

Table E-1
Estimated Costs for Remedial Alternative NRS-2 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Alternative NRS-2 (9 mg/kg): Use a nonintrusive approach to covering the existing ground surface with a geotextile marker layer and a 12-inch soil layer to reduce exposure to surface soils. This alternative would be implemented in specific portions of exposure units (EUs) to achieve EU-wide exposure point concentrations (EPCs) below the nonresidential surface soil preliminary remediation goal (PRG) of 9 milligrams per kilogram (mg/kg). The covers would only be placed in EUs where the addition of 12 inches of soil to the existing ground surface elevations would not increase local flooding—EU7, EU19N, and EU26. For the target remedial areas that cannot be covered due to flooding concerns—EU5, EU14N and EU19S—excavation with on-site/off-site disposal of surface soils would be implemented to achieve EU-wide EPCs below 9 mg/kg. Excavated soils with PCB concentrations <50 mg/kg would be disposed of on-site in the south staging and soil management area (SSMA), and soils with PCB concentrations >50 mg/kg would be disposed of in an appropriately permitted off-site landfill. Soil management would be conducted as part of the remedy. The soil management activities would limit future intrusive activities on the nonresidential properties from adversely impacting the effectiveness of the nonresidential surface soil remedy and the remedy implemented for nearby residential properties. Specific soil management activities would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or adjacent residential remedies. Utility organizations typically contacted as part of the outreach process include sewer, water, gas, electric, oil, cable/fiber optic, etc. Periodic observations of the nonresidential areas would be conducted to confirm that land use remains nonresidential.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
Capital Costs					
1.	Mobilization / Demobilization	10%	Lump Sum	1	\$147,000
2.	Temporary Facilities	\$10,000	Month	10	\$100,000
3.	Clearing and Site Preparation	\$10,000	Acre	15.8	\$158,000
4.	Surveying	\$79,000	Lump Sum	1	\$79,000
5.	Erosion, Sediment, and Storm Water Control	\$63,200	Lump Sum	1	\$63,200
6.	Soil Excavation	\$25	Cubic Yard	8,600	\$215,000
7.	Soil Backfill Placement	\$21	Cubic Yard	8,600	\$180,600
8.	Soil Cover Placement	\$21	Cubic Yard	22,600	\$474,600
9.	Waste Transportation and Off-Site Disposal (≥50 mg/kg)	\$200	Ton	3,900	\$780,000
10.	Waste Transportation and On-Site Disposal (<50 mg/kg)	\$8	Ton	9,000	\$74,700
11.	Surface Restoration	\$6,000	Acre	15.8	\$94,800
12.	Contractor Health & Safety/Air Monitoring	\$10,000	Month	10	\$100,000
TOTAL CAPITAL COST					\$2,467,000
Long-Term Costs					
13.	Soil Management Program	\$413,000	Annually	1	\$413,000
ADDITIONAL ANNUAL LONG-TERM COST					\$413,000
Present Worth of Additional Long-Term Costs					
14.	Years of Long-Term Program	30	Years		
15.	Discount Rate	7	%		
PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)					\$5,125,000
Administrative/Management					
CONSTRUCTION BONDING (3% of Capital Cost)					\$74,000
PROJECT MANAGEMENT (5% of Capital Cost)					\$123,000
PROJECT MANAGEMENT (5% of Long-Term Cost)					\$256,000
ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)					\$148,000
CONSTRUCTION MANAGEMENT (6% of Capital Cost)					\$148,000
SUBTOTAL					\$8,341,000
Contingency Costs					
CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)					\$740,000
CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)					\$1,025,000
TOTAL PRESENT WORTH					\$10,106,000

