

# HPAI Virus Elimination: Per-Cubic-Yard Flat Rates for Table Egg-Laying Bird Barns and Table Egg Storage and Processing Facilities

January 2024

## Introduction

Virus elimination (VE) is a crucial step in the recovery process for facilities infected with avian influenza. The cleaning and disinfection (C&D) practices used to achieve VE should be cost-effective (APHIS Highly Pathogenic Avian Influenza Red Book). During past highly pathogenic avian influenza (HPAI) outbreaks, reimbursable payments for VE activities were, at times, delayed by the necessary paperwork required for cooperative compliance agreements (CCAs). These agreements allowed owners of land, structures, and contractors to be reimbursed for completed work. In January 2016, APHIS issued a flat rate payment on a per-bird basis for HPAI virus elimination activities to help streamline the process and expedite payments to affected producers. A per-bird VE flat rate was released for table egg-layer farms.

Since then, APHIS received comments from the public on this policy and reevaluated the per-bird VE flat rates to make them more cost-effective while maintaining awareness of our fiscal responsibility to the taxpayer. Stakeholders also expressed an interest in the production types affected by the flat rates and how those rates would be developed and updated. Therefore, APHIS revised the VE flat rate for table egg-laying bird barns and expressed it on a cubic-yard basis instead of a per-bird rate as a majority of egg-laying birds are housed off the floor. Additionally, VE flat rates for egg storage and processing facilities were also expressed on a cubic-yard basis.

The per-cubic-yard VE flat rate for table egg laying bird barns is \$3.45 per cubic yard. The per-cubic-yard VE flat rate for table egg storage and processing facilities is \$0.38 per cubic yard. This information sheet further describes implementation and development of the rates.

## What kinds of poultry production are within the scope of the flat rates for table egg-laying bird barns and table egg storage and processing facilities?

The per-cubic-yard VE flat rate for table egg-laying bird barns applies to facilities for layer pullets or table egg-laying chickens housed off the floor, which includes manure management spaces that are an integral part of bird housing barns (i.e., under the same roof with the birds). This rate does not apply to facilities for meat-type turkeys and broilers, floor-raised pullets and poults, table egg-laying birds not provided perches, and breeder birds with nesting boxes. The per-cubic-yard VE flat rate for table egg storage and processing facilities applies to areas that store (i.e., coolers), wash, or break nest-run table eggs. The rate for table egg storage and processing facilities applies to areas where unprocessed, potentially contaminated eggs were kept and does not apply to areas used exclusively to store processed table eggs and egg products (i.e., finished product coolers and warehouses; packaging storage).

## What costs were included in calculating the flat rates for table egg-laying bird barns and table egg storage and processing facilities?

An overview of financial implications is located on the APHIS Emergency Management website for HPAI<sup>1</sup>. The document outlines the appraisal and indemnity for birds and eggs,

<sup>1</sup> [HPAI Indemnity and Compensation](#)

materials destroyed, depopulation and disposal, and VE. USDA makes the decision to clean and disinfect or destroy an item on a case-by-case basis for certain materials. Disposal includes items that would cost more to clean than they are worth; however, for materials that cannot be safely or adequately cleaned, the fair market value of disposed items is prorated based on the remaining usability of the item and paid separately. Manure cleanout is part of disposal, not VE, and is not covered by the VE flat rate. The removal of birds, eggs, and manure from the house is part of the disposal phase, and VE begins after the removal of birds, eggs, and manure is complete. The revised VE flat rate is a single rate for all table egg-laying birds housed off the floor on a cubic-yard basis. This rate covers labor, equipment, and supplies to clean and disinfect the interior of barns and attached manure management spaces. The egg storage and processing cubic-yard flat rate covers personnel, equipment, and supplies needed to clean and disinfect the interior of egg facilities where unprocessed (nest run) eggs are stored, washed, or broken.

