# CHAPTER 9

# NPDES REGULATORY OPTIONS

## 9.0 INTRODUCTION TO NPDES PROGRAM

Under the National Pollutant Discharge Elimination System (NPDES) permit program, all point sources that discharge pollutants to waters of the United States must apply for an NPDES permit and may discharge pollutants only under the terms of that permit. Such permits include nationally established technology-based effluent discharge limitations. In the absence of national effluent limitations, NPDES permit writers must establish technology-based limitations and standards on a case-by-case basis, based on the permit writer's best professional judgment.

In addition to the technology-based effluent limits, permits may also include water quality-based effluent limits where technology-based limits are not sufficient to ensure compliance with the water quality standards or to implement a Total Maximum Daily Load (TMDL). Permits may include specific best management practices to achieve effluent limitations, typically included as special conditions. In addition, NPDES permits normally include monitoring and reporting requirements, as well as standard conditions that apply to all permits (such as duty to properly operate and maintain equipment).

Under the existing NPDES regulations, a facility must first be defined as an Animal Feeding Operation (AFO). An AFO is a "lot or facility" where animals "have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period" and where "crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility." The existing NPDES program then has a three-tier structure, based primarily on facility size, under which an AFO is either defined or designated as a Concentrated Animal Feeding Operations (CAFO). The size of an AFO, based on numbers of animals, is expressed in terms of animal units, or AU. Each major livestock type, except poultry, is assigned a multiplication factor to determine the number of AU at the facility. Facilities with more than 1,000 AU are automatically defined as CAFOs. Facilities with more than 300 AU are also defined as CAFOs if they either discharge pollutants into navigable waters through a man-made ditch, flushing system, or other similar device or discharge pollutants directly into waters that originate outside of and pass over, across, or through the facility or come into direct contact with the confined animals. However, no AFO is defined as a CAFO if the facility discharges only in the event of a 25-year, 24-hour storm. Finally, where an operation does not meet the definition of a CAFO (including those with fewer than 300 AU), the permitting authority may still designate it a CAFO on a case-by-case basis after an inspection and based on

the finding that the facility "is a significant contributor of pollution to the waters of the United States."

The current NPDES permit program for CAFOs is being revised to more effectively address water pollution problems. Currently, several scenarios are being considered to revise the structure of the NPDES rule. EPA is also proposing changes to strengthen, clarify, and simplify the NPDES regulation. The purpose of this section is to:

- Describe industry compliance with existing regulations
- Describe the permit scenarios under consideration
- Estimate the number of AFOs that would be affected under the different scenarios
- Estimate the administrative burden
- Describe additional changes to the NPDES regulation
- Cost these additional changes to the NPDES regulation

## 9.1 Industry Compliance with Existing Regulations

EPA promulgated the current NPDES regulations for CAFOs in 1976. For the purposes of this analysis, EPA assumes that all operations are currently fully complying with the existing regulatory program. This assumption represents the "baseline," and the costs EPA is attributing to the proposed regulatory revisions consist of the increment between these baseline costs and the costs of new regulatory requirements.

More specifically, EPA assumes that all operations are fully complying with the existing regulations because they fall into one of two categories. The first category consists of those operations that are defined or designated as CAFOs and that have in fact obtained a permit. EPA assumes, for purposes of costing the new regulations, that these CAFOs are in full compliance with their existing permits. The second category consists of all of the other unpermitted AFOs. EPA assumes that these operations do not need a permit because they fall outside the definition of a CAFO. For example, they might not meet the basic terms for being defined as a CAFO, or they might meet those terms but are excluded from the definition because they do not discharge except in the event of a 25-year, 24-hour storm. This second group of operations are also complying with the regulations in the sense that they are assumed not to be subject to the CAFO regulations in the first instance. In reality, however, there probably are a number of unpermitted operations that are subject to the regulations and should have a permit (for example, they incorrectly claim they are a "no discharge" facility, as discussed in the preamble). Consequently, EPA's assumptions are conservative: they tend to underestimate the number of facilities that should be subject to baseline costs today as permitted facilities, and therefore they overestimate the incremental costs of the new regulatory revisions.

This section presents EPA's approach and assumptions for identifying the population of AFOs that are subject to permitting under the existing CAFO permitting regulations. The universe of AFOs and CAFOs is discussed in this section by livestock category, size of operation, and production region. EPA's assumptions about what is needed to comply with the current CAFO

regulations are consistent with the Agency's views as stated in its 1995 CAFO guidance manual, *Guidance Manual on NPDES Regulations for Concentrated Animal Feeding Operations* (USEPA, 1995; USEPA, 1999).

To be authorized by EPA to implement the NPDES program, states must adopt requirements that are at least as stringent as those set forth in the federal regulations. Many states have adopted stricter requirements that either lower the size threshold for animal feedlots or require additional controls designed to prevent water quality impairment. Note that the costs presented in Chapter 11 also account for individual state requirements that are more stringent than those of the federal NPDES program.

### 9.1.1 Approach and Assumptions for Identifying AFOs That Are Currently Subject to Regulation

The primary livestock sectors have been divided into five production regions consistent with development of the Cost Models. The designation and use of production regions allows for the aggregation of critical data on the number of facilities, production quantities, and financial conditions, which might otherwise not be possible because of concerns about disclosure.[1] The production regions are defined in Table 4-1.

The numbers of AFOs by livestock category, facility size, and region were generally obtained from the 1997 U.S. Census of Agriculture, from NASS bulletins (such as Cattle: Final Estimates and Layers), and from additional census analysis requested by EPA; they were supplemented by data and comments from industry. See Chapter 3 for more information on data collection. Swine, layer, and dairy operation data were estimated from "farms with inventory." All other livestock operation data were estimated from "farms with sales" and were divided by an assumed turnover rate—broilers = 5.5, swine = 2.8, turkeys = 3, beef = variable depending on size—but were assumed to be 2.2 for facilities with 301 to 1,000 AU. See Chapter 4: Industry Profiles for more details regarding EPA estimates of turnovers.

Livestock numbers were converted to EPA animal units assuming 1,000 AU are equal to 2,500 swine over 55 pounds, 55,000 turkeys, 30,000 laying hens using wet manure systems, 100,000 laying hens or broilers using dry manure systems, 700 mature dairy, or 1,000 beef cattle. Where data were not available for swine and poultry in the desired size ranges, the data were linearly interpolated to estimate the size group needed (e.g., 301 to 1,000 AU). For the beef and dairy sectors, the interpolation assumes for any given size range of farm, the smaller farms are the more numerous. Table 9-1 provides a summary of the number of facilities with animal inventories (or livestock sales as described above) by livestock sector, all production regions, and size of operation. See Chapter 4: Industry Profiles for more details regarding EPA estimates of numbers of farms.

[1] For example USDA Census of Agriculture data are not typically released unless there is a sufficient number of observations to ensure confidentially. Consequently, if data were aggregated on a state basis (instead of a regional basis), many key data points needed to describe the industry segments would be unavailable.

**Table 9-1. Total 1997 Facilities With Confined Animal Inventories by Livestock Sector and Size***

| | Region | <300 AUs | 300 to 499 AUs | 500 to 999 AUs | ≥1,000 AUs |
|---|---|---|---|---|---|
| ***BEEF*** | Central | 10,000 | 110 | 110 | 510 |
| | Midwest | 68,340 | 750 | 750 | 1,450 |
| | MidAtlantic | 15,370 | 90 | 90 | 20 |
| | Pacific | 3,940 | 20 | 30 | 80 |
| | South | 4,350 | 30 | 20 | 10 |
| | Total | 102,000 | 1,000 | 1,000 | 2,070 |
| ***DAIRY*** | Central | 9,690 | 610 | 410 | 410 |
| | Midwest | 59,680 | 860 | 590 | 90 |
| | MidAtlantic | 32,490 | 820 | 560 | 80 |
| | Pacific | 2,870 | 840 | 580 | 790 |
| | South | 5,000 | 260 | 170 | 80 |
| | Total | 109,730 | 3,390 | 2,310 | 1,450 |
| ***SWINE*** | Central | 8,270 | 80 | 90 | 130 |
| | Midwest | 63,750 | 540 | 3,710 | 2,440 |
| | MidAtlantic | 14,950 | 4,990 | 460 | 1,260 |
| | Pacific | 8,270 | 30 | 20 | 20 |
| | South | 8,270 | 180 | 180 | 240 |
| | Total | 95,240 | 5,820 | 4,460 | 3,850 |
| ***LAYERS*** | Central | 15,460 | 40 | 80 | 70 |
| | Midwest | 18,600 | 100 | 250 | 210 |
| | MidAtlantic | 24,610 | 120 | 210 | 120 |
| | Pacific | 6,950 | 30 | 120 | 110 |
| | South | 7,500 | 130 | 340 | 130 |
| | Total | 73,120 | 420 | 1,000 | 640 |

| | Region | <300 AUs | 300 to 499 AUs | 500 to 999 AUs | ≥1,000 AUs |
|---|---|---|---|---|---|
| ***BROILERS*** | Central | 3,050 | 290 | 450 | 350 |
| | Midwest | 7,920 | 140 | 160 | 180 |
| | MidAtlantic | 5,110 | 1,440 | 1,720 | 940 |
| | Pacific | 1,240 | 30 | 50 | 110 |
| | South | 3,400 | 2,460 | 3,460 | 2,360 |
| | Total | 20,720 | 4,360 | 5,840 | 3,940 |
| ***TURKEYS*** | Central | 2,300 | 30 | 40 | 30 |
| | Midwest | 4,020 | 290 | 320 | 140 |
| | MidAtlantic | 3,260 | 360 | 380 | 80 |
| | Pacific | 1,020 | 50 | 70 | 50 |
| | South | 1,020 | 80 | 100 | 70 |
| | Total | 10,600 | 810 | 910 | 370 |
| **Grand Total** | | 420,700 | 15,800 | 12,520 | 12,560 |

*Numbers rounded to nearest 10. Numbers may not add due to independent rounding.

The numbers in Table 9-1 must be further adjusted to account for operations that have multiple livestock inventories (e.g., swine and layers at the same facility). EPA's analysis of 1992 Census data indicates that approximately 20 percent of facilities with fewer than 1,000 AU maintain multiple animal types. Hence, the number of small and medium facilities with livestock inventories is reduced by 20 percent to arrive at the actual number of AFOs. Thus for every 100 AFOs reported in the Census with fewer than 1,000 AU, 20 have multiple animal types, leaving only 80 unique facilities that are potentially permitted. For large facilities, EPA's analysis indicates 200 facilities have multiple livestock types that have more than 1,000 AU only when all animal types are summed; at these facilities no single animal type is present at more than 1,000 AU. A corresponding reduction in large facility numbers is necessary to arrive at the total number of AFOs in this size category. Note this reduction in facility counts applies only to the potential number of permits; industry costs of compliance discussed elsewhere in this document are assessed for <u>all</u> animal types that might be present at a given facility.

Table 9-2 displays the adjusted total number of AFOs by livestock category, production region, and facility size based on the estimates presented in Table 9-1. The adjusted numbers of AFOs presented in Table 9-2 are used throughout this section.

**Table 9-2. Total Adjusted AFOs by Size and Livestock Sector***

| | Region | <300 AUs | 300 to 499 AUs | 500 to 999 AUs | ≥1,000 AUs |
|---|---|---|---|---|---|
| ***BEEF*** | Central | 8,000 | 80 | 90 | 510 |
| | Midwest | 54,660 | 600 | 600 | 1,430 |
| | MidAtlantic | 12,290 | 80 | 70 | 20 |
| | Pacific | 3,150 | 20 | 20 | 70 |
| | South | 3,480 | 20 | 20 | 10 |
| | Total | 81,580 | 800 | 800 | 2,040 |
| ***DAIRY*** | Central | 7,750 | 490 | 330 | 400 |
| | Midwest | 47,750 | 690 | 470 | 90 |
| | MidAtlantic | 25,990 | 650 | 450 | 80 |
| | Pacific | 2,300 | 670 | 460 | 770 |
| | South | 4,000 | 200 | 140 | 80 |
| | Total | 87,780 | 2,700 | 1,850 | 1,420 |
| ***SWINE*** | Central | 6,620 | 60 | 70 | 120 |
| | Midwest | 50,990 | 3,990 | 2,970 | 2,400 |
| | MidAtlantic | 11,960 | 440 | 370 | 1,240 |
| | Pacific | 6,620 | 30 | 10 | 20 |
| | South | 6,620 | 150 | 140 | 240 |
| | Total | 82,810 | 4,670 | 3,560 | 4,020 |
| ***LAYERS*** | Central | 12,370 | 30 | 70 | 70 |
| | Midwest | 14,880 | 80 | 200 | 210 |
| | MidAtlantic | 19,690 | 90 | 170 | 110 |
| | Pacific | 5,560 | 30 | 90 | 110 |
| | South | 6,000 | 100 | 270 | 130 |
| | Total | 58,500 | 330 | 800 | 630 |
| ***BROILERS*** | Central | 2,440 | 230 | 360 | 350 |
| | Midwest | 6,340 | 110 | 130 | 180 |
| | MidAtlantic | 4,090 | 1,160 | 1,370 | 930 |
| | Pacific | 990 | 20 | 40 | 100 |
| | South | 2,720 | 1,970 | 2,770 | 2,320 |
| | Total | 16,580 | 3,490 | 4,670 | 3,880 |

| | Region | <300 AUs | 300 to 499 AUs | 500 to 999 AUs | ≥1,000 AUs |
|---|---|---|---|---|---|
| ***TURKEYS*** | Central | 1,840 | 30 | 30 | 30 |
| | Midwest | 3,220 | 240 | 250 | 140 |
| | MidAtlantic | 2,610 | 280 | 310 | 80 |
| | Pacific | 820 | 40 | 60 | 50 |
| | South | 820 | 70 | 80 | 60 |
| | Total | 9,310 | 660 | 730 | 360 |
| **Grand Total** | | 336,570 | 12,650 | 12,410 | 12,350 |

*Numbers rounded to nearest 10. Numbers may not add due to independent rounding.

### 9.1.2 Livestock Categories

The following subsections describe many of the livestock categories that would be affected by the revised rule, including beef, dairy, swine, broilers, layers, and turkeys. Operations with 300 to 999 AU may be either defined or designated as a CAFO. Operations under 300 AU must be designated as a CAFO.

#### *9.1.2.1 Beef*

The beef industry is concentrated in the Central and Midwest production regions. Smaller concentrations of beef feeding operations exist in the MidAtlantic, South, and Pacific production regions.

*Large AFOs*. All large beef AFOs are assumed to be in full compliance, being either permitted or exempt because they have no discharges except in the event of a 25-year, 24-hour storm.

*Medium AFOs*. EPA assumes approximately 7 percent of medium-sized AFOs in the Midwest, Mid Atlantic, Pacific, and South production regions are CAFOs because at direct contact with waters of the United States (WOUS) or discharge through a man-made device (MMD); 3 percent of the AFOs in the Central region are CAFOs because of direct contact or discharge through MMD (Bracht, 1999; Bryon, 1999; Wilson, 1999; Funk, 1999; Gunter, 1999). Additionally, EPA assumes that 5 percent of all medium-size AFOs are designated as CAFOs because of the potential to discharge based on their infrequent use of effluent control systems and the topography of the facilities in relation to nearby WOUS (Bredencamp, 1999; Harrelson, 1999). EPA believes 5 percent is a conservative estimate based on how many operations should be designated and also because many operations are incurring costs under separate State regulatory (non-NPDES) and voluntary programs. Thus, based on the proposed new regulations, the formula used to estimate medium-sized facilities that are CAFOs is

> (Total AFOs × percentage that meet the CAFO definition, e.g., direct contact/conveyance via MMD) + (Total AFOs × percentage that would be designated)

*Small AFOs*. EPA assumes the same estimates as in the medium size category regarding direct contact/discharge via MMD are applied (7 and 3 percent, depending on region), however, the potential for significant discharge is estimated at approximately 0.1 percent. In general, EPA and States have not focused on facilities with fewer than 300 AU. Consequently, the number of small facilities designated as CAFOs has been very small for all livestock categories. Thus, the calculation used to estimate small regulated facilities is

(Total AFOs × percentage with direct contact or conveyance via MMD × designation rate)

Table 9-3 presents the number of beef feeding operations estimated to be in full compliance by region and size. These estimates were derived by multiplying numbers of AFOs by the direct contact/conveyance and designation rates discussed above.

**Table 9-3. Regulated Beef Feeding Operations by Size Category Assuming Full Compliance***

| Region | Total | <300 AU | 300 to 999 AU | ≥1,000 AU |
|---|---|---|---|---|
| Central | 520 | 0 | 10 | 510 |
| Midwest | 1,570 | 0 | 140 | 1,430 |
| Mid Atlantic | 40 | 0 | 20 | 20 |
| Pacific | 70 | 0 | 0 | 70 |
| South | 10 | 0 | 0 | 10 |
| Total | 2,210 | 0 | 170 | 2,040 |

*Numbers rounded to nearest 10.

Estimates of the number of facilities with direct contact or with an MMD were derived based on conversations with USDA Extension personnel, state water quality staff, industry representatives, and others. (Bracht, 1999; Bredenkamp, 1999; Byron, 1999; Funk, 1999; Gunter, 1999; Harrelson, 1999; Wilson, 1999). The estimate of the number of small facilities that would be designated CAFOs is based on best professional judgment.

#### *9.1.1.2 Dairy*

The largest number of dairies assumed to be in compliance are in the Midwest and MidAtlantic production regions, as described in Chapter 4. Smaller numbers of dairies in compliance are located in the Central, Pacific, and South production regions. Note that although there are more dairies in the Midwest and MidAtlantic, the Central and Pacific regions actually have the most large dairies.

*Large AFOs*. EPA assumes all large dairy AFOs are in compliance, being either permitted or exempt because they have no discharges except in the event of a 25-year, 24-hour storm.

*Medium AFOs*. The dairy industry is dominated by medium and small operations in the Midwest and MidAtlantic regions. Many of these dairies were designed and built on or near WOUS and therefore have direct contact; others have some type of MMD. Estimates for the percentage of dairies in these two regions with direct contact or MMD range from less than 20 percent to 75 percent (Bickert, 1999; Groves, 1999; Holmes, 1999). Based on this information, it is estimated that 40 and 50 percent of the dairies in the Midwest and MidAtlantic regions, respectively, have direct contact or use an MMD, and are thus defined as CAFOs. In the other production regions, 10 to 20 percent of the dairies are assumed to be CAFOs because direct contact or use of an MMD[2] (Johnson, 1999). The designation rates in this size class range from 5 percent (Midwest, MidAtlantic, Pacific) to 10 percent (Central) to 15 percent (South) (Bickert, 1999; Orth, 1999).

*Small AFOs*. The same estimates as in the medium size category regarding direct contact/discharge via MMD are applied to the small category. Of these dairies, it is estimated that less than 0.1 percent would be subject to designation as CAFOs based on their potential to significantly contribute pollution to WOUS (designation rate = 0.1 percent). Table 9-4 provides estimates of the number of regulated dairies by size category for the various regions under the assumption of full compliance.

**Table 9-4. Regulated Dairy Operations by Size Category Assuming Full Compliance With Existing Regulations***

| Region | Total | <300 AUs[1] | 300 to 999 AUs[2] | ≥1000 AUs |
|---|---|---|---|---|
| Central | 560 | 0 | 160 | 400 |
| Midwest | 620 | 10 | 520 | 90 |
| MidAtlantic | 690 | 0 | 610 | 80 |
| Pacific | 1,050 | 0 | 280 | 770 |
| South | 200 | 0 | 120 | 80 |
| Total | 3,120 | 10 | 1,690 | 1,420 |

*Numbers rounded to nearest 10.

### *9.1.2.3 Swine*

The swine industry is concentrated in the Midwest and MidAtlantic production regions. The remaining swine facilities are in the Pacific region, emergent areas in the South Central region, and to a lesser extent in the South region.

[2]Central = 10 percent; South and Pacific = 20 percent.

*Large AFOs*. All large swine AFOs are assumed to be in compliance, being either permitted or exempt because they have no discharges except in the event of a 25-year, 24-hour storm.

*Medium AFOs*. Based on contacts with USDA Extension personnel, approximately 10 percent of facilities in this size category (across all regions) are assumed to have direct contact or use an MMD (Greenless,1999; Steinhart, 1999); all of these facilities are defined as CAFOs. Additionally, it is estimated (based on best professional judgment) that an additional 5 percent of the facilities have been designated.

*Small AFOs*. Estimates from a number of USDA Extension specialists concerning direct contact or use of an MMD by small operations range from 0 to 15 percent (Funk, 1999; Jacobson, 1999; Steinhart, 1999); 10 percent is assumed for all regions based on best professional judgment. Of these facilities, it is assumed that less than 0.1 percent are designated as CAFOs. Table 9-5 provides estimates of the number of regulated swine operations by size category under assumptions of full compliance.

**Table 9-5. Regulated Swine Operations by Size Category Assuming Full Compliance***

| Region | Total | <300 AU | 300 to 999 AU | ≥1000 AU |
|---|---|---|---|---|
| Central | 140 | 0 | 20 | 120 |
| Midwest | 3,440 | 0 | 1,040 | 2,400 |
| MidAtlantic | 1,360 | 0 | 120 | 1,240 |
| Pacific | 30 | 0 | 10 | 20 |
| South | 280 | 0 | 40 | 240 |
| Total | 5,250 | 0 | 1,230 | 4,020 |

*Numbers rounded to nearest 10.

### *9.1.2.4 Layers*

A layer operation is defined as a CAFO if it maintains more than 30,000 birds and uses a wet manure management system (a technology that has fallen out of favor in the industry and is not being used by new operations) or if it maintains more than 100,000 birds using continuous overflow watering and has the potential to discharge pollutants to WOUS. EPA recognizes that continuous overflow watering is an outdated technology that has fallen out of favor in both the layer and broiler industries.

Currently, as many as 60 percent of the operations in the South and Central production regions use a wet manure handling system, whereas only 0 to 5 percent of the facilities use a wet system in the other regions. These estimates are further discussed in Chapter 4 of this document. Of these operations, EPA assumes the large facilities have either been defined as CAFOs and are permitted or are in compliance, not having any discharge.

As noted in EPA's 1995 permitting guidance, dry poultry operations are subject to the NPDES regulations if they establish a "crude liquid manure system" by stacking manure or litter in an outside area unprotected from rainfall and runoff. This analysis assumes that 10 percent of large operations and 5 percent of medium operations would be defined as CAFOs for this reason. This assumption is based on conversations with industry personnel, who indicate that layer facilities generally have long-term (> 6 months) storage, after which the manure is either sold or land applied (Funk, 1999; Jacobson, 1999; Patterson, 1999; Thomas, 1999; Tyson, 1999; York, 2000). The number of regulated layer operations is presented in Table 9-6 under assumptions of full compliance.

**Table 9-6. Regulated Layer Operations by Size Category Assuming Full Compliance***

| Region | Total | <300 AU | 300 to 999 AU | ≥1,000 AU |
|---|---|---|---|---|
| Central | 110 | 0 | 60 | 50 |
| Midwest | 20 | 0 | 10 | 10 |
| MidAtlantic | 10 | 0 | 10 | 0 |
| Pacific | 10 | 0 | 0 | 10 |
| South | 300 | 0 | 220 | 80 |
| Total | 450 | 0 | 300 | 150 |

*Numbers rounded to nearest 10.

### *9.1.2.5 Broilers*

Broiler operations with more than 30,000 birds are defined as CAFOs only if they use a liquid manure handling system. Because few, if any, broiler operations use a liquid manure handling system, the only way by which a broiler operation is defined as a CAFO currently is if, through its manure handling practices, it creates a form of liquid manure handling system (Carey, 1999). As noted, dry poultry operations may establish a "crude liquid manure system" by stacking litter in an outside area unprotected from rainfall or runoff. This analysis assumes that at least 10 percent of the large broiler operations and 5 percent of the medium operations stack litter temporarily, in a manner consistent with EPA's interpretation of a liquid manure handling system and therefore would be defined as CAFOs (York, 2000). Furthermore, it is assumed that no broiler operations have direct contact with WOUS or an MMD (Carey, 1999; Gale, 1999; Lory, 1999; Patterson, 1999; Thomas, 1999; Tyson, 1999). No small broiler operations are assumed to be designated as CAFOs because this size category falls below the size that would typically be of concern to the permitting authorities. Table 9-7 presents regulated broiler operation numbers.

### *9.1.2.6 Turkeys*

EPA assumes turkey operations with more than 55,000 birds (1,000 AUs) are in compliance, being either permitted or exempt because they have no discharges except in the event of a 25-year, 24-hour storm. The only other turkey AFOs subject to the NPDES program are those which discharge to WOUS. Because virtually all turkey operations use dry litter systems (Battaglia, 1999; Carey, 1999; Jones, 1999), the only operations that have the potential to discharge are those operations which have established a liquid manure system through the use of waste management practices that allow contact between manure and rainwater. It is estimated that 5 percent of the medium facilities in the South production region and 2 percent in the other regions are defined as CAFOs for this reason. As with broiler operations, it is assumed that no turkey facilities have direct contact or an MMD. Table 9-8 presents the number of turkey feeding operations in full compliance by region and size.

**Table 9-7. Regulated Broiler Operations by Size Category Assuming Full Compliance***

| Region | Total | <300 AU | 300 to 999 AU | ≥1,000 AU |
|---|---|---|---|---|
| Central | 60 | 0 | 30 | 30 |
| Midwest | 30 | 0 | 10 | 20 |
| MidAtlantic | 220 | 0 | 130 | 90 |
| Pacific | 10 | 0 | 0 | 10 |
| South | 470 | 0 | 240 | 230 |
| Total | 790 | 0 | 410 | 380 |

*Numbers rounded to nearest 10.

**Table 9-8. Regulated Turkey Operations by Size Category Assuming Full Compliance***

| Region | Total | <300 AU | 300 to 999 AU | ≥1,000 AU |
|---|---|---|---|---|
| Central | 30 | 0 | 0 | 30 |
| Midwest | 150 | 0 | 10 | 140 |
| MidAtlantic | 90 | 0 | 10 | 80 |
| Pacific | 50 | 0 | 0 | 50 |
| South | 70 | 0 | 10 | 60 |
| Total | 390 | 0 | 30 | 360 |

*Numbers rounded to nearest 10.

### 9.1.3 Summary of Feeding Operations in Compliance by Size and Type

The estimated number of regulated animal feeding operations based on an assumption of full compliance with the existing regulations is presented in Table 9-9.

**Table 9-9. Summary of Effectively Regulated Operations by Size and Livestock Sector***

| Livestock | Total | ≥ 1,000 AU | 300 to 999 AU | <300 AU |
|---|---|---|---|---|
| Beef | 2,210 | 2,040 | 170 | 0 |
| Dairy | 3,120 | 1,420 | 1,690 | 10 |
| Swine | 5,250 | 4,020 | 1,230 | 0 |
| Layers | 450 | 150 | 300 | 0 |
| Broilers | 790 | 410 | 380 | 0 |
| Turkeys | 390 | 360 | 30 | 0 |
| Total | 12,210 | 8,400 | 3,800 | 10 |

*Numbers rounded to nearest 10.

This summary of animal operations that should currently have NPDES permits does not correspond with the number of NPDES permits issued to date. Most sources place the estimate of the number of facilities covered by NPDES permits at approximately 2,500 (SAIC, 1999).

Several reasons explain the large disparity between these numbers. First, many of the large facilities opt out of the NPDES program because they claim they do not discharge except in the event of a 25-year, 24-hour storm. Second, many authorized states have declined to issue NPDES permits for CAFOs, relying instead on regulatory mechanisms other than the NPDES program to regulate CAFOs. The balance between the NPDES program and the other state programs is discussed in more detail in following sections.

## 9.2 Affected Entities Under Proposed Scenarios for Revised NPDES CAFO Rule

EPA is proposing to revise the current three-tier structure in 40 CFR 122.23 for determining which facilities are CAFOs that are subject to NPDES requirements. Five scenarios are under consideration. Scenarios 1 through 3 have a three-tier structure similar to the current rule. Tier 1 is 1,000 AU and greater; Tier 2 is 300 to 999 AU; Tier 3 is fewer than 300 AU. Scenarios 4a and 4b have a two-tier structure. Under Scenario 4a, Tier 1 is 500 AU and greater; Tier 2 is fewer than 500 AU. Under Scenario 4b, Tier 1 is 300 AU and greater; Tier 2 is fewer than 300 AU. The following sections discuss the universe of AFOs that would be affected by the proposed scenarios by livestock category, size of operation (which varies by scenario), and production region. The tables for each of the scenarios give both the tier and the corresponding

animal units. Note that Tier 1 of the three-tier structure is not the same as Tier 1 of the two-tier structure.

### 9.2.1 Regulatory Scenarios

In this section EPA identifies the five regulatory scenarios for the NPDES permit rule. These scenarios, briefly described below, consider different facility size thresholds and variations in regulatory requirements. Under all five regulatory scenarios, the following conditions apply:

- Clarify the definition of an AFO.
- Eliminate the 25-yr/24-hr storm exemption.
- Include dry poultry operations.
- Duty to apply: If the AFO meets the definition of a CAFO, it must apply for a permit.
- Include stand-alone immature swine and heifer operations.
- Eliminate use of the term "Animal Unit."
- Eliminate the mixed animal multiplier.
- Include facility closure requirements.

More details on the above conditions are provided in sections 9.3 and 9.4.

### 9.2.2 Scenario 1: Three-Tier Structure

Scenario 1 maintains the current rule structure but adds the conditions listed in Section 9.2.1 (eliminate 25-yr/24-hr storm exemption, include dry poultry operations, etc.). The primary effect as far as the number of facilities which would be impacted is the addition of dry poultry operations, stand- alone immature operations, and facilities previously exempt due to the 25-yr/24-hr storm provisions. Tier 2 facilities would still be defined as CAFOs if pollutants are discharged through a man-made ditch, flushing system or other similar man-made device or if pollutants are discharged directly into WOUS that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation. Facilities can also be designated CAFOs if they are significant contributors of pollutants through any other means of conveyance. Small facilities (Tier 3) can be designated only if pollutants are discharged into navigable waters through a man-made ditch, flushing system or other similar man-made device or pollutants are discharged directly into WOUS that originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation. A summary of the number of AFOs that would be defined as CAFOs under this scenario is presented in Table 9-10. In total, 16,520 facilities would have to apply for a permit under Scenario 1.

EPA assumes that nationwide there are only a small number (estimated as 10) of AFOs in Tier 3 that have been designated as CAFOs. Because Scenario 1 maintains the same conditions for designation, EPA assumes that the same number of operations will be designated under this

scenario. For purposes of presentation, it is assumed that five of these small CAFOs are dairies and five are swine; in reality, they are spread across the various livestock categories.

**Table 9-10. Scenario 1: Summary of AFOs by Livestock Sector Required to Apply for Permit**

| Livestock Sector | Region | Total CAFOs | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|---|
| Beef | Central | 520 | 510 | 10 | 0 |
| | Midwest | 1,570 | 1,430 | 140 | 0 |
| | MidAtlantic | 40 | 20 | 20 | 0 |
| | Pacific | 70 | 70 | 0 | 0 |
| | South | 10 | 10 | 0 | 0 |
| | Total | 2,210 | 2,040 | 170 | 0 |
| Dairy | Central | 560 | 400 | 160 | 0 |
| | Midwest | 620 | 90 | 520 | 5 |
| | MidAtlantic | 690 | 80 | 610 | 0 |
| | Pacific | 1,050 | 770 | 280 | 0 |
| | South | 200 | 80 | 120 | 0 |
| | Total | 3,120 | 1,420 | 1,690 | 5 |
| Heifers | Central | 100 | 80 | 20 | 0 |
| | Midwest | 90 | 20 | 70 | 0 |
| | MidAtlantic | 100 | 20 | 80 | 0 |
| | Pacific | 200 | 160 | 40 | 0 |
| | South | 40 | 20 | 20 | 0 |
| | Total | 530 | 300 | 230 | 0 |
| Veal | Central | 0 | 0 | 0 | 0 |
| | Midwest | 0 | 0 | 0 | 0 |
| | MidAtlantic | 0 | 0 | 0 | 0 |
| | Pacific | 20 | 10 | 10 | 0 |
| | South | 0 | 0 | 0 | 0 |
| | Total | 20 | 10 | 10 | 0 |

| Livestock Sector | Region | Total CAFOs | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|---|
| Swine | Central | 140 | 120 | 20 | 0 |
| | Midwest | 3,440 | 2,400 | 1,040 | 5 |
| | MidAtlantic | 1,360 | 1,240 | 120 | 0 |
| | Pacific | 30 | 20 | 10 | 0 |
| | South | 280 | 240 | 40 | 0 |
| | Total | 5,250 | 4,020 | 1,230 | 5 |
| Layers | Central | 100 | 70 | 30 | 0 |
| | Midwest | 230 | 210 | 20 | 0 |
| | MidAtlantic | 130 | 110 | 20 | 0 |
| | Pacific | 120 | 110 | 10 | 0 |
| | South | 240 | 130 | 100 | 0 |
| | Total | 820 | 630 | 180 | 0 |
| Broilers | Central | 360 | 350 | 10 | 0 |
| | Midwest | 180 | 180 | 0 | 0 |
| | MidAtlantic | 980 | 930 | 50 | 0 |
| | Pacific | 100 | 100 | 0 | 0 |
| | South | 2,560 | 2,320 | 240 | 0 |
| | Total | 4,180 | 3,880 | 300 | 0 |
| Turkeys | Central | 30 | 30 | 0 | 0 |
| | Midwest | 150 | 140 | 10 | 0 |
| | MidAtlantic | 100 | 80 | 20 | 0 |
| | Pacific | 40 | 50 | 0 | 0 |
| | South | 70 | 60 | 10 | 0 |
| | Total | 390 | 360 | 40 | 0 |
| | **Grand Total** | 16,520 | 12,660 | 3,850 | 10 |

*Numbers rounded to nearest 10. Numbers may not add due to independent rounding.