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Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study*, prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment and materials to remove surface soils in areas where a soil cover cannot be placed directly on existing grades due to the potential to increase localized flooding. Under this alternative, it is assumed that excavation will be required in EU-5, EU-14N and EU-19S. To achieve specific PRGs for non-PCB constituents of concern, EU-22 will be targeted to achieve a chromium PRG of 538 mg/kg, EU-14N and the Northside Area will be targeted to achieve a polycyclic aromatic hydrocarbon PRG of 21 mg/kg, and EU-25 will be targeted to achieve a polychlorinated dibenzo-p-dioxin/dibenzofuran toxic equivalent PRG of 0.6 micrograms per kilogram. The cost estimate assumes that 8,600 cubic yards of soil within a footprint of 15.8 acres will be excavated from these EUs.
7. Includes labor, equipment, and materials to purchase, import, place, grade and compact a geotextile marker layer, general fill, and topsoil to replace removed materials to pre-removal grades.
8. Includes labor, equipment, and materials to cover the existing ground surface with a geotextile marker layer and a 12-inch soil layer to reduce exposure to surface soils. The covers would only be placed in EUs where the addition of 12 inches of soil to the existing ground surface elevations will not increase local flooding (EU-3, EU-6, EU-7, EU-10, EU-12, EU-13, EU-19N, EU-24, and EU-26). It is assumed that covers over a footprint of 8.1 acres.
9. Includes transportation and off-site disposal of excavated materials with PCB concentrations greater than or equal to 50 mg/kg at a Toxic Substances Control Act regulated landfill. This cost estimate assumes that approximately 30% of the soil material excavated under this alternative would be greater than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
10. Includes transportation and on-site disposal of excavated soils with PCB concentrations less than 50 mg/kg. Assumes that excavated soils under this line item will be disposed in the SSSMA. This cost estimate assumes that approximately 70% of the soil material excavated under this alternative would be less than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
11. Includes costs for labor, equipment, and materials to restore the disturbed areas following construction. Includes grading, seeding, mulching, and other necessary surface restoration.
12. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
13. Soil management would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or residential remedies. Cost estimates assumes that soil management will be required on five nonresidential properties per year. In addition, this cost estimate assumes that one large soil management project will be implemented every other year or two moderately sized soil management projects will be implemented each year. Includes periodic observations of the nonresidential areas to confirm that land use continues to be nonresidential.
14. Assumes 30 years for implementation of the soil management program based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.
15. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.

Table E-2
Estimated Costs for Remedial Alternative NRS-3 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Alternative NRS-3 (9 mg/kg): Excavate surface soils to achieve an exposure unit (EU)-wide exposure point concentration (EPC) below the nonresidential surface soil preliminary remediation goal (PRG) of 9 milligrams per kilogram (mg/kg), dispose of soil on-site and off-site, backfilling the excavated areas with clean soil, and soil management. Excavated soils with PCB concentrations <50 mg/kg would be disposed of on-site in the SSSMA, and soils with PCB concentrations >50 mg/kg would be disposed of in an appropriately permitted off-site landfill. Soil management activities would limit future intrusive activities on the nonresidential properties from adversely impacting the effectiveness of the nonresidential surface soil remedy and the remedy implemented for nearby residential properties. Specific soil management activities would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or adjacent residential remedies. Utility organizations typically contacted as a part of the outreach process include sewer, water, gas, electric, oil, cable/fiber optic, etc. Periodic observations of the nonresidential areas would be conducted confirm that land use remains nonresidential.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
Capital Costs					
1.	Mobilization / Demobilization	10%	Lump Sum	1	\$184,000
2.	Temporary Facilities	\$10,000	Month	10	\$100,000
3.	Clearing and Site Preparation	\$10,000	Acre	16.2	\$162,000
4.	Surveying	\$81,000	Lump Sum	1	\$81,000
5.	Erosion, Sediment, and Storm Water Control	\$64,800	Lump Sum	1	\$64,800
6.	Soil Excavation	\$25	Cubic Yard	26,700	\$667,500
7.	Soil Backfill Placement	\$21	Cubic Yard	26,700	\$560,700
8.	Waste Transportation and Off-Site Disposal (≥50 mg/kg)	\$200	Ton	9,600	\$1,920,000
9.	Waste Transportation and On-Site Disposal (<50 mg/kg)	\$8	Ton	30,500	\$253,150
10.	Surface Restoration	\$6,000	Acre	16.2	\$97,200
11.	Contractor Health & Safety/Air Monitoring	\$10,000	Month	10	\$100,000
TOTAL CAPITAL COST					\$4,190,000
Long-Term Costs					
12.	Soil Management Program	\$413,000	Annually	1	\$413,000
ADDITIONAL ANNUAL LONG-TERM COST					\$413,000
Present Worth of Additional Long-Term Costs					
13.	Years of Long-Term Program	30	Years		
14.	Discount Rate	7	%		
PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)					\$5,125,000
Administrative/Management					
CONSTRUCTION BONDING (3% of Capital Cost)					\$126,000
PROJECT MANAGEMENT (5% of Capital Cost)					\$210,000
PROJECT MANAGEMENT (5% of Long-Term Cost)					\$256,000
ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)					\$251,000
CONSTRUCTION MANAGEMENT (6% of Capital Cost)					\$251,000
SUBTOTAL					\$10,409,000
Contingency Costs					
CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)					\$1,257,000
CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)					\$1,025,000
TOTAL PRESENT WORTH					\$12,691,000

