

APPENDIX B

SCREENING EVALUATION OF OE REMEDIAL ACTION DEPTHS

APPENDIX B

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**Table B1. Screening of OE Removal Depths ? Ranges 43-48
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
<p>Surface OE Removal (Identify and Remove All OE on the Surface)</p>	<p>Eliminates immediate threat to trespassers & attractive nuisance on ground surface. BLM & development area reuse restrictions on digging required.</p>	<p>Complies</p>	<p>Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs; however, site is in close proximity to public and trespassing incidents have been documented. Vegetation clearance and surface OE removal would provide unobstructed view, easier access to interior of IA site by trespassers, increased attractive nuisance, and potential for erosion to cause subsurface OE items to surface.</p>	<p>Highly likely to require remobilization & deeper removal in long term at significant additional cost. Depends on reuse and cleanup goals established in OE RI/FS. Need to determine if surface removal adjacent to development areas provides adequate risk reduction.</p>	<p>Necessary approval for Interim Action can be obtained. May be difficult to obtain approval as final remedy based on initial input from regulatory agencies and public. HMP requires vegetation recovery of 10 or more years after clearance and OE removal before remobilization could be implemented.</p>	<p>Personnel and equipment readily available. After clearing vegetation, time frame to complete surface removal is 10 months.</p>	<p><u>Vegetation Clearance</u> \$1.9 million <u>OE Removal</u> \$5.8 million <u>Enhanced Site Security (5 years)</u> \$4.5 million <u>OE Detonation</u> \$0.5 million Total Cost \$12.7 million</p>

**Table B1. Screening of OE Removal Depths ? Ranges 43-48
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
Subsurface OE Removal (Identify, Investigate, and Remove All Anomalies to Depths Consistent with Planned Reuse in Each Area)	Eliminates immediate threat to trespassers & provides safety margin for expanded reuse.	Complies	Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs.	May require remobilization & deeper removal in long term at significant additional cost. Depends on reuse and cleanup goals established in OE RI/FS.	Necessary approvals can be obtained. May be difficult to obtain approval as final remedy based on initial input from regulatory agencies and public. HMP requires vegetation recovery of 10 or more years after clearance and OE removal before remobilization could be implemented.	Personnel and equipment readily available. After clearing vegetation, time frame to complete subsurface removal is 24 months.	<u>Vegetation Clearance</u> \$1.9 million <u>OE Removal*</u> \$10.6 to \$11.2 million <u>Existing Site Security (5 years)</u> \$0.2 million <u>OE Detonation</u> \$1.1 million Total \$13.8 to \$14.4 million

**Table B1. Screening of OE Removal Depths ? Ranges 43-48
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
OE Removal to Depth (Identify, Investigate, and Remove All Anomalies to Depth Found)	Eliminates immediate threat to trespassers & eliminates hazard to the maximum extent.	Complies	Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs.	Likely effective as long term/permanent remedy. Depends on reuse and cleanup goals established in OE RI/FS.	Necessary approvals can be obtained. Likely able to obtain approval as final remedy based on initial input from regulatory agencies and public.	Personnel and equipment readily available. After clearing vegetation, time frame to complete removal to depth is 25 months.	<u>Vegetation Clearance</u> \$1.9 million <u>OE Removal</u> \$11.2 million <u>Existing Site Security (5 years)</u> \$0.2 million <u>OE Detonation</u> \$1.1 million <u>Total Cost</u> \$14.4 million

* Vegetation Clearance, OE Remedial Action and OE Detonation costs are based on USACE and OE contractor estimated costs provided by Parsons, Inc. Estimated costs for Vegetation Clearance assume prescribed burning will be selected as the preferred alternative. Subsurface OE removal costs are estimated as a range of OE removal costs for a 1 ft. and 4 ft. removal. Estimated costs for OE Detonation assume Detonation with Engineering Controls will be selected as the preferred alternative.