### 9.2.3 Scenario 2: Three-Tier Structure with Revised Criteria for Defining a Middle-Tier CAFO

Scenario 2 specifies that any Tier 2 AFO (i.e., 300 to 1,000 AU) that meets any one of the following criteria is defined as a CAFO and is required to apply for an NPDES permit:

- Operation has insufficient storage capacity to contain all manure and wastewater from a 25-year, 24-hour storm event. (Also see Chapter 4)
- Operation has animals in direct contact with WOUS.
- Operation has a feedlot or storage area within 100 feet of WOUS.
- Operation has been the subject of an enforcement action in the past 5 years.
- Operation does not have or is not implementing a nutrient management plan.
- Operation transports manure off-site for land application and there is no nutrient management plan at the recipient's site. This also reflects operations that do not have any cropland, as described in Chapter 4.

The case-by-case designation of facilities as CAFOs is maintained as in Scenario 1.

*Who Must Apply for a Permit*

Estimating the number of total AFOs that will have to apply for a permit under Scenario 2 is difficult because the defining criteria are not mutually exclusive (e.g., many facilities without adequate storage may also transport manure off-site for land application, etc.). While estimates of the individual criteria have been obtained, determining how many facilities would be defined as CAFOs under all of the criteria is a judgement based on available data and contacts with industry representatives.

Tables 9-11 through 9-19 indicate the number of CAFOs that would be required to apply for a permit, by livestock category and region. While facilities may change operating practices in order to avoid the permit requirements, it is assumed that the following six categories of facilities will be required to apply for a permit:

- Facilities with insufficient storage.
- Facilities that have been the subject of enforcement actions in the past 5 years.
- Facilities that do not have a nutrient management plan.
- Facilities that transport manure off-site to land without a nutrient management plan.
- Facilities that have animals in direct contact with WOUS.
- Facilities where the production areas are within 100 feet of WOUS.

Estimates of facilities that would be included because of enforcement actions in the past 5 years were made by using data on recent enforcement actions in individual states. Data on enforcement actions are reported in the State Compendium (SAIC, 1999). Data obtained for eight states (Illinois, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Carolina, and

Ohio) indicate there were approximately 119 enforcement actions annually, or 595 when extrapolating over a 5-year period. The total number of Tier 1 and 2 AFOs in these states is approximately 15,380. Thus, it is estimated that nearly 4 percent (595/15,380 = 0.04) of the AFOs had an enforcement action in the past 5 years. However, it is not known how many of the enforcement actions were taken against Tier 2 AFOs. Further, it is not known if the eight states are representative of the nation. Consequently, the assumption used in this analysis is that only 1 percent of the Tier 2 AFOs have been the subject of enforcement actions in the past 5 years.

Beef CAFOs required to apply for a permit are presented in Table 9-11. These include facilities where cattle have direct contact with water, facilities that have been the subject of enforcement actions, and facilities with insufficient waste storage. In total it is estimated that approximately 57 percent of the Tier 2 beef facilities nationwide are assumed to be defined as CAFOs under this scenario.[3] Many of the Tier 2 beef feedlots have limited controls for effluents, principally storm water discharges, which EPA considers insufficient storage (Funk, 1999; Harrelson, 1999). Most of these facilities are thus defined as CAFOs because the lack of available land for manure application and inadequate storage.

**Table 9-11. Scenario 2: Beef CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (≥1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 610 | 510 | 100 | 0 |
| Midwest | 2,110 | 1,430 | 680 | 0 |
| MidAtlantic | 110 | 20 | 90 | 0 |
| Pacific | 90 | 70 | 20 | 0 |
| South | 30 | 10 | 20 | 0 |
| Total | 2,950 | 2,040 | 910 | 0 |

Dairy CAFOs required to apply for a permit are presented in Table 9-12. Dairies were historically located such that they are within 100 feet of water, especially in the MidAtlantic and Midwest production regions. Facilities within 100 feet of water are estimated at 60 percent in the MidAtlantic and 50 percent in the Midwest; other regions range from 15 percent (Central) to 25 percent (South) (Bickert, 1999; Groves, 1999; Johnson, 1999; Holmes, 1999). Additionally, many of the dairies, estimated at 50 percent nationally (Bickert, 1999; Holmes, 1999), have

[3] This calculation is made step by step, with each factor considered incrementally. For illustration purposes, assume there are only two reasons why a facility would be defined as a CAFO: inadequate storage (a characteristic of 40 percent of facilities) and close proximity to water (a characteristic of 30 percent of facilities). Assuming there are 300 AFOs, the calculation for the number of CAFOs would be 300 × 40% = 120, *plus* (300-120) × 30% = 54, for a total of 174 (120 + 54).

inadequate manure storage. Various sources indicate that these dairies practice daily spreading of manure (Holmes, 1999; Bickert, 1999), including applications on frozen and potentially saturated ground. It is estimated that approximately 88 percent of the Tier 2 dairies would be defined as CAFOs under Scenario 2.

**Table 9-12. Scenario 2: Dairy CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 1,090 | 400 | 690 | 0 |
| Midwest | 1,145 | 90 | 1,050 | 5 |
| MidAtlantic | 1,100 | 80 | 1,020 | 0 |
| Pacific | 1,740 | 770 | 970 | 0 |
| South | 370 | 80 | 290 | 0 |
| Total | 5,445 | 1,420 | 4,020 | 5 |

Heifer CAFOs required to apply for a permit are shown in Table 9-13. The assumptions regarding the percentage of dairy heifers with direct contact with water and inadequate manure storage were based on information obtained on dairy facilities discussed above.

**Table 9-13. Scenario 2: Heifer CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 170 | 80 | 90 | 0 |
| Midwest | 160 | 20 | 140 | 0 |
| MidAtlantic | 160 | 20 | 140 | 0 |
| Pacific | 290 | 160 | 130 | 0 |
| South | 60 | 20 | 40 | 0 |
| Total | 840 | 300 | 540 | 0 |

Veal CAFOs required to apply for a permit are shown in Table 9-14. The assumptions regarding the percentage of veal operations with direct contact with or a man-made conveyance to water, facilities that have been the subject of enforcement actions, and facilities with inadequate manure storage were based on information obtained on beef facilities. Although EPA recognizes that the veal feeding industry is markedly different from the beef cattle industry, little information specific to veal is available.

**Table 9-14. Scenario 2: Veal CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 20 | 0 | 20 | 0 |
| Midwest | 20 | 0 | 20 | 0 |
| MidAtlantic | 20 | 0 | 20 | 0 |
| Pacific | 40 | 10 | 30 | 0 |
| South | 10 | 0 | 10 | 0 |
| Total | 110 | 10 | 100 | 0 |

Swine CAFOs required to apply for a permit are summarized in Table 9-15. Only a limited number of Tier 2 facilities are added because of inadequate storage. Nationally, it is estimated that approximately 41 percent of the Tier 2 facilities would be defined as CAFOs, primarily because of the lack of available land on which to apply manure and wastewater.

**Table 9-15. Scenario 2: Swine CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 170 | 120 | 50 | 0 |
| Midwest | 5,255 | 2,400 | 2,850 | 5 |
| MidAtlantic | 1,600 | 1,240 | 360 | 0 |
| Pacific | 40 | 20 | 20 | 0 |
| South | 360 | 240 | 120 | 0 |
| Total | 7,425 | 4,020 | 3,400 | 5 |

Layer AFOs required to apply for a permit under Scenario 2 are presented in Table 9-16. Very few of the Tier 2 facilities are located within close proximity to water (Patterson, 1999; Ernst, 1999) or have inadequate storage (Funk, 1999; Patterson, 1999). However, based on the analysis of Census of Agriculture data summarized in Chapter 4, very few of the operations have adequate land on which to apply manure. Consequently, 97 percent of the Tier 2 AFOs would be defined as CAFOs under Scenario 2.

**Table 9-16. Scenario 2: Layer CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (≥1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 170 | 70 | 100 | 0 |
| Midwest | 480 | 210 | 270 | 0 |
| MidAtlantic | 360 | 110 | 250 | 0 |
| Pacific | 230 | 110 | 120 | 0 |
| South | 490 | 130 | 360 | 0 |
| Total | 1,730 | 630 | 1,100 | 0 |

Broiler AFOs required to apply for a permit are presented in Table 9-17. As with layers, very few of the operations have adequate land on which to apply manure and would be defined as CAFOs for this reason. Regarding storage, numerous contacts indicated that storage was usually adequate, especially since the litter is removed only on an annual basis (Malone 1999; Patterson, 1999; Ramsey, 2000). However, as some contacts indicated, there is a high incidence of improper storage stemming from the fact that when litter is removed from the houses it may be temporarily stacked outside prior to land application (Johnson, 1999). Nationally, an estimated 96 percent of the Tier 2 broiler facilities would be defined as CAFOs under this scenario.

**Table 9-17. Scenario 2: Broiler CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 920 | 350 | 570 | 0 |
| Midwest | 410 | 180 | 230 | 0 |
| MidAtlantic | 3,360 | 930 | 2,430 | 0 |
| Pacific | 160 | 100 | 60 | 0 |
| South | 6,870 | 2,320 | 4,550 | 0 |
| Total | 11,720 | 3,880 | 7,840 | 0 |

Table 9-18 presents the estimated number of turkey AFOs required to apply for a permit under Scenario 2. As with other poultry operations, most of the Tier 2 turkey operations have inadequate land on which to apply the manure. Largely because of the lack of available land, approximately 97 percent of the Tier 2 facilities are defined as CAFOs under this scenario.

**Table 9-18. Scenario 2: Turkey CAFOs Required to Apply for a Permit**

| Region | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Central | 90 | 30 | 60 | 0 |
| Midwest | 620 | 140 | 480 | 0 |
| MidAtlantic | 650 | 80 | 570 | 0 |
| Pacific | 150 | 50 | 100 | 0 |
| South | 200 | 60 | 140 | 0 |
| Total | 1,710 | 360 | 1,350 | 0 |

A summary of all AFOs required to apply for a permit under Scenario 2 is presented in Table 9-19.

**Table 9-19. Scenario 2: Summary of CAFOs by Livestock Sector Required to Apply for a Permit***

| Livestock | Total | Tier 1 (>1,000 AU) | Tier 2 (300-999 AU) | Tier 3 (<300 AU) |
|---|---|---|---|---|
| Beef | 2,950 | 2,040 | 910 | 0 |
| Dairy | 5,445 | 1,420 | 4,020 | 5 |
| Heifers | 840 | 300 | 540 | 0 |
| Veal | 110 | 10 | 100 | 0 |
| Swine | 7,425 | 4,020 | 3,400 | 5 |
| Layers | 1,730 | 630 | 1,100 | 0 |
| Broilers | 11,720 | 3,880 | 7,840 | 0 |
| Turkeys | 1,710 | 360 | 1,350 | 0 |
| Total | 31,930 | 12,660 | 19,260 | 10 |

* Numbers rounded to nearest 10

### 9.2.4 Scenario 3: Three-Tier Structure with Check Box Certification Form for Middle Tier

Under Scenario 3, the certification scenario, the definition criteria are the same as those for Scenario 2 and the threshold is again maintained for large facilities (Tier 1). Under Scenario 3 all medium AFOs (Tier 2) are also automatically defined as CAFOs. However, operations in Tier 2 that can certify they meet the following conditions do not have to apply for a permit:

- Operation has sufficient storage capacity to contain all manure and wastewater from a 25-year, 24-hour storm event.
- Operation does not have animals in direct contact with WOUS.
- Operation has a feedlot or storage area not within 100 feet of WOUS.
- Operation has not been the subject of an enforcement action in the past 5 years.
- Operation has a nutrient management plan.
- If operation transports manure off-site for land application, there is a nutrient management plan at recipient's site.

Those operations in the Tier 2 size category that cannot certify to the conditions described above must apply for a permit. Tier 3 operations may also be designated as CAFOs on a case-by-case basis. The effect of this scenario is that all Tier 2 facilities (approximately 25,820) would have to either certify or apply for a permit. Additionally, all Tier 1 facilities would have to apply for a permit.

*Who Must Certify or Apply for a Permit*

The number of facilities required to certify or apply for a permit under Scenario 3 is the total of all Tier 1 and Tier 2 facilities. The number actually estimated to obtain a permit is the same as in Scenario 2, and the numbers are summarized in Table 9-19. A sample certification form is shown below.

## Form for Certifying Out of the Concentrated Animal Feeding Operation Provisions of the National Pollutant Discharge Elimination System

*This checklist is to assist you in determining whether your animal feeding operation (AFO) is, or is not, a concentrated animal feeding operation (CAFO) subject to certain regulatory provisions. For clarification, please see the attached fact sheet.*

---

**Section 1. Determine whether your facility is an AFO.**

*A facility that houses animals is an animal feeding operation if animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period. Animals are not considered to be stabled or confined when they are in areas such as pastures or rangeland that sustain crops or forage growth during the entire time that animals are present.*

☐ Yes, my facility is an AFO. PROCEED TO SECTION 2.
☐ No, my facility is not an AFO. STOP. YOU DO NOT NEED TO SUBMIT THIS FORM.

---

**Section 2. Determine the size range of your AFO.**

*If your facility is an AFO and the number of animals is in the size range for any animal type listed below, your facility might be a concentrated animal feeding operation.*

200–700 mature dairy cattle (whether milked or dry)
300–1000 head of cattle other than mature dairy cattle
750–2,500 swine each weighing over 25 kilograms (55 pounds)
3,000–10,000 swine each weighing under 25 kilograms (55 pounds)
30,000–100,000 chickens
16,500–55,000 turkeys
150–500 horses
3,000–10,000 sheep or lambs
1,500–5,000 ducks

☐ My AFO is within this size range. PROCEED TO SECTION 3.

☐ My AFO has fewer than the lower threshold number of animals for any animal type so it is not a CAFO under this description. STOP.

☐ My AFO has more than the upper threshold number of animals for any animal type. STOP. PLEASE CONTACT YOUR PERMIT AUTHORITY FOR INFORMATION ON HOW TO APPLY FOR AN NPDES PERMIT.

---

**Section 3. Minimum Requirements**

*Check all boxes that apply to your operation.*

☐ My production area is not located within 100 feet of waters of the U.S.
☐ There is no direct contact of animals with waters of the U.S. in the production area.
☐ I am currently maintaining properly engineered manure and wastewater storage and containment structures designed to prevent discharge in either a 25-year, 24-hour storm (for beef and dairy facilities) or all circumstances (for all other facilities), in accordance with the effluent guidelines (40 CFR Part 412).
☐ There are no discharges from the production area and there have been no discharges in the past 5 years.
☐ I have not been notified by my state permit authority or EPA that my facility needs an NPDES permit.

*If <u>all</u> of the boxes in this section are checked,* PROCEED TO SECTION 4. *If any box in this section is <u>not</u> checked, you may not use this certification and you must apply for an NPDES permit.* STOP. PLEASE CONTACT YOUR PERMIT AUTHORITY FOR MORE INFORMATION.

**Section 4. Land Application**

A. *If all of the boxes in Section 3 are checked, you might be able to certify that you are not a CAFO on the basis of ensuring proper agricultural practices for land application of CAFO manure:*

☐ I either do not land apply manure or, if land applying manure, I have and am implementing a certified Permit Nutrient Plan (PNP). I maintain a copy of my PNP at my facility, including records of implementation and monitoring; and

B. Check One:

☐ My state has a program for excess manure in which I participate.

OR

☐ [Alternative 1: I do not transfer more than 12 tons of manure to any off-site recipients unless they have signed a certification form assuring me that they are (1) applying manure according to proper agricultural practices; (2) obtaining an NPDES permit for discharges; or (3) transferring manure to other non-land application uses; and]

☐ [For Alternative 2, this box is not needed] I maintain records of recipients receiving greater than 12 tons of manure annually, including the quantity and dates transferred, and I provide recipients an analysis of the content of the manure as well as information describing the recipients' responsibilities for appropriate manure management. If I transfer manure or wastewater to a manure hauler, I also obtain the name and location of the recipients of the manure, if known.

*If a box is checked in both subsection A and subsection B above, you may certify that you are not a CAFO.* PROCEED TO SECTION 5.*If a box is not checked in both subsection A and*

*subsection B above, you may not use this certification form.* STOP. YOU MUST APPLY FOR AN NPDES PERMIT.

---

**Section 5. Certification**

*I certify that I own or operate the animal feeding operation described herein and have legal authority to make management decisions about the operation. I certify that the information provided is true and correct to the best of my knowledge.*

*I understand that in the event of a discharge to waters of the U.S. from my AFO, I must report the discharge to the Permit Authority and apply for a permit. I will report the discharge by phone within 24 hours, submit a written report within 7 calendar days, and make arrangements to correct the conditions that caused the discharge.*

*In the event any of these conditions can no longer be met, I understand that my facility is a CAFO and I must immediately apply for a permit. I also understand that I am liable for any unpermitted discharges. This certification must be renewed every 5 years.*

*I certify under penalty of law that this document was either prepared by me or prepared under my direction or supervision. Based on my inquiry of the person or persons who gatheried the information, the information provided is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are penalties for submitting false information, including the possibility of fine and imprisonment for known violations.*

**Facility Name _____ Name of Certifier _____**

**Signature _____ Date _____**

Check one: □ owner □ operator

Name and address of other entity that exercises substantial operational control of this CAFO:_____

Address of animal feeding operation:_____
County:_____ State:_____
Latitude/Longitude:_____
Phone:_____ Email:_____
Name of closest waters of the U.S.:_____ Distance to Waters:_____
Description of closest waters: (e.g., intermittent stream, perennial stream, ground water aquifer):_____

### 9.2.5 Scenario 4: Two-Tier Structure

Under Scenario 4 EPA established a two-tier structure based on facility size. Tier 1 operations must apply for a permit. Tier 2 operations may be designated CAFOs, in which case they, too, would have to apply for a permit. Small facilities—those in Tier 2—can be designated CAFOs if they are significant contributors of pollutants. EPA analyzed two thresholds for Scenario 4: 300 AU and 500 AU.

#### *9.2.5.1 Scenario 4a: Two-Tier Structure at 500 AU*

For Scenario 4a Tier 1 CAFOs are all operations with 500 or more AU. Tier 2 CAFOs for this scenario are those operations fewer than 500 AU. As an alternative EPA considered Scenario 4b, under which Tier 1 CAFOs are all operations with 300 or more AU.

The Unified AFO Strategy (hereafter called the Strategy) suggests that most facilities will have a voluntary CNMP and that approximately 5 percent of the facilities will be covered by a permit. The Strategy strongly promotes the use of CNMPs for AFOs as a means of protecting water quality. The regulatory role outlined in the Strategy is for EPA to permit those facilities that pose the greatest risk to water quality. EPA has made this determination based on the size of operation. EPA expects, at most, that states and EPA would designate 250 Tier 2 AFOs (50 per year) based on egregious water quality problems. EPA expects that USDA will focus on those facilities (to obtain a CNMP) that are defined as CAFOs under the current regulations but would no longer be defined as CAFOs and would not be designated CAFOs under the proposed regulations. Table 9-20 presents the number of facilities that would be required to apply for an NPDES permit under Scenario 4a.

**Table 9-20. Scenario 4a: Summary of CAFOs by Livestock Sector Required to Apply for a Permit***

| Livestock | Total CAFOs | Tier 1 (≥500 AUs) | Tier 2 (<500 AUs) |
|---|---|---|---|
| ***BEEF*** | | | |
| Central | 600 | 600 | 0 |
| Midwest | 2,050 | 2,030 | 20 |
| MidAtlantic | 90 | 90 | 0 |
| Pacific | 90 | 90 | 0 |
| South | 30 | 30 | 0 |
| Total | 2,860 | 2,840 | 20 |

| Livestock | Total CAFOs | Tier 1 (≥500 AUs) | Tier 2 (<500 AUs) |
|---|---|---|---|
| ***DAIRY*** | | | |
| Central | 730 | 730 | 0 |
| Midwest | 630 | 560 | 70 |
| MidAtlantic | 570 | 530 | 40 |
| Pacific | 1,230 | 1,230 | 0 |
| South | 220 | 220 | 0 |
| Total | 3,380 | 3,270 | 110 |
| ***HEIFERS*** | | | |
| Central | 150 | 150 | 0 |
| Midwest | 120 | 120 | 0 |
| MidAtlantic | 120 | 120 | 0 |
| Pacific | 260 | 260 | 0 |
| South | 50 | 50 | 0 |
| Total | 700 | 700 | 0 |
| ***VEAL*** | | | |
| Central | 10 | 10 | 0 |
| Midwest | 10 | 10 | 0 |
| MidAtlantic | 10 | 10 | 0 |
| Pacific | 30 | 30 | 0 |
| South | 0 | 0 | 0 |
| Total | 60 | 60 | 0 |
| ***SWINE*** | | | |
| Central | 190 | 190 | 0 |
| Midwest | 5,450 | 5,370 | 80 |
| MidAtlantic | 1,630 | 1,610 | 20 |
| Pacific | 30 | 30 | 0 |
| South | 380 | 380 | 0 |
| Total | 7,680 | 7,580 | 100 |

| Livestock | Total CAFOs | Tier 1 (≥500 AUs) | Tier 2 (<500 AUs) |
|---|---|---|---|
| ***LAYERS*** | | | |
| Central | 140 | 140 | 0 |
| Midwest | 410 | 410 | 0 |
| MidAtlantic | 280 | 280 | 0 |
| Pacific | 200 | 200 | 0 |
| South | 410 | 400 | 10 |
| Total | 1,440 | 1,430 | 10 |
| ***BROILERS*** | | | |
| Central | 710 | 710 | 0 |
| Midwest | 310 | 310 | 0 |
| MidAtlantic | 2,310 | 2,300 | 10 |
| Pacific | 140 | 140 | 0 |
| South | 5,090 | 5,090 | 0 |
| Total | 8,560 | 8,550 | 10 |
| ***TURKEYS*** | | | |
| Central | 60 | 60 | 0 |
| Midwest | 400 | 390 | 0 |
| MidAtlantic | 390 | 390 | 0 |
| Pacific | 110 | 110 | 0 |
| South | 140 | 140 | 0 |
| Total | 1,100 | 1,090 | 0 |
| Grand Total | 25,770 | 25,520 | 250 |

* Numbers rounded to nearest 10.

### *9.2.5.2 Scenario 4b: Two-Tier Structure at 300 AU*

Under Scenario 4b, EPA established a two-tier structure based on size. Tier 1 CAFOs for this scenario are all operations with 300 or more AU. Tier 2 CAFOs for this scenario are those operations fewer than 300 AU. Tier 1 operations must apply for a permit; Tier 2 operations may be designated CAFOs and then would have to apply for a permit. It is anticipated that approximately 10 Tier 2 AFOs would be designated based on egregious water quality problems. Table 9-21 presents the number of facilities that would be required to apply for an NPDES permit under Scenario 4b.

**Table 9-21. Scenario 4b: Summary of CAFOs by Livestock Sector Required to Apply for a Permit**

| Livestock | Total CAFOs | Tier 1 (≥300 AUs) | Tier 2 (<300 AUs) |
|---|---|---|---|
| ***BEEF*** | | | |
| Central | 680 | 680 | 0 |
| Midwest | 2,630 | 2,630 | 0 |
| MidAtlantic | 170 | 170 | 0 |
| Pacific | 110 | 110 | 0 |
| South | 50 | 50 | 0 |
| Total | 3,640 | 3,640 | 0 |
| ***DAIRY*** | | | |
| Central | 1,220 | 1,220 | 0 |
| Midwest | 1,255 | 1,250 | 5 |
| MidAtlantic | 1,180 | 1,180 | 0 |
| Pacific | 1,900 | 1,900 | 0 |
| South | 420 | 420 | 0 |
| Total | 5,975 | 5,970 | 5 |
| ***HEIFERS*** | | | |
| Central | 190 | 190 | 0 |
| Midwest | 170 | 170 | 0 |
| MidAtlantic | 170 | 170 | 0 |
| Pacific | 310 | 310 | 0 |
| South | 70 | 70 | 0 |
| Total | 910 | 910 | 0 |
| ***VEAL*** | | | |
| Central | 30 | 30 | 0 |
| Midwest | 30 | 30 | 0 |
| MidAtlantic | 30 | 30 | 0 |
| Pacific | 60 | 60 | 0 |
| South | 10 | 10 | 0 |
| Total | 160 | 160 | 0 |

| Livestock | Total CAFOs | Tier 1 (≥300 AUs) | Tier 2 (<300 AUs) |
|---|---|---|---|
| ***SWINE*** | | | |
| Central | 250 | 250 | 0 |
| Midwest | 9,365 | 9,360 | 5 |
| MidAtlantic | 2,050 | 2,050 | 0 |
| Pacific | 60 | 60 | 0 |
| South | 530 | 530 | 0 |
| Total | 12,255 | 12,250 | 5 |
| ***LAYERS*** | | | |
| Central | 170 | 170 | 0 |
| Midwest | 490 | 490 | 0 |
| MidAtlantic | 370 | 370 | 0 |
| Pacific | 230 | 230 | 0 |
| South | 500 | 500 | 0 |
| Total | 1,760 | 1,760 | 0 |
| ***BROILERS*** | | | |
| Central | 940 | 940 | 0 |
| Midwest | 420 | 420 | 0 |
| MidAtlantic | 3,460 | 3,460 | 0 |
| Pacific | 160 | 160 | 0 |
| South | 7,060 | 7,060 | 0 |
| Total | 12,040 | 12,040 | 0 |
| ***TURKEYS*** | | | |
| Central | 90 | 90 | 0 |
| Midwest | 630 | 630 | 0 |
| MidAtlantic | 670 | 670 | 0 |
| Pacific | 150 | 150 | 0 |
| South | 210 | 210 | 0 |
| Total | 1,090 | 1,750 | 0 |
| Grand Total | 38,490 | 38,480 | 10 |

* Numbers rounded to nearest 10

### 9.2.6 Summary of CAFOs Requiring Permits/Applications Under Regulatory Scenarios

Table 9-22 provides a summary of the total number of AFOs that will be required to apply for a permit (or certify they meet certain requirements, as described in Scenario 3), under all regulatory scenarios.

**Table 9-22. Scenarios 1–4: AFOs by Livestock Sector Required to Apply for a Permit or Certify as to Permitting Requirements Under the Proposed Regulations**

| Livestock | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4a | Scenario 4b |
|---|---|---|---|---|---|
| Beef | 2,210 | 2,950 | 2,950 | 2,860 | 3,640 |
| Dairy | 3,120 | 5,445 | 5,445 | 3,380 | 5,975 |
| Heifers | 530 | 840 | 840 | 700 | 910 |
| Veal | 20 | 110 | 110 | 60 | 160 |
| Swine | 5,250 | 7,425 | 7,425 | 7,680 | 12,255 |
| Layers | 820 | 1,730 | 1,730 | 1,440 | 1,760 |
| Broilers | 4,180 | 11,720 | 11,720 | 8,560 | 12,040 |
| Turkeys | 390 | 1,710 | 1,710 | 1,100 | 1,750 |
| Total | 16,520 | 31,930 | 31,930 | 25,770 | 38,490 |

* Numbers rounded to nearest 10. Numbers may not add due to independent rounding.

## 9.3 State and Federal Administrative Costs for General and Individual Permits

States and the Federal government (EPA) incur administrative costs related to the development, issuance, and tracking of general or individual permits. In describing these administrative costs, this section first discusses findings regarding the Unfunded Mandates Reform Act of 1995 (UMRA). Subsequently, permitting cost estimates related to the issuance of general and individual permits for both states and the Federal government are presented. Finally, the section presents the total costs for both general and individual permits, for states and the Federal government, under the regulatory scenarios being considered.

### 9.3.1 Unfunded Mandates Reform Act

Title II of UMRA, Public Law 104-4, establishes requirements for federal agencies to assess the effects of their regulatory actions on state, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with Federal mandates that might result in

costs to state, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year.

EPA has determined that the options being considered for the NPDES CAFO rule do not include a federal mandate that might result in estimated costs of $100 million or more to State, local, or tribal governments in the aggregate. State-incurred costs under the regulatory options being considered are discussed in the remaining portions of this section, along with Federal costs. Tribal governments might also incur compliance costs; however, these costs are expected to be modest and have not been estimated. EPA has determined that the options considered include no regulatory requirements that might significantly or uniquely affect local governments.

### 9.3.2 State and Federal Administrative Unit Costs for General Permits

A general permit will require states and EPA to issue public notices, answer any public comments received, and possibly conduct public hearings. States and EPA will also incur costs each time a facility operator applies for coverage under a general permit because of the expenses associated with a notice of intent. These per facility administrative costs include annual record keeping expenses associated with tracking notices of intent and performing initial facility inspections.

Table 9-23 provides estimates of administrative costs associated with a general permit. Unit general permit costs for public hearings, public notifications, and response to comments were provided by a number of state permitting branch employees (Allen, 1999; Kauz Loric, 1999). The most pertinent of these costs came from the state of Maryland, which has recently developed a general permit. Although the state of Washington also provided costs on general permit development, the state had incurred some exceptional expenses that were deemed unrepresentative. (The state had held 23 public meetings and had taken 4 years to answer all comments.)

Information regarding costs (for both general and individual permits) was typically provided in terms of labor hours. Hours were monetized using estimated average wage rates. For states, the annual average salary was estimated at $42,000, or $20.19 per hour assuming 2,080 work hours per year. This rate was multiplied by 1.4 to account for benefits to obtain a final loaded hourly wage rate of $28.27. Federal wage rates were estimated based on an annual rate of $47,891 (GS 12, Step 1), which was divided by 2,080 hours per year and then multiplied by 1.6 to account for benefits, resulting in a final loaded hourly labor rate of $36.84 (SAIC, 2000). State costs to issue one general permit and provide for public notification of applicants are estimated at approximately $35,820. Federal administrative costs are higher at $40,630.

