

Practice: 319 - On-Farm Secondary Containment Facility

Scenario: #1 - Earthen Containment

Scenario Description: An earthen containment wall with a flexible membrane liner is installed around an existing storage tank to address water quality degradation due to excessive release of organics into ground and surface waters, or excessive sediment and turbidity in surface waters. This facility does not have a roof. Associated practices: Heavy Use Area Protection (561).

Before Situation: An agricultural operation has a single walled fuel/oil storage tank(s) without any spill prevention protection. The producer has an SPCC plan that was developed in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

After Situation: A flexible membrane liner is installed around a 10,000 gallon tank. The containment volume is designed for 125% of the tank volume (10,000 gallons x 125%= 12,500 gallons). The bottom dimensions of the containment facility are 40ft x 24ft. The wall is 2.5ft high with a 2ft top width and 2:1 side slopes. The total volume of earthfill is 114 cubic yards. The flexible liner size is 1,872 square feet. The tank(s) will be moved or raised to install the base materials. Hauled in earthfill will be used to construct the dike. The flexible liner will be installed in conformance with the design and specifications. The complete structure provides an environmentally safe facility for storage and handling of oil products stored on the property. Any accidental spills will be contained protecting water quality.

Scenario Feature Measure: Cubic Yard of compacted earthen wall

Scenario Unit: Cubic Yard

Scenario Typical Size: 114

Total Scenario Cost: \$15,716.35

Scenario Cost/Unit: \$137.86

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$36.28	18	\$653.05
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$279.32	1	\$279.32
Geotextile, non-woven, heavy weight	1210	Non-woven greater than 8 ounce/square yard geotextile with staple anchoring. Materials and shipping only.	Square Yard	\$4.15	208	\$864.13
Pipe, PVC, 2", SCH 40	976	Materials: - 2" - PVC - SCH 40 - ASTM D1785	Foot	\$1.46	50	\$73.08
Synthetic Liner, 40 mil	1387	Synthetic 40 mil HDPE, LLDPE, EPDM, etc membrane liner material. Includes materials and shipping only.	Square Yard	\$6.12	1872	\$11,451.15

Equipment Installation

Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$90.20	2	\$180.40
Earthfill, Dumped and Spread	51	Earthfill, dumped and spread without compaction effort, includes equipment and labor	Cubic Yard	\$3.68	114	\$419.74
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic Yard	\$4.49	126	\$565.40

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$39.93	2	\$79.87
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$23.74	4	\$94.95

Mobilization

Mobilization, large equipment	1140	Equipment >150HP or typical weights greater than 30,000 pounds or loads requiring over width or over length permits.	Each	\$481.39	1	\$481.39
Mobilization, medium	1139	Equipment with 70-150 HP or typical weights between 14,000 and	Each	\$252.13	2	\$504.26

equipment		30,000 pounds.				
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$69.62	1	\$69.62

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Scenario: #2 - Concrete Containment Wall

Scenario Description: A reinforced concrete containment wall with a concrete slab is installed around an existing storage tank to address water quality degradation due to the excessive release of organics into ground and surface waters or excessive sediment and turbidity in surface waters. Due to topography, limited site space and/or geological conditions a fabricated structure is needed. Structure will provide an environmentally safe facility for handling and storage of these products. Associated practices may include: Heavy Use Area Protection (561).

Before Situation: An agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has an SPCC plan that was developed in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products.

After Situation: A 4,700 gallon tank is contained within the new structure. The containment volume is designed for 125% of the tank volume (4,700 gallons X 125% = 5,875 gallons). The structure will provide an environmentally safe facility for handling and storage of these products. Typical containment dimensions are 196 sqft bottom x 6" thick slab with 6" thick x 4' tall formed sidewalls. Tanks will be moved or raised to install base materials. The fabricated containment structure will be installed in conformance with the design and specifications. The on-farm oil products stored on the farm have secondary containment of accidental release that controls the excessive release of organics, suspended sediments, and turbidity.

Scenario Feature Measure: Volume of concrete in the wall

Scenario Unit: Cubic Yard

Scenario Typical Size: 4.3

Total Scenario Cost: \$5,351.27

Scenario Cost/Unit: \$1,244.48

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Equipment Installation

Concrete, CIP, formed reinforced	38	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$517.09	4.3	\$2,223.47
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-placed as a slab on grade by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic Yard	\$332.48	4.2	\$1,396.40
Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$90.20	2	\$180.40

Materials

Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic Yard	\$36.28	4.2	\$152.38
Fuel Containment Facility, Gate valve 2 inch diameter	1735	Metal 2 inch diameter gate valve. Materials only.	Each	\$279.32	1	\$279.32
Pipe, PVC, 2", SCH 40	976	Materials: - 2" - PVC - SCH 40 - ASTM D1785	Foot	\$1.46	30	\$43.85

Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$39.93	2	\$79.87
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Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$252.13	3	\$756.39
Mobilization, small equipment	1138	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$169.58	1	\$169.58
Mobilization, very small equipment	1137	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces	Each	\$69.62	1	\$69.62

		of equipment if all hauled simultaneously.				
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Scenario: #3 - Single Wall Tank Replacement With A Double Wall Tank or Dike Tank

Scenario Description: An existing single wall, fuel storage tank is replaced with a new double wall tank to address resource concerns related to water quality due to the excessive release of organics into the ground and surface waters, or excessive sediment and turbidity in surface waters. Local or state regulations require the use of double wall tanks or on-farm space limitations preclude the use of an open secondary containment facility. Associated practices: Heavy Use Area Protection (561).

Before Situation: An agricultural operation has an existing single wall fuel/oil storage tank(s) without any spill prevention protection. The producer has an SPCC plan that was developed in accordance with EPA requirements, which requires an above ground secondary containment facility for on-farm oil products. The tank is very old, in disrepair and is leaking. There are space limitations on the operation which preclude the installation of an open secondary containment system.

After Situation: An existing single wall, fuel storage tank is replaced with a new double wall tank as per the SPCC plan. Installation is based on a new tank and a "used" double wall tank does not meet the requirements. A 1000 gallon antiroll tank (U/L 142-23 Secondary Containment Vessel) double walled tank that meets EPA regulations is installed. The double wall tank provides an environmentally safe facility for storage and handling of oil products stored on the property. Any accidental spills will be contained protecting water quality.

Scenario Feature Measure: Tank volume

Scenario Unit: Gallon

Scenario Typical Size: 1000

Total Scenario Cost: \$2,939.52

Scenario Cost/Unit: \$2.94

Cost Details

Component Name	Id	Description	Unit	Cost	Qty	Total
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Labor

Equipment Operators, Heavy	233	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$39.93	1	\$39.93
Skilled Labor	230	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$42.51	2	\$85.02

Mobilization

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$252.13	1	\$252.13
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Materials

Tank, storage tank, double wall, 4000 gallon, horizontal, steel, above ground	1733	Double wall horizontal steel storage tank. Includes cradles, coating, fittings, labor, equipment. Excludes foundations, pumps or piping.	Gallon	\$2.47	1000	\$2,472.23
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Equipment Installation

Crane, truck mounted, hydraulic, 12 ton	1734	12 ton capacity truck mounted hydraulic crane. Equipment cost only.	Hour	\$90.20	1	\$90.20
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