Table E-2
Estimated Costs for Remedial Alternative NRS-3 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study*, prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment and materials to remove surface soils to achieve an EU-wide PCB EPC below the nonresidential surface soil PRG of 9 mg/kg. The target remedial areas are located in EU-3, EU-5, EU-6, EU-7, EU-10, EU-12, EU-13, EU-14N, EU-19N, EU-19S, EU-24, and EU-26. To achieve specific PRGs for non-PCB constituents of concern, EU-22 will be targeted to achieve a chromium PRG of 538 mg/kg, EU-14N and the Northside Area will be targeted to achieve a polycyclic aromatic hydrocarbon PRG of 21 mg/kg, and EU-25 will be targeted to achieve a polychlorinated dibenzo-p-dioxin/dibenzofuran toxic equivalent PRG of 0.6 micrograms per kilogram. The cost estimate assumes that 26,700 cubic yards of soil within a footprint of 16.2 acres will be excavated from these EUs.
7. Includes labor, equipment, and materials to purchase, import, place, grade and compact a geotextile marker layer, general fill, and topsoil to replace removed materials to pre-removal grades.
8. Includes transportation and offsite disposal of excavated materials with PCB concentrations greater than or equal to 50 mg/kg at a Toxic Substances Control Act regulated landfill. This cost estimate assumes that approximately 24% of the soil excavated under this alternative would be greater than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
9. Includes transportation and on-site disposal of excavated soils with PCB concentrations less than 50 mg/kg. Assumes that excavated soils under this line item will be disposed in the south staging and soil management area (SSSMA). This cost estimate assumes that approximately 76% of the soil material excavated under this alternative would be less than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
10. Includes costs for labor, equipment, and materials to restore the disturbed areas following construction. Includes grading, seeding, mulching, and other necessary surface restoration.
11. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
12. Soil management would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or residential remedies. Cost estimates assumes that soil management will be required on five nonresidential properties per year. In addition, this cost estimate assumes that one large soil management project will be implemented every other year or two moderately sized soil management projects will be implemented each year. Includes periodic observations of the nonresidential areas to confirm that land use continues to be nonresidential.
13. Assumes 30 years for implementation of the soil management program based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.
14. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.