Table 9-23 presents the administrative costs associated with a general permit. Permit development estimates were made based on the assumption that many states would adapt with relatively minor changes to the EPA model permit. Some states have experienced much higher costs, but that is believed to be the result of developing a permit without adapting EPA's model. The estimated permit development costs shown in the table appropriately account for states that

might decide to develop a general permit independently as well as those states that will adapt EPA's model general permit. EPA obtained public notice/response to comment estimates from the Maryland and Washington state programs. Maryland mailed public notices to 10 papers (est. 10 hours), and responding to comments required 2 weeks of one FTE (80 hours); thus the Maryland total is 90 hours. Washington's costs for public notice were nominal, but responding to comments took four FTE working 25 percent for 4 years (2080 × 4). It is assumed that this

**Table 9-23. Administrative Costs Associated With a General Permit**

| Item | Range (hours or $) | | Representative Average | State Cost | Federal Cost |
|---|---|---|---|---|---|
| | Low | High | | | |
| ***General Permit Development and Administration Costs*** | | | | | |
| (1) Permit development | 100 | 300 | 200 | $5,650 | $7,370 |
| (2) Public notice/response to comments | 90 | 8,000 | 120 | $3,390 | $4,420 |
| (3) Public hearing(s) | 120 | 360 | 240 | $6,780 | $8,840 |
| (4) Quarterly public notification | $400 | $8,000 | $4,000 | $20,000 | $20,000 |
| **TOTAL** | | | | **$35,820** | **$40,630** |
| ***General Permit Costs Per Each Facility Covered*** | | | | | |
| Review/approve notice of intent | 1 | 1 | 1 | $30 | $40 |
| (5) Facility inspection | $1,000 | $1,000 | $1,000 | $1,000 | $1,000 |

cost was unusually high and that the Maryland experience is more representative. Public hearing estimates were based on an estimated time per meeting of 60 hours. EPA assumed states would have two to six meetings. Inspection costs were based on Region 6's and Texas's average costs per inspection of $1,000. EPA estimates 10 percent of facilities will be inspected. Hourly costs were monetized using a loaded rate of $28.27 per hour. This rate is based on $42,000 (1999 dollars) per year or $20.19/hour assuming 2,080 work hours multiplied by 1.4 to account for benefits. All costs were rounded to the nearest $10. Federal costs were based on $46,744/year (GS 12, Step 1, 1999), divided by 2,080 hours, then multiplied by 1.6 to account for benefits, resulting in a final loaded hourly labor rate of $36.84 (SAIC, 2000).

### 9.3.3 State and Federal Administrative Unit Costs for Individual Permits

Table 9-24 shows the administrative costs associated with individual permits for both states and the Federal government. Obtaining an individual permit requires a state or EPA to review the permit application, provide public notice, and possibly respond to public comments. In a percentage of cases (estimated in this analysis at 12 percent based on conversations with permitting authorities in Kansas, Indiana, Missouri, Ohio, and Wisconsin), a public hearing might be necessary. Additionally, an initial facility inspection might be necessary, estimated to cost the state or EPA approximately $1,000. Unit individual permit costs for permit review, public hearings, and inspections were provided by several state permitting branch contacts who issue individual permits (Clark, 1999; Foley, 1999; Nicholson, 1999; Teague, 1999). Additionally, public hearing costs were based on information obtained from general permit costs.

EPA used response-to-comments estimates from Kansas. Kansas estimates 2 to 3 FTEs dedicated to responding to comments, or from 4,160 to 6,240 hours divided by 50 to 100 permits per year. Washington provided hearing estimates, which indicated each hearing required approximately 100 to 150 hours of State employee time. Using best professional judgment, EPA assumes 1 to 2 public meetings or hearings per permit at 100 to150 hours per hearing. The percentage of applications requiring a hearing is based on data from Kansas (4 to 8 percent) and Indiana (15 to 20 percent). EPA based the average cost per inspection of $1,000 on data from Region 6 and Texas. EPA estimates 10 percent of facilities will be inspected.

**Table 9-24. Administrative Costs Associated with an Individual Permit**

| | Item | Range (hours) Low | Range (hours) High | Representative Average | State Cost | Federal Cost |
|---|---|---|---|---|---|---|
| INDIVIDUAL PERMIT COST CATEGORIES FOR EACH FACILITY COVERED | | | | | | |
| (1) | Permit review/public notification/response to comments | 60 | 80 | 70 | $1,980 | $2,580 |
| (2) | Public hearing | 100 | 300 | 200 | | |
| (3) | Percent of applications requiring hearing | 4 | 20 | 12 | | |
| | *Ave. Public Hearing Cost/Permit* | | | | $680 | $880 |
| | TOTAL | | | | $2,660 | $3,460 |
| (4) | Inspections | $1,000 | $1,000 | $1,000 | | |

## 9.4 State and Federal Administration Costs by Regulatory Scenario

In this subsection, the estimated state and Federal permit administrative costs discussed in section 9.3 are applied to the number of livestock facilities that will be permitted or certified as described in section 9.2. The resulting costs are presented by the five regulatory scenarios.

In determining the total costs for each scenario, note that 70 percent of all permits issued were assumed to be general permits and the remaining 30 percent were assumed to be individual; EPA notes this is a somewhat heavier reliance on general permits than has historically been the case, but believes the trend toward general permits for the vast majority of CAFOs will continue. EPA estimates facility inspections are necessary for 10 percent of all permit applications. Finally, note that the 42 NPDES-authorized states were assumed to account for 96 percent of the total permits issued.[4] All costs are annualized using a 7 percent discount rate over a period of 5 years.

### 9.4.1 Scenario 1: State and Federal Administrative Costs for General and Individual Permits

Table 9-25 presents the breakout of state administrative costs for general and individual permits, and Table 9-26 shows Federal permit costs; both tables represent administrative costs for regulatory Scenario 1. Total administrative permitting costs over the 5-year permitting cycle are estimated at about $16.1 million for states and $1.1 million for the Federal government. Annualized costs are estimated at $3.9 million for the states and $0.3 million for the Federal government. The 16,520 total CAFOs permitted under Scenario 1 consist of 11,100 general (NOI) permits and 4,760 individual permits for a State total of 15,860, plus 460 general (NOI) permits and 200 individual permits for a Federal total of 660.

[4] The AFOs located in the eight states that do not have NPDES authorization for their CAFO programs account for less than 4 percent of the national total.

**Table 9-25. State Administrative Costs Under Scenario 1**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $35,820 | 42 | $1,504,440 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $30 | 11,100 | $333,000 |
| Inspections | $1,000 | 1,110 | $1,110,000 |
| **Total General Permit Costs** | | | $2,947,440 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $2,660 | 4,760 | $12,661,600 |
| Inspections | $1,000 | 476 | $476,000 |
| Total Individual Permit Costs | | | $13,137,600 |
| **GRAND TOTAL** | | | **$16,085,040** |
| **ANNUALIZED TOTAL** | | | **$3,922,990** |

**Table 9-26. Federal Administrative Costs Under Scenario 1**

| | Unit Cost | Number Required | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $40,630 | 8 | $325,040 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $40 | 460 | $18,400 |
| Inspections | $1,000 | 46 | $46,000 |
| **Total General Permit Costs** | | | $389,440 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $3,460 | 200 | $692,000 |
| Inspections | $1,000 | 20 | $20,000 |
| Total Individual Permit Costs | | | $712,000 |
| **GRAND TOTAL** | | | **$1,101,440** |
| **ANNUALIZED TOTAL** | | | **$268,630** |

### 9.4.2 Scenario 2: State and Federal Administrative Costs for General and Individual Permits

Scenario 2 requires that all Tier 1 facilities apply for an NPDES permit. AFOs in Tier 2 that meet specific criteria (insufficient waste storage capacity, direct contact with water, past violation, etc.) are defined as CAFOs and are required to apply for a permit. Both Tier 1 and Tier 2 facilities would be issued permits except in those cases (assumed to be infrequent) when an operation can demonstrate that it has "no potential to discharge." EPA estimates that a total of 31,930 facilities will be required to apply for a permit because of discharges or potential to discharge from the feeding operation itself or because of improper management of manure or wastewater.

Under Scenario 2, states may incur costs associated with permitting—both general and individual permits—of approximately $29.7 million, as shown in Table 9-27. Additionally, the Federal government is expected to spend approximately $1.7 million to permit CAFOs under Scenario 2, as shown in Table 9-28. Annualized costs to states are approximately $7.2 million and costs to the Federal government are $0.4 million. The 31,930 total CAFO permits under Scenario 2 consist of 21,460 general (NOI) permits and 9,190 individual permits for a State total of 30,650, plus 900 general (NOI) permits and 380 individual permits for a Federal total of 1,280.

**Table 9-27. State Administrative Costs Under Scenario 2**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $35,820 | 42 | $1,504,440 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $30 | 21,460 | $643,800 |
| Inspections | $1,000 | 2,146 | $2,146,000 |
| **Total General Permit Costs** | | | $4,294,240 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $2,660 | 9,190 | $24,445,400 |
| Inspections | $1,000 | 919 | $919,000 |
| Total Individual Permit Costs | | | $25,364,400 |
| **GRAND TOTAL** | | | **$29,658,640** |
| **ANNUALIZED TOTAL** | | | **$7,233,470** |

**Table 9-28. Federal Administrative Costs Under Scenario 2**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $40,630 | 8 | $325,040 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $40 | 900 | $36,000 |
| Inspections | $1,000 | 90 | $90,000 |
| **Total General Permit Costs** | | | $451,040 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $3,170 | 380 | $1,204,600 |
| Inspections | $1,000 | 38 | $38,000 |
| Total Individual Permit Costs | | | $1,242,600 |
| **GRAND TOTAL** | | | **$1,693,640** |
| **ANNUALIZED TOTAL** | | | **$413,060** |

### 9.4.3 Scenario 3: State and Federal Administrative Costs for General and Individual Permits

Under Scenario 3, the certification scenario, facilities in Tier 1 are CAFOs and, as described above, must obtain a permit unless they have demonstrated no potential to discharge. All Tier 2 AFOs are also initially defined as CAFOs and must either certify they do not meet specific conditions to be a CAFO or obtain a permit. Designated Tier 3 facilities must also obtain a permit. EPA estimates that a total of 38,490 facilities will be required to apply for a permit or certify that they do not meet the criteria specified in the scenario. For purposes of estimating administrative costs it is assumed that 31,930 facilities will actually obtain a permit.

Tables 9-29 and 9-30 present the estimated state and Federal administrative costs to permit CAFOs under Scenario 3. States will experience costs of approximately $29.8 million or $7.3 million annualized. The Federal government is estimated to incur approximately $1.7 million in costs or $0.4 million annualized to permit facilities under this scenario. The combined total number of CAFOs either certifying or obtaining permits is 38,490. The 31,930 total CAFO permits under Scenario 3 consist of 21,460 general (NOI) permits and 9,190 individual permits for a State total of 30,650, plus 900 general (NOI) permits and 380 individual permits for a Federal total of 1,280.

**Table 9-29. State Administrative Costs Under Scenario 3**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***CERTIFICATION COSTS*** | $30 | 6,300 | $189,000 |
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $35,820 | 42 | $1,504,440 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $30 | 21,460 | $643,800 |
| Inspections | $1,000 | 2,146 | $2,146,000 |
| **Total General Permit Costs** | | | $4,483,240 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $2,660 | 9,190 | $24,445,400 |
| Inspections | $1,000 | 919 | $919,000 |
| Total Individual Permit Costs | | | $25,364,400 |
| **GRAND TOTAL** | | | **$29,847,640** |
| **ANNUALIZED TOTAL** | | | **$7,279,560** |

**Table 9-30. Federal Administrative Costs Under Scenario 3**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***CERTIFICATION COSTS*** | $40 | 260 | $10,400 |
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $40,630 | 8 | $325,040 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $40 | 900 | $36,000 |
| Inspections | $1,000 | 90 | $90,000 |
| **Total General Permit Costs** | | | $461,440 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $3,170 | 380 | $1,204,600 |
| Inspections | $1,000 | 38 | $38,000 |
| Total Individual Permit Costs | | | **$1,242,600** |
| **GRAND TOTAL** | | | **$1,704,040** |
| **ANNUALIZED TOTAL** | | | **$415,600** |

### 9.4.4 Scenario 4: State and Federal Administrative Costs for General and Individual Permits

Under Scenario 4a, facilities in Tier 1 are CAFOs and must obtain a permit as described above. Designated Tier 2 facilities, estimated at 250, must also obtain a permit. In total it is estimated that 25,770 facilities will be required to apply for a permit. Tables 9-31 and 9-32 present the estimated state and Federal administrative costs to permit CAFOs under regulatory Scenario 4a. The 25,770 total CAFOs permitted under Scenario 3 consist of 17,320 general (NOI) permits and 7,420 individual permits for a State total of 24,740, plus 720 general (NOI) permits and 310 individual permits for a Federal total of 1,030.

Under Scenario 4b, facilities in Tier 1 are CAFOs and must apply for a permit as described above. Designated Tier 2 CAFOs must also obtain a permit. EPA estimates that a total of 38,490 facilities will be required to apply for a permit. Tables 9-33 and 9-34 present the estimated state and Federal administrative costs to permit CAFOs under regulatory Scenario 4b. The 38,490 total CAFO permits under Scenario 4b consist of 25,870 general (NOI) permits and 11,080 individual permits for a State total of 36,950, plus 1,080 general (NOI) permits and 460 individual permits for a Federal Total of 1,540.

**Table 9-31. State Administrative Costs Under Scenario 4a**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $35,820 | 42 | $1,504,440 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $30 | 17,320 | $519,600 |
| Inspections | $1,000 | 1,732 | $1,732,000 |
| **Total General Permit Costs** | | | $3,756,040 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $2,660 | 7,420 | $19,737,200 |
| Inspections | $1,000 | 742 | $742,000 |
| Total Individual Permit Costs | | | $20,479,200 |
| **GRAND TOTAL** | | | **$24,235,240** |
| **ANNUALIZED TOTAL** | | | **$5,910,750** |

**Table 9-32. Federal Administrative Costs under Scenario 4a**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $40,630 | 8 | $325,040 |
| | | | |
| General Permit Tracking Costs | | | |
| Notification of Intent | $40 | 720 | $28,800 |
| Inspections | $1,000 | 72 | $72,000 |
| | | | |
| **Total General Permit Costs** | | | $425,840 |
| | | | |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $3,170 | 310 | $982,700 |
| Inspections | $1,000 | 31 | $31,000 |
| | | | |
| Total Individual Permit Costs | | | **$1,013,700** |
| **GRAND TOTAL** | | | **$1,439,540** |
| **ANNUALIZED TOTAL** | | | **$351,090** |

**Table 9-33. State Administrative Costs under Scenario 4b**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $35,820 | 42 | $1,504,440 |
| | | | |
| General Permit Tracking Costs | | | |
| Notification of Intent | $30 | 25,870 | $776,100 |
| Inspections | $1,000 | 2,587 | $2,587,000 |
| | | | |
| **Total General Permit Costs** | | | $4,867,540 |
| | | | |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $2,660 | 11,080 | $29,472,800 |
| Inspections | $1,000 | 1,108 | $1,108,000 |
| | | | |
| Total Individual Permit Costs | | | $30,580,800 |
| **GRAND TOTAL** | | | **$35,448,340** |
| **ANNUALIZED TOTAL** | | | **$8,645,520** |

**Table 9-34. Federal Administrative Costs Under Scenario 4b**

| | Unit Cost | Number Req. | Total Cost |
|---|---|---|---|
| ***GENERAL PERMIT COSTS*** | | | |
| General Permit Development Costs | $40,630 | 8 | $325,040 |
| General Permit Tracking Costs | | | |
| Notification of Intent | $40 | 1080 | $43,200 |
| Inspections | $1,000 | 108 | $108,000 |
| **Total General Permit Costs** | | | $476,240 |
| ***INDIVIDUAL PERMIT COSTS*** | | | |
| Permit Review/Approval | $3,170 | 460 | $1,458,200 |
| Inspections | $1,000 | 46 | $46,000 |
| Total Individual Permit Costs | | | **$1,504,220** |
| **GRAND TOTAL** | | | **$1,980,440** |
| **ANNUALIZED TOTAL** | | | **$483,010** |

### 9.4.5 Summary of State and Federal Administration Costs by Regulatory Scenario

Total annualized state and Federal administrative expenses for permitting CAFOs vary from approximately $4.2 million under Scenario 1 to $9.1 million under Scenario 4b (see Table 9-35). Under the most inclusive permitting scenario, State costs do not exceed $8.7 million per year annualized, which is well below the $100 million threshold for UMRA.

**Table 9-35. Total Annualized State and Federal Administrative Costs by Regulatory Option**

| Regulatory Scenario | State | Federal | Total |
|---|---|---|---|
| Scenario 1 | $3,922,990 | $268,630 | $4,191,620 |
| Scenario 2 | $7,233,470 | $413,060 | $7,646,530 |
| Scenario 3 | $7,279,560 | $415,600 | $7,695,160 |
| Scenario 4a | $5,910,750 | $351,090 | $6,224,040 |
| Scenario 4b | $8,645,520 | $483,010 | $9,128,530 |

## 9.5 Changes to NPDES Regulations

In addition to changing the threshold for determining which facilities are CAFOs, EPA is proposing a number of other changes that address how the permitting authority determines whether a facility is an AFO or a CAFO, which must apply for an NPDES permit. These changes also simplify, clarify, and strengthen the NPDES regulation.

### 9.5.1 Definition of AFO as It Relates to Pastures and Rangeland

EPA proposes to clarify the regulatory language that defines the term "Animal Feeding Operation," or "AFO," to remove ambiguity. (See proposed §122.23(a)(2).) The revised rule language would clarify that animals are not considered to be "stabled or confined" when they are in areas such as pastures or rangeland that sustain crops or forage during the entire time the animals are present. AFOs are enterprises where animals are kept and raised in confined situations. AFOs concentrate animals, feed, manure and urine, dead animals, and production operations on a small land area. Feed is brought to the animals rather than the animals grazing or otherwise seeking feed in pastures, in fields, or on rangeland. The current regulation (40 CFR 122.23(b)(1)) defines an AFO as a "lot or facility where animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period; *and where crops, vegetation[,] forage growth, or post-harvest residues are not sustained over any portion of the lot or facility in the normal growing season*" [emphasis added].

The existing definition states that animals must be kept on the lot or facility for a minimum of 45 days in a 12-month period. If an animal is at a facility for any portion of a day, it is considered to be at the facility for a full day. This definition does not mean that the same animals must remain on the lot for 45 consecutive days or more; it means only that some animals are fed or maintained on the lot or at the facility for 45 days out of any 12-month period. The 45 days do not have to be consecutive, and the 12-month period does not have to correspond to the calendar year. For example, June 1 to the following May 31 would constitute a 12-month period.

The definition has proven to be difficult to implement and has led to some confusion. Some CAFO operators have asserted that they are not AFOs under this definition where incidental growth occurs on small portions of the confinement area. In the case of certain wintering operations, animals confined during winter months quickly denude the feedlot of growth that grew during the summer months. The AFO definition includes those confinement areas that have growth over only a small portion of the facility or that have growth during only a portion of the time that the animals are present. The definition excludes pastures and rangeland that are largely covered with vegetation that can assimilate the nutrients in the manure. The intention is for AFOs to include areas where animals are confined in such a density that significant vegetation cannot be sustained over most of the confinement area.

As indicated in EPA's 1974 Development Document, the reference to vegetation in the definition is intended to distinguish feedlots (whether outdoor confinement areas or indoor covered areas with constructed floors) from pasture or grazing land. If a facility maintains animals in an area

without vegetation, including dirt lots or constructed floors, the facility meets this part of the definition. EPA also considers dirt lots with nominal vegetative growth while animals are present to meet the second part of the AFO definition, even if substantial growth of vegetation occurs during months when animals are kept elsewhere. Thus, in the case of a wintering operation, EPA considers the facility an AFO potentially subject to NPDES regulations as a CAFO. It is not EPA's intention to include within the AFO definition pasture or rangeland that has a small, bare patch of land, in an otherwise vegetated area, that is caused by animals frequently congregating if the animals are not confined to the area.

The following examples are presented to further clarify EPA's intent. (1) When animals are restricted to vegetated areas as in the case of rotational grazing, they would not be considered to be confined in an AFO if they are rotated out of the area while the ground is still covered with vegetation. (2) If a small portion of a pasture is barren because, for example, animals congregate near the feed trough in that portion of the pasture, that area is not considered an AFO because animals are not confined to the barren area. (3) If an area has vegetation when animals are initially confined there, but the animals remove the vegetation during their confinement, that area would be considered an AFO. This situation might occur, for instance, at some wintering operations.

To address the ambiguities noted above, EPA is proposing regulatory language that defines the term "animal feeding operation" as follows: *"An animal feeding operation or AFO* is a facility where animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period. Animals are not considered to be stabled or confined when they are in areas such as pastures or rangeland that sustain crops or forage growth during the entire time that animals are present. Animal feeding operations include both the production area and land application area as defined below."

### 9.5.2 Definition of AFO as It Relates to Land Application Areas

EPA revised the definition of an AFO to include both the animal production areas of the operation and the land areas, if any, under the control of the owner or operator, on which manure and associated wastewaters are applied. (See proposed §122.23(a)(2).) The definition of a CAFO is based on the AFO definition and thus would include the land application areas as well. Accordingly, a permit for a CAFO would include requirements to control not only discharges from the production areas but also discharges from the land application areas. Under the existing regulations, discharges from a CAFO's land application areas that result from improper agricultural practices are already considered to be discharges from the CAFO and therefore are subject to the NPDES permitting program. However, EPA believes it would be helpful to clarify the regulations on this point.

By the term "production area" EPA means the animal confinement areas, the manure storage areas (e.g., lagoon, shed, pile), the feed storage areas (e.g., silo, silage bunker), and the waste containment areas (e.g., berms, diversions). The land application areas include any land to which a CAFO's manure and wastewater is applied (e.g., crop fields, fields, pasture) that is under the

control of the CAFO owner or operator whether through ownership or a lease or contract. The land application areas do not include areas that are not under the CAFO owner's or operator's control. For example, where a nearby farm is owned and operated by someone other than the CAFO owner or operator, and the nearby farm applies manure from the CAFO to its own crop fields, those crop fields are not part of the CAFO.

The definition of an AFO under the existing regulations refers to a "lot or facility" that meets certain conditions, including that "[c]rops, vegetation[,] forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility" (40 CFR 122.23(b)(1)). In addition, the regulations define "discharge of a pollutant" as the addition of any pollutant to waters of the United States from any point source (40 CFR 122.2). EPA interprets the current regulations to include discharges of CAFO-generated manure and wastewaters from land application areas under the control of the CAFO as discharges from the CAFO itself. Otherwise, a CAFO could simply move its wastes outside the area of confinement and overapply or otherwise improperly apply those wastes, which would render the CWA prohibition on unpermitted discharges of pollutants from CAFOs meaningless. Moreover, the pipes and other manure-spreading equipment that convey CAFO manure and wastewaters to land application areas under the control of the CAFO are an integral part of the CAFO. Under the existing regulations, this equipment should be considered part of the CAFO, and discharges from this equipment that reach the waters of the United States should be considered discharges from the CAFO for this reason as well. In recent litigation brought by citizens against a dairy farm, a federal court reached a similar conclusion. See *CARE* v. *Sid Koopman Dairy, et al.*, 54 F. Supp. 2d 976 (E.D. Wash., 1999).

Land application areas are integral parts of many or most CAFO operations. Land application is typically the endpoint in the cycle of manure management at CAFOs. Significant discharges to the nation's waters in the past have been attributed to the land application of CAFO-generated manure and wastewater. EPA does not believe that Congress intended to exclude the discharges from a CAFO's land application areas from coverage as discharges from the CAFO point source. Moreover, defining CAFOs in this way is consistent with EPA's effluent limitations guidelines for other industries, which consider on-site waste treatment systems to be part of the production facilities in that the regulations restrict discharges from the total operation. Thus, it is reasonable for EPA to clarify the regulations by including land application areas in the definition of an AFO and CAFO.

EPA believes that amending the definition of an AFO (and, by extension, CAFO) to expressly include land application areas will help achieve clarity and will enable permitting authorities both to more effectively implement the proposed effluent guidelines and to more effectively enforce the CWA's prohibition on discharging without a permit. This revision clarifies that the term "CAFO" means the entire facility, including land application fields and other areas under the CAFO's control to which it land applies its manure and wastewater. By proposing to include land application areas in the definition of an AFO (and therefore, a CAFO), discharges from those areas would, by definition, be discharges from a point source, i.e., the CAFO. There would not need to be a separate showing of a discernible, confined, and discrete conveyance such as a ditch.

Although the proposal would clarify that land application areas are considered to be part of the AFO and CAFO, it would continue to count only those animals that are confined in the production area when determining whether a facility is a CAFO.

### 9.5.3 Elimination of the Term "Animal Units"

To remove confusion for the regulated community concerning the definition of the term "animal unit" or "AU," EPA is proposing to eliminate the use of the term in the revised regulation. Instead of referring to facilities as having greater or fewer than 500 animal units, for example, EPA will use the term "CAFOs" to refer to those facilities that are defined or designated as such and the term "AFOs" for all others. However, the term AU will be used in descriptive text to help the reader understand the differences between the existing regulation and the revisions. If this revision is adopted, the term AU will not be used in the final regulation.

EPA received comment on the concept of animal units during the AFO Strategy listening sessions and the small business outreach process, and in comments submitted for the draft *CAFO NPDES Permit Guidance and Example Permit*. EPA's decision to move away from the concept of animal units is supported by the inconsistent use of this concept across a number of federal programs, which has resulted in confusion in the regulated community. A common thread across all of the federal programs is the need to normalize numbers of animals across animal types. Animal units have been established based on a number of different values that include live weight, forage requirements, and nutrient excretion. Among others, USDA and EPA have different "animal unit" values for the livestock sectors. Animal unit values most often used by USDA are live-weight based and account for all sizes and breeds of animals likely to be at a given operation. This is particularly confusing because USDA's animal unit descriptions result in different values in each sector and at each operation.

The United States Department of the Interior (Bureau of Land Management and National Park Service) also references the concept of animal unit in a number of programs. These programs are responsible for the collection of grazing fees for federal lands. The animal unit values used in these programs are based upon forage requirements. For federal lands an animal unit represents one mature cow, bull, steer, heifer, horse, or mule, or five sheep, or five goats, all over 6 months of age. An animal unit month is based on the amount of forage needed to sustain one animal unit for one month. Grazing fees for federal lands are charged by animal unit months.

In summary, using the total number of head that defines an operation as a CAFO will minimize confusion with animal unit definitions established by other programs.

### 9.5.4 Elimination of Multipliers for Mixed Animal Types

EPA proposes to eliminate the existing mixed animal provision, which currently requires an operator to add the number of animal units from all animal sectors at the facility when determining whether it is a CAFO. Poultry, dairy calves, and swine under 55 pounds are currently excluded from this mixed animal type calculation. Although the mixed calculation

would be eliminated, once the number of animals from any one livestock sector causes an operation to be defined as a CAFO, manure and animals from all confined animal types at the facility would be covered by the permit. In the event waste streams from multiple livestock species are commingled, the permit must apply the more stringent limitations as permit conditions.

In the existing regulation, a facility is a CAFO when the cumulative number of animal units exceeds 1,000. Animal unit means a unit of measurement for any animal feeding operation calculated by adding the following numbers: the number of slaughter and feeder cattle multiplied by 1.0, plus the number of mature dairy cattle multiplied by 1.4, plus the number of swine weighing more than 25 kilograms (approximately 55 pounds) multiplied by 0.4, plus the number of sheep multiplied by 0.1, plus the number of horses multiplied by 2.0. As mentioned, poultry operations are excluded from this mixed unit calculation because the current regulation simply stipulates the number of birds that define the operation as a CAFO and assigns no multiplier.

Because simplicity is one objective of these proposed regulatory revisions, the Agency believes that either (1) all animal types covered by the effluent guidelines and NPDES regulation, including poultry and immature animals, should be included in the formula for mixed facilities, or (2) EPA should eliminate the animal multipliers from the revised rule. Note the revised rule also changes those animal types and sizes that would have to be factored into a revised mixed animal calculation, which could make the regulation more complicated.

EPA believes that the effect of this change would be sufficiently protective of the environment while maintaining a consistently enforceable regulation. EPA estimates 25 percent of AFOs with fewer than 1,000 AU have multiple animal types present simultaneously at one location, and only a small fraction of these AFOs would be CAFOs larger than either 300 AU or 500 AU when all animal types are counted. Census data suggest that few large AFOs house more than one animal type due to the increasingly specialized nature of livestock and poultry production. Most facilities with mixed animal types tend to be much smaller farms, tend to be less specialized, and typically engage in both animal and crop production. These farms have sufficient cropland and fertilizer requirements to land apply most, if not all, manure nutrients generated by the farm. Therefore, EPA believes that a rule requiring mixed animal types to be part of the threshold calculation to determine whether a facility is a CAFO would result in relatively few additional operations meeting the definition of a CAFO. Nevertheless, should such an AFO be found to be a significant contributor of pollution to waters of the United States, it could still be designated a CAFO by the permit authority.

EPA, therefore, proposes to eliminate the mixed animal calculation in determining which AFOs are CAFOs. Once an operation is a CAFO for any reason, manure from all confined animal types at the facility is subject to the permit requirements.

### 9.5.5 Elimination of 25/24 Storm Permit Exemption

The existing NPDES definition of a CAFO provides that "no animal feeding operation is a concentrated animal feeding operation… as defined above… if such animal feeding operation discharges only as the result of a 25-year, 24-hour storm event " (40 CFR 122.23, Appendix B). This provision applies to AFOs with 300 AU or more that are defined as CAFOs under the existing regulation. Facilities of any size that are CAFOs by virtue of designation are not eligible for this exemption because, by the terms of designation, the exemption does not apply to them. Moreover, they have been determined by the permit authority to be a significant contributor of pollution to waters of the United States. EPA proposes to eliminate the 25-year, 24-hour storm event exemption from the CAFO definition (40 CFR 122.23, Appendix B) and to require any operation that meets the definition of a CAFO either to apply for a permit or to establish that it has no potential to discharge.

The 25-year, 24-hour standard is an engineering standard used for construction of storm water detention structures. The term "25-year, 24-hour storm event" means the maximum 24-hour precipitation event with a probable recurrence of once in 25 years, as defined by the National Weather Service (NWS) in Technical Paper Number 40 (TP40), "Rainfall Frequency Atlas of the United States," May 1961, and subsequent amendments, or by equivalent regional or state rainfall probability information developed therefrom. As discussed in Chapter 8, the 25-year, 24-hour storm event is used as a design standard in the effluent limitation guideline.

The circularity of the 25-year, 24-hour storm event exemption in the existing CAFO definition has created confusion and has led to difficulties in implementing the NPDES regulation. The effluent guidelines regulation, which is applicable to permitted CAFOs, requires that CAFOs be designed and constructed to contain such an event. However, the NPDES regulations allow facilities that discharge only as a result of such an event to avoid obtaining a permit. This exemption has resulted in very few operations actually obtaining NPDES permits, which has hampered implementation of the NPDES program. Although an estimated 12,000 AFOs are likely to meet the current definition of a CAFO, only about 2,500 such facilities have obtained an NPDES permit. Many of these unpermitted facilities may incorrectly believe they qualify for the 25-year, 24-hour storm permitting exemption; these unpermitted facilities operate outside the current NPDES program. Consequently, state and EPA NPDES permit authorities lack the basic information needed to determine whether the exemption has been applied correctly and whether the CAFO operation is in compliance with NPDES program requirements.

EPA proposes to eliminate the 25-year, 24-hour storm exemption from the CAFO definition to (1) ensure that all CAFOs with a potential to discharge are appropriately permitted; (2) ensure through permitting that facilities are, in fact, properly designed, constructed, and maintained to contain a 25-year, 24-hour storm event, or to meet a zero discharge requirement, as the case may be; (3) improve the ability of EPA and state permit authorities to monitor compliance; (4) ensure that facilities do not discharge pollutants from their production areas or from excessive land application of manure and wastewater; (5) make the NPDES permitting provision consistent with the proposal to eliminate the 25-year, 24-hour storm design standard from the effluent guidelines

for swine, veal, and poultry; and (6) achieve EPA's goals of simplifying the regulation, providing clarity to the regulated community, and improving the consistency of implementation.

EPA considered limiting this change to the very largest CAFOs (e.g., operations with 1,000 or more animal units) and retaining the exemption for smaller facilities. However, EPA is concerned that this approach would allow significant discharges resulting from nonagricultural land application of manure and wastewater to remain beyond the scope of the NPDES permitting program, thereby resulting in ongoing discharge of CAFO-generated pollutants into waters of the United States. EPA is also concerned about reports of small facilities in aggregate contributing large quantities of pollutants to waters of the United States. Moreover, EPA believes that retaining the exemption for certain operations adds unnecessary complexity to the CAFO definition.

