

Practice: 316 - Animal Mortality Facility

Scenario: #1 - Composting Facility, Wood Bin(s), Concrete Floor, roof and apron required but not included

Scenario Description:

This scenario consists of installing a group of small bins along one side and a long narrow bin on the backside of a concrete pad to compost poultry or small swine mortality in static pile(s) that have sufficient bulking material to allow natural aeration. Piles are turned to go through a second heat cycle prior to final land application. Size of facility based on daily mortality and sizing procedures accepted in particular state. Organic sites will require more frequent replacement of lumber. Roof components are not included. To be used in conjunction with 367 - Roofs and Covers

Potential Associated Practices: Roofs and Covers (367), Critical Area Planting (342), Nutrient Management (590), Roof Runoff Structure (558).

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. Selected method for carcass treatment and disposal meet or are permitted by federal, state, and local laws, rules, regulation.

Install a 15.5' x 60.3' composting facility according to the appropriate standard drawing on a concrete pad. The typical facility has 5 bins (5' H x 10' W x 6' Length) along the front side and one 10' W by 50' long secondary bin. Bin wall consist of 5' of treated lumber. The design area of concrete floor excluding the approach apron is 15.5' wide by 60.3' long (935 square feet). Site preparation includes topsoil removal, setting posts, installing concrete slab, and installing wooden walls. Installation requires a 15' wide, 4" thick concrete approach apron along the bin side to be planned using Heavy Use Area Protection (561) and a roof structure to be planned using Roofs and Cover (367).

Scenario Feature Measure: Design Area of Concrete Floor

Scenario Unit: Square Foot

Scenario Typical Size: 935

Scenario Cost: \$5,947.70

Scenario Cost/Unit: \$6.36

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
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	\$99.18	12	\$1,190.16
Labor						
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	\$25.07	64	\$1,604.48
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	\$18.11	32	\$579.52
Materials						
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.82	2402	\$1,969.64
Lumber, planks, posts and timbers, treated	1609	Treated dimension lumber with nominal thickness greater than 2". Includes lumber and fasteners. Does not include labor.	Board Foot	\$1.73	190	\$328.70
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$23.93	11.5	\$275.20

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Scenario: #2 - Rotary Drum Composter with New Secondary Storage Facility

Scenario Description:

This scenario consists of installing a horizontal rotary drum to compost poultry and swine mortality. It can handle between 175 and 1000 lbs per day of mortality plus equal or higher volumes of carbon material (i.e. wood chips). A secondary composting storage area is required to finish materials. Payment quantity based on the operations daily mortality in pounds per day. The model used will be selected as per manufacturers' recommendations. 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. Air quality impacts due to odors will also be addressed.

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

Before Situation:

The operation is switching mortality management from burial, landfill, rendering or incineration due to regulatory or economic reasons. Burial is no longer an NRCS supported normal mortality management practice. Landfill and rendering are only available on a limited basis and not always available year round. Incineration is becoming less acceptable to ODEQ and is also expensive due to higher fuel costs. Space or site conditions limit the available area to construct the required size of bin composting facility.

After Situation:

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.
 Typical Design: Install a 5' diameter by 33' long rotary drum on two concrete pads that can process 500 pounds of mortality per day. Drum rotation moves and mixes mortality and wood chips. Installation includes: Site preparation, installation of concrete pads and slab at two locations and a bin composting facility to complete composting. Input material reduced by 40-60 percent and put into 4' high, three sided, 6' x 10' concrete bin with 10' x 50' concrete floor area for secondary composting and curing.