Traditionally, cleaning followed by application of a wet disinfectant has been used for VE on HPAI-infected premises. During the 2014-2015 outbreak, however, APHIS found that in many instances dry cleaning and heat disinfection of barns was the most cost- and time-effective VE method. Since the presence of organic material reduces the effectiveness of chemical disinfectants, the use of chemical disinfection requires a thorough wet cleaning phase in the barn. This wet cleaning phase has historically increased costs and delayed VE completion. Wet cleaning requires increased time and labor to remove soil and large amounts of liquid and solid waste, as well as to apply multiple detergents, rinse, and apply disinfectants. Barns must also dry out completely before the chemical disinfectant can be applied. In addition, damp environments support the continued viability of the virus, which increases the risk for spread of disease. Heat disinfection, in contrast, penetrates remaining organic matter after dry cleaning, eliminating the need for wet cleaning and immediately removing organic matter, an environmental factor required for virus viability. Therefore, we used heat disinfection to calculate the VE flat rate for table egg-laying bird barns and table egg storage and processing facilities. For items that cannot be heat disinfected, wet cleaning and disinfection or fallow can be used as virus elimination methods. The VE flat rate payment process allows the owner of the land and structures on the premises to select and implement the most appropriate method, as approved by State animal health officials and APHIS. Because there are no VE activities associated with a farm lying fallow, producers who choose this approach rather than cleaning to eliminate virus from a farm are not offered funding.

Tables 1 through 4 outline the specific activities used to calculate the VE flat rate for table egg-laying bird barns, and are based on the broad categories (i.e., barn preparation, dry cleaning, heat disinfection, wet disinfection of equipment, and other activities) listed in the May 2023 Info Sheet “HPAI Virus Elimination: Per-Cubic-Yard Flat Rates for Table Egg-Laying Bird Barns and Table Egg Storage and Processing Facilities” document<sup>2</sup>. In addition, producers were more cost-efficient when doing VE on their own farm in the 2015 HPAI outbreak compared to contractors; the flat-rate approach recognizes cost-sharing by producers. The VE flat rate payments for table egg-laying bird barns and table egg storage and processing facilities do not include routine or deferred maintenance or biosecurity activities that are part of the producers’ cost share.

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<sup>2</sup> [HPAI Virus Elimination: Per-Cubic-Yard Flat Rates for Table Egg-Laying Bird Barns and Table Egg Storage and Processing Facilities](#)

USDA-APHIS-VS is not mandating any specific approach to VE. The information in this document includes examples of the kinds of expenses considered when calculating the flat rate for VE, such as labor, supplies, equipment, and utilities.

Producers should not interpret this list to be required expenses. The VE flat rate is calculated using the costs for heat disinfection, which is a proven cost-effective method for performing VE. This approach gives the owner of the land and structures the latitude to decide what is needed to perform VE on their premises. However, if the total expenses exceed the amount paid under the VE flat rate, the remaining cost would be the responsibility of the owner of the land and structures.

**Table 1. Categories of barn and facility preparation activities in the VE flat rate for table egg-laying bird barns, table egg storage and processing facilities, and responsible parties**

Categories of activities	Activities covered by Federal flat rate	Industry/grower cost-share
<b>Barn and facility preparation</b>		
Labor	Disassembly and reassembly of: <ul style="list-style-type: none"> <li>• Feeders</li> <li>• Drinkers</li> <li>• Fans (when cannot stay in the barn and be heat disinfected)</li> <li>• Heaters (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg bumpers (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg belts (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg carts, racks, trays, etc. (when cannot stay in the barn and be heat disinfected)</li> <li>• Manure belts and curtains (when cannot stay in the barn and be heat disinfected)</li> <li>• Other cleanable equipment</li> </ul> Equipment operator time Supervisor time	<ul style="list-style-type: none"> <li>• Mowing around barns</li> <li>• Barn repairs, such as screens or holes in barn walls</li> <li>• Other routine deferred maintenance</li> <li>• Gravel and road repairs</li> </ul>
Equipment	Equipment to move items listed above, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> <li>• Mowers</li> <li>• Herbicide sprayers</li> </ul>
Supplies	Worker safety supplies: <ul style="list-style-type: none"> <li>• Personal protective equipment (PPE)</li> <li>• Dumpster for disposal of PPE</li> </ul>	<ul style="list-style-type: none"> <li>• Screens</li> <li>• Herbicide, rodenticide, or insecticide</li> </ul>

**Table 2. Categories of dry-cleaning activities in the VE flat rate for table egg-laying bird barns and table egg storage and processing facilities and responsible parties**

