

**Practice: 316 - Animal Mortality Facility**

**Scenario: #1 - Incinerator**

**Scenario Description:**

This scenario consists of installing a manufactured Type IV incinerator. Payment includes the incinerator, fuel tank and concrete slab to support the incinerator and fuel tank. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers. The purpose of the practice is to address resource concerns related to water quality degradation due to excessive nutrients, organics, and pathogens being transported into surface and groundwater resources.

Potential Associated Practices: Heavy Use Area Protection (561), Fence (382), Critical Area Planting (342), Access Road (560), Waste Storage Facility (313), Nutrient Management (590), Roofs and Covers (367), Critical Area Planting (342).

**Before Situation:**

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from incomplete composting, incineration, or interaction with predators. No plan was formulated for both normal and catastrophic mortality events.

**After Situation:**

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete incineration, and protection from predators to minimize pathogen survival or spreading. Included is a concrete slab to set the incinerator on and a fuel tank. Ash materials to be stored in suitable containers until land disposal as per the nutrient management plan or landfilled.

**Scenario Feature Measure:** Pounds capacity of incinerator

**Scenario Unit:** Pounds per Day

**Scenario Typical Size:** 400

**Scenario Cost:** \$12,898.04

**Scenario Cost/Unit:** \$32.25

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Concrete, CIP, slab on grade, reinforced	37	Steel reinforced concrete formed and cast-in-place 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	\$188.63	4	\$754.52
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.08	8	\$16.64
Hydraulic Excavator, 1 CY	931	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$115.45	1	\$115.45
<b>Labor</b>						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$22.06	1	\$22.06
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	\$22.43	1	\$22.43
<b>Materials</b>						
Incinerator, 400 lbs/day	1625	Poultry and livestock incinerator with an approximate chamber capacity of 400 pounds per day. Includes equipment and after burner only.	Each	\$11,069.71	1	\$11,069.71
Fuel Tank, Anchored	1033	Fuel tank for operating incinerators and/or gasifiers. Materials only.	Gallon	\$0.97	285	\$276.45
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$24.72	4	\$98.88
<b>Mobilization</b>						

**Mobilization**

Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$260.95	2	\$521.90
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**Scenario: #5 - Static Pile - Concrete Pad**

**Scenario Description:**

This scenario consists of installing a concrete pad. Area is sized for composting animal mortality as a static pile or windrow and equipment access to the material. Facility sizing parameters include primary and secondary composting area requirements to allow piles to be turned at least once to go into another heat cycle prior to final disposal, typically land application. Site to be located out of drainage areas, off-site water diverted and any runoff to spread out into a grassed area or vegetated treatment area as per regulations. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers.

Potential Associated Practices: Fence (382), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Diversion (362), Subsurface Drain (606), Heavy Use Area Protection (561), and Underground Outlet (620).

**Before Situation:**

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from incomplete composting, incineration, or interaction with predators. No plan was formulated for both normal and catastrophic mortality events.

**After Situation:**

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. An overall plan covers normal and catastrophic mortality events. Construct a 18' x 32' concrete surface to process mortality. Concrete 5" thick with light reinforcement. Site preparation includes topsoil removal, minimal regrading and compaction, installing gravel or sand subbase and then concrete. Berm is 92' in length (around 3 sides of the pad), 2' tall, 4' topwidth with 2:1 sideslopes. Note regarding scenario for concrete versus just earthen pad: concrete pads are necessary in situations such as, but not limited to, a site with soils that are permeable, karts, frequently accessed or have regulatory requirements that do not allow for an earthen surface.

**Scenario Feature Measure:** Pad Area

**Scenario Unit:** Square Foot

**Scenario Typical Size:** 576

**Scenario Cost:** \$2,432.18

**Scenario Cost/Unit:** \$4.22

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.08	22	\$45.76
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.86	66	\$254.76
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	\$188.63	9	\$1,697.67
<b>Materials</b>						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$24.72	7	\$173.04
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$260.95	1	\$260.95

**Practice: 316 - Animal Mortality Facility**

**Scenario: #6 - Static Pile - Concrete Pad with Concrete Bin(s)**

**Scenario Description:**

This scenario consists of installing concrete bin(s), open on one end, on top of a concrete pad to compost mortality in static piles that have sufficient bulking material to allow natural aeration. Facility sizing parameters include primary and secondary composting area requirements to allow piles to be turned at least once to go into another heat cycle prior to final disposal, typically land application. If a roof is to be included in the installation refer to Practice Standard 367 - Roofs and Covers. Size of facility based on daily mortality and sizing procedures accepted in particular state.

Potential Associated Practices: Roofs and Cover ( 367 ), Heavy Use Area Protection (561), Critical Area Planting (342), Nutrient Management (590), Access Road (560), Structure for Water Control (587), Roof Runoff Structure (558), Diversion (362), Subsurface Drain (606), Heavy Use Area Protection (561) and Underground Outlet (620).

**Before Situation:**

Animal mortality is done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Improper operation results in odors and spread of pathogens from incomplete composting, incineration, or interaction with predators. No plan was formulated for both normal and catastrophic mortality events.

**After Situation:**

Animal mortality is being done in a manner that prevents non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources. Proper operation results in little to no odors, complete composting, and protection from predators to minimize pathogen survival or spreading. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation.

This scenario is based upon a 40' x 14' concrete slab with 5' high bin dividers, and 4 10' x 14' bins. Preparation includes stripping the top 1' of soil and roll compact same back into sub-floor. The bins are constructed on a 5" concrete slab. Roofed portion is addressed under Roofs and Covers (367). Piles are turned by moving to adjacent bin to go through a second heat cycle prior to final land application. Note regarding scenario for concrete walls versus wood walls: the more sturdy concrete walls are necessary in situations where a producer is managing the composting with heavy equipment that would easily damage and compromise the integrity of wooden walls.

**Scenario Feature Measure:** Cubic Foot of Storage

**Scenario Unit:** Cubic Foot

**Scenario Typical Size:** 2,800

**Scenario Cost:** \$11,188.84

**Scenario Cost/Unit:** \$4.00

**Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
<b>Equipment/Installation</b>						
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	\$188.63	9	\$1,697.67
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	\$405.75	22	\$8,926.50
Excavation, Common Earth, side cast, small equipment	48	Bulk excavation and side casting of common earth with hydraulic excavator with less than 1 CY capacity. Includes equipment and labor.	Cubic yard	\$2.08	22	\$45.76
Earthfill, Roller Compacted	49	Earthfill, roller or machine compacted, includes equipment and labor	Cubic yard	\$3.86	22	\$84.92
<b>Materials</b>						
Aggregate, Gravel, Graded	46	Gravel, includes materials, equipment and labor to transport and place. Includes washed and unwashed gravel.	Cubic yard	\$24.72	7	\$173.04
<b>Mobilization</b>						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$260.95	1	\$260.95