Scenario Feature Measure: Daily Mortality

Scenario Unit: Pounds per Day

Scenario Typical Size: 500

Scenario Cost: \$76,848.79

Scenario Cost/Unit: \$153.70

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Concrete, CIP, formless, non reinforced	36	Non reinforced concrete cast-in-placed without forms by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$99.18	2	\$198.36
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	\$99.18	14.5	\$1,438.11
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$47.65	8	\$381.20
Labor						
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$20.15	8	\$161.20
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	\$18.11	96	\$1,738.56
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	\$25.07	176	\$4,412.32
Materials						
Composter, drum, 28 CY	1628	28 CY drum composter unit. Includes equipment, operation controls, and shipping. Labor not included.	Each	\$62,699.45	1	\$62,699.45

Materials

Lumber, planks, posts and timbers, treated	1609	Treated dimension lumber with nominal thickness greater than 2". Includes lumber and fasteners. Does not include labor.	Board Foot	\$1.73	190	\$328.70
Dimension Lumber, Treated	1044	Treated dimension lumber with nominal thickness equal or less than 2". Includes lumber and fasteners	Board Foot	\$0.82	2402	\$1,969.64
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$23.93	13	\$311.09

Mobilization

Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been i	Dollar	\$1.03	3000	\$3,090.00
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	\$60.08	2	\$120.16

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Scenario: #3 - Rotary Drum (only)

Scenario Description:

This scenario consists of installing a horizontal rotary drum to compost smaller poultry and swine facility mortality. It can handle between 175 and 1000 lbs per day of mortality plus equal or higher volumes of carbon material (i.e. wood chips). A covered secondary composting storage area is required and available to finish materials. Payment quantity based on the operations daily mortality in pounds per day. The model used will be selected as per manufacturers' recommendations. 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. Air quality impacts due to odors will also be addressed.

Potential Associated Practices: Roofs and Covers (367), Waste Storage Facility (313), Fence (382), Critical Area Planting (342), Nutrient Management (590).

Before Situation:

The current method of animal mortality disposal is traditional bin compomposting done in a manner that results in non-point source pollution of excessive nutrients, organics, and pathogens being transported into surface and groundwater resources due to overloading of the bin composting facility. It is not feasible to add onto or construct new additional composting bins due to space limitations or regulatory restrictions. Improper operation results in odors and spread of pathogens from incomplete composting or interaction with predators. No plan was formulated for both normal and catastrophic mortality events.

After Situation:

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.
 Typical Design: Install a 5' diameter by 33' long rotary drum on two concrete pads that can process 500 lbs of mortality per day. Drum rotation moves and mixes mortality and wood chips. Installation includes: Site preparation, installation of concrete pads and slab at two locations. Input material reduced by 40-60 percent and put into an existing composting facility for secondary composting and curing is available.

Scenario Feature Measure: Daily Mortality

Scenario Unit: Pounds per Day

Scenario Typical Size: 500

Scenario Cost: \$67,341.25

Scenario Cost/Unit: \$134.68

Cost Details (by category):

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Concrete, CIP, formless, non reinforced	36	Non reinforced concrete cast-in-placed without forms by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$99.18	2	\$198.36
Backhoe, 80 HP	926	Wheel mounted backhoe excavator with horsepower range of 60 to 90. Equipment and power unit costs. Labor not included.	Hour	\$47.65	8	\$381.20
Labor						
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	\$25.07	16	\$401.12
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	\$18.11	16	\$289.76
Equipment Operators, Light	232	Includes: Skid Steer Loaders, Hydraulic Excavators <50 HP, Trenchers <12", Ag Equipment <150 HP, Pickup Trucks, Forklifts, Mulchers	Hour	\$20.15	8	\$161.20
Materials						
Composter, drum, 28 CY	1628	28 CY drum composter unit. Includes equipment, operation controls, and shipping. Labor not included.	Each	\$62,699.45	1	\$62,699.45
Mobilization						

Mobilization

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	\$60.08	2	\$120.16
Mobilization, Material, distance > 50 miles	1043	Mobilization cost of materials for special cases where the distance from the supplier delivery point to the job site exceeds 50 miles. The costs for shipping by UPS or bulk freight shipping to a location within 50 miles of the job site have already been included in the component price.	Dollar	\$1.03	3000	\$3,090.00