Categories of activities	Activities covered by Federal flat rate	Industry/grower cost-share
<b>Dry cleaning (removal of any remaining organic material in barn interior after disposal of birds and manure is complete, including vacant barns and feed storage, manure management facilities)</b>		
Labor	Cleaning of: <ul style="list-style-type: none"> <li>• Feeders</li> <li>• Drinkers</li> <li>• Fans (when cannot stay in the barn and be heat disinfected).</li> <li>• Heaters (when cannot stay in the barn and be heat disinfected)</li> <li>• Wall curtains</li> <li>• Egg bumpers (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg belts (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg carts, racks, trays, etc. (when cannot stay in the barn and be heat disinfected)</li> <li>• Manure belts and curtains (when cannot stay in the barn and be heat disinfected)</li> <li>• Other cleanable equipment</li> <li>• Dusting of barn interior spaces that house or have direct contact with poultry or poultry products and manure</li> </ul> Equipment operator time Supervisor time	Cleaning of: <ul style="list-style-type: none"> <li>• Spaces that contain equipment, but not birds, such as control, tool, or ventilation rooms.</li> <li>• Break room</li> <li>• Locker room</li> <li>• Office</li> <li>• Hallway</li> <li>• Manure sheds detached from bird housing</li> <li>• Storage spaces for clean litter or feed</li> <li>• Processed product storage or dry storage areas, such as finished product coolers and packaging storage rooms</li> <li>• Outdoor areas.</li> </ul>
Equipment	Equipment to dry clean barn interior spaces that house or have direct contact with poultry or poultry products and manure, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> <li>• Trucks and ATVs for site supervisor transportation</li> <li>• Portable toilets</li> </ul>
Supplies	Worker safety supplies: <ul style="list-style-type: none"> <li>• Personal protective equipment (PPE)</li> <li>• Dumpster for disposal of PPE and supplies used for dry cleaning</li> </ul> Supplies needed to dry clean barns <ul style="list-style-type: none"> <li>• Scrapers and brooms</li> </ul>	<ul style="list-style-type: none"> <li>• Meals for workers</li> <li>• Utilities (keeping the lights on while dry cleaning)</li> <li>• Hotel and transportation (airfare)</li> </ul>

**Table 3. Categories of disinfection activities in the VE flat rate for table egg-laying bird barns, table egg storage and processing facilities, and responsible parties**

Categories of activities	Activities covered by Federal flat rate	Industry/grower cost-share
<b>Heat disinfection of barns and manure management facilities (heat barns to between 100° F and 120° F for 7 days, with at least 3 of those days being consecutive)</b>		
Labor	Time to: <ul style="list-style-type: none"> <li>• Set up heaters</li> <li>• Install thermometers</li> <li>• Monitor heating and record temperatures</li> <li>• Labor to seal barn with plastic</li> </ul> Equipment operator time Technician time to reroute existing heaters or install duct	<ul style="list-style-type: none"> <li>• Supervisor time</li> </ul>
Equipment	Equipment to heat disinfect barns and manure management facilities, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> <li>• Trucks and ATVs for site supervisor transportation</li> </ul>
Supplies	Fuel for heaters	
Utilities	Utilities to run heaters	
<b>Wet cleaning and disinfection of equipment that will not be heat disinfected</b>		
Labor	Wash and disinfect: <ul style="list-style-type: none"> <li>• Feeders</li> <li>• Drinkers</li> <li>• Fans (when cannot stay in the barn and be heat disinfected)</li> <li>• Heaters (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg bumpers (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg belts (when cannot stay in the barn and be heat disinfected)</li> <li>• Egg carts, racks, trays, etc. (when cannot stay in the barn and be heat disinfected)</li> <li>• Manure belts and curtains (when cannot stay in the barn and be heat disinfected)</li> <li>• All equipment listed for dry cleaning</li> <li>• Other cleanable equipment</li> </ul> Equipment operator time Supervisor time	Disinfection of: <ul style="list-style-type: none"> <li>• Spaces that contain equipment, but not birds, such as control, tool, or ventilation rooms.</li> <li>• Break room</li> <li>• Locker room</li> <li>• Office</li> <li>• Hallways</li> <li>• Manure sheds detached from bird housing</li> <li>• Storage spaces for clean litter or feed</li> <li>• Processed product storage or dry storage areas, such as finished product coolers and packaging storage rooms.</li> <li>• Outdoor areas</li> </ul>
Equipment	Equipment to decontaminate equipment listed above, including trucks and trailers to haul equipment, fuel, and machinery	<ul style="list-style-type: none"> <li>• Trucks and ATVs for site supervisors</li> </ul>
Supplies	Worker safety supplies: <ul style="list-style-type: none"> <li>• Personal protective equipment (PPE)</li> <li>• Dumpster for disposal of PPE and supplies used for disinfecting equipment</li> </ul> Water and approved detergent/disinfectant for decontaminating equipment	<ul style="list-style-type: none"> <li>• Sawdust or wood shavings</li> </ul>