Abbreviations

- ARARs Applicable or relevant and appropriate requirements
- OE Ordnance and Explosives
- HMP Habitat Management Plan
- OE RI/FS Ordnance and Explosives Remedial Investigation Feasibility Study for Fort Ord
- UXO Unexploded Ordnance

**Table B2. Screening of OE Removal Depths ? Range 30A
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
<p>Surface OE Removal (Identify and Remove All OE on the Surface)</p>	<p>Eliminates immediate threat to trespassers & attractive nuisance on ground surface. BLM & development area reuse restrictions on digging required.</p>	<p>Complies</p>	<p>Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs; however, site is in close proximity to public and trespassing incidents have been documented. Vegetation clearance and surface OE removal would provide unobstructed view, easier access to interior of IA site by trespassers, increased attractive nuisance, and potential for erosion to cause subsurface OE items to surface.</p>	<p>Highly likely to require remobilization & deeper removal in long term at significant additional cost. Depends on reuse and cleanup goals established in OE RI/FS. Need to determine if surface removal adjacent to development areas provides adequate risk reduction.</p>	<p>Necessary approval for Interim Action can be obtained. May be difficult to obtain approval as final remedy based on initial input from regulatory agencies and public. HMP requires vegetation recovery of 10 or more years after clearance and OE removal before remobilization could be implemented.</p>	<p>Personnel and equipment readily available. After clearing vegetation, time frame to complete surface removal is 8 months.</p>	<p><u>Vegetation Clearance</u> \$1.5 million <u>OE Removal</u> \$4.4 million <u>Enhanced Site Security (5 years)</u> \$4.2 million <u>OE Detonation</u> \$0.06 million Total Cost \$10.2 million</p>

**Table B2. Screening of OE Removal Depths ? Range 30A
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
<p>Subsurface OE Removal (Identify, Investigate, and Remove All Anomalies to Depths Consistent with Planned Reuse in Each Area)</p>	Eliminates immediate threat to trespassers & provides safety margin for expanded reuse.	Complies	Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs.	May require remobilization & deeper removal in long term at significant additional cost. Depends on reuse and cleanup goals established in OE RI/FS.	Necessary approvals can be obtained. May be difficult to obtain approval as final remedy based on initial input from regulatory agencies and public. HMP requires vegetation recovery of 10 or more years after clearance and OE removal before remobilization could be implemented.	Personnel and equipment readily available. After clearing vegetation, time frame to complete subsurface removal is 19 months.	<p><u>Vegetation Clearance</u> \$1.5 million</p> <p><u>OE Removal*</u> \$6.8 to \$7.7 million</p> <p><u>Existing Site Security (5 years)</u> \$0.2 million</p> <p><u>OE Detonation</u> \$0.12 million</p> <p>Total \$8.5 to \$9.5 million</p>

**Table B2. Screening of OE Removal Depths ? Range 30A
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
OE Removal to Depth (Identify, Investigate, and Remove All Anomalies to Depth Found)	Eliminates immediate threat to trespassers & eliminates hazard to the maximum extent.	Complies	Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs.	Likely effective as long term/permanent remedy. Depends on reuse and cleanup goals established in OE RI/FS.	Necessary approvals can be obtained. Likely able to obtain approval as final remedy based on initial input from regulatory agencies and public.	Personnel and equipment readily available. After clearing vegetation, time frame to complete removal to depth is 20 months.	<u>Vegetation Clearance</u> \$1.5 million <u>OE Removal</u> \$7.7 million <u>Existing Site Security (5 years)</u> \$0.2 million <u>OE Detonation</u> \$0.12 million Total Cost \$9.5 million

* Vegetation Clearance, OE Remedial Action and OE Detonation costs are based on USACE and OE contractor estimated costs provided by Parsons, Inc. Estimated costs for Vegetation Clearance assume prescribed burning will be selected as the preferred alternative. Subsurface OE removal costs are estimated as a range of OE removal costs for a 1 ft. and 4 ft. removal. Estimated costs for OE Detonation assume Detonation with Engineering Controls will be selected as the preferred alternative.