Table E-3
Estimated Costs for Remedial Alternative NRS-4 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Alternative NRS-4 (9 mg/kg): Excavate surface soils to achieve an exposure unit (EU-)wide exposure point concentration (EPC) below the nonresidential surface soil preliminary remediation goal (PRG) of 9 milligrams per kilogram (mg/kg), dispose of soil off-site, backfilling the excavated areas with clean soil, and soil management. Excavated soils would be disposed of in an appropriately permitted off-site landfill. Soil management would be conducted as part of the remedy. The soil management activities would limit future intrusive activities on the nonresidential properties from adversely impacting the effectiveness of the nonresidential surface soil remedy and the remedy implemented for nearby residential properties. Specific soil management activities would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or adjacent residential remedies. Utility organizations that would typically be contacted as part of the outreach process include sewer, water, gas, electric, oil, cable/fiber optic, etc. Periodic observations of the nonresidential areas would be conducted under confirm that land use continues to be nonresidential.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
Capital Costs					
1.	Mobilization / Demobilization	10%	Lump Sum	1	\$184,000
2.	Temporary Facilities	\$10,000	Month	10	\$100,000
3.	Clearing and Site Preparation	\$10,000	Acre	16.2	\$162,000
4.	Surveying	\$81,000	Lump Sum	1	\$81,000
5.	Erosion, Sediment, and Storm Water Control	\$64,800	Lump Sum	1	\$64,800
6.	Soil Excavation	\$25	Cubic Yard	26,700	\$667,500
7.	Soil Backfill Placement	\$21	Cubic Yard	26,700	\$560,700
8.	Waste Transportation and Off-Site Disposal (≥50 mg/kg)	\$200	Ton	9,600	\$1,920,000
9.	Waste Transportation and Off-Site Disposal (<50 mg/kg)	\$50	Ton	30,500	\$1,525,000
10.	Surface Restoration	\$6,000	Acre	16.2	\$97,200
11.	Contractor Health & Safety/Air Monitoring	\$10,000	Month	10	\$100,000
TOTAL CAPITAL COST					\$5,462,000
Long-Term Costs					
12.	Soil Management Program	\$413,000	Annually	1	\$413,000
ADDITIONAL ANNUAL LONG-TERM COST					\$413,000
Present Worth of Additional Long-Term Costs					
13.	Years of Long-Term Program	30	Years		
14.	Discount Rate	7	%		
PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)					\$5,125,000
Administrative/Management					
CONSTRUCTION BONDING (3% of Capital Cost)					\$164,000
PROJECT MANAGEMENT (5% of Capital Cost)					\$273,000
PROJECT MANAGEMENT (5% of Long-Term Cost)					\$256,000
ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)					\$328,000
CONSTRUCTION MANAGEMENT (6% of Capital Cost)					\$328,000
SUBTOTAL					\$11,936,000
Contingency Costs					
CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)					\$1,639,000
CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)					\$1,025,000
TOTAL PRESENT WORTH					\$14,600,000

Table E-3
Estimated Costs for Remedial Alternative NRS-4 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study*, prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment and materials to remove surface soils to achieve an EU-wide PCB EPC below the nonresidential surface soil PRG of 9 mg/kg. The target remedial areas are located in EU-3, EU-5, EU-6, EU-7, EU-10, EU-12, EU-13, EU-14N, EU-19N, EU-19S, EU-24, and EU-26. To achieve specific PRGs for non-PCB constituents of concern, EU-22 will be targeted to achieve a chromium PRG of 538 mg/kg, EU-14N and the Northside Area will be targeted to achieve a polycyclic aromatic hydrocarbon PRG of 21 mg/kg, and EU-25 will be targeted to achieve a polychlorinated dibenzo-p-dioxin/dibenzofuran toxic equivalent PRG of 0.6 micrograms per kilogram. The cost estimate assumes that 26,700 cubic yards of soil within a footprint of 16.2 acres will be excavated from these EUs.
7. Includes labor, equipment, and materials to purchase, import, place, grade and compact a geotextile marker layer, general fill, and topsoil to replace removed materials to pre-removal grades.
8. Includes transportation and off-site disposal of excavated materials with PCB concentrations ≥ 50 mg/kg at a Toxic Substances Control Act regulated landfill. This cost estimate assumes that approximately 24% of the soil excavated under this alternative would be greater than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
9. Includes transportation and off-site disposal of excavated materials with PCB concentrations between less than 50 mg/kg at a nonhazardous landfill. This cost estimate assumes that approximately 76% of the soil excavated under this alternative would be less than 50 mg/kg. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
10. Includes costs for labor, equipment, and materials to restore the disturbed areas following construction. Includes grading, seeding, mulching, and other necessary surface restoration.
11. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
12. Soil management would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or residential remedies. Cost estimates assumes that soil management will be required on five nonresidential properties per year. In addition, this cost estimate assumes that one large soil management project will be implemented every other year or two moderately sized soil management projects will be implemented each year. Includes periodic observations of the nonresidential areas to confirm that land use continues to be nonresidential.
13. Assumes 30 years for implementation of the soil management program based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.
14. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.