**Table 4. Categories of additional activities that may be included in the industry/grower cost-share in the VE flat rate for table egg-laying bird barns and table egg storage and processing facilities**

Categories of activities	Industry/grower cost-share
<b>Wet cleaning and disinfection of barns</b>	
Labor	Washing and disinfecting: <ul style="list-style-type: none"> <li>• Light bulbs</li> <li>• Ledges</li> <li>• Eaves</li> <li>• Other interior barn surfaces</li> <li>• Exterior of barn application of insecticide/rodenticide</li> </ul>
Equipment	Equipment for wet cleaning and disinfection
Supplies	Supplies for wet cleaning and disinfection
<b>Other activities</b>	
Admin/ Bookkeeping	<ul style="list-style-type: none"> <li>• Clerical and accountant time</li> <li>• Mileage to meetings</li> <li>• Legal counsel to review documents</li> <li>• Time spent at meetings</li> </ul>
Restocking preparation (Labor, equipment, and supplies)	Any other activities related to restocking preparation after final environmental testing has occurred

**How did USDA-APHIS-VS analyze VE data from the 2014-2015 HPAI outbreak to estimate the flat rates for table egg-laying bird barns and table egg storage and processing facilities?**

Over the course of the 2014-2015 HPAI outbreak, C&D of barn interiors on affected premises shifted from wet cleaning and chemical disinfection procedures to less time-intensive and more cost-effective methods. The presence of organic material reduces the effectiveness of chemical disinfectants. Heat disinfection penetrates remaining organic matter after dry cleaning, eliminating the need for wet cleaning and saving time and money to complete VE. Data on the costs of these C&D activities were collected from farmer-reported expenditures on commercial table egg-layer farms under CCAs, which served as a detailed source of information. These expenditures were collected from producers who performed VE activities themselves during 2015 in Iowa, Minnesota, and Nebraska for table egg-layer barns that ranged from 5,500 to 30,000 cubic yards. Financial plans typically included information on the costs per barn with barn size or information to estimate an average cost per barn. CCAs included the detailed labor, equipment, and supplies typically used to perform VE activities as outlined in Tables 1 through 4.

Many table egg-layer farms in the Midwest that used heat disinfection in the 2015 HPAI outbreak did not report electrician time to convert or modify heaters in barns in the CCA financial plans. Instead, many of those farms reported rental of external heating units. Therefore, the VE flat rates used estimates of heating cost for table egg-layer barns and costs from the floor-raised flat rate to determine cost for rental of external heater units; mobilization of units to and from the farm; service technicians; and installation activities to supplement the barn preparation, dry cleaning, heating fuel, and barn temperature monitoring costs reported by table egg-layer farms.

USDA-APHIS-VS analyzed the data from the 2015 HPAI outbreak CCAs to calculate the VE per-cubic-yard flat rates for table egg-laying bird barns for use in future outbreaks. Supplemental data on rate inflation factors, personal protective equipment (PPE) used, and heat disinfection personnel, equipment, and supplies were also collected as described below. Farm-level response cost data used in this analysis did not include indemnity, USDA-APHIS-VS personnel, supplies, or overhead. Contractor fees were also not included. We used the Consumer Price Index reported from the Bureau of Labor Statistics to inflate some wages, equipment rental rates, and supply costs to current dollars.

The quantity of disposable PPE needed to perform VE activities was estimated from the average total labor hours used by producers to complete an activity that required PPE, assuming PPE would be worn for 3 hours and then discarded. An additional 5 percent was added to the total number of PPE units needed for tears and other incidences. PPE includes coveralls, gloves, boot covers, a cap or hood, and a respirator. It was estimated that each responder changed out PPE once every 3 hours at a cost of approximately \$10/PPE unit. This estimate was used to ensure that the flat rate is adequately funded to protect the health and safety of producer employees and supervisors performing VE activities.

