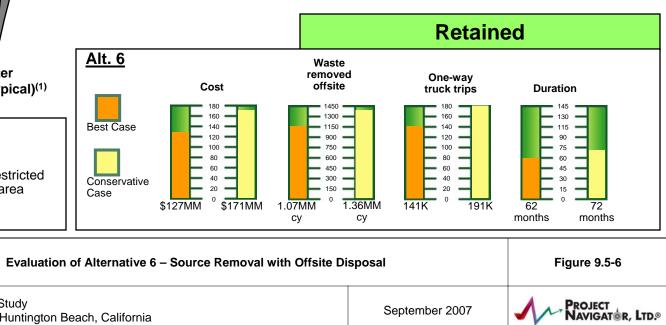
ver 38 acres with acceptable soil to proximate street elevation

#### oundwater atment Zones pical)

Isolated groundwater treatment zones (typical)<sup>(1)</sup>







Revised Feasibility Study Ascon Landfill Site, Huntington Beach, California

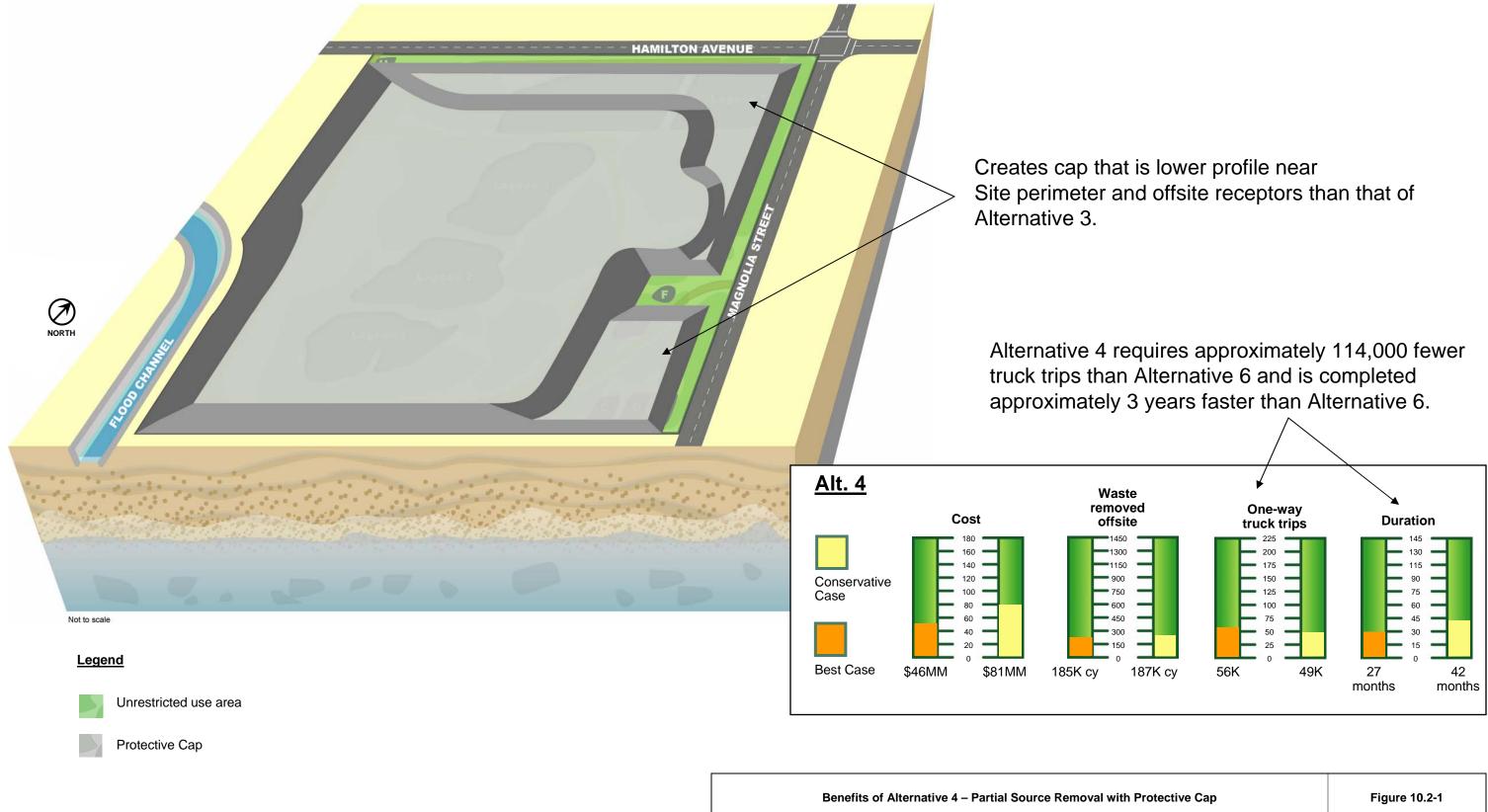
Groundwater Treatment Zones (Typical)<sup>(1)</sup>

MILTON AVEN

Community impacts from odors, air emissions, and trucks could reduce attractiveness

Remove groundwater in Pit F area

Removes nearly 46,000 more cubic yards of waste from Lagoons 4 and 5 than does Alternative 3.



val with Protec	tive Cap	Figure 10.2-1
	September 2007	PROJECT Navigatér, Ltd.