Table E-4
Estimated Costs for Remedial Alternative NRS-5 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Alternative NRS-5 (9 mg/kg): Excavate surface soils to achieve an exposure unit (EU)-wide exposure point concentration (EPC) below the nonresidential preliminary remediation goal (PRG) of 9 milligrams per kilogram (mg/kg), off-site treatment for the excavated soils with incineration to destroy the PCBs, backfill the excavated areas with clean soil, and conduct soil management. Soil management activities would limit future intrusive activities on the nonresidential properties from adversely impacting the effectiveness of the nonresidential surface soil remedy and the remedy implemented for nearby residential properties. Specific soil management activities would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or adjacent residential remedies. Utility organizations typically contacted as a part of the outreach process include sewer, water, gas, electric, oil, cable/fiber optic, etc. Periodic observations of the nonresidential areas would be conducted confirm that land use remains nonresidential.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
Capital Costs					
1.	Mobilization / Demobilization	10%	Lump Sum	1	\$184,000
2.	Temporary Facilities	\$10,000	Month	10	\$100,000
3.	Clearing and Site Preparation	\$10,000	Acre	16.2	\$162,000
4.	Surveying	\$81,000	Lump Sum	1	\$81,000
5.	Erosion, Sediment, and Storm Water Control	\$64,800	Lump Sum	1	\$64,800
6.	Soil Excavation	\$25	Cubic Yard	26,700	\$667,500
7.	Soil Backfill Placement	\$21	Cubic Yard	26,700	\$560,700
8.	Waste Transportation and Off-Site Treatment (Incineration)	\$612	Ton	40,100	\$24,541,200
9.	Surface Restoration	\$6,000	Acre	16.2	\$97,200
10.	Contractor Health & Safety/Air Monitoring	\$10,000	Month	10	\$100,000
TOTAL CAPITAL COST					\$26,558,000
Long-Term Costs					
11.	Soil Management Program	\$413,000	Annually	1	\$413,000
ADDITIONAL ANNUAL LONG-TERM COST					\$413,000
Present Worth of Additional Long-Term Costs					
12.	Years of Long-Term Program	30	Years		
13.	Discount Rate	7	%		
PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)					\$5,125,000
Administrative/Management					
CONSTRUCTION BONDING (3% of Capital Cost)					\$797,000
PROJECT MANAGEMENT (5% of Capital Cost)					\$1,328,000
PROJECT MANAGEMENT (5% of Long-Term Cost)					\$256,000
ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)					\$1,593,000
CONSTRUCTION MANAGEMENT (6% of Capital Cost)					\$1,593,000
SUBTOTAL					\$37,250,000
Contingency Costs					
CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)					\$7,967,000
CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)					\$1,025,000
TOTAL PRESENT WORTH					\$46,242,000

Table E-4
Estimated Costs for Remedial Alternative NRS-5 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study*, prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment and materials to remove surface soils to achieve an EU-wide PCB EPC below the nonresidential surface soil PRG of 9 mg/kg. The target remedial areas are located in EU-3, EU-5, EU-6, EU-7, EU-10, EU-12, EU-13, EU-14N, EU-19N, EU-19S, EU-24, and EU-26. To achieve specific PRGs for non-PCB constituents of concern, EU-22 will be targeted to achieve a chromium PRG of 538 mg/kg, EU-14N and the Northside Area will be targeted to achieve a polycyclic aromatic hydrocarbon PRG of 21 mg/kg, and EU-25 will be targeted to achieve a polychlorinated dibenzo-p-dioxin/dibenzofuran toxic equivalent PRG of 0.6 micrograms per kilogram. The cost estimate assumes that 26,700 cubic yards of soil within a footprint of 16.2 acres will be excavated from these EUs.
7. Includes labor, equipment, and materials to purchase, import, place, grade and compact a geotextile marker layer, general fill, and topsoil to replace removed materials to pre-removal grades.
8. Includes transportation and off-site treatment of PCB-containing soil excavated under this alternative. Cost estimate assumes that the excavated soils will be transported to the Veolia Gulf Coast Service Center in Port Arthur, Texas, for incineration to destroy the PCBs. Unit cost is based on a \$420 per ton incineration/disposal fee plus a transport rate of \$0.30 per mile per ton and approximately 640 miles between Anniston, Alabama, and Port Arthur, Texas.
9. Includes costs for labor, equipment, and materials to restore the disturbed areas following construction. Includes grading, seeding, mulching, and other necessary surface restoration.
10. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
11. Soil management would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or residential remedies. Cost estimates assumes that soil management will be required on five nonresidential properties per year. In addition, this cost estimate assumes that one large soil management project will be implemented every other year or two moderately sized soil management projects will be implemented each year. Includes periodic observations of the nonresidential areas to confirm that land use continues to be nonresidential.
12. Assumes 30 years for implementation of the soil management program based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.
13. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.