### 9.5.6 No Potential to Discharge/ Duty to Apply

EPA is proposing to adopt regulations that would expressly require all CAFO owners or operators to apply for an NPDES permit. That is, owners or operators of all facilities defined or designated as CAFOs would be required to apply for an NPDES permit. The existing regulations contain a general duty to apply for a permit, which EPA believes applies to virtually all CAFOs. The majority of CAFO owners or operators, however, have not applied for an NPDES permit. The proposed revisions would clarify that all CAFO owners or operators must apply for an NPDES permit; however, if the owner or operator believes the CAFO does not have a potential to discharge pollutants to waters of the United States from either its production area or its land application area(s), he or she could make a no potential discharge demonstration to the permit authority in lieu of submitting a full permit application. If the permit authority agrees that the CAFO does not have a potential to discharge, the permit authority would not need to issue a permit. However, if the unpermitted CAFO does indeed discharge, it would be violating the CWA prohibition against discharging without a permit and would be subject to civil and criminal penalties. Thus, an unpermitted CAFO does not receive the benefit of the 25-year, 24-hour storm standard established by the effluent guidelines for beef and dairy, nor does it have the benefit of the upset and bypass affirmative defenses.

EPA believes that virtually all facilities defined as CAFOs already have a duty to apply for a permit under the current NPDES regulations because of their past or current discharges or potential for future discharge. Large CAFOs pose a risk of discharge in a number of different ways. For example, a discharge of pollutants to surface waters can occur through a spill from the waste handling facilities, from a breach or overflow of those facilities, or through runoff from the feedlot area. A discharge can also occur through runoff of pollutants from application of manure and associated wastewaters to cropland, or through seepage from the production area to ground water where there is a direct hydrologic connection between ground water and surface water. Given the large volume of manure these facilities generate and the variety of ways they may discharge, and based on EPA's and the states' own experience in the field, EPA believes that all or virtually all large CAFOs have had a discharge in the past, have a current discharge, or have the potential to discharge in the future. A CAFO that meets any one of these three criteria would

be a facility that "discharges or proposes to discharge" pollutants and would, therefore, need to apply for a permit under the current regulations.

Where a CAFO has not discharged pollutants in the past, does not now discharge pollutants, and does not expect to discharge pollutants in the future, EPA believes that the owner or operator of that facility should demonstrate during the NPDES permit application process that it is, in fact, a "no discharge" facility. EPA anticipates that very few large CAFOs will be able to successfully demonstrate that they do not discharge pollutants and do not have a reasonable potential to discharge in the future. Furthermore, very few large CAFOs will wish to forego the protections of an NPDES permit. For instance, only those beef and dairy CAFOs with an NPDES permit will be authorized to discharge in a 25-year, 24-hour storm.

The nature of these operations is that any discharges from manure storage structures to waters of the United States are usually only intermittent, due to either accidental releases from equipment failures or storm events or, in some cases, deliberate releases such as pumping out lagoons or pits. The intermittent nature of these discharges, combined with the large numbers of animal feeding operations nationwide, makes it very difficult for EPA and state regulatory agencies to know where discharges have occurred (or, in many cases, where AFOs are even located), given the limited resources for conducting inspections. In this sense, CAFOs are distinct from typical industrial point sources subject to the NPDES program, such as manufacturing plants, where a facility's existence and location and the fact that it is discharging wastewaters at all are usually not in question. Accordingly, it is much easier for CAFOs to avoid the permitting system by not reporting their discharges, and there is evidence that such avoidances have taken place.

EPA believes that virtually all large CAFOs have had a past discharge or have a current discharge or have the potential to discharge in the future, and that meeting any one of these criteria would trigger a duty to apply for a permit. EPA proposes to revise the regulations by finding that, as a rebuttable presumption, all CAFOs do have a potential to discharge and, therefore, are required to apply for and to obtain an NPDES permit unless they can demonstrate that they will not discharge. EPA has not previously sought to categorically adopt a duty to apply for an NPDES permit for all facilities within a particular industrial sector. EPA proposes to do so for CAFOs for reasons that involve the unique characteristics of CAFOs and the zero discharge regulatory approach that applies to them.

### 9.5.7 Applicability to All Poultry

The existing NPDES CAFO definition is written such that the regulations apply only to laying hen or broiler operations that have continuous overflow watering or liquid manure handling systems (i.e.,"wet" systems) (40 CFR 22.23, Appendix B). EPA has interpreted this language to include poultry operations in which dry litter is removed from pens and stacked in areas exposed to rainfall or in piles adjacent to a watercourse. These operations may be considered to have established a crude liquid manure system (see 1995 NPDES Permitting Guidance for CAFOs). The existing CAFO regulations also specify different thresholds for determining which AFOs are CAFOs depending on which of these two types of systems the facility uses (e.g., 100,000 laying

hens or broilers if the facility has continuous overflow watering; 30,000 laying hens or boilers if the facility has a liquid manure system). When the NPDES CAFO regulations were promulgated, EPA selected these thresholds because the Agency believed that most commercial operations used wet systems (38 FR 18001, 1973). Note that turkeys were regulated at 55,000 birds (1,000 AU) irrespective of manure handling system.

In the 25 years since the CAFO regulations were promulgated, the poultry industry has changed many of its production practices. Many changes to the layer production process have been instituted to keep manure as dry as possible, such as high-rise houses or houses with belts under the cages. The broiler industry uses litter-based systems almost exclusively. Consequently, the existing regulations do not apply to most broiler and laying hen operations despite the fact that chicken production poses risks to surface water and ground water quality from improper storage of dry manure and improper land application. It is EPA's understanding that continuous overflow watering has been largely discontinued, and has been replaced with more efficient watering methods (on-demand watering), and that liquid manure handling systems represent few layer operations overall, although in the South approximately half of the layer operations might still have wet manure systems (see Chapter 4).

Despite the CAFO regulations, nutrients from large poultry operations continue to contaminate surface water and ground water because of rainfall coming into contact with outdoor manure stacks, accidental spills, faulty watering lines, open lagoons for egg wash water, and so forth. Poultry production concentrated in areas such as the Southeast, the Delmarva Peninsula in the Mid Atlantic, and key midwestern states has been shown to cause serious water quality impairments (see Environmental Impact Assessment document). In addition, land application remains the primary management method for significant quantities of poultry litter (including manure generated from facilities using "dry" systems). Many poultry operations are located on smaller parcels of land in comparison to other livestock sectors, oftentimes owning no significant cropland or pasture, placing increased importance on the proper management of the potentially large amounts of manure they generate. EPA also believes that all major livestock operations should be treated equitably under the revised regulation.

The existing regulation already applies to laying hen and broiler operations with 100,000 birds when a continuous flow watering system is used, and to operations with 30,000 birds when a liquid manure handling system is used. In revising the threshold for poultry operations, EPA evaluated several additional methods for equating poultry to the existing definition of an animal unit. EPA considered laying hens, pullets, broilers, and roasters separately to reflect the differences in size, age, production, feeding practices, housing, waste management, manure generation, and nutrient content of the manure. Manure generation and pollutant parameters considered include nitrogen, phosphorus, $BOD_5$, volatile solids, and COD. Analysis of these parameters consistently results in a threshold of 70,000 to 140,000 birds as being equivalent to 1,000 animal units. EPA also considered a live-weight basis for defining poultry. The live-weight definition of animal unit used by USDA defines 455,000 broilers and pullets and 250,000 layers as being representative of 1,000 animal units. EPA data indicate that using a live-weight basis at 1,000 AU would exclude virtually all broiler operations from the regulation.

Consultations with industry indicated EPA should evaluate the different sizes (ages) and purposes (eggs versus meat) of chickens separately. However, when evaluating broilers, roasters, and other meat-type chickens, EPA concluded that a given number of birds capacity represented the same net annual production of litter and nutrients. For example, a farm producing primarily broilers would raise birds for 6 to 8 weeks with a final weight of 3 to 5 pounds, and a farm producing roasters would raise birds for 9 to 11 weeks with a final weight of 6 to 8 pounds, whereas a farm producing game hens might keep birds for only 4 to 6 weeks with a final weight of less than 2 pounds. The housing, production practices, waste management, and manure nutrients and process wastes generated in each case, however, are essentially the same. Layers are typically fed less than broilers of equivalent size and are generally maintained as smaller chickens. However, a laying hen is likely to be kept for a year of egg production. The layer is then sold or molted for several weeks, followed by a second period of egg production. Pullets are housed until a laying age of approximately 18 to 22 weeks. In all cases manure nutrients and litter generated result in a threshold of 80,000 to 130,000 birds as being the equivalent of 1,000 animal units. (See Chapters 4 and 6 for more information.)

The proposed NPDES (and effluent guidelines) requirements for poultry eliminate the distinction between how manure is handled and the type of watering system used. EPA is proposing this change because it believes there is a need to control poultry operations regardless of the manure handling or watering system. EPA believes that improper storage, as well as land application rates that exceed agricultural use, has contributed to water quality problems, especially in areas with large concentrations of poultry production. Inclusion of poultry operations in the proposed NPDES regulation is intended to be consistent with the proposed effluent guidelines regulation. EPA is proposing that 100,000 laying hens or broilers be considered the equivalent of 1,000 animal units.

Consequently, EPA proposes to establish 50,000 birds as the threshold under the two-tier alternative structure (Scenario 4) that defines which operations are CAFOs at 500 animal units. Facilities subject to designation are those with fewer than 50,000 birds. This threshold would address approximately 10 percent of all chicken AFOs nationally and more than 70 percent of all manure generated by chickens. On a sector-specific basis, this threshold would address approximately 28 percent of all broiler operations (including all meat-type chickens) while addressing more than 70 percent of manure generated by broiler operations. For layers (including pullets) the threshold would address less than 5 percent of layer operations while addressing nearly 80 percent of manure generated by layer operations. EPA believes this threshold is consistent with the threshold established for the other livestock sectors.

Under the proposed alternative three-tier structures (Scenarios 1, 2, and 3), any operation with more than 100,000 chickens is automatically defined as a CAFO. This upper tier reflects 4 percent of all chicken operations. Additionally, those poultry operations with 30,000 to 100,000 chickens are defined as CAFOs if they meet certain unacceptable conditions (see section 9.2). This middle tier would address an additional 10 percent of poultry facilities. By sector this middle tier would potentially cover an additional 45 percent of broiler manure and 22 percent of

layer manure. In aggregate this scenario would address 14 percent of chicken operations and 86 percent of manure.

The revision would remove the limitation on the type of manure handling or watering system employed at laying hen and broiler operations and would, therefore, address all poultry operations equally. This approach would be consistent with EPA's objective of better addressing the issue of water quality impacts associated with both storage of manure at the production area and land application of manure while simultaneously simplifying the regulation.

EPA acknowledges that this poultry threshold pulls in a substantial number of broiler operations in select regions. However, a higher threshold would include very few poultry facilities in other select regions. Geographic regions with high density of poultry production have experienced water quality problems related to an overabundance of nutrients, to which the poultry industry has contributed. The chicken and turkey sectors also have higher percentages of operations with insufficient or no land under the control of the AFO on which to apply manure. Thus EPA believes this threshold is appropriate to adequately control the potential for discharges from poultry CAFOs.

### 9.5.8 Applicability to Immature Animals

Only swine over 55 pounds and mature dairy cows are specifically included in the current definition (although manure and wastewater generated by immature animals confined at the same operation with mature animals are subject to the existing requirements). Immature animals were not a concern in the past because they were generally part of operations that included mature animals and, therefore, their manure was included in the permit requirements of the CAFO. In recent years, however, these livestock industries have become increasingly specialized with the emergence of increasing numbers of large stand-alone facilities such as nurseries and contract heifer operations. Further, manure from immature animals tends to have higher concentrations of pathogens and hormones and thus poses greater risks to the environment and human health.

Since the 1970s the animal feeding industry has become more specialized, especially at larger operations. Dairies often move immature heifers to a separate location until they reach maturity. These off-site operations may confine the heifers in a manner that is very similar to a beef feedlot, or the heifers may be placed on pasture. The existing CAFO definition does not address operations that confine only immature heifers. EPA acknowledges that dairies may keep heifers and calves and a few bulls on site. EPA data indicate some of these animals are in confinement, some are pastured, and some are moved back and forth between confinement, open lots, and pasture. However, the actual milking herd tends to be a more constant number of animals that are confined at least during milking. The current CAFO definition thus considers only the mature milking cows. This has raised some concerns that many dairies with significant numbers of immature animals could be excluded from the regulatory definition even though they might generate as much manure as a dairy with a milking herd large enough to make the dairy a CAFO.

EPA considered options for dairies that would take into account all animals maintained in confinement, including calves, bulls, and heifers, when determining whether a dairy is a CAFO. EPA examined two approaches for this option—one that would count all animals equally and another based on the proportion of heifers, calves, and bulls likely to be present at the dairy. The milking herd is usually a constant at a dairy, but the proportion of immature animals can vary substantially among dairies and even at a given dairy over time. Some operations maintain their immature animals on-site but keep them on pasture most of the time. Some operations keep immature animals on-site and maintain them in confinement all or most of the time. Some operations may also have one or two bulls on-site, which can also be kept either in confinement or on pasture, while many keep none on-site. Some operations do not keep their immature animals on-site at all; instead, they place them off-site, usually in a stand-alone heifer operation. The variety of practices at dairies makes it very difficult to estimate how many operations have immature animals on-site in confinement. EPA believes that basing the applicability on the numbers of immature animals and bulls would make implementing the regulation more difficult for the permit authority and the CAFO operator.

When the CAFO regulations were issued, it was typical to house swine from birth to slaughter together at the same operation, known as a farrow-to-finish operation. Although more than half of swine production continues to occur at farrow-to-finish operations, today it is common for swine to be raised in phased production systems. Though EPA could not identify any large stand-alone nursery facilities in 1997, other data indicate the emergence of several large nursery operations. EPA proposes to count either swine over 55 pounds or swine under 55 pounds to determine the size of the AFO and the applicability of the NPDES and effluent limitations guidelines (ELG) regulations.

The proposed thresholds for swine were established on the basis of the average phosphorus excreted from immature swine in comparison to the average phosphorus excreted from swine over 55 pounds. A similar threshold would be obtained when evaluating live-weight manure generation, nitrogen, COD, and volatile solids (VS). See Chapter 6 for more information on manure constituents. The thresholds for heifers are based on the thresholds for beef cattle. EPA's data on contract heifer operations indicate the heifers are often maintained on feedlots in a manner identical to the manner in which beef cattle are raised; additionally, some beef feedlots have been known to temporarily maintain heifers on-site.

Thus, EPA proposes to include immature swine and heifer operations under the CAFO definition. In the proposed three-tier structure, the 300 AU and 1,000 AU equivalents, respectively, for each animal type would be 3,000 head and 10,000 head for immature swine and 300 head and 1,000 head for heifers. In the proposed two-tier structure, EPA would establish the 500 AU threshold equivalent for defining which operations are CAFOs as operations with 5,000 or more swine weighing 55 pounds or less; those with fewer than 5,000 swine under 55 pounds are AFOs that may be designated CAFOs. Immature dairy cows, or heifers, would be counted equivalent to beef cattle; that is, the 500 AU threshold equivalent for defining CAFOs would be operations with 500 or more heifers, and those with fewer than 500 heifers could be designated CAFOs.

### 9.5.9 NPDES Thresholds for Animal Types Not Covered by the ELG

The animal types covered by the NPDES program are defined in the current regulation (40 CFR Part 122, Appendix B). The beef, dairy, swine, poultry, and veal sectors are being addressed by both revisions to the ELG and NPDES regulations. However, EPA is not revising the ELG for any animal sector other than beef (including veal), dairy, swine, and poultry. Therefore, any CAFO in the horse, sheep, lamb and duck sectors with fewer than 1,000 AU will not be subject to the ELG, but will have NPDES permits developed on a best professional judgment basis. EPA is proposing to lower the threshold for defining which AFOs are CAFOs for these sectors if the two-tier structure is adopted. This action is being taken to be consistent with the NPDES proposed revisions for beef, dairy, swine, and poultry. Under the three-tier structures, the existing thresholds would remain as they are under the existing regulation. A facility confining any other animal type that is not explicitly mentioned in the NPDES and ELG regulations is still subject to NPDES permitting requirements if it meets the definition of an AFO and if the permit authority designates it a CAFO on the basis that it is a significant contributor of pollution to waters of the United States.

The economic analysis for the NPDES rule does not cover animal types other than beef, dairy, swine, and poultry. EPA chose to analyze those animal types that produce the greatest amount of manure and wastewater in the aggregate while in confinement. EPA believes that most horse, sheep, and lamb operations are not confined and, therefore, will not be subject to permitting. Thus the Agency expects the impacts in these sectors to be minimal.

### 9.5.10 Duty to Maintain Permit Coverage Until Closure

EPA proposes to require operators of permitted CAFOs that cease operations to retain NPDES permits until the facilities are properly closed, i.e., no longer have the potential to discharge. Similarly, if a facility ceases to be an active CAFO (e.g., it decreases the number of animals to below the threshold that defined it as a CAFO, or ceases to operate), the CAFO must remain permitted until all wastes at the facility that were generated while the facility was a CAFO no longer have the potential to reach waters of the United States. If a permit is about to expire and the manure storage facility has not yet been properly closed, the facility would be required to apply for a permit renewal because the facility has the potential to discharge to waters of the United States until it is properly closed. Proper facility closure includes removal of wastes from lagoons and stockpiles, proper land application of manure and wastewater, and proper disposal of other wastes in accordance with NPDES permit requirements.

The existing regulations do not explicitly address whether a permit should be allowed to expire when an owner or operator ceases operations. However, the public has expressed concerns about facilities that go out of business, leaving lagoons, stockpiles, and other contaminants unattended and unmanaged. Moreover, there are a number of documented instances of spills and breaches at CAFOs that have ceased operations, leaving behind environmental problems that became a public burden to resolve (NCDENR, 1999).

EPA considered five options for NPDES permit requirements to ensure that CAFO operators provide assurances for proper closure of their facilities (especially manure management systems such as lagoons) in the event of financial failure or other business curtailment. EPA examined the costs to the industry and the complexity of administering such a program for all options.

Closure Option 1 would require a closure plan. The CAFO operator would be required to have a written closure plan detailing how the facility plans to dispose of animal waste from manure management facilities. The plan would be submitted with the permit application and be approved with the permit application. The plan would identify the steps necessary to perform final closure of the facility, including at least the following:

- A description of how each major component of the manure management facility(e.g., lagoons, settlement basins, storage sheds) will be closed.
- An estimate of the maximum inventory of animal waste ever on-site, accompanied with a description of how the waste will be removed, transported, land applied or otherwise disposed.
- A closure schedule for each component of the facility, along with a description of other activities necessary during closure (e.g., control runoff/run-on, ground water monitoring if necessary).

EPA also investigated several options that would provide financial assurances in the event the CAFO went out of business, such as contribution to a sinking fund, commercial insurance, surety bond, and other common commercial mechanisms. Under Closure Option 2, permittees would have to contribute to a sinking fund to cover closure costs of facilities that abandon their manure management systems. The contribution could be on a per-head basis and could be levied on the permitting cycle (every 5 years) or annually. The sinking fund would be available to clean up any abandoned facility (including those which are not permitted). Data on lagoon closures in North Carolina (NCDENR, 1999) indicate that the average cost of lagoon closure for which data are available is approximately $42,000. Assuming a levy of $0.10 per animal, the sinking fund would cover the cost of approximately 50 abandonments nationally per year, not accounting for any administrative costs associated with operating the funding program.

Closure Option 3 would require permittees to provide financial assurance by one of several generally accepted mechanisms, including the following: (1) commercial insurance, (2) financial test, (3) guarantee, (4) certificate of deposit or designated savings account, (5) letter of credit, or (6) surety bond. The actual cost to the permittee would depend on which financial assurance option was available and implemented. The financial test would likely be the least expensive for some operations, entailing documentation that the net worth of the CAFO operator is sufficient to make it unlikely that the facility will be abandoned for financial reasons. The guarantee would also be inexpensive, consisting of a legal guarantee from a parent corporation or other party (integrator) that has sufficient levels of net worth. The surety bond would likely be the most expensive, typically requiring an annual premium of 0.5 to 3.0 percent of the value of the bond; this mechanism would likely be a last resort for facilities that could not meet the requirement of the other mechanisms.

Option 4 is a combination of Options 2 and 3. Permittees would have to provide financial assurance by using one of several generally accepted mechanisms or by participating in a sinking fund. CAFO operators could meet closure requirements through the most economical means available for their operations.

Option 5 simply requires CAFOs to maintain NPDES permit coverage until proper closure. Under this option, facilities would be required to maintain their NPDES permits, even upon curtailment of the operation, for as long as the facility has the potential to discharge. The costs for this option would be those costs associated with maintaining a permit.

EPA selected Option 5: to require NPDES permits to include a condition that imposes a duty to reapply for a permit unless an owner or operator has closed the facility such that there is no potential for discharges. The NPDES program offers legal and financial sanctions that are sufficient, in EPA's view, to ensure that operators comply with this requirement. EPA believes that this option would accomplish its objectives and would be generally easy and effective to implement. However, there are concerns that it would not be effective for abandoned facilities because, unlike some of the other options, no financial assurance mechanism would be in place.

### 9.5.11 Assessment of Direct Hydrological Connection to Surface Water as Permit Condition

Because of its relevance to today's proposal, EPA is restating that the Agency interprets the Clean Water Act to apply to discharges of pollutants from a point source via ground water that has a direct hydrologic connection to surface water. Specifically, the Agency is proposing that all CAFOs, including those that discharge or that have the potential to discharge CAFO wastes to navigable waters via ground water with a direct hydrologic connection, must apply for an NPDES permit. In addition, the proposed effluent guidelines will require some CAFOs to achieve zero discharge from their production areas, including via ground water that has a direct hydrologic connection to surface water. Further, for CAFOs not subject to such an effluent guideline, permit writers would in some circumstances be required to establish special conditions to address such discharges. In all cases, a permittee would have the opportunity to provide a hydrologist's report to rebut the presumption that there is likely to be a discharge from the production area to surface waters via ground water with a direct hydrologic connection.

For subcategories that would be subject to an effluent guideline that includes requirements for zero discharge from the production area to surface water via ground water, the proposed regulations would presume that there is a direct hydrologic connection to surface water. The permittee would be required to either achieve zero discharge from the production area via ground water and perform the required ground water monitoring, or provide a hydrologist's statement that there is no direct connection of ground water to surface water at the facility.

Other subcategories are subject to an effluent guideline that does not include ground water requirements. In these cases the permit writer first determines whether the facility is in an area with topographical characteristics that indicate the presence of ground water that is likely to have a direct hydrologic connection to surface water. If the permit writer determines that pollutants

may be discharged at a level that might cause or contribute to an excursion above any State water quality standard, the permit writer would be required to include special conditions to address potential discharges via ground water. EPA proposes that the permittee must either comply with those conditions or provide a hydrologist's statement that the facility does not have a direct hydrologic connection to surface water.

If an ELG does not apply to the particular CAFO subcategory, the permit writer would be required to decide on a case-by-case basis whether effluent limitations (technology-based and water quality-based, as necessary) should be established to address potential discharges to surface water via hydrologically connected ground water. Again, the permittee could avoid or satisfy such requirements by providing a hydrologist's statement that there is no direct hydrologic connection.

## 9.6 Land Application of Manure

EPA proposes to improve control of discharges that occur from land-applied manure and wastewater. Analysis conducted by USDA indicates that, in some regions, the amount of nutrients present in land-applied manure has the potential to exceed the nutrient needs of the crops grown in those regions. Actual soil sample information compiled by researchers at various land grant universities provides an indication of areas where there is widespread phosphorus saturation. Other research by USDA documents the runoff potential of land-applied manure under normal and peak precipitation. Furthermore, research from a variety of sources indicates that there is a high correlation between areas with impaired lakes, streams, and rivers due to nutrient enrichment and areas where there is dense livestock and poultry production.

For CAFOs that land apply their manure, EPA is proposing that owners or operators implement specific agricultural practices, including land application of manure and wastewater at a specified rate, development and implementation of a Permit Nutrient Plan, a prohibition on the application of CAFO manure or wastewater within 100 feet of surface water, and, as determined to be necessary by the permit authority, restrictions on application of manure to frozen, snow-covered, or saturated ground. The Agency is proposing to require these specific agricultural practices under its CWA authority both to define the scope of the agricultural storm water discharge exemption and to establish the best available technology for specific industrial sectors. Given the history of improper disposal of CAFO waste and Congress's identification of CAFOs as point sources, the Agency believes it should clearly define the agricultural practices that must be implemented at CAFOs.

The Agency is proposing to allow AFO owners or operators who land apply manure obtained from CAFOs and more traditional row crop farmers who land apply manure obtained from CAFOs to qualify for the agricultural storm water exemption as long as they are applying manure and wastewater at proper rates established by the state. Under the proposal, EPA is co-proposing whether to require CAFOs that transfer manure to off-site recipients obtain a letter of certification from the recipient land applier that the recipient intends to determine the nutrient needs of its crops based on realistic crop yields for its area, sample its soil at least once every 3 years to

determine existing nutrient content, and not apply the manure in quantities that exceed the land application rates calculated using the Phosphorus Index, Phosphorus Threshold, or Soil Test Phosphorus method as specified in the revised ELG. For purposes of the CAFO's permit, recipient land appliers need not implement all of the proper agricultural practices identified above that CAFOs would be required to implement at their own land application areas. EPA believes that this proposal enables the Agency to implement Congress's intent to both exclude truly agricultural discharges due to storm water and regulate the disposition of the vast quantities of manure and wastewater generated by CAFOs.

### 9.6.2 Other Special Permit Conditions

Permit writers establish effluent limits for land application areas in the form of rates and practices that constitute proper agricultural practices to the extent necessary to fulfill the requirements of the effluent guidelines or based on best professional judgment as well as to the extent necessary to ensure that a CAFO's practices are agricultural in that they minimize the operation's impact on water quality. Standard conditions in an NPDES permit list preestablished conditions that apply to all NPDES permits. The special conditions in an NPDES permit are used primarily to supplement effluent limitations and ensure compliance with the CWA.

In addition to closure, ground water, and off-site certification, EPA is proposing to require permit authorities to develop special conditions that specify:

- How the permittee is to calculate the allowable manure application rate.
- Timing restrictions, if necessary, on land application of manure and wastewater, including restrictions on application to frozen, snow-covered, or saturated ground.

The ELG specifies three methods for determining the basis of manure application rates: (1) the Phosphorus Index, (2) the Soil Phosphorus Threshold Level, and (3) the Soil Test Phosphorus Level. EPA adopted these three methods from the USDA Natural Resource Conservation Service's nutrient management standard (Standard 590, USDA NRCS, 2000). State Departments of Agriculture are developing state nutrient standards that incorporate one of these three methods. EPA is proposing to require that each authorized state permit authority adopt one of these three methods as part of the state NPDES program, in consultation with the State Conservationist.

EPA considered establishing a national prohibition on applying CAFO-generated manure to frozen, snow-covered or saturated ground in the ELG (Technology Option 7). Disposal of manure or wastewater to frozen, snow-covered, or saturated ground is generally not a beneficial use for agricultural purposes. Although such conditions can occur anywhere in the United States, pollutant runoff associated with such practices is a site-specific consideration and is dependent on a number of variables, including climate and topographic variability, distance to surface water, and slope of the land. Such variability makes it difficult to develop a national technology-based standard that is consistently reasonable and does not impose unnecessary cost on CAFO operators.

Although EPA believes that many permit writers will find a prohibition on applying CAFO-generated manure to frozen, snow-covered, or saturated ground to be reasonably necessary to achieve the effluent limitations and to carry out the purposes and intent of the CWA, EPA is aware that there are areas where these practices might be allowed provided they are restricted. Application on frozen ground, for example, might be appropriate in some areas provided there are restrictions on the slope of the ground and proximity to surface water. Many states have already developed such restrictions. The permit writer could further develop the restrictions based on a consideration of local crop needs, climate, soil types, slope, and other factors.

Although the proposed regulations would not establish a national technology-based limitation or BMP, EPA is proposing at section 122.23(j)(2) that permit writers consider the need for these limits. Permit authorities would be expected to develop restrictions on timing and method of application that reflect regional considerations, which restrict applications that are not an appropriate agricultural practice and have the potential to result in pollutant discharges to waters of the United States. It is likely that the operators would need to consider means of ensuring adequate storage to hold manure and wastewater for the period during which manure may not be applied. EPA estimates that storage periods might range from 45 to 270 days, depending on the region and the proximity to surface water, and to ground water with a direct hydrologic connection to surface water. Permit authorities are expected to work with state agricultural departments, USDA's Natural Resource Conservation Service, the EPA regional office, and other local interests to determine the appropriate standard, and include the standard consistently in all NPDES permits for CAFOs.

EPA's estimate that storage periods would range from 45 days to 270 days is derived using published freeze/frost data from the National Oceanic and Atmospheric Administration, National Center for Disease Control. For the purpose of estimating storage requirements to prevent application to frozen ground, EPA assumed CAFOs could apply manure only between the last spring frost and the first fall frost, called the "freeze free period." With a 90 percent probability, EPA could also use a 28 degree temperature threshold to determine the storage time required, rounded to the nearest 45-day increment. This calculation results in 45 days of storage in the South, 225 days in parts of the Midwest and the Mid-Atlantic, and as high as 270 days storage in the Central region.

EPA believes the costs for this provision are minimal because the ELG already restricts manure application to a rate that can be assimilated by the crops and soil. Where winter spreading results in runoff of the manure nutrients, the CAFO could not apply additional nutrients to compensate. In other words, the PNP creates an incentive to apply nutrients only in a manner where they are available to crops.

### 9.6.3 Non-CAFO Land Application Activities

In some instances, CAFO owners or operators transport their manure and/or wastewater off-site. If off-site recipients land apply the CAFO-generated manure, they may be subject to regulation under the Clean Water Act. In addition, AFOs may land apply their own manure and wastewater,

and they, too, may be subject to regulation under the Clean Water Act. A land applier could be subject to regulation if (1) its field has a point source, as defined under the CWA, through which (2) a discharge occurs that is not eligible for the agricultural storm water exemption, and (3) the land applier is designated on a case-by-case basis as a regulated point source of storm water (40 CFR 122.26(a)(1)(v)). EPA notes that under the three-tier structure, an AFO with between 300 AU and 1,000 AU that has submitted a certification that it does not meet any of the conditions for being a CAFO and, therefore, does not receive an NPDES permit, would be immediately subject to enforcement and regulation under the Clean Water Act if it has a discharge that is not subject to the agricultural storm water discharge exemption; EPA and the state do not need to designate such a facility either a CAFO or a regulated storm water point source.

EPA emphasizes again that this regulatory approach is relevant only to discharges composed entirely of storm water. If it is not due to precipitation, a discharge of manure or wastewater through a point source, such as a ditch, into the waters of the United States need not be designated subject to enforcement and regulation under the Clean Water Act.

As noted above, case-by-case designation of point sources at land application areas that are not under the control of a CAFO owner or operator may already occur under existing regulations. Either the permitting authority or EPA may designate a discharge that he or she determines contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. EPA is soliciting comment on whether to clarify the term "significant contributor of pollutants" for the purposes of designating a discharge of manure and/or wastewater. If a land applier is applying manure and/or wastewater such that he or she is not eligible for the agricultural storm water discharge exemption and if the receiving waterbody (into which there are storm water discharges associated with manure and/or wastewater) is not meeting water quality standards for a pollutant in the waste (such as phosphorus, nitrogen, dissolved oxygen, or fecal coliforms), EPA could propose that, by regulation, such a discharge constitutes a "significant contributor of pollutants." For example, if a land applier is applying manure and/or wastewater at a rate above the rate that qualifies the recipient for the agricultural storm water discharge exemption, and if, due to precipitation, waste runs off the land application area through a ditch into a navigable water that is impaired due to nutrients, the permit authority may designate that point source as a regulated storm water point source. The designee would then need to apply for an NPDES permit or risk being subject to enforcement actions for unpermitted discharges.

## 9.7 NPDES Reporting and Recordkeeping Requirements

The section of the NPDES permit on monitoring and reporting requirements identifies the specific conditions related to the types of monitoring to be performed, the frequencies for collecting samples or data, and how to record, maintain, and transmit the data and information to the permit authority. This information allows the NPDES permit authority to determine compliance with the permit requirements.

EPA is proposing revisions to the effluent guidelines that would require the operator to conduct periodic visual inspection and to maintain all manure storage and handling equipment and

structures, as well as all runoff management devices. The NPDES permit would also require the permittee to (1) test and calibrate all manure application equipment annually to ensure that manure is land applied in accordance with the proper application rates established in the NPDES permit; (2) sample manure for nutrient content at least once annually, and up to twice annually if manure is applied more than once or removed to be sent off-site more than once per year; and (3) sample soils for phosphorus once every 3 years. The proposed effluent guidelines would also require the operator to review the PNP annually and amend it if practices change either at the production area or at the land application area and submit notification to the permit authority. Examples of changes in practice necessitating a PNP amendment include a substantial increase in animal numbers (e.g., more than 20 percent) that would significantly increase the volume of manure and nutrients produced on the CAFO; a change in the cropping program that would significantly alter land application of animal manure and wastewater; elimination or addition of fields receiving animal waste application; or changes in animal waste collection, storage facilities, treatment, or land application method.