The average wage rates paid for farm labor were \$12.55/hour and for poultry workers, \$17.80/hour; both were collected from Indeed.com. The average temporary general laborer wage rate collected from State and local level temporary employment agencies was \$19/hour, which included all expenses for worker's compensation, Federal and State income tax, Medicare tax, Social Security, etc., for the top 10 poultry producing States<sup>3</sup>. Data were also collected from Indeed.com to support an average supervisor wage of \$20.74/hour.

### **How are flat rates calculated for table egg-laying bird barns and table egg storage and processing facilities?**

The average amount of labor, equipment, and supplies used by activity was calculated across layer and pullet barns sized 5,500 cubic yards to 30,000 cubic yards, standardized by their respective cubic yards for each barn. A 22,000 cubic-yard barn was used to represent the barns involved in the outbreak in 2015, as well as common table egg-layer production barns. The average amount of labor, equipment, and supplies used included amounts to clean and disinfect manure management facilities (i.e., manure pits and barns).

We used rates for personnel, equipment, and supplies that were consistent with those used for floor-raised poultry where appropriate. The hourly wage used for poultry workers was calculated by multiplying the average wage rates paid for farm labor and poultry workers by 1.5 to give producers the funds to cover their poultry worker costs (including wages, unemployment insurance, taxes, other benefits, and possible overtime pay). The average of these wage rates with the temporary general laborer wage rate resulted in an overall poultry worker wage rate of \$22/hour. The supervisor wage rate of \$20.74/hour was also multiplied by 1.5; however, in comparing to the previous published rates, supervisor wage rates were 1.5 times higher than poultry worker wage rates. As a result, we set supervisor wage rates at \$33/hour. For supervisors, a higher hourly wage may reflect a higher level of oversight needed for VE. The average rental rates per day for equipment were collected

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<sup>3</sup> Arkansas, California, Georgia, Indiana, Iowa, New York, North Carolina, Ohio, Pennsylvania, and Texas

from national level companies for the top 10 poultry-producing States. The backpack blower, air compressor, and shop vacuum were priced to reflect purchase of these items, to be retained by the producer rather than rented. Finally, all costs per unit except propane were inflated to 2023 dollars. For propane, October 2023 values were used.

The average amount of labor hours or units (equipment or supplies) used was multiplied by the corresponding rates to get a total cost for each activity. These activity totals were summed per barn to get a total barn cost and divided by the average barn volume to get a VE cost per cubic yard. Table 5 lists the budget of activities.

The table egg storage and processing facilities require heat disinfection. In lieu of having specific cost data for table egg storage and processing facilities, the estimated costs for these activities for the table egg-layer VE flat rate were used as a proxy. Heat disinfection costs were around 11 percent of total VE costs. Heat disinfection costs are the only ones needed for the table egg storage and processing facility VE flat rate because these facilities are maintained at a standard of cleanliness for food safety inspections.

Again, since USDA-APHIS-VS determined dry cleaning and heat disinfection to be the most cost-effective VE method, we used this method as the basis for the table egg-laying bird barn VE flat rate calculation. Producers are responsible for conducting or contracting some or all activities for successful VE and may choose to use any effective VE method with the funds provided.

### **How much will USDA-APHIS-VS pay for the flat rate for table egg laying bird barns and table egg storage and processing facilities and how is it paid?**

The per-cubic-yard VE flat rate for table egg laying bird barns is \$3.45 per cubic yard. The per-cubic-yard VE flat rate for table egg storage and processing facilities is \$0.38 per cubic yard. The VE payments are made to the owner of the land and structures that housed the infected birds. Most often, this is the grower. USDA-APHIS-VS makes two payments directly to the owner of the land and structures, each for 50 percent of the total calculated value. Owners of the land and structures may request the initial payment via a VS 1-23 form and are paid after completing the flock plan. A (second) final payment is made after laboratory testing of environmental samples is completed with negative results reported. The flock plan should clearly outline the detailed process and timeline for the expected VE activities as well as expectations for all parties. USDA-APHIS-VS will provide continued oversight (including input and inspections) to ensure that the HPAI virus is quickly contained and fully eliminated.