Table E-5
Estimated Costs for Remedial Alternative NRS-6 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

Alternative NRS-6 (9 mg/kg): Excavate surface soils to achieve an exposure unit (EU)-wide exposure point concentration (EPC) below the nonresidential preliminary remediation goal (PRG) of 9 milligrams per kilogram (mg/kg), off-site treatment for the excavated soils with incineration to destroy the PCBs, backfill the excavated areas with clean soil, and conduct soil management. Soil management activities would limit future intrusive activities on the nonresidential properties from adversely impacting the effectiveness of the nonresidential surface soil remedy and the remedy implemented for nearby residential properties. Specific soil management activities would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or adjacent residential remedies. Utility organizations typically contacted as a part of the outreach process include sewer, water, gas, electric, oil, cable/fiber optic, etc. Periodic observations of the nonresidential areas would be conducted confirm that land use remains nonresidential.

Item No.	Item	Unit Cost	Units	Estimated Quantity	Estimated Cost
Capital Costs					
1.	Mobilization / Demobilization	10%	Lump Sum	1	\$189,000
2.	Temporary Facilities	\$10,000	Month	10	\$100,000
3.	Clearing and Site Preparation	\$10,000	Acre	18.2	\$182,000
4.	Surveying	\$91,000	Lump Sum	1	\$91,000
5.	Erosion, Sediment, and Storm Water Control	\$72,800	Lump Sum	1	\$72,800
6.	Soil Excavation	\$25	Cubic Yard	26,700	\$667,500
7.	Soil Backfill Placement	\$21	Cubic Yard	26,700	\$560,700
8.	On-Site Treatment Commissioning	\$1,650,000	Lump Sum	1	\$1,650,000
9.	On-Site Treatment (Thermal Desorption)	\$400	Ton	40,100	\$16,040,000
10.	Waste Transportation and Off-Site Treatment (Incineration)	\$810	Drums	11	\$8,910
11.	Onsite Placement of LTTD Soils	\$8	Ton	40,100	\$332,830
12.	Surface Restoration	\$6,000	Acre	18.2	\$109,200
13.	Contractor Health & Safety/Air Monitoring	\$10,000	Month	10	\$100,000
TOTAL CAPITAL COST					\$20,104,000
Long-Term Costs					
14.	Soil Management Program	\$413,000	Annually	1	\$413,000
ADDITIONAL ANNUAL LONG-TERM COST					\$413,000
Present Worth of Additional Long-Term Costs					
15.	Years of Long-Term Program	30	Years		
16.	Discount Rate	7	%		
PRESENT WORTH OF ANNUAL LONG-TERM COSTS (YEARS 1-30)					\$5,125,000
Administrative/Management					
CONSTRUCTION BONDING (3% of Capital Cost)					\$603,000
PROJECT MANAGEMENT (5% of Capital Cost)					\$1,005,000
PROJECT MANAGEMENT (5% of Long-Term Cost)					\$256,000
ENGINEERING DESIGN/PERMITTING (6% of Capital Cost)					\$1,206,000
CONSTRUCTION MANAGEMENT (6% of Capital Cost)					\$1,206,000
SUBTOTAL					\$29,505,000
Contingency Costs					
CONTINGENCY CAPITAL COSTS (15% scope + 15% bid)					\$6,031,000
CONTINGENCY LONG-TERM COSTS (10% scope + 10% bid)					\$1,025,000
TOTAL PRESENT WORTH					\$36,561,000

Table E-5
Estimated Costs for Remedial Alternative NRS-6 (9 mg/kg PRG)
OU-1/OU-2 Feasibility Study Report
Anniston PCB Site, Anniston, Alabama

General Notes:

- Cost estimate is based on past experience, cost estimating resources, and vendor estimates. Costs provided in 2016 dollars.
- This estimate has been prepared for the purposes of comparing potential remedial alternatives. The information in this cost estimate is based on the available information regarding the site investigation and the anticipated scope of the remedial alternative. Changes in cost elements are likely to occur as a result of new information and data collected during the engineering design of the remedial alternative. This cost estimate is expected to be within -30% to +50% of the actual projected cost.
- Cost factors based on *A Guide to Developing and Documenting Cost Estimates During Feasibility Study*, prepared by the United States Environmental Protection Agency (USEPA) and United States Army Corps of Engineers (USACE), July 2000.