CAFO operators would be required to submit their PNPs, as well as any information necessary to determine compliance with their PNPs and other permit requirements, to the permit authority upon request. The CAFO operator would also be required to make a copy of the PNP cover sheet and executive summary available to the public in any of several ways. Operators of new facilities seeking coverage under a general permit and applicants for individual permits would be required to submit a copy of their draft PNP cover sheet and executive summary to the permit authority at the time of NOI submittal or application.

EPA is also proposing to require operators to submit a written notification to the permit authority, signed by the certified planner, that the PNP has been developed or amended and is being implemented, accompanied by a fact sheet summarizing certain elements of the PNP. This written notice of PNP availability would play an important role in verifying that the permittee is complying with one of the requirements of the NPDES permit.

### 9.7.1 PNP Notification

EPA is proposing to require that applicants for individual permits and operators of new facilities submitting notices of intent for coverage under a general permit submit a copy of the draft PNP cover sheet and executive summary to the permit authority at the time of application or NOI submittal (§§122.21(i)(1)(iv) and 122.28(b)(2)(ii)). Operators of existing facilities seeking coverage under a general permit must submit a notice of final PNP development within 90 days of seeking coverage but are not required to provide a copy of the PNP to the permit authority unless requested. The reporting requirements, including the notice of PNP development and notice of PNP amendment, are discussed in more detail in preamble section VII.E.3.

Initial installation of manure control technologies is significantly less costly than retrofitting existing facilities, and early development of a PNP will help to ensure that, when a new facility is being designed, the operator is considering optimal control technologies. In addition, in situations where individual permits are warranted, the public interest demands early review of the

summary of the PNP, rather than waiting for its availability after the permit has been in effect for some time.

EPA is proposing that the permit authority be required, upon request from the public, to obtain a copy of the PNP cover sheet and executive summary and make it available to the public if it is not available by other means. The CAFO operator would be required to provide a copy to the permit authority unless the operator has made it available through other means. For example, the CAFO operator may choose to (1) maintain a copy of the PNP cover sheet and executive summary at the facility and make it available to the permit authority as a publicly viewable document upon request; (2) maintain a copy of the PNP cover sheet and executive summary at the facility and make it available directly to the requestor; (3) place a copy of the PNP cover sheet and executive summary at a publicly accessible site, such as a public library; or (4) submit a copy to the permit authority. It is important to ensure that the public has access to information needed to determine whether a CAFO is complying with its permit, including the land application provisions.

### 9.7.2 Certification from Non-CAFO Recipients of CAFO-Generated Manure

Inappropriate land application of CAFO-generated manure poses a significant risk to water quality. Further, EPA estimates that the majority of CAFO-generated manure is in excess of CAFO's crop needs and will very likely be transferred off-site. The ultimate success of the CAFO program depends on whether recipients handle manure appropriately and in a manner that prevents discharge to waters.

EPA considered a range of approaches including no consideration of off-site manure transfer, basic recordkeeping, and reporting requirements; requiring certification from manure recipients that they will apply the manure using proper agricultural practices; and requiring certification from the manure recipient that a nutrient management plan has been written and implemented by the recipient. To estimate the number of recipients needed to accept manure transferred off-site, EPA used the following baseline assumptions:

- Hauling of excess manure is paid for by the CAFO.
- Crop farmers already maintain records and have a nutrient management plan, though the plan is not necessarily a certified CNMP.
- Recipients will apply manure at nitrogen rate; i.e., assume that the crop farmer will accept manure only if spreading is on a nitrogen basis.
- To calculate the amount of excess manure generated at CAFOs, excess manure nitrogen was obtained from a USDA analysis of 1997 census data (Kellogg et al., 2000).
- To calculate the number of farms needed to properly apply excess manure, the average crop farm size was assumed to be 487 acres (per 1997 Census of Agriculture summary statistics).
- Fifty four percent of crop farmers already sample soils every 3 years (CTIC, 2000).

Costs include soil sampling and incremental recordkeeping costs identical to those costs developed for CAFOs in Chapter 11. They include $10 labor and $10 analytical costs for every

10 acres of cropland. For upper-bound costs an additional cost of $5 per acre was included if a full PNP or CNMP is written by the recipient as a result of this requirement. Setbacks for manure spreading are not included. Training and certification for manure spreaders costs $117, as identified in Chapter 11. Calibration of manure spreading equipment is paid for by the CAFO.

The following table presents the range of costs for various approaches to managing manure transferred off-site.

**Table 35. Recipients and Costs for Off-Site Locations Receiving Manure from CAFOs**

| | NPDES Scenario (Definition of CAFO) | | |
|---|---|---|---|
| | > 1,000 AU | >#500 AU | >#300 AU |
| Number of off-site manure recipients | 13,489 | 17,923 | 21,155 |
| Cost per recipient for records | $994 | $994 | $994 |
| Total costs to all recipients for records | $7.2 million | $9.6 million | $11.3 million |
| Upper-bound costs for nutrient plan (assuming PNP or CNMP development) | $33.1 million | $44.0 million | $51.9 million |

EPA is not proposing to regulate off-site recipients through CAFO permit requirements; however, EPA is proposing two alternatives for ensuring that CAFO-generated manure that is transferred to off-site recipients is managed to prevent water quality impairment. In the first alternative, EPA is proposing certain certification and recordkeeping requirements to help ensure responsible handling of manure. In the second alternative, EPA is proposing recordkeeping requirements only.

In the first alternative, EPA is proposing to require CAFO operators to obtain a certification from recipients (other than manure haulers that do not land apply the waste) of more than 12 tons per year of CAFO-generated manure and wastewater certifying the recipients will do one of the following: (1) land apply according to proper agricultural practices (which the proposal would define to mean that the recipient determines the nutrient needs of its crops based on realistic crop yields for its area, sample its soil at least once every 3 years to determine existing nutrient content, and does not apply the manure in quantities that exceed the land application rates calculated using one of the methods specified in the proposed rule); (2) obtain an NPDES permit for discharges resulting from nonagricultural land application; or (3) utilize the manure for purposes other than land application. (See proposed §122.23(j)(4)).

EPA is proposing both requirements: (1) that CAFOs obtain a certification and (2) that recipients of CAFO-generated manure so certify, pursuant to section 308 of the CWA. Under section 308, EPA has the authority to require the owner or operator of a point source to establish and maintain records and provide any information the Agency reasonably requires. The Agency has documented historic problems associated with overapplication of CAFO waste by both CAFO

operators and recipients of CAFO waste. The proposal would establish effluent limitations designed to prevent discharges due to overapplication. To determine whether CAFOs are meeting the effluent limitations that would be established under the proposals, EPA believes it is necessary for the Agency to have access to information concerning where a CAFO's excess manure is sent. Furthermore, to determine whether the recipients of CAFO manure should be permitted (which might be required if they do not land apply the CAFO manure in accordance with proper agricultural practices and they discharge from a point source), EPA has determined that it will be necessary for such recipients to provide information about their land application methods. Recipients who certify that they are applying manure in accordance with proper agricultural practices are responding to a request under section 308 of the CWA. Therefore, a recipient who falsely certifies is subject to all applicable civil and criminal penalties under section 309 of the CWA.

In some cases, CAFOs give or sell manure to many different recipients, including those taking small quantities, and this requirement could result in an unreasonable burden. EPA is primarily concerned with recipients who receive and dispose of large quantities, presuming that recipients of small quantities pose less risk of inappropriate disposal or overapplication. To relieve the paperwork burden, EPA is proposing that CAFOs not be required to obtain certifications from recipients that receive less than 12 tons of manure per year from the CAFO. The CAFO would, however, be required to keep records of transfers to such recipients, as describe below.

The Agency believes that it would be reasonable to exempt from the PNP certification requirements recipients who receive small amounts of manure from CAFOs. EPA considered exempting amounts such as a single truckload per day or a single truckload per year. EPA decided that an appropriate exemption would be based on an amount that would typically be used for personal, rather than commercial, use. The exemption in the proposed regulation is based on the amount of manure that would be appropriately applied to 5 acres of land because 5 acres is at the low end of the amount of land that can be profitably farmed. See, for example, "The New Organic Grower," Eliott Coleman (1995)).

To determine the maximum amount of manure that could be appropriately applied to five acres of land, an average nutrient requirement per acre of cropland and pastureland was computed. Based on typical crops and national average yields, 160 pounds of nitrogen (N) and 14.8 pounds of phosphorus (P) are required annually per acre. See *Manure Nutrient Relative to the Capacity of Cropland and Pastureland to Assimilate Nutrients*, (USDA, 2000). The nutrient content of manure was based on a USDA-NRCS (1998) report, Nutrients Available from *Livestock Manure Relative to Crop Growth Requirements*.

The nitrogen content of manure at the time of land application ranges from 1.82 pounds per ton for heifers and dairy calves to 18.46 pounds per ton for hens and pullets. Using the low-end rate of 1.82 pounds of nitrogen per ton, 87.4 tons of manure would be needed for a typical acre, or 439 tons of manure for 5 acres, to achieve the 160 pounds per acre rate. Using the high-end rate of 18.46 pounds of nitrogen per ton, 8.66 tons of manure would be needed for a typical acre, or 43.3 tons of manure for 5 acres, to achieve the 160 pounds per acre rate. Thus, the quantity of

manure needed to meet the nitrogen requirements of a 5 acre plot would range from 43.3 tons to 439 tons, depending on the animal type.

The phosphorus content of manure at the time of land application ranges from 1.10 pounds per ton for heifers and dairy calves to 11.23 pounds per ton for turkeys for breeding. Using the high-end 11.23 pound per ton rate for phosphorus, only about 1.3 tons would be needed for an average acre, or 6.5 tons for 5 acres, to meet the 14.8 pounds of phosphorus required annually for a typical acre of crops. Using the low-end 1.1 pound per ton rate for phosphorus, about 13.2 tons would be needed for an average acre, or 66 tons for 5 acres. Using the phosphorus content for broilers of 6.61 pounds per ton is more typical of the content of manure and would result in 2.23 tons per acre being needed for an average acre, or 11.2 tons for 5 acres.

Clearly, exempting the high-end amount of manure based on nitrogen content could lead to excess application of phosphorus. Regulating based on the most restrictive P requirement could lead to manure not being available for personal use. The exemption is only an exemption from the requirement that the CAFO obtain a certification. The recipient would remain subject to any requirements of state or federal law to prevent discharge of pollution to waters of the United States.

EPA is proposing to set the threshold at 12 tons per recipient per year. This is rounding the amount based on typical P content. It also allows 1 ton pickup load per month, which is consistent with one of the alternative approaches EPA considered. Recipients that receive more than 12 tons would have to certify that the waste will be properly managed.

For CAFO owners or operators who transfer CAFO-generated manure and wastewater to manure haulers who do not land apply the waste, EPA is proposing that the CAFO owner or operator must (1) obtain the name and address of the recipients, if known; (2) provide the manure hauler with an analysis of the nutrient content of the manure, to be provided to the recipients; and (3) provide the manure hauler with a brochure to be given to the recipients describing the recipients' responsibility to properly manage the land application of the manure to prevent discharge of pollutants to waters of the United States.

In the second alternative proposal for ensuring proper management of manure that is transferred off-site, EPA is not proposing to require CAFO owners or operators to obtain the certification described above. Rather, CAFO owners or operators would be required to maintain records of transfer.

Concern has been expressed that many potential recipients of CAFO manure will choose to forego CAFO manure and buy commercial fertilizers instead to avoid signing such a certification and being brought under EPA regulation. The result could be that CAFO owners and operators might be unable to find a market for proper disposal, thereby turning the manure into a waste rather than a valuable commodity.

This alternative is potentially protective of the environment because non-CAFO land appliers would be liable for being designated as a point source in the event that there is a discharge from improper land application. EPA's proposed requirements for what constitutes proper agricultural practices would ensure that CAFO-generated manure is properly managed.

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# CHAPTER 10

# TECHNOLOGY OPTIONS CONSIDERED

## 10.1 Changes to Effluent Guidelines Applicability

The existing effluent guidelines regulations for feedlots apply to operations with 1,000 AU and greater. EPA is proposing to establish effluent guidelines requirements for the beef, dairy, swine, chicken and turkey subcategories that would apply to any operations in these subcategories that are defined as a CAFO under either the two-tier or three-tier structure.

EPA also proposes to establish a new subcategory that applies to the production of veal cattle. Veal production is currently included in the beef subcategory. However, veal production practices and wastewater and manure handling are very different from the practices used at beef feedlots; therefore, EPA proposes to establish a separate subcategory for veal.

Under the three-tier structure the proposed effluent guidelines requirements for the beef, dairy, swine, veal and poultry subcategories will apply to all operations defined as CAFOs by today's proposal having at least as many animals as listed below.

200 mature dairy cattle (whether milked or dry);
300 veal cattle;
300 cattle other than mature dairy cattle or veal;
750 swine weighing over 55 pounds;
3,000 swine weighing 55 pounds or less;
16,500 turkeys; or
30,000 chickens.

Under the two-tier structure, the proposed requirements for the beef, dairy, swine, veal and poultry subcategories will apply to all operations defined as CAFOs by today's proposal having at least as many animals as listed below.

350 mature dairy cattle (whether milked or dry);
500 veal cattle;
500 cattle other than mature dairy cattle or veal;
1,250 swine weighing over 55 pounds;
5,000 swine weighing 55 pounds or less;
27,500 turkeys; or
50,000 chickens.

EPA is proposing to apply the effluent guidelines requirements for the beef, dairy, veal, swine, chicken and turkey subcategories, to all operations in these subcategories that are defined as CAFOs under either of these permitting scenarios. Operations below the 500 AU threshold or the 300 AU threshold in the three-tier structure that are designated as CAFOs are not subject to the proposed effluent guidelines.

EPA has evaluated the technology options described in this section and evaluated the economic achievability for these technologies for all operations with at least as many animals listed above for both the two-tier and three-tier NPDES structures. The technology requirements for operations defined as CAFOs under the two-tier structure are the same requirements for operations defined as CAFOs under the three-tier structure.

## 10.2 Changes to Effluent Limitations and Standards

EPA is proposing to revise BAT and new source performance standards for the beef, dairy, veal, swine and poultry subcategories. EPA is proposing to establish technology-based limitations on land application of manure to lands owned or operated by the CAFO, maintain the zero discharge standard and establish management practices at the production area.

### 10.2.1. Current Requirements

The existing regulations, which apply to operations with 1,000 AU or greater, require zero discharge of wastewater pollutants from the production area. Discharge is allowed when rainfall events, either chronic or catastrophic cause an overflow of process wastewater from a facility designed, constructed and operated to contain all process generated wastewaters plus runoff from a specific storm event. The magnitude of the storm event depends varies on the requirement, for the existing BPT requirements EPA established the design criteria on the 10-year, 24-hour event and based the existing BAT and New Source requirements on a 25-year, 24-hour storm event. In other words, wastewater and wastewater pollutants are allowed to be discharged as the result of a chronic or catastrophic rainfall event so long as the operation has designed, constructed and operated a manure storage and/or runoff collection system to contain all process generated wastewater, including the runoff from a specific rainfall event. The effluent guidelines do not set discharge limitations on the pollutants in the overflow.

### 10.2.2. Best Practicable Control Technology Limitations Currently Available (BPT)

EPA is proposing to establish BPT limitations for the beef, dairy, swine, veal chicken and turkey subcategories. There are BPT limitations in the existing regulations which apply to CAFOs with 1,000 AU or more in the beef, dairy swine and turkey subcategories. BPT requires that these operations achieve zero discharge of process wastewater from the production area except in the event of a 10-year, 24-hour storm event. EPA is proposing to revise this BPT requirement and to expand the applicability of BPT to all operations defined as CAFOs in these subcategories including CAFOs with fewer than 1,000 AU.

The Clean Water Act requires that BPT limitations reflect the consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such applications. EPA considered two options as the basis for BPT limitations.

*Option 1*. This option would require zero discharge from a facility designed, maintained and operated to hold the waste and wastewater, including storm water, from runoff plus the 25-year 24-hour storm event. Both this option and Option 2 would add record keeping requirements and practices that ensure this zero discharge standard is met. As described in Section V there are numerous reports of operations discharging pollutants from the production area during dry weather. The reason for these discharges varies from intentional discharge to poor maintenance of the manure storage area or confinement area. As described in Chapter 11 and in the cost methodology appendices, EPA's cost models reflect the different precipitation and climatic factors that affect an operations ability to meet this requirement.

Option 1 would require weekly inspection to ensure that any storm water diversions at the animal confinement and manure storage areas are free from debris, and daily inspections of the automated systems providing water to the animals to ensure they are not leaking or spilling. The manure storage or treatment facility would have to be inspected weekly to ensure structural integrity. For liquid impoundments, the berms would need to be inspected for leaking, seepage, erosion and other signs of structural weakness. The proposal requires that records of these inspections would be maintained on-site, as well as records documenting any problems noted and corrective actions taken. EPA believes these inspections are necessary to ensure proper maintenance of the production area and prevent discharges apart from those associated with a storm event from a catastrophic or chronic storm.

Liquid impoundments (e.g., lagoons, ponds and tanks) that are open and capture precipitation would be required to have depth markers installed. The depth marker indicates the maximum volume that should be maintained under normal operating conditions allowing for the volume necessary to contain the 25-year, 24-hour storm event. The depth of the impoundment would have to be noted during each week's inspection and when the depth of manure and wastewater in the impoundment exceeds this maximum depth, the operation would be required to notify the Permit Authority and inform him or her of the action that will be taken to address this exceedance. Closed or covered liquid impoundments must also have depth markers installed, with the depth of the impoundment noted during each week's inspection. In all cases, this liquid may be land applied only if done in accordance with the permit nutrient plan (PNP) described below. Without such a depth marker, a CAFO operator may fill the lagoons such that even a storm less than a 25-year, 24-hour storm causes the lagoon to overflow, contrary to the discharge limit proposed by the BPT requirements.

Option 1 would require operations to handle dead animals in ways that prevent contributing pollutants to waters of the U.S. EPA proposes to prohibit any disposal of dead animals in any liquid impoundments or lagoons. The majority of operations have mortality handling practices

that prevent contamination of surface water. These practices include transferring mortality to a rendering facility, burial in properly sited lined pits, and composting.

Option 1 also would establish requirements to ensure the proper land application of manure and other process wastes and wastewaters. Under Option 1 land application of manure and wastewater to land owned or operated by the CAFO would have to be performed in accordance with a PNP that establishes application rates for manure and wastewater based on the nitrogen requirements for the crop. Pollutants in runoff are directly related to quantity of chemicals or fertilizer applied. EPA believes that application of manure and wastewater in excess of the crop's nitrogen requirements would increase the pollutant runoff from fields.

In addition, Option 1 includes a requirement that manure be sampled at least once per year and analyzed for its nutrient content including nitrogen, phosphorus and potassium. EPA believes that annual sampling of manure is the minimum frequency to provide the necessary nutrient content on which to establish the appropriate rate. If the CAFO applies its manure more frequently than once per year, it may choose to sample the manure more frequently. Sampling the manure as close to the time of application as practical provides the CAFO with a better measure of the nitrogen content of the manure. Generally, nitrogen content decreases through volatilization during manure storage when the manure is exposed to air.

The manure application rate established in the PNP would have to be based on the following factors: (1) the nitrogen requirement of the crop to be grown based on the agricultural extension or land grant university recommendation for the operation's soil type and crop; and (2) realistic crop yields that reflect the yields obtained for the given field in prior years or, if not available, from yields obtained for same crop at nearby farms or county records. Once the nitrogen requirement for the crop is established the manure application rate would be determined by subtracting any other sources of nitrogen available to the crop from the crop's nitrogen requirement. These other sources of nitrogen can include residual nitrogen in the soil from previous applications of organic nitrogen, nitrogen credits from previous crops of legumes, and crop residues, or applications of commercial fertilizer, irrigation water and biosolids. Application rates would be based on the nitrogen content in the manure and should also account for application methods, such as incorporation, and other site specific practices.

The CAFO would have to maintain the PNP on-site, along with records of the application of manure and wastewater including: (1) the amount of manure applied to each field; (2) the nutrient content of manure; (3) the amount and type of commercial fertilizer and other nutrient sources applied; and (4) crop yields obtained. Records must also indicate when manure was applied, application method and weather conditions at the time of application.

While Option 1 would require manure to be sampled annually, it would not require soil sampling and analysis for the nitrogen content in the soil. Nitrogen is present in the soil in different forms and depending on the form the nitrogen will have different potential to move from the field.

Nitrogen is present in an organic form from the decay of proteins and urea found in livestock manure and biosolids, or from other organic compounds that result from decaying plant material. These organic compounds are broken down by soil bacteria to inorganic forms of nitrogen such as nitrate and ammonia. Inorganic nitrogen or urea may be applied to crop or pasture land as commercial fertilizer. Inorganic nitrogen is the form taken up by the plant. It is also more soluble and readily volatile, and can leave the field through runoff or emissions. Nitrogen can also be added to the soil primarily through cultivation of legumes which will "fix" nitrogen in the soil. At all times nitrogen is cycling through the soil, water, and air, and does not become adsorbed or built up in the soil in the way that phosphorus does, as discussed under Option 2. Thus, EPA is not proposing to require soil sampling for nitrogen. EPA would, however, require that, in developing the appropriate application rate for nitrogen, any soil residue of nitrogen resulting from previous contributions by organic fertilizers, crop residue or legume crops should be taken into account when determining the appropriate nitrogen application rate. State Agricultural Departments and Land Grant Universities have developed methods for accounting for residual nitrogen contributed from legume crops, crop residue and organic fertilizers.

Option 1 would also prohibit application of manure and wastewater within 100 feet of surface waters, tile drain inlets, sinkholes and agricultural drainage wells. EPA strongly encourages CAFOs to construct vegetated buffers, however, Option 1 only prohibits applying manure within 100 feet of surface water and would not require CAFOs to take crop land out of production to construct vegetated buffers. CAFOs may continue to use land within 100 feet of surface water to grow crops.

Under Option 1, EPA included costs for facilities to construct minimal storage, typically three to six months, to comply with the manure application rates developed in the PNP. Data indicate that when the manure has been stored and aged prior to land application, pathogen "concentrations" in surface waters adjacent to land that received manure does not vary significantly from pathogen "concentrations" adjacent to land that did not receive manure. In addition to pathogen reductions achieved through storage, EPA believes the 100 foot setback and proper manure application, will minimize the potential runoff of pathogens, hormones and metals and reduce the nutrient and sediment runoff.

EPA chose not to propose requiring operations to take land out of production and construct a vegetated buffer because a buffer may not be the most cost-effective application to control erosion in all cases. There are a variety of field practices that should be considered for the control of erosion. EPA encourages CAFOs to obtain and implement a conservation management plan to minimize soil losses, and also to reduce losses of pollutant bound to the soils. Erosion and sediment controls are discussed in Chapter 8.

Today's proposal requires a greater setback distance than the distance that would be needed for a cost effective buffer under most circumstances. Since EPA is not requiring the construction of a vegetated buffer, the additional setback distance will compensate for the loss of pollutant

reductions in the surface runoff leaving the field that would have been achieved with a vegetated buffer without requiring CAFOs to remove this land from production.

Farmers entering stream buffers in the Conservation Reserve Program's (CRP) Continuous Sign-Up receive bonus payments, as an added incentive to enroll, include a 20 percent rental bonus, a $100 per acre payment up-front (at the time they sign up), and another bonus at the time they plant a cover. These bonus payments more than cover costs associated with enrolling stream buffers, (i.e., rents forgone for the duration of their 10 or 15 year CRP contracts, and costs such as seed, fuel, machinery and labor for planting a cover crop). The bonuses provide a considerable incentive to enroll stream buffers because the farmers receive payments from USDA well in excess of what they could earn by renting the land for crop production. Farmers can enter buffers into the CRP program at any time.

EPA may also consider providing CAFOs the option of prohibiting manure application within 100 feet or constructing a 35 foot vegetated buffer. As discussed in more detail in Chapter 11 and the cost methodology appendices, the cost associated with taking land out of production and planting with a vegetated buffer is included in the cost for Option 1 and all subsequent options, even though it is not a requirement. Chapter 8 describes the application of a buffer and its advantages and disadvantages.

Option 1 is estimated to cost $432.1 million annually for all operations defined as CAFOs under the two-tier structure and $462.8 million annually for all operations defined as CAFOs under the three-tier structure. These estimates account for practices and technologies already in place at operations and thus represent the incremental costs that would be incurred by operations to comply with the requirements of Option 1. Option 1 is estimated to reduce nutrient loads reaching the edge of the field amounting to 624 million pounds under the three-tier structure. Option 1 is also estimated to achieve a 37 million pound reduction of the metals reaching the edge of the field and reduce fecal coliform by 135 billion colony forming units (cfu) and fecal streptococcus by 218 billion cfu under the three-tier structure. Under the two-tier structure the reductions are estimated to be 553 million pounds of nutrients, 31 million pounds of metals and 116 billion cfu, and 206 billion cfu of fecal coliforms and streptococcus, respectively.

*Option 2.* Option 2 retains all the same requirements for the feedlot and manure storage areas described under Option 1 with one exception: Option 2 would impose a BMP that requires manure application rates be phosphorus based where necessary, depending on the specific soil conditions at the CAFO.

Manure is phosphorus rich, so application of manure based on a nitrogen rate may result in application of phosphorus in excess of crop uptake requirements. Traditionally, this has not been a cause for concern, because the excess phosphorus does not usually cause harm to the plant and can be adsorbed by the soil where it was thought to be strongly bound and thus environmentally benign. However, the capacity for soil to adsorb phosphorus will vary according to soil type, and recent observations have shown that soils can and do become saturated with phosphorus. When

saturation occurs, continued application of phosphorus in excess of what can be used by the crop and adsorbed by the soil results in the phosphorus leaving the field with storm water via leaching or runoff. Phosphorus bound to soil may also be lost from the field through erosion.

Repeated manure application at a nitrogen rate has now resulted in high to excessive soil phosphorus concentrations in some geographic locations across the country. Option 2 would require manure application be based on the crop removal rate for phosphorus in locations where soil concentrations or soil concentrations in combination with other factors indicate that there is an increased likelihood that phosphorus will leave the field and contribute pollutants to nearby surface water and groundwater. Further, when soil concentrations alone or in combination with other factors exceed a given threshold for phosphorus, the proposed rule would prohibit manure application. EPA included this restriction because the addition of more phosphorus under these conditions is unnecessary for ensuring optimum crop production.

Nutrient management under Option 2 includes all the steps described under Option 1, plus the requirement that all CAFOs collect and analyze soil samples at least once every 3 years from all fields that receive manure. EPA would require soil sampling at 3 year intervals because this reflects a minimal but common interval used in crop rotations. This frequency is also commonly adopted in nutrient management plans prepared voluntarily or under state programs. When soil conditions allow for manure application on a nitrogen basis, then the PNP and record keeping requirements are identical to Option 1. Permit nutrient plans would have to be reviewed and updated each year to reflect any changes in crops, animal production, or soil measurements and would be rewritten and certified at a minimum of once every five years or concurrent with each permit renewal.

The CAFO's PNP would have to reflect conditions that require manure application on a phosphorus crop removal rate. The manure application rate based on phosphorus requirements takes into account the amount of phosphorus that will be removed from the field when the crop is harvested. This defines the amount of phosphorus and the amount of manure that may be applied to the field. The PNP must also account for the nitrogen requirements of the crop. Application of manure on a phosphorus basis will require the addition of commercial fertilizer to meet the crop requirements for nitrogen. Under Option 2, EPA believes there is an economic incentive to maximize proper handling of manure by conserving nitrogen and minimizing the expense associated with commercial fertilizer. EPA expects manure handling and management practices will change in an effort to conserve the nitrogen content of the manure, and encourages such practices since they are likely to have the additional benefit of reducing the nitrogen losses to the atmosphere.

EPA believes management practices that promote nitrogen losses during storage will result in higher applications of phosphorus because in order to meet the crops requirements for nitrogen a larger amount of manure must be applied. Nitrogen volatilization exacerbates the imbalance in the ratio of nitrogen to phosphorus in the manure as compared to the crop's requirement. Thus application of manure to meet the nitrogen requirements of the crop will result in over

application of phosphorus and the ability of the crops and soil to assimilate phosphorus will reach a point at which the facility must revise the PNP to reflect phosphorus based application rates.

Under both Option 1 (N) and Option 2 (P), the application of nitrogen from all sources may not exceed the crop nutrient requirements. Since a limited amount of nutrients can be applied to the field in a given year, EPA expects facilities will select the site-specific practices necessary to optimize use of those nutrients. Facilities that apply manure at inappropriate times run the risk of losing the value of nutrients applied and will not be permitted to reapply nutrients to compensate for this loss. Consequently crop yields may suffer, and in subsequent years, the allowable application rates will be lower. For these reasons, facilities with no storage are assumed to need a minimal storage capacity to allow improved use of nutrients. Costs were estimated for operations which do not currently have adequate storage, see Chapter 11 and the cost methodology appendices for a discussion of how these costs were determined and how many operations were costed for this requirement.

Option 2 provides three methods for determining the manure application rate for a CAFO. These three methods are:

- Phosphorus Index
- Soil Phosphorus Threshold Level
- Soil Test Phosphorus Level

These three methods are adapted from NRCS' nutrient management standard (Standard 590), which is being used by States' Departments of Agriculture to develop State nutrient standards that incorporate one or a combination of these three methods. EPA is proposing to require that each authorized state Permit Authority adopt one or a combination of these three methods in consultation with the State Conservationist. CAFOs would then be required to develop their PNP based on the State's method for establishing the application rate. In those states where EPA is the permitting authority, the EPA Director would adopt one of these three methods in consultation with that State's Conservationist.

Phosphorus Index – This index assesses the risk that phosphorus will be transported off the field to surface water and establishes a relative value of low, medium, high or very high, as specified in §412.33. Alternatively, it may establish a numeric ranking. At the present time there are several versions of the P-Index under development. Many states are working on a P-Index for their state in response to the NRCS 590 Standard, and NRCS itself developed a P-Index template in 1994 and is in the process of updating that template at the present time. There are efforts underway in the scientific community to standardize a phosphorus index and assign a numeric ranking.

At a minimum the phosphorus index must consider the following factors:

- soil erosion
- irrigation erosion
- runoff class
- soil P test
- P fertilizer application rate
- P fertilizer application method
- organic P source application rate
- organic P source application method

Other factors could also be included, such as:

- subsurface drainage
- leaching potential
- distance from edge of field to surface water
- priority of receiving water

Each of these factors is listed in a matrix with a score assigned to each factor. For example, the distance from edge of field to surface water assigns a score to different ranges of distance. The greater the measured distance, the lower the score. Other factors may not be as straightforward. For example, the surface runoff class relates field slope and soil permeability in a matrix, and determines a score for this element based on the combination of these factors. The same kind of approach could also be used for the subsurface drainage class, relating soil drainage class with the depth to the seasonal high water table. The values for all variables that go into determining a P-Index can either be directly measured, such as distance to surface water, or can be determined by data available from the state, such as soil drainage class that is based on soil types found in the state and assigned to all soil types. Finally, each factor is assigned a weight depending on its relative importance in the transport of phosphorus.

When a P-Index is used to determine the potential for phosphorus transport in a field and the overall score is high, the operations would apply manure on a phosphorus basis (e.g., apply to meet the crop removal rate for phosphorus). When a P-Index determines that the transport risk is very high, application of manure would be prohibited. If the P-Index results in a rating of low or medium, then manure may be applied to meet the nitrogen requirements of the crop as described under Option 1. However, the CAFO must continue to collect soil samples at least every three years. If the phosphorus concentration in the soil is sharply increasing, the CAFO may want to consider managing its manure differently. This may include changing the feed formulations to reduce the amount of phosphorus being fed to the animals, precision feeding to account for nutrient needs of different breeds and ages of animals. It may also include changing manure storage practices to reduce nitrogen losses. These practices are discussed in detail in Chapter 8. The CAFO may also consider limiting the application of manure. For example, the CAFO may apply manure to one field to meet the nitrogen requirements for that crop but not return to that field until the crops have assimilated the phosphorus that was applied from the manure application.