### **How will the cubic yard included in the payment calculation be measured?**

Federal response personnel measure cubic yards. Primarily these are case managers, site managers, or field reimbursement specialists, but any persons acceptable to the industry and State may perform this task. The cubic-yard measurement for a premises can be calculated by multiplying the length, width, and height in yards or feet of barns housing table egg-laying birds off the floor in cages. If the measurements are taken by feet, divide the cubic-foot measurement (length X width X height of the barn) by 27 to convert to cubic yards. The areas to be measured are barns that house birds, including manure pits attached to barns that house birds and under normal biosecurity conditions would be expected to have contamination. Areas where producer cost-share activities listed in Tables 1-4 occur are not included in the measurements to calculate the VE payment. The barn's height is to be measured at the exterior wall height, not the peak of the barn roof. The table



egg storage and processing facilities should be measured separately from the barns housing birds, excluding those areas listed as industry/grower cost-share in Tables 1-4. because they have a separate VE flat rate.

### How frequently will the flat rate for table egg laying birds be reviewed?

VE flat rates will be reviewed annually to incorporate October propane prices, just before the beginning of the highest risk period for avian influenza. These rates should be appropriate through the majority of the influenza season.

**Table 5. Representative budget used to estimate a per-cubic-yard flat rate for egg-laying bird barns and table egg storage and processing facilities for VE in a representative 22,000 cubic- yard barn**

VE activities	Description of the Activity	Use	Unit	Rate (\$/unit)	Total (\$)
<b>Barn preparation</b>					
Personnel					
Poultry worker	Disassembly/reassembly of feeders, drinkers, fans, heaters, and other cleanable equipment	24	hr	\$25.83	\$620
Supervisor	All barn prep activities	2	hr	\$38.75	\$77
Equipment					
Skid steer/1	50 hp	0.5	day	\$575.36	\$288
Supplies					
PPE	Personal Protective Equipment	7	suits	\$11.74	\$82
<b>Dry cleaning</b>					
Personnel					
Poultry Worker	All dry-cleaning activities	975	hr	\$25.83	\$25,187
Supervisor	All dry-cleaning activities	144	hr	\$38.75	\$5,580
Equipment					
Pay loader /1	150 hp	1	day	\$623.50	\$624
Skid steer /1	50 hp	4.5	day	\$575.36	\$2,589
Blower /2	Backpack blower	4	per barn	\$352.26	\$1,409
Air compressor /2	100 psi with hose	2	per barn	\$352.26	\$705
Shop Vacuum /2	For feed troughs and other dry-cleaning activities	1	per barn	\$176.13	\$176
Lifts /1	All types	6	day	\$531.91	\$3,191
Supplies					
PPE	Personal Protective Equipment	342	suits	\$11.74	\$4,016
Dumpster	All dry-cleaning activities	1	dumpster	\$382.79	\$383
Brooms and Scrapers	All dry-cleaning activities	1	per barn	\$1,784.78	\$1,785
<b>Wet cleaning and disinfection of barns</b>					
Personnel					
Poultry Worker	All washing and disinfection of equipment that will not be heat disinfected	121	hr	\$25.83	\$3,126
Supervisor	All washing and disinfection of equipment that will not be heat disinfected	3	hr	\$38.75	\$116
Equipment					
Pressure Washer /1	PTO powered equipment that	3	day	\$352.26	\$1,057

	will not be heat disinfected				
Tractor /2	for PTO-powered equipment	3	day	\$234.84	\$705
Water trailer /2	1,000 to 1,500 gallon	3	day	\$180.83	\$542
<b>Supplies</b>					
Disinfectant	Virkon	12	tubs	\$77.50	\$930
Detergent	For cleaning equipment	2	tub	\$44.62	\$89
PPE	Personal protective equipment	40	suits	\$11.74	\$470
Water system cleaner	Cid 2000	16	gal	\$37.57	\$601
<b>Heat Disinfection</b>					
<b>Personnel</b>					
Poultry worker	Installation of thermometers, monitor and record temperatures, sealing barn	102	hr	\$25.83	\$2,635
Specialized labor	Service technician activities	1	per barn	\$797.28	\$797
<b>Equipment</b>					
Heaters	1 million BTU per barn	4	heaters	\$2,489.30	\$9,957
Ducting <sup>2</sup>	ducting	1	per barn	\$228.97	\$229
Mobilization <sup>1</sup>	mobilization-in and out	1	per barn	\$3,000.08	\$3,000
<b>Supplies</b>					
Fuel	Fuel for heaters (for the representative 22,000 Cubic-yard barn)	0.25	gal/cu yd	\$0.88	\$4,840

1. Equipment rates (\$/hr) include equipment, mobilization, operator, and fuel cost.

2. Equipment rates (\$/hr) include the equipment and mobilization cost.

**For more information, contact:**

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