Assumptions:

1. Includes costs for mobilization/demobilization of labor, equipment, and materials to perform the remedial construction activities. The cost is estimated as 10% of the total capital cost for the alternative, excluding transportation/disposal costs. It is assumed that a single mobilization/demobilization will be necessary.
2. Includes costs for temporary facilities and utilities including project trailers, sanitation/waste facilities and services, field office services, and fuel storage.
3. Includes costs for labor, equipment, and materials to perform clearing, construct support facilities areas, and otherwise prepare the site for construction. Includes 2 acres for siting of the on-site treatment facility and associated stockpiles.
4. Includes costs for labor, equipment, and materials to perform pre- and post-construction survey of the remedial areas to verify, confirm, and document pre- and post-construction elevations and conditions.
5. Includes costs for labor, equipment, and materials to install and manage temporary erosion and sedimentation controls.
6. Includes costs for labor, equipment and materials to remove surface soils to achieve an EU-wide PCB EPC below the nonresidential surface soil PRG of 9 mg/kg. The target remedial areas are located in EU-3, EU-5, EU-6, EU-7, EU-10, EU-12, EU-13, EU-14N, EU-19N, EU-19S, EU-24, and EU-26. To achieve specific PRGs for non-PCB constituents of concern, EU-22 will be targeted to achieve a chromium PRG of 538 mg/kg, EU-14N and the Northside Area will be targeted to achieve a polycyclic aromatic hydrocarbon PRG of 21 mg/kg, and EU-25 will be targeted to achieve a polychlorinated dibenzo-p-dioxin/dibenzofuran toxic equivalent PRG of 0.6 micrograms per kilogram. The cost estimate assumes that 26,700 cubic yards of soil within a footprint of 18.2 acres will be excavated from these EUs.
7. Includes labor, equipment, and materials to purchase, import, place, grade and compact a geotextile marker layer, general fill, and topsoil to replace removed materials to pre-removal grades.
8. Includes mobilization/demobilization, permitting, testing, and other required commissioning activities for use of the on-site treatment facility.
9. Includes setup and operation of an on-site treatment facility to treat PCB-containing soil excavated under this alternative. Includes on-site disposal of treated materials except collected oil.
10. Includes transportation and off-site treatment of PCB-containing oil from the on-site low temperature thermal desorption process. Cost estimate assumes that the collected oil will be transported to the Veolia Gulf Coast Service Center in Port Arthur, Texas, for incineration to destroy the PCBs. Unit cost is based on a \$370 per ton incineration/disposal fee plus a transport rate of \$443 per ton and approximately 640 miles between Anniston, Alabama, and Port Arthur, Texas. Assumes 1 barrel of oil per 2,500 cy of treated soil.
11. Includes transportation and on-site disposal of treated soils. Assumes that treated soils under this line item will be disposed in the SSSMA. Cost estimate assumes a soil density of 1.5 tons per cubic yard.
12. Includes costs for labor, equipment, and materials to restore the disturbed areas following construction. Includes grading, seeding, mulching, and other necessary surface restoration.
13. Includes costs for labor, equipment, and materials for contractor health and safety activities, monitoring dust and air emissions during intrusive activities, and dust control, as necessary.
14. Soil management would include active outreach with property owners, local city building departments, area utility companies, and county/state-wide transportation agencies regarding any plans to disturb soils in nonresidential areas where construction activities could impact the nonresidential or residential remedies. Cost estimates assumes that soil management will be required on five nonresidential properties per year. In addition, this cost estimate assumes that one large soil management project will be implemented every other year or two moderately sized soil management projects will be implemented each year. Includes periodic observations of the nonresidential areas to confirm that land use continues to be nonresidential.
15. Assumes 30 years for implementation of the soil management program based on industry standard and guidance in the document titled *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.
16. Present worth is estimated based on a 7% beginning-of-year discount rate. Present cost factor based on *A Guide to Developing and Documenting Cost Estimates During the Feasibility Study*, prepared by USEPA and USACE, July 2000.