Phosphorus Threshold – This threshold which would be developed for different soil types is a measure of phosphorus in the soil that reflects the level of phosphorus at which phosphorus movement in the field is acceptable. Scientists are currently using a soluble phosphorus concentration of 1 part per million (ppm) as a measure of acceptable phosphorus movement. When the soil concentration of phosphorus reaches this threshold the concentration of phosphorus in the runoff would be expected to be 1 ppm. The 1 ppm value has been used as an indicator of acceptable phosphorus concentration because it is a concentration that has been applied to POTWs in their NPDES permits. An alternative phosphorus discharge value could be the water quality concentration for phosphorus in a given receiving stream.

States which adopt this method in their state nutrient management standard would need to establish a phosphorus threshold for all types of soils found in their state.

Use of the phosphorus threshold in developing an application rate allows for soils with a phosphorus concentration less than three quarters the phosphorus threshold to apply manure on a nitrogen basis. When soils have a phosphorus concentration between 3/4 and twice the phosphorus threshold then manure must be applied to meet the crop removal requirements for phosphorus. For soils which have phosphorus concentrations greater than twice the phosphorus threshold, no manure may be applied.

Soil Test Phosphorus – The soil test phosphorus is an agronomic soil test that measures for phosphorus. This method is intended to identify the point at which the phosphorus concentration in the soil is high enough to ensure optimum crop production. Once that concentration range (often reported as a “high” value from soil testing laboratories) is reached, phosphorus is applied at the crop removal rate. If the soil test phosphorus level reaches a very high concentration, then no manure may be applied. Most soils need to be nearly saturated with phosphorus to achieve

optimum crop yields. The soil phosphorus concentration should take into account the crop response and phosphorus application should be restricted when crop yield begins to level off.

The soil test phosphorus method establishes requirements based on low, medium, high and very high soil condition, and applies the same restrictions to these measures as are used in the P-Index. States that adopt this method must establish the soil concentration ranges for each of these risk factors for each soil type and crop in their state.

EPA anticipates that in most states, the permit authority will incorporate the State's nutrient standard (590 Standard) into CAFO permits. For example, if the permit authority, in consultation with the State Conservationist, adopts a Phosphorus Index, then CAFO permits would include the entire P-Index as the permit condition dictating how the application rate must be developed. If a permit authority selects the Phosphorus Threshold, then the CAFO permits must contain soil concentration limitations that reflect phosphorus-based application, as well as the level at which manure application is prohibited.

Finally, under Option 2 EPA is proposing to require CAFOs that transfer manure off-site to provide the recipient of the manure with information as to the nutrient content of the manure and provide the recipient with information on the correct use of the manure.

EPA estimates Option 2 would cost $548.8 million annually for all operations defined as CAFOs under the two-tier structure and $582.8 million annually under the three-tier structure. EPA estimates that Option 2 will achieve reductions at the edge of field of 760 million pounds of nutrients (nitrogen and phosphorus)under the two-tier structure and 860 million pounds under the three-tier structure. The two-tier structure would also achieve a reduction at the edge of the field of 95 million pounds of metals under the two-tier structure and 103 million pounds of metals under the three-tier structure. Option 2 would also achieve reductions in the numbers of pathogen colonies which reach the edge of the field, under the two-tier structure the reduction is estimated to be 125 billion cfu of fecal coliform and 244 billion cfu of fecal streptococcus, the three-tier structure would achieve additional reductions of 21 billion cfu fecal coliforms and 26 billion cfu of fecal streptococcus.

As discussed in Chapter 8, compliance costs for manure transfer assessed to the CAFO include hauling costs and record keeping. If the recipient is land applying the manure, the recipient is most likely a crop farmer, and the recipient is assumed to already have a nutrient management plan that considers typical yields and crop requirements. The recipient is also assumed to apply manure and wastes on a nitrogen basis, so the application costs are offset by the costs for commercial fertilizer purchase and application. EPA assumes the recipient may need to sample soils for phosphorus, and costs for sampling identically to the CAFO, i.e. every three years. EPA has not accounted for costs that would result from limiting the amount or way recipients are currently using manure.

EPA is considering requiring training for persons that will apply manure. There are some states which have these requirements. Proper application is critical to controlling pollutant discharges from crop fields. Some states have established mandatory training for persons that apply manure. EPA will consult with USDA on the possibility of establishing a national training program for manure applicators.

### 10.2.3 Proposed Basis for BPT Limitations.

EPA is not proposing to establish BPT requirements for the beef, dairy, swine, veal and poultry subcategories on the basis of Option 1, because it does not represent the best practicable control technology. In areas that have high to very high phosphorus build up in the soils, Option 1 would not require that manure application be restricted or eliminated. Thus, the potential for phosphorus to be discharged from land owned or controlled by the CAFOs would not be controlled by Option 1. Consequently Option 1 would not adequately control discharges of phosphorus from these areas. Option 2 would reduce the discharge of phosphorus in field runoff by restricting the amount of phosphorus that may be applied to the amount that is appropriate for agricultural purposes or prohibiting the application of manure when phosphorus concentrations in the soil are very high and additional phosphorus is not needed to meet crop requirements.

EPA's cost estimates assume that a percentage of operations will have to apply manure to crop land on a phosphorus basis dependent on the region and information available in the USDA's ARS publication entitled "*Agricultural Phosphorus and Eutrophication*" (ARS-149). This is discussed in more detail in Chapter 11.

EPA is proposing to establish BPT limitations for the beef, dairy, swine, veal and poultry subcategories on the basis of Option 2. EPA's decision to base BPT limitations on Option 2 treatment reflects consideration of the total cost of application of technology in relation to the effluent reduction benefits to be achieved from such application. Option 2 is expected to cost $549 million under the two-tier structure and achieve a reduction of pollutants reaching surface waters over baseline (current) practices 624 million pounds of nutrient and metals for a total cost to pound ratio of $0.88. The three-tier structure is estimated to cost $583 and achieve a reduction of 703 million pounds of pollutants for a total cost to pounds removed ratio of $0.82.

The Option 2 technology is one that is readily applicable to all CAFOs. The production area requirements represent the level of control achieved by the majority of CAFOs in the beef, dairy, swine, poultry and veal subcategories. USDA and the American Society of Agricultural Engineers cite the 25-year, 24-hour storm as the standard to which storage structures should comply. This has been the standard for many years, and most existing lagoons and other open liquid containment structures are built to this standard. As described above, the land application requirements associated with Option 2 are believed to represent proper agricultural practice and to ensure that CAFO manure is applied to meet the requirements of the crops grown and not exceed the ability of the soil and crop to absorb nutrients.

EPA believes any of the three methods for determining when manure should be applied on a phosphorus basis would represent BPT. Each method has distinct advantages which, depending on the circumstances, could make one method preferred over another. There has been considerable work done in this area within the past few years and this work is continuing. EPA believes that this proposed BPT approach provides adequate flexibility to allow states to develop an approach that works best for the soils and crops being grown within their state.

CAFOs must also develop and implement a PNP that establishes the appropriate manure application rate. EPA believes the land application rates established in accordance with one of the three methods described in today's proposed regulation, along with the prohibition of manure application within 100 feet of surface water, will ensure manure and wastewater are applied in a manner consistent with proper agricultural use. For a detailed discussion of how a PNP is expected to be developed refer to the Draft Guidance Manual for PNPs.

EPA believes that state sampling and analytical protocols are effective; however, soil phosphorus levels can vary depending on how the soil samples are collected. For example, a CAFO that surface-applies manure will deposit phosphorus in the surface layer of the soil and should collect soil samples from the top layer of soil. If this CAFO collects soil samples to a depth of several inches the analysis may understate the phosphorus build-up near the soil surface. Thus, EPA may evaluate the need to establish specific soil sampling protocols.

### 10.2.4 Best Control Technology for Conventional Pollutants (BCT)

In evaluating possible BCT standards, EPA first considered whether there are any candidate technologies (i.e., technology options); that are technologically feasible and achieve greater conventional pollutant reductions than the proposed BPT technologies. (Conventional pollutants are defined in the Clean Water Act as including: Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD), pH, oil and grease and fecal coliform.) EPA considered the same BAT technology options described below and their effectiveness at reducing conventional pollutants. EPA's analysis of pollutant reductions has focused primarily on the control of nutrients, nitrogen and phosphorus. However, the Agency has also analyzed what the technology options can achieve with respect to sediments (or TSS), metals, and pathogens. Although livestock waste also contains BOD, EPA did not analyze the loadings or loadings reductions associated with the technology options for BOD. Thus, the only conventional pollutant considered in the BCT analysis is TSS. EPA identified no technology option that achieves greater TSS removals than the proposed BPT technologies see Chapter 12. EPA does not believe that these technology options would substantially reduce BOD loads. There are therefore no candidate technologies for more stringent BCT limits. If EPA had identified technologies that achieve greater TSS reductions than the proposed BPT, EPA would have performed the two part BCT cost test. (See 51 FR 24974 for a description of the methodology EPA employs when setting BCT standards.)

EPA is proposing to establish BCT limits for conventional pollutants equivalent to the proposed BPT limits.

### 10.2.5. Best Available Technology Economically Achievable (BAT)

EPA is considering six technology options to control discharges from CAFOs in the beef, veal and poultry subcategories, and seven technology options for the dairy and hog subcategories. All of the technology options include restrictions on land application of manure, best management practices (BMPs), inspections and record keeping for the animal confinement areas, and wastewater storage or treatment structures. The following table summarizes the requirements for each of the seven technology options. Note that a given technology option may include a combination of technologies

**Table 10-1. Requirements Considered in the Technology Options**

| | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 |
|---|---|---|---|---|---|---|---|
| Zero Discharge w/ overflow when a 25-24 Design Standard is met | X | X | X | X | Cattle & Dairy | | |
| Depth markers for lagoons | X | X | X | X | Cattle & Dairy | X | X |
| Annual Manure Testing | X | X | X | X | X | X | X |
| N-based PNP | X | | | | | | |
| 100' LA setback | X | X | X | X | X | X | X |
| P-based PNP (where necessary) | | X | X | X | X | X | X |
| Soil Test - every 3yrs. | | X | X | X | X | X | X |
| Zero discharge without any allowance for overflow | | | | | Swine & Poultry | | |
| Hydrologic Link Assessment & Zero Discharge to Groundwater beneath Production Area | | | X | X | | | |
| Ambient Surface Water Sampling (N, P, TSS) | | | | X | | | |
| Anaerobic Digestion w/power generation | | | | | Swine | Swine & Dairy | |
| Frozen/snow covered/saturated application prohibitions | | | | | | | X |

X = All Subcategories

*Option 1.* This option is equivalent to Option 1 described under BPT. Option 1 would require zero discharge from the production area and that liquid storage be designed, constructed and maintained to handle all process wastewater and storm water runoff from the 25-year, 24-hour storm event. In addition, Option 1 requires management practices to ensure that the production area (which includes manure and wastewater storage) is being adequately maintained.

Option 1 also would establish a requirement to develop a PNP which establishes the proper land application rate for manure and wastewater to meet the nitrogen requirements for the crops being grown by the CAFO and require a 100 foot setback from surface water, sinkholes, tile drain inlets and agricultural drainage wells.

*Option 2.* This option is equivalent to Option 2 described under BPT (See section 10.2.2 of this Chapter). Option 2 includes all of the requirements established under Option 1. However, Option 2 would further restrict the amount of manure that can be applied to crop land owned or controlled by the CAFO. The CAFO would be required to apply manure and wastewater at the appropriate rate taking into account the nutrient requirements of the crop and soil conditions. Specifically, Option 2 would require that manure be applied at crop removal rate for phosphorus if soil conditions warrant and, if soils have a very high level phosphorus build-up, no manure or wastewater could be applied to the crop land owned or controlled by the CAFO.

*Option 3.* Option 3 includes all the requirements for Option 2 and would require that all operations perform an assessment to determine whether the ground water beneath the feedlot and manure storage area has a direct hydrological connection to surface water. EPA has authority to control discharges to surface water through ground water that has a direct hydrological connection to surface water. A hydrological connection refers to the interflow and exchange between surface impoundments and surface water through an underground corridor or ground water. EPA is relying on the permitting authority to establish the region-specific determination of what constitutes a direct hydrological link. Option 3 would require all CAFOs to determine whether they have a direct hydrological connection between the ground water beneath the production area and surface waters. If a link is established, the facility would have to monitor ground water up gradient and down gradient of the production area to ensure that they are achieving zero discharge to ground water.

The literature indicates earthen basins and clay liners leak, and EPA believes clay is not sufficient to prevent discharges to groundwater. Clay liners are routinely constructed from materials obtained locally. These clays vary in their conductivity, and are subject to cracking due to drying of the sidewalls. Therefore clays do not consistently pose an impermeable barrier. Similarly, concrete basins may crack and leak over time, particularly in climates with frequent freeze thaw cycles. EPA has assumed that CAFOs would comply with the zero discharge requirement by installing liners of synthetic material beneath lagoons and ponds, and impervious pads below storage of dry manure stockpiles. EPA's costs for liners reflect both a synthetic liner to provide an impervious layer, and compacted clay to protect the liner and prolong its useful life.

The clay serves to prevent tearing of the liner by heavy equipment, and also serves to prolong the life of the synthetic material.

USDA's Natural Resources Inventory (NRI) database for land cover/use which is in close proximity to animal agricultural facilities (i.e., barns, feedlots, corrals, pens, etc.) were assumed to be potential sites for animal waste storage structures. Thus NRI subcategories of "Other Farmland," Farmstead and Ranch Headquarters," and "Other Land in Farms" as well as two other categories for "Agricultural Production, Facilities" and "Waste, Agricultural Waste" categories were compiled as potential sites for manure storage structures. Next the NRI soil/hydrologic data were overlaid onto these potential sites. Soil conditions which were indicative of a potential hydrologic connection were identified. These conditions included sandy soil textures, shallow depth to groundwater and karst or karst-like conditions. A percentage of acres which met the cover/use descriptions and had the characteristics indicative of a potential for a hydrologic connection was determined for each of the five regions and for the nation as a whole. This percentage was determined to be 23 percent nationally and this was used to estimate the number of CAFOs that could incur the costs associated with lining lagoons and monitoring groundwater. The remaining CAFOs were assumed to incur the cost of obtaining a hydrologic assessment.

CAFOs with a direct hydrologic link would be required to sample the groundwater from the monitoring wells (located up gradient and down gradient of the production area) at a minimum frequency of twice per year. These samples are necessary to ensure that pollutants are not being discharged through groundwater to surface water from the production area. The samples shall be monitored for nitrate, ammonia, total coliform, fecal coliform, Total Dissolved Solids (TDS) and total chloride. Differences in concentration of these pollutants between the monitoring well(s) located up gradient and down gradient of the production area are assumed to represent a discharge of pollutants and must be prevented. As noted below, coliforms are not necessarily good indicators of livestock discharges. Also, it is difficult to determine "concentrations" of coliforms as they are not necessarily evenly distributed in the way chemical contaminants generally are. EPA requests comment on technical concerns associated with including total and fecal coliforms in the groundwater monitoring and protection requirements and on ways to address such concerns.

Option 3 is estimated to cost $746.7 million annually for operations defined as CAFOs under the two-tier structure. This is an incremental annual cost of $198.1 million over Option 2 costs. For operations defined as CAFOs under the three-tier structure, Option 3 is estimated to cost $854.1 million annually, which is an incremental annual cost above Option 2 of $271.3 million. Option 3 is estimated to achieve an incremental reduction of pollutants of 5 million pounds of nitrogen annually. This reflects the pounds lost from nitrogen leaching to groundwater which is directly connected to surface water.

*Option 4.* Option 4 includes all the requirements for Option 3 and would require sampling of surface waters adjacent to feedlots and/or land under control of the feedlot to which manure is applied. This option would require CAFOs to sample surface water both upstream and

downstream from the feedlot and land application areas following a one half inch rain fall (not to exceed 12 sample events per year). The samples would be analyzed for concentrations of nitrogen, phosphorus and total suspended solids (TSS). EPA selected these pollutants because it believes these pollutants provide an adequate indication of whether a discharge is occurring from the operation. All sampling results would be reported to the permit authority. Any difference in concentration between the upstream and downstream samples would be noted. This monitoring requirement could provide some indication of discharges from the land application or feedlot areas.

EPA also considered requiring that pathogens and $BOD_5$ be analyzed in samples collected. EPA decided that this would not be practical, because sampling under Option 4 is linked to storm events which limits the ability to plan in advance for analysis of the samples and making arrangements for shipping samples to laboratories. Fecal coliform and BOD samples all have very short holding times before they need to be analyzed. Most CAFOs are located in rural areas with limited access to overnight shipping services and are probably not near laboratories that can analyze for these pollutants. Further, fecal coliform and similar analytes that are typically used as indicators in municipal wastewater are not necessarily good indicators of livestock discharges. If CAFOs were required to monitor for pathogens which could indicate discharges of manure or CAFO wastewater, it would be better to require monitoring for fecal enterococci, or even specific pathogens such as salmonella, Giardia, and Cryptosporidium. However, the cost for analyzing these parameters is very high and the holding times for these parameters are also very short.

Furthermore, EPA determined pathogen analyses are also inappropriate because the pathogens in manure are found in areas without animal agriculture. For example *Enterobacter, Klebsiella, Bacillus cereus, Clostridium,* and *Listeria* are all naturally occurring soil and plant microorganisms and are found in soils that have never received manure. Pathogens may also be deposited onto land from wildlife. Thus, EPA concluded that requiring analysis for these pollutants was impractical at best and potentially very expensive.

EPA estimated the annual cost of Option 4 to be $903.9 million under the two-tier structure which is $154.2 million incremental to Option 3 . Under the three-tier structure the estimated annual cost of Option 4 is $1.088 billion which is an incremental annual cost of $234.1 million. The monitoring requirements associated with Option 4 do not directly reduce the pollutants discharged from CAFOs thus no incremental pollutants reductions were estimated. There could be some pollutant reductions associated with increased vigilance associated with the monitoring, however it is not possible to quantify this reduction.

*Option 5.* Option 5 includes the requirements established by Option 2 and would establish a zero discharge requirement from the production area that does not allow for an overflow under any circumstances. By keeping precipitation from contacting with the animals, raw materials, waste handling and storage areas, CAFOs could operate the confinement areas and meet zero discharge regardless of rainfall events. Option 5 includes the same land application requirements as Option 2, which would restrict the rate of manure and wastewater application to a crop removal rate for

phosphorus where necessary depending on the specific soil conditions at the CAFO. Additionally, as in Option 2, application of manure and wastewater would be prohibited within 100 feet of surface water.

EPA considered Option 5 for the poultry, veal and hog subcategories, where it is common to keep the animals in total confinement, feed is generally maintained in enclosed hoppers and the manure and wastewater storage can be handled so as to prevent it from contacting storm water. EPA considered a number of ways a facility might meet the requirements of no discharge and no overflow. In estimating the costs associated with Option 5, EPA compared the total costs and selected the least expensive technology for a given farm size, geographic region, and manure management system. Costs also depend on whether the facility's PNP indicates land application must be based on nitrogen or phosphorus, and how many acres the facility controls. The technologies described below were used singularly or in combination to meet the requirements of Option 5.

Many facilities can achieve Option 5 by covering open manure and storage areas, and by constructing or modifying berms and diversions to control the flow of precipitation. EPA costed broiler and turkey operations for storage sheds sufficient to contain six months of storage. Some poultry facilities, particularly turkey facilities, compost used litter in the storage sheds, allowing recycle and reuse of the litter. EPA costed swine, veal, and poultry facilities which use lagoons or liquid impoundments for impoundment covers.

EPA believes that operations which have excess manure nutrients and use flush systems to move manure out of the confinement buildings will have an incentive to construct a second lagoon cell. A second storage or treatment cell should accomplish more decomposition of the waste and will allow flush water to be recycled out of the second cell or lagoon, thus reducing the addition of fresh water to the system. Reducing the total volume of stored waste reduces the risk of a catastrophic failure of the storage structure. In the absence of large volumes of water, facilities with an excess of manure nutrients will be able to transfer the excess manure off-site more economically due to a lower volume of waste needing to be hauled. Water reduction also results in a more concentrated product which would have a higher value as a fertilizer.

Covered systems substantially reduce air emissions, and help maintain the nutrient value of the manure. Covered systems also may benefit facilities by reducing odors emanating from open storage. This option also creates a strong incentive for facilities to utilize covered lagoon digesters or multistage covered systems for treatment. The use of covers will allow smaller and more stable liquid impoundments to be constructed. Finally, the use of covered impoundments encourages treatment and minimal holding times, resulting in pathogen die-off and reduction of BOD and volatile solids.

Other technologies can be effectively used at some facilities, such as conversion of flush systems to scrape systems, or by retrofit of slatted floor housing to V-shaped under house pits that facilitate solid liquid separation. Solids can be stored or composted in covered sheds, while the

urine can be stored in small liquid impoundments. Solid-liquid separation is discussed in Chapter 8.

In the event the facility has insufficient land to handle all nutrients generated, EPA evaluated additional nutrient management strategies. First, the manure could pass through solid separation, resulting in a smaller volume of more concentrated nutrients that is more effectively transported offsite. Second, land application could be based on the uppermost portion of a covered lagoon containing a more dilute concentration of nutrients. Data indicates much of the phosphorus accumulates in the bottom sludge, which is periodically removed and could be transported offsite for proper land application. Though many facilities report sludge removal of a properly operating lagoon may occur as infrequently as every 20 years, EPA assumed facilities would pump out the phosphorus and metals enriched sludge every three years. This is consistent with the ANSI/ASAE standards for anaerobic treatment lagoons (EP403.3 JUL99) that indicates periodic sludge removal and liquid draw down is necessary to maintain the treatment volume of the lagoon. Third, swine and poultry farms can implement a variety of feeding strategies, as discussed under Option 2 (see Section VII.C.3). Feed management including phytase, multistage diets, split sex feeding, and precision feeding have been shown to reduce phosphorus content in the manure by up to 50%. This results in less excess nutrients to be transported offsite, and allows for more manure to be land applied at the CAFO.

EPA is aware of a small number of swine facilities that are potentially CAFOs and use either open lots or some type of building with outside access to confine the animals. EPA data indicate these types of operations are generally smaller operations that would need to implement different technologies than those described above. CAFOs that provide outdoor access for the animals need to capture contaminated storm water that falls on these open areas. Open hog lots would find it difficult to comply with a requirement that does not allow for overflows in the event of a large storm. EPA costed these facilities to replace the open lots with hoop houses to confine the animals and storage sheds to contain the manure. Hoop structures are naturally ventilated structures with short wooden or concrete sidewalls and a canvas, synthetic, or reflective roof supported by tubes or trusses. The floor of the house is covered with straw or similar bedding materials. The manure and bedding is periodically removed and stored. The drier nature of the manure lends to treatment such as composting as well as demonstrating reduced hauling costs as compared to liquid manure handling systems.

EPA considered a variation to Option 5 that would require CAFOs to use dry or drier manure handling practices. This variation assumed conversion to a completely dry manure handling system for hogs and laying hens using liquid manure handling systems. In addition to the advantages of reduced water use described above, a completely dry system is more likely to minimize leaching to ground water and, where directly connected hydrologically to surface water, will also reduce loads to surface waters. For the beef and dairy subcategories EPA assumes that the liquid stream would be treated to remove the solids and the solids would be composted. It is not practical to assume existing beef and dairy operations can avoid the generation of liquid waste because operations in both subcategories tend to have animals in open

areas exposed to precipitation resulting in a contaminated storm water that must be captured. Also dairies generate a liquid waste stream from the washing of the milking parlor.

Option 5 is estimated to cost $1,515.9 million annually under the two-tier structure and $1,632.9 annually under the three-tier structure. The amount of manure and application methods under Option 5 are no different than required under Options 2. Therefore, the quantify of pollutants which reach the edge-of-field under Option 5 is not expected to be any less than under Option 5. Options 5 will reduce pollutants discharged from the production area during chronic or catastrophic storms that exceed the design standard, however, EPA has not quantified this amount.

*Option 6.* Option 6 includes the requirements of Option 2 and requires that large hog and dairy operations (hog operations and dairies with 2,000 AU) would install and implement anaerobic digestion to treat their manure and use the captured methane gas for energy or heat generation. With proper management, such a system can be used to generate additional on-farm revenue. The enclosed system will reduce air emissions, especially odor and hydrogen sulfide, and potentially reduces nitrogen losses from ammonia volatilization. The treated effluent will also have less odor and should be more transportable relative to undigested manure, making offsite transfer of manure more economical. Anaerobic digestion under thermophilic or heated conditions would achieve additional pathogen reductions. Digester technology is described in Chapter 8, see 8.2.3.1.

Option 6 is estimated to cost $621.6 million annually under the two-tier structure and $736.9 million annually under the three-tier structure. As described under Option 5, Option 6 does not affect the amount of manure or the chemical characteristics of the manure applied to the land, thus the pollutant loads expected to reach the edge of the field are the same as under Option 2. There could be some reduction from fewer discharges at the production area, but the requirement to use a anaerobic digester does not eliminate the need for storage which is not assumed to be covered under Option 6, thus the requirement would allow for an overflow.

*Option 7.* Option 7 includes the requirements of Option 2 and would prohibit manure application to frozen, snow covered or saturated ground. This prohibition requires that CAFOs have adequate storage to hold manure for the period of time during which the ground is frozen or saturated. The necessary period of storage ranges from 45 to 270 days depending on the region. In practice, this may result in some facilities needing storage to hold manure and wastes for 12 months. EPA assumed storage would be needed to contain manure and precipitation generated for the entire period between the first frost in the fall until the last frost in the spring rounded to the nearest 45 day interval. In northern states this period can be as long as 270 days. It is likely that there could be opportunities to apply manure during this period, depending on how the restrictions on application are defined, thus EPA's cost estimates for this option should represent a worst-case cost.

EPA estimates the cost for Option 7 to be $671.3 million annually under the two-tier structure, and $781.9 million annually under the three-tier structure. EPA did not estimate pollutant reductions from this technology option because the Agency has limited information on how frequently manure is being applied by existing CAFOs, and the runoff associated with application on frozen, snow-covered or saturated ground is dependent on regional factors such as rainfall patterns and site-specific factors such as topography.

## 10.2.6 Proposed Basis for BAT

### *10.2.6.1 BAT Requirements for the Beef and Dairy Subcategories*

EPA is proposing to establish BAT requirements for both the beef and dairy subcategories based on the same technology option. The beef subcategory includes stand-alone heifer operations and applies to all confined cattle operations except for operations that confine mature dairy cattle or veal. Under the two-tier structure, the BAT requirements would apply to any beef operation with 500 head of cattle or more. Under the three-tier structure, the BAT requirements for beef would apply to any operation with more than 1,000 head of cattle and any operation with 300 to 1,000 head which meets the conditions that define the operation as a CAFO.

EPA proposes to establish BAT requirements for dairy operations which meet the following definitions: under the two-tier structure, all dairy with 350 head of mature dairy cows or more would be subject to the proposed BAT requirements. Under the three-tier approach any dairy with more than 700 head of mature dairy cows or 250 to 700 head of mature dairy cows which meets the conditions that define the operation as a CAFO (see Chapter 9) would be subject to today's proposed BAT requirements.

EPA proposes to establish BAT requirements for the beef and dairy subcategories based on Option 3. BAT would require all beef and dairy CAFOs to monitor the ground water beneath the production area by drilling wells up gradient and down gradient to measure for a plume of pollutants discharged to ground water at the production area. A beef or dairy CAFO can avoid this ground water monitoring by demonstrating, to the permit writer's satisfaction, that it does not have a direct hydrological connection between the ground water beneath the production area and surface waters.

EPA proposes to require CAFOs in the beef and dairy subcategories to monitor their ground water unless they determine that the production area is not located above ground water which has a direct hydrological connection to surface water. CAFOs would have to monitor for ammonia, nitrate, fecal coliform, total coliform, total chlorides and TDS. EPA selected these pollutants because they may be indicators of livestock waste and are pollutants of concern to ground water sources. If the down gradient concentrations are higher than the up gradient concentration this indicates a discharge which must be controlled. For operations have a direct hydrologic connection, EPA based the BAT zero discharge requirement on the installation of liners in liquid storage structures such as lagoons and storm water retention ponds and concrete pads for the

storage of dry manure stockpiles. If the CAFO is determined to have a direct hydrologic connection between the groundwater beneath the production area and surface water, the CAFO would need to line lagoons to prevent leaching and construct concrete pads on which to store manure stockpiles. EPA's cost estimates assumed operations would construct new liquid storage structures with both a synthetic and clay liner.

Beef and dairy CAFOs must also develop and implement a PNP that is based on application of manure and wastewater to crop land either at a crop removal rate for phosphorus where soil conditions require it, or otherwise on the nitrogen requirements of the crop. EPA believes the land application rates established in accordance with one of the three methods described in today's proposed regulation, along with the prohibition of manure application within 100 feet of that surface water will ensure manure and wastewater are applied in a manner consistent with proper agricultural use. See the draft guidance entitled "Managing Manure Nutrients at Concentrated Animal Feeding Operations" for a detailed discussion of how a PNP is developed.

EPA believes that technology option 3 is economically achievable and represents the best available technology for the beef and dairy subcategories, and is therefore proposing this option as BAT for these subcategories. The incremental annual cost of Option 3 relative to Option 2 for these subcategories is $170 million pre-tax under the two-tier structure, and $1205 million pre-tax under the three tier structure. EPA estimated annual ground water protection benefits from the proposed requirements of $70-80 million. EPA estimates Option 3 for the beef and dairy subcategories will reduce loadings to surface waters from hydrologically connected ground water by 3 million pounds of nitrogen. To determine economic achievability, EPA analyzed how many facilities would experience financial stress severe enough to make them vulnerable to closure under each regulatory option. As explained in more detail in the Economic Analysis, the number of facilities experiencing stress may indicate that an option might not be economically achievable, subject to additional considerations. Under Option 2, no facilities in either the beef or dairy sectors were found to experience stress, while under Option 3, the analysis projects 10 beef and 329 dairy CAFOs would experience stress under the two-tier structure, and 40 beef and 610 dairy CAFOs would experience stress under the three-tier structure. Of these, EPA has determined that 40 beef operations are considered small businesses based on size standards established by the Small Business Administration. This analysis assumes that 76% of affected operations would be able to demonstrate that their ground water does not have a hydrological connection to surface water and would therefore not be subject to the proposed requirements. EPA projects the cost of making this demonstration to the average CAFO would be $3,000.

EPA is not proposing to establish BAT requirements for the beef and dairy subcategories on the basis of Option 4 due to the additional cost associated with ambient stream monitoring and because the addition of in-stream monitoring does not by itself achieve any better controls on the discharges from CAFOs as compared to the other options. In-stream monitoring could be an indicator of discharges occurring from the CAFO; however, it is equally likely that in stream monitoring will measure discharges that may be occurring from adjacent non-CAFO agricultural sources. Through the use of commercial fertilizers these non-CAFO sources would likely be

contributing the same pollutants being analyzed under Option 4. EPA has not identified a better indicator parameter which would isolate constituents from CAFO manure and wastewater from other possible sources contributing pollutants to a stream. Livestock specific pathogen analysis could be an indicator if adjacent operations do not also have livestock or are not using manure or biosolids as fertilizer sources. However, as described earlier, EPA has concerns about the ability of CAFOs to collect and analyze samples for these pollutants because of the holding time constraints associated with the analytical methods for these parameters. Accordingly, EPA does not believe that specifying these additional in-stream monitoring BMP requirements would be appropriate; and would not be useful in ensuring compliance with the Clean Water Act. Moreover, in-stream monitoring would be a very costly requirement for CAFOs to comply with.

EPA is not proposing to establish BAT requirements for the beef and dairy subcategories on the basis of Option 5. Option 5 would require zero discharge with no overflow from the production area. Most beef feedlots are open lots which have large areas from which storm water must be collected; thus, it is not possible to assume that the operation can design a storm water impoundment that will never experience an overflow even under the most extreme storm. Stand alone heifer operations (other than those that are pasture-based) are configured and operated in a manner very similar to beef feedlots. Unlike the hog, veal and poultry subcategories, EPA is not aware of many large beef operations that keep all cattle confined under roof at all times.