Abbreviations

- ARARs Applicable or relevant and appropriate requirements
- OE Ordnance and Explosives
- HMP Habitat Management Plan
- OE RI/FS Ordnance and Explosives Remedial Investigation Feasibility Study for Fort Ord
- UXO Unexploded Ordnance

**Table B3. Screening of OE Removal Depths ? Site OE-16
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
<p>Surface OE Removal (Identify and Remove All OE on the Surface)</p>	<p>Eliminates immediate threat to trespassers & attractive nuisance on ground surface. BLM & development area reuse restrictions on digging required.</p>	<p>Complies</p>	<p>Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs; however, site is in close proximity to public and trespassing incidents have been documented. Vegetation clearance and surface OE removal would provide unobstructed view, easier access to interior of IA site by trespassers, increased attractive nuisance, and potential for erosion to cause subsurface OE items to surface.</p>	<p>Highly likely to require remobilization & deeper removal in long term at significant additional cost. Depends on reuse and cleanup goals established in OE RI/FS. Need to determine if surface removal adjacent to development areas provides adequate risk reduction.</p>	<p>Necessary approval for Interim Action can be obtained. May be difficult to obtain approval as final remedy based on initial input from regulatory agencies and public. HMP requires vegetation recovery of 10 or more years after clearance and OE removal before remobilization could be implemented.</p>	<p>Personnel and equipment readily available. After clearing vegetation, time frame to complete surface removal is 2 months.</p>	<p><u>Vegetation Clearance</u> \$0.3 million <u>OE Removal</u> \$0.9 million <u>Enhanced Site Security (5 years)</u> \$1.8 million <u>OE Detonation</u> \$6,500 <u>Total Cost</u> \$3.0 million</p>

**Table B3. Screening of OE Removal Depths ? Site OE-16
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
<p>Subsurface OE Removal (Identify, Investigate, and Remove All Anomalies to Depths Consistent with Planned Reuse in Each Area)</p>	Eliminates immediate threat to trespassers & provides safety margin for expanded reuse.	Complies	Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs.	May require remobilization & deeper removal in long term at significant additional cost. Depends on reuse and cleanup goals established in OE RI/FS.	Necessary approvals can be obtained. May be difficult to obtain approval as final remedy based on initial input from regulatory agencies and public. HMP requires vegetation recovery of 10 or more years after clearance and OE removal before remobilization could be implemented.	Personnel and equipment readily available. After clearing vegetation, time frame to complete subsurface removal is 4 months.	<p><u>Vegetation Clearance</u> \$0.3 million</p> <p><u>OE Removal*</u> \$1.29 to \$1.3 million</p> <p><u>Existing Site Security (5 years)</u> \$0.04 million</p> <p><u>OE Detonation</u> \$13,000</p> <p>Total \$1.62 to \$1.65 million</p>

**Table B3. Screening of OE Removal Depths ? Site OE-16
Interim Action OE RI/FS, Fort Ord, California**

Depth of Removal	Screening Criteria						
	Effectiveness				Implementability		Interim Action Cost*
	Overall Protection of Human Health & Environment	Compliance with ARARs	Short Term Effectiveness	Long Term Effectiveness & Permanence	Administrative	Technical	
OE Removal to Depth (Identify, Investigate, and Remove All Anomalies to Depth Found)	Eliminates immediate threat to trespassers & eliminates hazard to the maximum extent.	Complies	Effective in short term combined with existing access deterrents such as fencing, patrols, warning signs.	Likely effective as long term/permanent remedy. Depends on reuse and cleanup goals established in OE RI/FS.	Necessary approvals can be obtained. Likely able to obtain approval as final remedy based on initial input from regulatory agencies and public.	Personnel and equipment readily available. After clearing vegetation, time frame to complete removal to depth is 4 months.	<u>Vegetation Clearance</u> \$0.3 million <u>OE Removal</u> \$1.3 million <u>Existing Site Security (5 years)</u> \$0.04 million <u>OE Detonation</u> \$13,000 million <u>Total Cost</u> \$1.65 million

* Vegetation Clearance, OE Remedial Action and OE Detonation costs are based on USACE and OE contractor estimated costs provided by Parsons, Inc. Estimated costs for Vegetation Clearance assume prescribed burning will be selected as the preferred alternative. Subsurface OE removal costs are estimated as a range of OE removal costs for a 1 ft. and 4 ft. removal. Estimated costs for OE Detonation assume Detonation with Engineering Controls will be selected as the preferred alternative.

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