Dairies also frequently keep animals in open areas for some period of time, whether it is simply the pathway from the barn to the milk house or an open exercise lot. Storm water from these open areas must be collected in addition to any storm water that contacts food or silage. As is the case for beef feedlots, the runoff volume from the exposed areas is a function of the size of the area where the cattle are maintained, and the amount of precipitation. Since the CAFO operator cannot control the amount of precipitation, there always remains the possibility that an extreme storm event can produce enough rainfall that the resulting runoff would exceed the capacity of the lagoon.

EPA did consider a new source option for new dairies that would enforce total confinement of all cattle at the dairy. The new source option as analyzed, poses a barrier to entry for new sources, therefore, EPA assumes that this option if applied to existing sources would be economically unachievable. EPA plans to continue evaluating this option and will consider other technology approaches that could be applied. EPA has also evaluated a variation of Option 5 that would apply to existing beef and dairy operations and would require the use of technologies which achieve a less wet manure. These technologies include solid-liquid separation and composting the solids. EPA is not proposing to establish BAT on the use of these technologies, but does believe these technologies may result in cost savings at some operations. Additionally, composting will achieve pathogen reductions. As described in Chapter 7, EPA is continuing to examine pathogen controls and may promulgate requirements on the discharge of pathogens. If EPA set limitations on pathogens, composting technology would likely become a basis for achieving BAT limits.

For any operation that has inadequate crop land on which to apply its manure and wastewater, solid-liquid separation and composting could benefit the CAFO, as these technologies will make the manure more transportable. Drier manure is easier to transport; and therefore, EPA believes solid liquid separation and composting will be used in some situations to reduce the transportation cost of excess manure that has been treated to concentrate and compost the solids. In addition, composting is a value-added process that improves the physical characteristics (e.g., reduces odor and creates a more homogenous product) of the manure. It can also make the manure a more marketable product. As a result, a CAFO with excess manure may find it easier to give away, or even sell, its excess manure. EPA encourages all CAFOs to consider technologies that will reduce the volume of manure requiring storage and make the manure easier to transport.

Option 6, which requires anaerobic digestion treatment with methane capture, was not considered for the beef subcategory, but was considered for the dairy subcategory for treatment of liquid manure. Anaerobic digestion can only be applied to liquid waste. As described previously in Chapter 4, beef feedlots maintain a dry manure, yet they capture storm water runoff from the dry lot and manure stockpile. The storm water runoff is generally too dilute to apply digestion technology.

Most dairies, however, handle manure as a liquid or slurry which is suited to treatment through anaerobic digestion. EPA concluded that application of anaerobic digesters at dairies will not necessarily lead to significant reductions in the pollutants discharged to surface waters from CAFOs. An anaerobic digester does not eliminate the need for liquid impoundments to store dairy parlor water and barn flush water and to capture storm water runoff from the open areas at the dairy. Neither do digesters reduce the nutrients nitrogen or phosphorus. Thus, basing BAT on digester technology would not change the performance standard that a production area at a CAFO would achieve and would not reduce or eliminate the need for proper land application of manure. Digesters were considered because they achieve some degree of waste stabilization and more importantly they capture air emissions generated during manure storage. The emission of ammonia from manure storage structures is a potentially significant contributor of nitrogen to surface waters. Covered anaerobic digesters will prevent these emissions while the waste is in the digester, but the digester does not convert the ammonia into another form of nitrogen, such as nitrate, which is not as volatile. Thus as soon as the manure is exposed to air the ammonia will be lost. Operations may consider additional management strategies for land application such as incorporation in order to maintain the nitrogen value as fertilizer and to reduce emissions.

As mentioned above, the application of ambient temperature or mesophilic anaerobic digesters would not change the performance standard that a CAFO would achieve. Thermophilic digestion or pasteurization processes which apply heat to the waste will reduce pathogens. As described in Chapter 7 EPA is still evaluating effective controls for pathogens and thermophilic process is one of the controls EPA will continue to evaluate. At present thermophilic anaerobic digestion is only used for centralized treatment of animal waste in Europe. Thermophilic aerobic treatment is

practiced on municipal waste. This technology has also been evaluated for transferability to CAFOs. These technologies, their advantages and limitations are discussed in Chapter 8.

EPA is not proposing to base BAT requirements on Option 7 for the beef and dairy subcategories. Option 7 would prohibit manure application on saturated, snow covered or frozen ground. Pollutant runoff associated with application of manure or wastewater to saturated, snow covered or frozen ground is a site specific consideration, and depends on a number of site specific variables, including distance to surface water and slope of the land. EPA believes that establishing a national standard that prohibits manure or wastewater application is inappropriate because of the site specific nature of these requirements and the regional variability across the nation.

Requirements for the beef and dairy subcategories would still allow for an overflow in the event of a chronic or catastrophic storm that exceeds the 25-year, 24-hour storm. EPA believes this standard reflects the best available technology. Under the proposed revisions to Part 122, permits will require that any discharge from the feedlot or confinement area be reported to the permitting authority within 24 hours of the discharge event. The CAFO operator must also report the amount of rainfall and the approximate duration of the storm event.

#### *10.2.6.2 BAT Requirements for the Swine, Veal and Poultry Subcategories*

EPA is proposing to establish BAT requirements for the swine, veal and poultry subcategories based on Option 5. Option 5 requires zero discharge of manure and process wastewater and provides no overflow allowance for manure and wastewater storage. Land application requirements for these operations would be the same as the requirements under Option 2.

EPA is proposing Option 5 because swine, veal and poultry operations can house the animals under roof and feed is also not exposed to the weather. Thus, there is no opportunity for storm water contamination. Broiler and turkey operations generate a dry manure which can be kept covered either under a shed or with tarps. Laying hens with dry manure handling usually store manure below the birds' cages and inside the confinement building. Veal and poultry operations confine the animals under roof, thus there are no open animal confinement areas to generate contaminated storm water. Those operations with liquid manure storage can comply with the restrictions proposed under this option by diverting uncontaminated storm water away from the structure, and covering the lagoons or impoundments.

The technology basis for the poultry BAT requirements at the production area are litter sheds for broiler and turkey CAFOs, and under house storage for laying hens with dry manure handling systems. For laying hen CAFOs with liquid manure handling systems, EPA's technology basis is solid separation and covered storage for the solids and covered lagoons.

Laying hen farms may also have egg wash water from in-line or off-line processing areas. Only 10% of laying hen operations with fewer than 100,000 birds have on farm egg processing, while

35% of laying hen operations with more than 100,000 birds have on farm egg processing. The wash water is often passed through a settling system to remove calcium, then stored in above ground tanks, below ground tanks, or lagoons. Today's proposal is based on covered storage of the egg wash water from on-farm processing, to prevent contact with precipitation. The ultimate disposal of egg wash water is through land application which must be done in accordance with the land application rates established in the PNP. EPA believes the low nutrient value of egg wash water is unlikely to cause additional incremental costs to laying hen facilities to comply with the proposed land application requirements.

EPA assumes large swine operations (e.g., operations with more than 1,250 hogs weighing 55 pounds or greater) operate using total confinement practices. EPA based BAT Option 5 on the same approach described above of covering liquid manure storage. CAFOs can operate covered lagoons as anaerobic digesters which is an effective technology for achieving zero discharge and will provide the added benefits of waste stabilization, odor reduction and control of air emissions from manure storage structures. Anaerobic digesters also can be operated to generate electricity which can be used by the CAFO to offset operating costs.

Although Option 5 is the most expensive option for the hog subcategory, EPA believes this option reflects best available technology economically achievable because it prevents discharges resulting from liquid manure overflows that occur in open lagoons and ponds. Similarly, the technology basis of covered treatment lagoons and drier manure storage is believed to reduce the likelihood of those catastrophic lagoon failures associated with heavy rainfalls. Option 5 also achieves the greatest level of pollutant reductions from runoff reaching the edge of the field. Non-water quality environmental impacts include reduced emissions and odor, with a concurrent increase in nitrogen value of the manure, however as mentioned previously, the ammonia concentration is not reduced and once the manure is exposed to air the ammonia will volatilize. Water conservation and recycling practices associated with Option 5 will promote increased nutrient value of the manure, reduced hauling costs via reduced water content, and less fresh water use.

One technology basis evaluated for Option 5, solid-liquid separation and storage of the solids, has the advantage of creating a solid fraction which is more transportable, thus hog CAFOs that have excess manure can use this technology to reduce the transportation costs.

EPA is aware of three open lot hog operations that have more than 1,250 hogs and there may be a small number of others, but the predominant practice is to house the animals in roofed buildings with total confinement. For open lot hog CAFOs, EPA is proposing to base BAT on the application of hoop structures as described above. Under EPA's proposed three-tier structure, operations defined as CAFOs in the middle tier that are smaller than 1,250 hogs have a greater potential for being an open lot type of operation. These operations would also be subject to the proposed zero discharge requirement, which is based on the application of hoop houses and covered manure storage.

Veal operations use liquid manure management and store manure in lagoons. EPA has based BAT on covered manure and feed storage. The animals are housed in buildings with no outside access. Thus, by covering feed and waste storage the need to capture contaminated storm water is avoided.

In evaluating the economic achievability of Option 5 for the swine, veal and poultry subcategories, EPA evaluated the costs and impacts of this option relative to Option 2. For these subcategories, the incremental annual cost of Option 5 over Option 2 would be $110 million pre-tax under the two-tier structure, and $140 million pre-tax under the three-tier structure. Almost all of these incremental costs are projected to be in the swine sector. EPA projects that there would be no additional costs under the two-tier structure, and only very small additional costs under the three-tier structure for the veal and poultry subcategories to move from Option 2 to Option 5. Under Option 2, EPA estimates 300 swine operations and 150 broiler operations would experience stress under the two-tier structure, and 300 swine operations and 330 broiler operations would experience stress under the three-tier structure. Under Option 5 an additional 1,120 swine operations would experience stress under both the two-tier and three-tier structures. All affected hog operations have more than 1000 AU. None of these affected hog operations are small businesses based on the Small Business Administration's size standards. There would be no additional broiler operations experiencing stress under Option 5, and no veal, layer, or turkey operations are projected to experience stress under either Option 2 or Option 5. EPA did not analyze the pollutant reductions of Option 5 relative to Option 2. Under Option 2 operations are required to be designed, constructed and operated to contain all process generated waste waters, plus the runoff from a 25-year, 24-hour rainfall event for the location of the point source. Thus, the benefit of Option 5 over Option 2 would be the value of eliminating discharges during chronic or catastrophic rainfall events of a magnitude of the 25-year, 24-hour rainfall event or greater. Further benefit would be realized as a result of increased flexibility on the timing of manure application to land. By preventing the rainfall and run-off from mixing with wastewater, CAFOs would not need to operate such that land application during storm events was necessary.

EPA is not proposing Option 2 for these sectors. As mentioned previously, all of these sectors maintain their animals under roof eliminating the need to capture contaminated storm water from the animal confinement area. In addition, most poultry operations generate a dry manure, which when properly stored, under some type of cover, eliminates any possibility of an overflow in the event of a large storm. Therefore EPA believes that Option 5 technology which prevents the introduction of storm water into manure storage is achievable and represents Best Available Technology, without redesigning the capacity of existing manure storage units.

EPA is not proposing to base BAT for the swine, poultry and veal subcategories on Option 3, because EPA believes Option 5 is more protective of the environment. If operators move towards dry manure handling technologies and practices to comply with Option 5, there should be less opportunity for ground water contamination and surface water contamination through a direct hydrological connection. EPA strongly encourages any newly constructed lagoons or anaerobic digesters to be done in such a manner as to minimize pollutant losses to ground water.

A treatment lagoon should be lined with clay or synthetic liner or both and solid storage should be on a concrete pad or a glass-lined steel tank as EPA has included in its estimates of BAT costs. Additionally, Option 5 provides the additional non-water quality benefit of achieving reductions in air emissions from liquid storage systems. EPA estimates that the cost of complying with both Option 3 and 5 at existing facilities would be economically unachievable.

EPA believes the proposed technology basis for broilers, turkeys and laying hens with dry manure management will avoid discharges to ground water since the manure is dry and stored in such a way as to prevent storm water from reaching it. Without some liquid to provide a transport mechanism, pollutants cannot move through the soil profile and reach the ground water and surface water through a direct hydrological connection.

EPA is not proposing to base BAT on Option 4 for the same reasons described above for the beef and dairy subcategories.

EPA is not proposing to base BAT on Option 6, because EPA believes that the zero discharge aspect of the selected option will encourage operations to consider and install anaerobic digestion in situations where it will be cost effective.

As with beef and dairy, EPA is not proposing to base BAT for swine, veal and poultry on Option 7, but believes that permit authorities should establish restrictions as necessary in permits issued to CAFOs. Swine, veal and poultry operations should take the timing of manure application into account when developing the PNP. Any areas that could result in pollutant discharge from application of manure to frozen, snow covered or saturated ground should be identified in the plan and manure or wastewater should not be applied to those areas when there is a risk of discharge.

*Mixed Animal CAFOs.* As described in the preamble of the proposed regulation, EPA is proposing to drop from the definition of CAFO the mixed animal calculations. Nonetheless, there are operations that will be CAFO by virtue of having a livestock enterprise which meets the definition of CAFO. If an operation is defined as a CAFO for one or more livestock enterprises, then all livestock which is maintained in confinement will be covered under the NPDES permit requirements. EPA assumes that each distinct livestock sector would be subject to the appropriate requirements for that sector, however, if the waste or wastewater from two sectors are commingled then the more stringent requirements would apply to the commingled waste stream.

**PNP Requirements**

There are a number of elements that are addressed by both USDA's "Guidance for Comprehensive Nutrient Management Plans (CNMPs)" and EPA's PNP which would be required by the effluent guidelines and NPDES proposed rules and is detailed in the guidance document "Managing Manure Nutrients at Concentrated Animal Feeding Operations." EPA's

proposed PNP would establish requirements for CAFOs that are consistent with the technical guidance published by USDA experts, but go beyond that guidance by identifying specific management practices that must be implemented. What follows is a brief description of what must be included in a PNP.

*General Information.* The PNP must have a Cover Sheet which contains the name and location of the operation, the name and title of the owner or operator and the name and title of the person who prepared the plan. The date (month, day, year) the plan was developed and amended must be clearly indicated on the Cover Sheet. The Executive Summary would briefly describe the operation in terms of herd or flock size, total animal waste produced annually, crop identity for the full 5 year period including a description of the expected crop rotation and, realistic yield goal. The Executive Summary must include indication of the field conditions for each field unit resulting from the phosphorus method used (e.g., phosphorus index), animal waste application rates, the total number of acres that will receive manure, nutrient content of manure and amount of manure that will be shipped off-site. It should also identify the manure collection, handling, storage, and treatment practices, for example animals kept on bedding which is stored in a shed after removal from confinement house, or animals on slatted floors over a shallow pull plug pit that is drained to an outdoor in-ground slurry storage inpoundment. Finally, the Executive Summary would have to identify the watershed(s) in which the fields receiving manure are located or the nearest surface water body. While the General Information section of a PNP would give a general overview of the CAFO and its nutrient management plan, subsequent sections would provide further detail.

*Animal Waste Production.* This subsection details types and quantities of animal waste produced along with manure nutrient sampling techniques and results. Information would be included on the maximum number of livestock ever confined and the maximum livestock capacity of the CAFO, in addition to the annual livestock production. This section would provide an estimate of the amount of animal waste collected each year. Each different animal waste source should be sampled annually and tested by an accredited laboratory for nitrogen, phosphorous, potassium, and pH.

*Animal Waste Handling, Collection, Storage, and Treatment.* This subsection details best management practices to protect surface and groundwater from contamination during the handling, collection, storage, and treatment of animal waste. A review would have to be conducted of potential water contamination sources from existing animal waste handling, collection, storage, and treatment practices. The capacity needed for storage would be calculated.

Contaminated feedlot runoff would have to be contained and adequately managed. Runoff diversion structures and animal waste storage structures would have to be visually inspected for: seepage, erosion, vegetation, animal access, reduced freeboard, and functioning rain gauges and irrigation equipment, on a weekly basis. Deficiencies based on visual inspections would have to be identified and corrected within a reasonable time frame. Depth markers would have to be permanently installed in all open lagoons, ponds, and tanks. Lagoons, ponds, and tanks at beef

and dairy CAFOs would have to be maintained to retain capacity for the 25-year, 24-hour storm event. Dead animals, required to be kept out of lagoons, would have to be properly handled and disposed of in a timely manner. Finally, an emergency response plan for animal waste spills and releases would have to be developed.

*Land Application Sites.* This subsection details field identification and soil sampling. County(ies) and watershed code(s) where feedlot and land receiving animal waste applications are located would be identified. Total acres of operation under the control of the CAFO (owned and rented) and total acres where animal waste will be applied would be included. A detailed farm map or aerial photo, to be included, would have to indicate: location and boundaries of the operation, individual field boundaries, field identification and acreage, soil types and slopes, and the location of nearby surface waters and other environmentally sensitive areas (e.g., wetlands, sinkholes, agricultural drainage wells, and aboveground tile drain intakes) where animal waste application is restricted.

Separate soil sampling, using an approved method, would have to be conducted every 3 years on each field receiving animal waste. The samples shall be analyzed at an accredited laboratory for total phosphorous. Finally, the phosphorous site rating for each field would have to be recorded according to the selected assessment tool.

*Land Application.* This subsection details crop production and animal waste application to crop production areas. Details of crop production would have to include: identification of all planned crops, expected crop yields and the basis for yield estimates, crop planting and harvesting dates, crop residue management practices, and nutrient requirements of the crops to be grown. Calculations used to develop the application rate, including nitrogen credits from legume crops, available nutrients from past animal waste applications, and nutrient credits from other fertilizer and/or biosolids applications would have to be included.

Animal waste application rates cannot exceed nitrogen requirements of the crops. However, animal waste application rates would be limited to the agronomic requirements for phosphorous if the soil phosphorous tests are rated “high”, the soil phosphorous tests are equal to 3/4, but not greater than twice the soil phosphorous threshold value, or the Phosphorous Index rating is “high.” Finally, animal waste could not be applied to land if the soil phosphorous tests are rated “very high”, the soil phosphorous tests are greater than twice the soil phosphorous threshold value, or the Phosphorous Index rating is “very high.” In some cases, operators may choose to further restrict application rates to account for other limiting factors such as salinity or pH.

Animal wastes cannot be applied to wetlands or surface waters, within 100 feet of a sinkhole, or within 100 feet of water sources such as rivers, streams, lakes, ponds, and intakes to agricultural drainage systems (e.g., aboveground tile drain intakes, agricultural drainage wells, pipe outlet terraces). EPA requests comment on how serious would be the limitations imposed by these requirements. Manure spreader and irrigation equipment would have to be calibrated at a minimum once each year, but preferably before each application period. Finally, the date of

animal waste application and calibration application equipment, and rainfall amounts 24-hours before and after application would be recorded.

*Other Uses/Off-Site Transfer.* The final required subsection for a PNP details any alternative uses and off-site transport of animal wastes. If used, a complete description of alternative uses of animal waste would have to be included. If animal wastes are transported off-site the following would have to be recorded: date (day, month, year), quantity, and name and location of the recipient of the animal waste.

*Voluntary Measures.* Many voluntary best management practices can be included within various subsections of a PNP. These voluntary best management plans are referenced in EPA's guidance document for PNP "Managing Manure Nutrients at Concentrated Animal Feeding Operations."

*Annual Review and Revision.* While a PNP is required to be renewed every 5 years (coinciding with NPDES permitting), an annual review of the PNP would have to occur and the PNP would be revised or amended as necessary.

The most likely factor which would necessitate an amendment or revision to a PNP is a change in the number of animals at the CAFO. A substantial increase in animal numbers (for example an increase of greater than 20%) would significantly increase the volume of manure and total nitrogen and phosphorous produced on the CAFO. Because of this, the CAFO will need to re-evaluate animal waste storage facilities to ensure adequate capacity, and may need to re-examine the land application sites and rates.

A second reason which would require an amendment or revision to a PNP is a change in the cropping program which would significantly alter land application of animal waste. Changes in crop rotation or crop acreage could significantly alter land application rates for fields receiving animal waste. Also the elimination or addition of fields receiving animal waste application would require a change in the PNP.

Changes in animal waste collection, storage facilities, treatment, or land application method would require an amendment or revision to a PNP. For example, the addition of a solid-liquid separator would change the nutrient content of the various animal waste fractions and the method of land application thereby necessitating a revision in a PNP. Changing from surface application to soil injection would alter ammonia volatilization subsequently altering animal waste nutrient composition requiring a revision of land application rates.

*When CAFOs Must Have PNPs.* EPA proposes to allow two groups of CAFOs up to 90 days to obtain a PNP:

1. existing CAFOs which are being covered by a NPDES permit for the first time; or
2. existing CAFOs that are already covered under an existing permit which is reissued within 3 years from the date of promulgation of these regulations.

EPA proposes that all other existing CAFOs must have a PNP at the time permits are issued or renewed.

### 10.2.7 New Source Performance Standards

For purposes of applying the new source performance standards (NSPS) being proposed today, a source would be a new source if it commences construction after the effective date of the forthcoming final rule. Each source that meets this definition would be required to achieve any newly promulgated NSPS upon commencing operation of the CAFO.

EPA proposes to consider an operation as a new source if any of the following three criteria apply. The definition of new source being proposed for Part 412 states three criteria that determine whether a source is a "new source."

First, a facility would be a new source if it is constructed at a site at which no other source is located. These new sources have the advantage of not having to retrofit the operation to comply with BAT requirements, and thus can design to comply with more stringent and protective requirements.

The second criterion for defining a new source would be where new construction at the facility "replaces the housing, waste handling system, production process, or production equipment that causes the discharge or potential to discharge pollutants at an existing source." Confinement housing and barns are periodically replaced, allowing the opportunity to install improved systems that provide increased environmental protection. The modern confinement housing used at many swine, dairy, veal, and poultry farms allows for waste handling and storage in a fashion that generates little or no process water. Such systems negate the need for traditional flush systems and storage lagoons, reduce the risks of uncontrollable spills, and decrease the costs of transporting manure.

Third, a source would be a new source if construction is begun after the date this rule is promulgated and its production area and processes are substantially independent of an existing source at the same site. Facilities may construct additional production areas that are located on one contiguous property, without sharing waste management systems or commingling waste streams. Separate production areas may also be constructed to help control biosecurity. New production areas may also be constructed for entirely different animal types, in which case the more stringent NSPS requirements for that subcategory would apply to the separate and newly constructed production area. In determining whether production and processes are substantially independent, the permit authority is directed to consider such factors as the extent to which the new production areas are integrated with the existing production areas, and the extent to which the new operation is engaging in the same general type of activity as the existing source.

EPA also considered whether a certain level of facility expansion, measured as an increase in animal production, should cause an operation to be subject to new source performance standards.

If so, upon facility expansion, the CAFO would need to go beyond compliance with BAT requirements to meet the more stringent standards represented by NSPS. In today's proposal, that increment of additional control, for the swine, poultry and veal subcategories, would amount to the need to monitor ground water and install liners in lagoons and impoundments to prevent discharges to ground water that has a direct hydrological connection to surface water; unless the CAFO could demonstrate that no such direct hydrological link existed. In the beef and dairy subcategories, the NSPS proposed today are the same as the BAT standards.

EPA considered the same seven options for new source performance standards (NSPS) as it considered for BAT. EPA also considered an additional option for new dairies, which if selected, would prohibit dairies from discharging any manure or process wastewater from animal confinement and manure storage areas (i.e., eliminating the allowance for discharging overflows associated with a storm event). New sources have the advantage of not having to retrofit the operation to comply with the requirements and thus can design the operation to comply with more stringent requirements. In selecting new source performance standards, EPA evaluates whether the requirements under consideration would impose a barrier to entry to new operations.

EPA is proposing to select Option 3 as the basis for NSPS for the beef and dairy subcategories. Option 3 includes all the requirements proposed for existing sources including complying with zero discharge from the production area except in the event of a 25-year, 24-hour storm and the requirement to develop a PNP which establishes the rate at which manure and wastewater can be applied to crop or pasture land owned or controlled by the CAFO. The application of manure and wastewater would be restricted to a phosphorus based rate where necessary depending on the specific soil conditions at the CAFO. Additionally, other best management practice requirements would apply, including the prohibition of manure and wastewater application within 100 feet of surface water. The proposed new source standard for the beef and dairy subcategories includes a requirement for assessing whether the ground water beneath the production area has a direct hydrological connection to surface water. If a direct hydrological connection exists, the operation must conduct additional monitoring of ground water up gradient and down gradient from the production area, and implement any necessary controls based on the monitoring results to ensure that zero discharge to surface water via the ground water route is achieved for manure stockpiles and liquid impoundments or lagoons. For the purpose of estimating compliance costs, EPA has assumed that operations located in areas with a direct hydrological connection will install synthetic material or compacted clay liners beneath any liquid manure storage and construct impervious pads for any dry manure storage areas. The operator would be required to collect and analyze ground water samples twice per year for total dissolved solids, chlorides, nitrate, ammonia, total coliforms and fecal coliform. EPA is believes that Option 3 is economically achievable for existing sources. Since new sources are able to install impermeable liners at the time the lagoon or impoundment is being constructed, rather than retrofitting impoundments at existing source, costs associated with this requirement should be less for new sources in comparison to existing sources. EPA has concluded that Option 3 requirements will not pose a barrier to entry for new sources.

EPA is proposing to establish NSPS for all swine and poultry operations based on Option 5 and Option 3 combined. In addition the BAT requirements described in Section VIII.C.6, the proposed new source standards would require no discharge via any ground water that has a direct hydrological link to surface water. As described above, Option 3 requires all CAFOs to monitor the ground water and impose appropriate controls to ensure compliance with the zero discharge standard, unless the CAFO has demonstrated that there is no direct hydrological link between the ground water and any surface waters. The proposed new source standard also restricts land application of manure and wastewater to a phosphorus based rate where necessary depending on the specific soil conditions at the CAFO. Additionally, the same land application best management practice requirements as required under BAT would apply, including the prohibition from applying manure and wastewater within 100 feet of surface water.

EPA encourages new swine and poultry facilities to be constructed to use dry manure handling. Dry manure handling is currently the standard practice at broiler and turkey operations. As described previously, some existing laying hen operations and most hog operations use liquid manure handling systems. The proposed new source performance standard would not require the use of dry manure handling technologies, but EPA believes this is the most efficient technology to comply with its requirements.

EPA has analyzed costs of installing dry manure handling at new laying hen and swine operations. Both sectors have operations which demonstrate dry manure handling can be used as an effective manure management system. The dry manure handling systems considered for both sectors require that the housing for the animals be constructed in a certain fashion, thus making this practice less practical for existing sources. Both sectors have developed a high rise housing system, which houses the animals on the second floor of the building allowing the manure to drop to the first floor or pit. In the laying hen sector this is currently a common practice and with aggressive ventilation, the manure can be maintained as a dry product. Hog manure has a lower solids content, thus the manure must be mixed with a bedding material (e.g., wood chips, rice or peanut hulls and other types of bedding) which will absorb the liquid. To further aid in drying the hog manure, air is forced up through pipes installed in the concrete floor of the pit. With some management on the part of the CAFO operator, involving mixing and turning the hog manure in the pit periodically, the manure can be composted while it is being stored. The advantages of the high rise system for hogs and laying hens include a more transportable manure, which, in the case of the hog high rise system, has also achieved a fairly thorough decomposition. The air quality inside the high rise house is greatly improved, and the potential for leaching pollutants into the groundwater is greatly reduced. The design standard of these high rise houses include concrete floors and also assume that the manure would be retained in the building until it will be land applied, thus there is no opportunity for storm water to reach the manure storage and virtually no opportunity for pollutants to leach to groundwater beneath the confinement house. EPA believes that the cost savings associated with ease of manure transportation, as well as improved animal health and performance associated with the dry manure handling system for hogs will off-set the increased cost of operation and maintenance associated with the high rise hog system. Thus, EPA concludes the proposed new source performance standards based on the

high-rise house, does not pose a barrier to entry for either the laying hen and hog sectors. Although the high rise house is the basis of the new source standards for the swine and laying hen sectors, operations are not prevented from constructing a liquid manure handling system. If new sources in these sectors choose to construct a liquid manure handling system, they would be required to line the lagoons if the operation is located in an area that has a direct hydrologic connection, but the cost associated with lining a lagoon at the time it is being constructed is much less than the cost to retrofit lagoon liners. New operations that chose to use a liquid manure handling system would still be expected to cover these structures to avoid capturing precipitation which causes an overflow. Covered liquid storage would be smaller than an open storage, because there wouldn't be capacity included in the design to accommodate storm water.

EPA proposes to establish new source requirements for the veal subcategory on the basis of Option 5 which requires zero discharge with no overflow from the production area and Option 3 which requires zero discharge of pollutants to groundwater which has a direct hydrological connection to surface water, with the ground water monitoring or hydrological assessment requirements described above. EPA believes that a zero discharge standard without any overflow will promote the use of covered lagoons, anaerobic digesters or other types of manure treatment systems. Additionally, this will minimize the use of open air manure storage systems, thus reducing emission of pollutants from CAFOs.

New veal CAFOs would not be expected to modify existing housing conditions since EPA is not aware of any existing veal operations that use dry manure handling systems. New veal CAFOs would be expected to also use covered lagoons to comply with the zero discharge standard. New veal CAFOs would be required to line their liquid manure treatment or storage structures with either synthetic material or compacted clay to prevent the discharge of pollutants to ground water which has a direct hydrological connection to surface water. In addition, the CAFO would have to monitor the groundwater beneath the production area to ensure compliance with the zero discharge requirement. The CAFO would not need to install liners or monitor ground water if it demonstrates that there is no direct hydrologic link between the ground water and any surface waters.

In addition to the seven options considered for both existing and new sources, EPA also investigated a new source option for dairies that would prohibit all discharges of manure and process wastewater to surface waters, eliminating the current allowance for the discharge of the overflow of runoff from the production area. To comply with a zero discharge requirement, dairies would need to transform the operation so they could have full control over the amount of manure and wastewater, including any runoff, entering impoundments. Many dairies have drylot areas where calves, heifers, and bulls are confined, as well as similar drylot areas where the0 mature cows are allowed access. EPA estimated compliance costs for a zero discharge requirements assuming that the following changes would occur at new dairies:

(1) Freestall barns for mature cows would be constructed with six months underpit manure storage, rather than typical flush systems with lagoon storage;

(2) Freestall barns with six months underpit manure storage would be constructed to house heifers;
(3) Calf barns with a scrape system would be constructed with a scrape system and six months of adjacent manure storage; and
(4) New dairies would include covered walkways, exercise areas, parlor holding, and handling areas.

Drylot areas are continually exposed to precipitation. The amount of contaminated runoff from such areas that must be captured is directly related to the size of the exposed area and the amount of precipitation. Under the current regulations, dairies use the 25-year, 24-hour rainfall event (in addition to other considerations) when determining the necessary storage capacity for a facility. Imposing a zero discharge requirement that prevents any discharge from impoundments would force dairies to reconfigure in a way that provides complete control over all sources of wastewater. EPA considered the structural changes in dairy design described here to create a facility that eliminates the potential for contaminated runoff.

While EPA believes that confining all mature and immature dairy cattle is technically feasible, the costs of zero discharge relative to the costs for Option 3 are very high. Capital costs associated with the construction of the additional barn space to comply with zero discharge increase the overall cost for this option by two orders of magnitude over the selected option. For dairies that send their heifers off-site and use hutches for their calves, the costs associated with this options would be considerably less. EPA estimates annual operating and maintenance costs would rise between one to two orders of magnitude above the costs for Option 3. These costs may create a barrier to entry for new sources. In addition, EPA believes selecting this option could have the unintended consequence of encouraging dairies to shift calves and heifers offsite to standalone heifer raising operations (either on land owned by the dairy or at contract operations) to avoid building calf and heifer barns. If these offsite calf/heifer operations are of a size that they avoid being defined as a CAFO, the manure from the immature animals would not be subject to the effluent guidelines.

EPA is not basing requirements for new dairies on the zero discharge option for the reasons discussed above. As an alternative to underpit manure storage, dairies could achieve zero discharge for parlor wastes and barn flush water by constructing systems such as anaerobic digesters and covered lagoons. These covered systems, if properly operated, can facilitate treatment of the manure and offer opportunities to reduce air emissions. The resulting liquid and solid wastes would be more stable than untreated manure. EPA has not identified any basis for rejecting the zero discharge option for dairies solely due to animal health reasons.

### 10.2.8 Pretreatment Standards for New or Existing Sources (PSES AND PSNS)

EPA is not proposing to establish Pretreatment Standards for either new or existing sources. Further, EPA is withdrawing the existing provisions entitled “Pretreatment standards for existing sources” at §§412.14, 412.16, 412.24, 412.26. Those existing provisions establish no limitations.

The vast majority of CAFOs are located in rural areas that do not have access to municipal treatment systems. EPA is not aware of any existing CAFOs that discharge wastewater to POTWs at present and does not expect new sources to be constructed in areas where POTW access will be available. For those reasons, EPA is not establishing national pretreatment standards. However, EPA also wants to make it clear that if a CAFO discharged wastewater to a POTW, local pretreatment limitations could be established by the Control Authority. These local limits are similar to BPJ requirements in an NPDES permit.

# CHAPTER 11

# MODEL FARMS AND COSTS OF TECHNOLOGY BASES FOR REGULATION

## 11.0 INTRODUCTION

This Chapter describes the methodology used to estimate engineering compliance costs associated with implementing the regulatory options proposed for the concentrated animal feeding operations (CAFOs) industry. Chapter 8 describes in detail the technologies and practices used as the bases for these options. Chapter 10 describes the regulatory options considered by the Agency. The results of the economic impact assessment for the regulation are found in the *Economic Analysis of the Proposed Revisions to the National Pollutant Discharge Eliminations System Regulation and the Effluent Guidelines for Concentrated Animal Feeding Operations* (EA) for the proposed final rulemaking.

The information contained in this Chapter provides an overview of the methodology and assumptions built into the cost models. More detailed information on the cost methodology and specific technologies and practices is contained in the following cost model reports: *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* (ERG, 2000a) and *Cost Model for Swine and Poultry Sectors* (Tetra Tech, Inc., 2000a).

The following information is discussed in this section:

- Section 11.1: Overview of cost methodology;
- Section 11.2: Development of model farm operations;
- Section 11.3: Design and cost of waste and nutrient management technologies;
- Section 11.4: Development of frequency factors;
- Section 11.5: Summary of estimated model farm costs by regulatory option; and
- Section 11.6: References.

## 11.1 Overview of Cost Methodology

To assess the economic impact of the effluent limitations guidelines and standards on the CAFOs industry, EPA estimated the costs associated with regulatory compliance for each of the regulatory options described in Chapter 10. The economic burden is a function of the estimated costs of compliance to achieve the proposed requirements, which may include initial fixed and capital costs, as well as annual operating and maintenance (O&M) costs. Estimation of these costs typically begins by identifying the practices and technologies that can be used to meet a particular requirement. The Agency then develops a cost model to estimate costs for their implementation.

EPA used the following approach to estimate compliance costs for the CAFOs industry:

- EPA collected data from published research, meetings with industry organizations, discussions with USDA cooperative extension agencies, review of USDA's Census of Agriculture data, and site visits to swine, poultry, beef, veal, and dairy CAFOs. These data were used to define model farms and to determine waste generation and nutrient concentration, current waste and nutrient practices, and the viability of waste management technologies for the model farms.

- EPA identified candidate waste and nutrient management practices and grouped appropriate technologies into regulatory options. The regulatory options serve as the bases of compliance cost and pollutant loading calculations.

- EPA developed cost equations for estimating capital, fixed, 3-year recurring, and annual O&M costs for the implementation and use of the different waste and nutrient practices targeted under the proposed regulatory options. Cost equations were developed from information collected during the site visits, published information, vendor contacts, and engineering judgment.

- EPA developed and used computer cost models to estimate compliance costs and nutrient loads for each regulatory option.

- EPA used output from the cost model to estimate total annualized costs and the economic impact of each regulatory option on the CAFOs industry (presented in the EA).

EPA estimated facility compliance costs for eight regulatory options. Table 11-1 presents the regulatory options and the waste and nutrient management components that make up each option.

To assess the incremental costs attributable to the proposed rules, EPA evaluated current federal and state requirements for animal feeding operations and calculated compliance costs of the proposed requirements that exceed the current requirements. Operations located in states whose requirements meet or exceed the proposed regulatory changes would already be in compliance with the proposed regulations and would not incur any additional cost. A review of current state

waste management requirements for determining baseline conditions is included in the record (See *State Compendium: Programs and Regulatory Activities Related to Animal Feeding Operations* compiled by EPA).

## 11.2 Development of Model Farm Operations

For the purpose of estimating total costs and economic impacts, EPA calculated the costs of compliance for CAFOs to implement each of the regulatory options being considered. These costs reflect the range of capital costs, annual operating and maintenance costs, start-up or first-year costs, as well as recurring costs that may be associated with complying with the proposed regulations. EPA traditionally develops either *facility-specif*ic or *model facility* costs. Facility-specific compliance costs require detailed process information about many, if not all, facilities in the industry. These data typically include production, capacity, water use, wastewater generation, waste management operations (including design and cost data), monitoring data, geographic location, financial conditions, and any other industry-specific data that may be required for the analyses. EPA then uses each facility's information to determine how the potential regulatory options will impact that facility, and to estimate the cost of installing new pollution controls.

When facility-specific data are not available, EPA develops model facilities to provide a reasonable representation of the industry. Model facilities are developed to reflect the different characteristics found in the industry, such as the size or capacity of operations, types of operation, geographic locations, modes of operation, and types of waste management operations. These models are based on data gathered during site visits, information provided by industry members and their trade associations, and other available information. EPA estimates the number of facilities that are represented by each model. Cost and financial impacts are estimated for each model farm, then industry-level costs are calculated by multiplying model farm costs by the number of facilities represented by each particular model. Because of the amount and type of information that is available for the CAFOs industry, EPA has chosen a model-facility approach to estimate compliance costs.

EPA estimated compliance costs using a representative facility approach based on more than 170 farm-level models that were developed to depict conditions and to evaluate compliance costs for select representative CAFOs. The major factors used to differentiate individual model CAFOs include the commodity sector, the farm production region, and the facility size (based on herd or flock size or the number of animals on site). EPA's model CAFOs primarily reflect the major animal sector groups, including beef cattle, dairy, hog, broiler, turkey, and egg laying operations. Practices at other subsector operations are also reflected by the cost models, such as replacement heifer operations, veal operations, flushed caged layers, and hog grow-finish and farrow-to-finish facilities. Model facilities with similar waste management and production practices were used to depict operations in regions that were not separately modeled.

## Table 11-1. Summary of Regulatory Options for CAFOs

| Technology or Practice | Option 1 | Option 2 | Option 3 | Option 4 | Option 5 | Option 6 | Option 7 | Option 8 |
|---|---|---|---|---|---|---|---|---|
| Feedlot best management practices (BMPs), including storm water diversions, lagoon/pond depth markers, periodic inspections, and records | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Mortality handling requirements (e.g., rendering, composting)[1] | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Nutrient management planning and recordkeeping (sample soils once every 3 years, sample manure twice per year) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Land application limited to nitrogen-based agronomic application rates | ✓ | | | | | | | |
| Land application limited to phosphorus-based agronomic application rates where dictated by site-specific conditions, and nitrogen-based application elsewhere | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| No manure application within 100 feet of any surface water, tile drain inlet, or sinkhole | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Ground water requirements, including assessment of hydrologic link, monitoring wells (four per facility), impermeable pads under storage, impermeable lagoon/pond liners, and temporary/modified storage during upgrade | | | ✓ | ✓ | | | | ✓ |
| Surface water monitoring requirement, including four total grab samples upstream and downstream of both feedlot and land application areas, 12 times per year. One composite sample collected once per year at stockpile and surface impoundments. Samples are analyzed for nitrogen, phosphorus, and total suspended solids. | | | | ✓ | | | | |
| Drier manure technology basis[2,3] | | | | | ✓ | | | |
| Anaerobic digestion | | | | | | ✓ | | |
| Timing requirements for land application | | | | | | | ✓ | |
| Diminished Potential for Discharge for Dairies (underpit storage for heifers and dairy cows; confinement barns for calves with covered storage; covered walkways and handling areas at dairy operations; 100-year, 24-hour storm capacity requirement at beef and stand-alone heifer operations) | | | | | | | | ✓ |

[1] There are no additional compliance costs expected for beef and dairy operations related to mortality handling requirements.
[2] Option 5 mandates "drier waste management." For beef feedlots and dairies, this technology basis is composting. For swine, poultry, and veal operations, drier systems include covered lagoons.
[3] Option 5B mandates "no overflow" systems. For swine operations, the technology basis is high-rise housing for hogs, and for poultry operations the technology basis is dry systems.
(ERG, 2000a; Tetra Tech, Inc., 2000a).

Another key distinguishing factor incorporated into EPA's model CAFOs is the availability of cropland and pastureland to apply manure nutrients to land. For this analysis, nitrogen and phosphorus rates of land application are evaluated for three categories of cropland use: Category 1 CAFOs have sufficient land for all on-farm nutrients generated, Category 2 CAFOs have insufficient land, and Category 3 CAFOs have no land. The number of CAFOs within a given category of land availability is drawn from 1997 USDA data and varies depending on which nutrient (nitrogen or phosphorus) is used as the basis to assess land application and nutrient management costs. For Category 2 and 3 CAFOs, EPA evaluated additional technologies that may be necessary to balance on-farm nutrients. These technologies may also be used to reduce off-site hauling costs associated with excess on-farm nutrients, as well as to address ammonia volatilization, pathogens, trace metals, and antibiotic residuals. Such technologies may include best management practices (BMPs) and various farm production technologies, such as feed management strategies, solid-liquid separation, composting, anaerobic digestion, and other retrofits to existing farm technologies.

EPA's model CAFOs also take into account such production factors as climate and farmland geography, as well as land application and waste management practices and other major production practices typically found in the key producing regions of the country. Required practices under existing state regulations are also taken into account. Model facilities reflect major production practices used by larger confined animal farms, generally those with more than 300 animal units. Therefore, the models do not reflect pasture and grazing type farms, nor do they reflect typical costs to small farms. EPA's cost models also reflect cost differences within sectors, depending on manure composition, bedding use, and process water volumes.

### 11.2.1 Swine Operations

EPA developed the parameters describing the model swine farm using information from the U.S. Department of Agriculture National Agricultural Statistics Service (NASS), site visits to swine farms across the country, discussions with the National Pork Producers Council, and the USDA Natural Resources Conservation Service (NRCS). A description of the various components that make up the model farm is presented in the following discussion, and the sources of the information used to develop each piece of the model farm are noted. The *Cost Model for Swine and Poultry Sectors* provides more detailed information on the development of the swine model farm (Tetra Tech, Inc., 2000a).

#### 11.2.1.1 *Housing*

Swine are typically housed in total confinement barns, and less commonly in other housing configurations such as open buildings with or without outside access and pastures (USDA, 1995). On many farms, small numbers of pigs (fewer than the number covered by this regulation) are raised outdoors; however, the trend in the industry is toward larger confinement farms at which pigs are raised indoors (North Carolina State University, 1998). For these reasons, the model swine farm is assumed to house its animals in total confinement barns.

### 11.2.1.2 *Waste Management Systems*

The waste produced at an operation depends on the type of animals that are present. In farrow-to-finish operations, the pigs are born and raised at the same facility. In grow-finish facilities, young pigs are first born and cared for at a nursery, and then brought onto the finishing farm. These are the two predominant types of swine operations in the United States for the size classes that would be covered under this proposed regulation (North Carolina State University, 1998).

Swine houses typically use slatted floors to separate manure and wastes from the animal. For example, approximately 40 percent of swine barns have slatted floors directly above a storage pit or flush alley (USDA, 1995; USDA APHIS, 1996b). This configuration allows the manure to be worked through the slats and drop into the area below for removal without disturbing or moving the animals.

The manure collects in a pit under the slats. In the southeast, it is common to allow manure to collect in the pit, and wash the pit once a day or more with a large volume of water to move the waste from the pit to a lagoon. The waste is stored in the lagoon until it is applied to land or transported off site. Storing the waste in an anaerobic lagoon provides some treatment during storage, conditioning the wastewater for later land application, and reducing odors (North Carolina State University, 1998).

In the Midwest, a deep pit storage system is more common. Deep pit systems start with several inches of water in the pit, and the manure is collected and stored under the house until it is pumped out for field application, typically twice a year. This system uses less water, creating a manure slurry that has higher nutrient concentrations than the liquid manure systems.

A 1995 survey of swine operations shows that both lagoons and deep pits are commonly used for waste storage in the Midwest region (USDA APHIS, 1996c). However, other than a general increase in the use of deep pits in the northern areas, the extent of the use for each system could not be determined. EPA intended to model the Mid-Atlantic region as having lagoons, and the Midwest region as having under house pits. However, the retrofits required for lagoon systems are more expensive than those for deep pit systems. Therefore, EPA decided to assume that all facilities use lagoon systems to avoid undercosting retrofit requirements. This is also consistent with the concept that the Midwest region model represents the Midwest region plus a portion of all the other regions except the Mid-Atlantic region. In other words, the Midwest region model reflects parts of the South, Central, and Pacific regions because census data could not be obtained for all desired regions and size groups (USDA NASS, 1999).

EPA proposes another model farm under Option 5B to provide a dry manure option—the high-rise swine house, which is a two-story confinement housing design that allows manure to fall though open slats onto the first floor where it is combined with carbon-rich material. The two waste management systems used for the model swine farms in this cost model are shown in Figure 11-1.

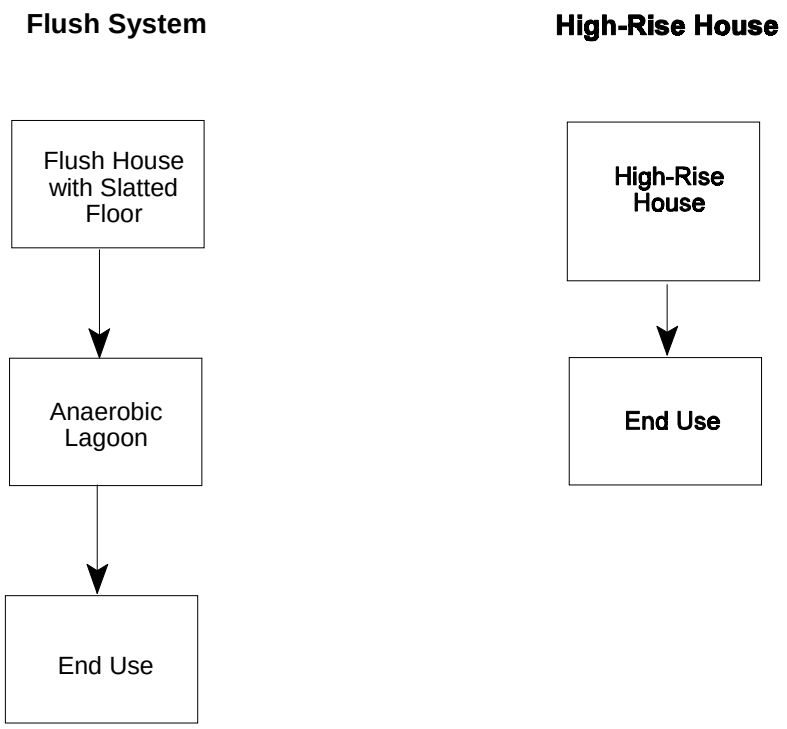


**Figure 11-1. Model Swine Farms**

#### 11.2.1.3 *Size Group*

The general trend in the U.S. swine industry is toward a smaller number of large operations that have a larger number of animals on site. The number of smaller facilities, which tend to house the animals outdoors, has significantly decreased over the past 10 years (North Carolina State University, 1998). The trend in the larger operations is toward extended use of confinement operations.

For this proposed regulation, four size groups were modeled for each type of model farm. The size groups are provided in Table 11-2.

**Table 11-2. Size Classes for Model Swine Farms**

| Region [a] | Operation Type [b] | Average Swine Animal Counts (Operation Size Presented by Number of Head) | | | |
|---|---|---|---|---|---|
| | | **Medium 1** | **Medium 2** | **Large 1** | **Large 2** |
| | | **>750-1,875** | **>1,875-2,500** | **>2,500-5,000** | **>5,000-10,000** |
| Mid-Atlantic | combined | 1,182 | 2,165 | 3,509 | 33,787 |
| | slaughter | 1,242 | 2,184 | 3,554 | 20,530 |
| Midwest | combined | 1,137 | 2,152 | 3,444 | 34,164 |
| | slaughter | 1,161 | 2,124 | 3,417 | 26,398 |
| Other | combined | 1,255 | 2,150 | 3,455 | 66,224 |
| | slaughter | 1,291 | 2,215 | 3,626 | 21,731 |
| **National** | **combined** | **1,147** | **2,153** | **3,453** | **37,922** |
| | **slaughter** | **1,176** | **2,146** | **3,491** | **22,184** |

[a] Midwest=ND, SD, MN, MI, WI, OH, IN, IL, IA, MO, NE, KS; Mid-Atlantic=ME, NH, VT, NY, MA, RI, CT, NJ, PA, DE, MD, VA, WV, KY, TN, NC; Other=ID, MT, WY, NV, UT, CO, AZ, NM, TX, OK, WA, OR, CA, AK, HI, AR, LA, MS, AL, GA, SC, FL;.
[b] Operation type: Combined=breeding inventory, finishing (average of inventory and sold/2.8), and feeders (sold/10); Slaughter=finishing (average of inventory and sold/2.8).
Source: USDA NASS, 1999.

#### 11.2.4.4 *Region*

Data from site visits and North Carolina State University's draft *Swine and Poultry Industry Characterization* indicate that the predominant type of waste management system at swine operations varies from region to region (North Carolina State University, 1998). As previously mentioned, in the southeast, flush systems are common; in the Midwest, deep-pit storage systems are more common. Given the regional variances in waste management systems, swine operations were modeled in two regions across the country: the Midwest and Mid-Atlantic. Facility totals in other regions were combined into the two regions modeled to account for all facilities nationwide.

### 11.2.2 Poultry Operations

EPA developed three model farms to represent poultry operations in the United States. The model farms are broiler, dry layer, and wet layer operations. The parameters describing the model poultry farms were developed using information from NASS, site visits to poultry farms across the country, and the USDA NRCS. A description of the various components of each model farm is presented in the following discussion, and the sources of the information used to develop each

piece of the model farm are noted. The *Cost Model for Swine and Poultry Sectors* provides more detailed information on the development of the model poultry farms (Tetra Tech, Inc., 2000a).

#### 11.2.2.1 *Housing*

The poultry sector includes broilers and layers (layers, pullets, and layer/pullets). Broilers are typically housed in long barns (approximately 40 feet wide and 400 to 500 feet long; North Carolina State University, 1998) and are grown on the floor of the house. The floor of the barn is covered with a layer of bedding, such as wood shavings, and the broilers deposit manure directly onto the bedding. Approximately 4 inches of bedding are initially added to the houses and top dressed with about 1 inch of new bedding between flocks.

Layers are typically confined in cages in high-rise housing or shallow pit flush housing. In a high-rise house, the layer cages are suspended over a bottom story, where the manure is deposited and stored. In shallow pit flush housing, a single layer of cages is suspended over a shallow pit. Manure drops directly into the pit, where it is flushed out periodically using recycled lagoon water.

These poultry housing systems are considered typical systems in the broiler and layer industry (North Carolina State University, 1998). Therefore, the cost model uses these housing systems in the model broiler and wet and dry layer farms.

#### 11.2.2.2 *Waste Management Systems*

Manure from broiler operations accumulates on the floor where it is mixed with bedding, forming litter. Litter close to drinking water forms a cake that is removed between flocks. The rest of the litter in a broiler house is removed periodically (6 months to 2 years) from the barns, and then transported off site or applied to land. Typically, broiler operations are completely dry waste management systems (North Carolina State University, 1998).

Layer operations may operate as a wet or a dry system. Approximately 12 percent of layer houses use a liquid flush system, in which waste is removed from the house and stored in a lagoon (USDA APHIS, 2000). The remaining layer operations typically operate as dry systems, with manure stored in the house for up to a year. A scraper is used to remove waste from the collection pit or cage area (North Carolina State University, 1998). The lagoon wastewater and dry manure are stored until they are applied to land or transported off site.

Figure 11-2 presents the waste management systems for broilers and layers.

#### 11.2.2.2 *Size Group*

For the proposed regulation, EPA modeled four size groups for broiler and dry layer operations, and two size groups for wet layer operations. The size groups are presented in Table 11-3 and Table 11-4.

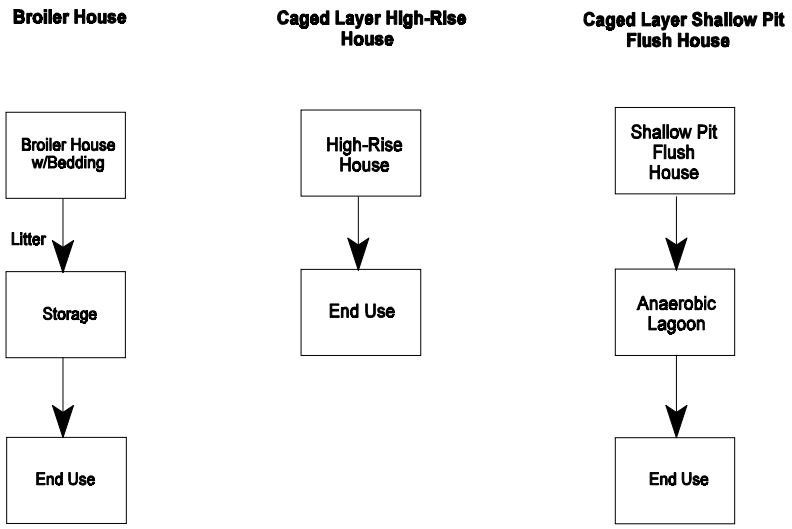


**Figure 11-2. Model Broiler and Layer Farms**

### 11.2.2.3 *Region*

Data from site visits and North Carolina State University's draft *Swine and Poultry Industry Characterization* indicate that the predominant type of waste management system at poultry operations varies from region to region (North Carolina State University, 1998). Most of the broiler operations in the United States are located in the South and Mid-Atlantic regions, while most of the egg-laying operations are located in the Midwest and South regions. Therefore, the model broiler farm reflects the South and Mid-Atlantic regions, and the model layer farm reflects the Midwest and South regions.

## Table 11-3. Size Classes for Model Broiler Farms

| Region [a] | Average Chicken Broiler Animal Counts [b] | | | |
|---|---|---|---|---|
| | Medium 1 | Medium 2 | Large 1 | Large 2 |
| | >30,000-60,000 | >60,000-90,000 | >90,000-180,000 | >180,000 |
| Central | 44,224 | 73,084 | 119,026 | 332,030 |
| Mid-Atlantic | 44,193 | 73,590 | 115,281 | 303,155 |
| Midwest | 47,357 | 75,821 | 118,611 | 414,945 |
| Pacific | 44,041 | 73,695 | 132,560 | 624,380 |
| South | 43,998 | 73,776 | 117,581 | 281,453 |
| **National** | **44,187** | **73,717** | **117,347** | **332,073** |

[a] Central=ID, MT, WY, NV, UT, CO, AZ, NM, TX, OK; Mid-Atlantic=ME, NH, VT, NY, MA, RI, CT, NJ, PA, DE, MD, VA, WV, KY, TN, NC; Midwest=ND, SD, MN, MI, WI, OH, IN, IL, IA, MO, NE, KS; Pacific=WA, OR, CA, AK, HI; South=AR, LA, MS, AL, GA, SC, FL

[b] Broilers are young chickens of the meat-type breeds, raised for the purpose of meat production. Estimates cover a 12-month period (Dec. 1 through Nov. 30) and exclude states with fewer than 500,000 broilers.

Source: USDA NASS, 1999.

## Table 11-4. Size Classes for Model Dry Layer Farms

| Region [a] | Average Chicken Egg Layer Counts | | | |
|---|---|---|---|---|
| | Medium 1 | Medium 2 | Large 1 | Large 2 |
| | >30,000-62,500 | >62,500-180,000 | >180,000-600,000 | >600,000 |
| Central | 42,360 | 89,688 | 317,725 | 733,354 |
| Mid-Atlantic | 42,588 | 95,585 | 286,946 | 1,007,755 |
| Midwest | 45,244 | 97,848 | 279,202 | 1,229,095 |
| Pacific | 43,613 | 99,354 | 277,755 | 813,356 |
| South | 38,642 | 97,413 | 293,512 | 884,291 |
| **National** | **41,786** | **96,595** | **287,740** | **1,027,318** |

[a] Central=ID, MT, WY, NV, UT, CO, AZ, NM, TX, OK; Mid-Atlantic=ME, NH, VT, NY, MA, RI, CT, NJ, PA, DE, MD, VA, WV, KY, TN, NC; Midwest=ND, SD, MN, MI, WI, OH, IN, IL, IA, MO, NE, KS; Pacific=WA, OR, CA, AK, HI; South=AR, LA, MS, AL, GA, SC, FL

Source: USDA NASS, 1999.

### 11.2.3 Turkey Operations

EPA developed one model turkey farm to represent turkey operations in the United States. The parameters describing the model farm were developed using information from USDA NASS, site visits to turkey farms across the country, and USDA NRCS. A description of the various components of the model farm is presented in the following discussion, and the sources of the information used to develop that piece of the model farm are noted. The *Cost Model for Swine and Poultry Sectors* provides more detailed information on the development of the model turkey farm (Tetra Tech, Inc., 2000a).

#### 11.2.3.1 *Housing*

Turkeys are typically housed in long barns (approximately 40 feet wide and 400 to 500 feet long), similar to broiler systems (North Carolina State University, 1998). The floor of the barn is covered in a layer of bedding, such as wood shavings, and the turkeys deposit manure directly onto the bedding. Approximately 4 inches of bedding are initially added to the houses and top dressed with about 1 inch of new bedding between flocks.

#### 11.2.3.2 *Waste Management Systems*

The waste management system at a turkey operation is similar to that at a broiler operation. Manure from turkey operations accumulates on the floor where it is mixed with bedding, forming litter. Litter close to drinking water forms a cake that is periodically removed between flocks. The rest of the litter in the turkey house is removed periodically (6 months to 2 years) from the barns, and then transported off site or applied to land. Typically, turkey operations are completely dry waste management systems, and the waste management system at the model turkey farm is based on this dry system, as shown in Figure 11-3 (North Carolina State University, 1998).

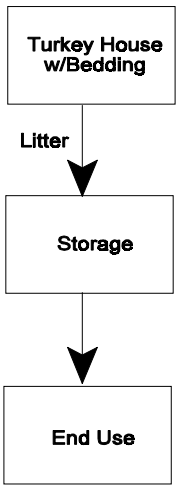


**Figure 11-3. Model Turkey Farm**

### 11.2.3.3 *Size Groups*

Three size groups were modeled for each type of facility. The size groups are presented in Table 11-5.

### 11.2.3.4 *Region*

State-level data from the 1997 Census of Agriculture indicate that states in the Midwest and Mid-Atlantic regions of the United States account for over 70 percent of all turkey turkeys produced. For this reason, model turkey farms are located in the Mid-Atlantic and Midwest regions (USDA NASS, 1999).

**Table 11-5. Size Classes for Model Turkey Farms**

| Region [a] | Average Turkey Counts by Operation Size | | |
|---|---|---|---|
| | Medium 1 | Medium 2 | Large 1 |
| | >16,500-38,500 | >38,500-55,000 | >55,000 |
| Central | 25,420 | 47,310 | 172,416 |
| Mid-Atlantic | 24,903 | 45,193 | 97,111 |
| Midwest | 24,303 | 45,469 | 158,365 |
| Other | 26,310 | 45,520 | 116,295 |
| **National** | **24,936** | **45,486** | **133,340** |

[a] Central=ID, MT, WY, NV, UT, CO, AZ, NM, TX, OK; Mid-Atlantic=ME, NH, VT, NY, MA, RI, CT, NJ, PA, DE, MD, VA, WV, KY, TN, NC; Midwest=ND, SD, MN, MI, WI, OH, IN, IL, IA, MO, NE, KS; Other=WA, OR, CA, AK, HI, AR, LA, MS, AL, GA, SC, FL
Source: USDA NASS 1999.

## 11.2.4 Dairy Operations

EPA developed two model farms to represent dairy operations in the United States. The model farms are a complete flush dairy and a hose/scrape dairy. The parameters describing the model dairy farms were developed using information from NASS, Census of Agriculture, site visits to dairy farms across the country, meetings with USDA extension agents, and meetings with the National Milk Producers Federation. A description of the various components that make up the model farms is presented below, with the sources of the information used to develop that piece of the model farm. The *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* provides more detailed information of the development of the model dairy farm (ERG, 2000a).

### 11.2.4.1 *Housing*

To determine the type of housing used at the model farm, the type of animals on the farm must be considered. In addition to the mature dairy herd (including lactating, dry, and close-up cows), there are often other animals on site, including calves, heifers, and bulls. The number of immature animals (calves and heifers) at the operation is assumed to be proportional to the number of mature cows in the herd and depends on the farm's management. For example, the operation may house virtually no immature animals on site, and obtain replacement heifers from stand-alone operations, or could have close to a 1:1 ratio of immature animals to mature animals. The percentage of immature animals on site varies with the size and location of the operation. For farms with more than 200 dairy cows, there is typically one calf or heifer for every 1.7 mature cows, or 0.6 immature animals for every mature dairy cow (Stull et al., 1998).

For the model farm, EPA estimates the number of calves on site to be 30 percent of the mature cows, and another 30 percent of the mature cows is used to estimate the number of heifers on site. The percentage of bulls on site is typically small. For this reason, EPA assumes that their impact on the model farm waste management system is insignificant, and these animals are not considered in the model farm.

The most common types of housing for mature cows include freestall barns, tie stalls/stanchions, pasture, drylots, freestall barns, and combinations of these (Stull et al., 1998). Based on site visits, most medium to large dairies (>200 mature dairy cows) house their mature cows in freestall barns; therefore, EPA assumes that mature dairy cows are housed in freestall barns for the dairy model.

The most common types of calf and heifer housing are drylots, multiple animal pens, and pasture (USDA APHIS, 1996a). Based on site visits, most moderate to large facilities use drylots to house their heifers and calves, so drylots were used in the model farm definition as the housing for calves and heifers at dairy operations. The size of the drylot for the model farm was calculated using animal space requirements suggested by Midwest Plan Service (Midwest Plan Service, 1987).

Under the NSPS Option 8, the model dairy farm is required to eliminate the potential for discharge; therefore, EPA costed confinement barns for heifer and calf housing to avoid contaminated runoff from drylots (ERG, 2000a).

### 11.2.4.2 *Waste Management Systems*

Waste is generated in two main areas at dairy operations: the milking parlor and the housing areas. Waste from the milking parlor includes manure and wash water from cleaning the equipment and the parlor after each milking. Waste from the confinement barns includes bedding and manure for all barns, and wash water if the barns are flushed for cleaning. Waste generated from the drylots includes manure and runoff from any precipitation that falls on the drylot.

Site visits showed that most dairy operations send their wastewater from the parlor and flush barns to a lagoon for storage and treatment. The wastewater is sometimes passed through a solids separator to remove solids before the wastewater enters the lagoon. The operator removes solids from the separator frequently to prevent buildup, and the solids are stockpiled on site. Solid waste scraped from a barn is typically stacked on the feedlot for storage for later use or transport. Solid waste on the drylot is often mounded and is later removed for transport off site or land application. Wastewater in the lagoon is held in storage for later use as fertilizer on site or transportation off site. The waste management systems used for the model dairy farm in this cost model are shown in Figure 11-4.

Under the NSPS Option 8, the dairy waste management system is contained in three separate areas for each animal: the mature dairy cow freestall barn with underpit storage, the heifer freestall barn with underpit storage, and the calf barn with adjacent manure storage. All manure and wastewater generated in the milking parlor are channeled to the mature cow manure storage pit. The manure pits provide storage for the waste until it is applied to the land or transported off site. The calves at this model farm are also housed in a confinement barn; however, the barn has a solid floor and the manure waste is scraped to a covered storage area, where is its stored until the waste is applied to the land or transported off site.

The amount of waste generated at a facility depends on how the operation cleans the barn and parlor on a daily basis. Some dairy operations flush the waste (a flush dairy); others use less water, hosing down the parlor and scraping the manure from the barns (a hose/scrape dairy). The number of facilities that operate as a flush dairy or a hose/scrape dairy was estimated from site visits. Both flush and hose/scrape dairy systems were modeled as part of the model farm, and then the results of each were ultimately weighted to reflect the percentage of operations that are assumed to be flush versus hose/scrape for a single model farm.

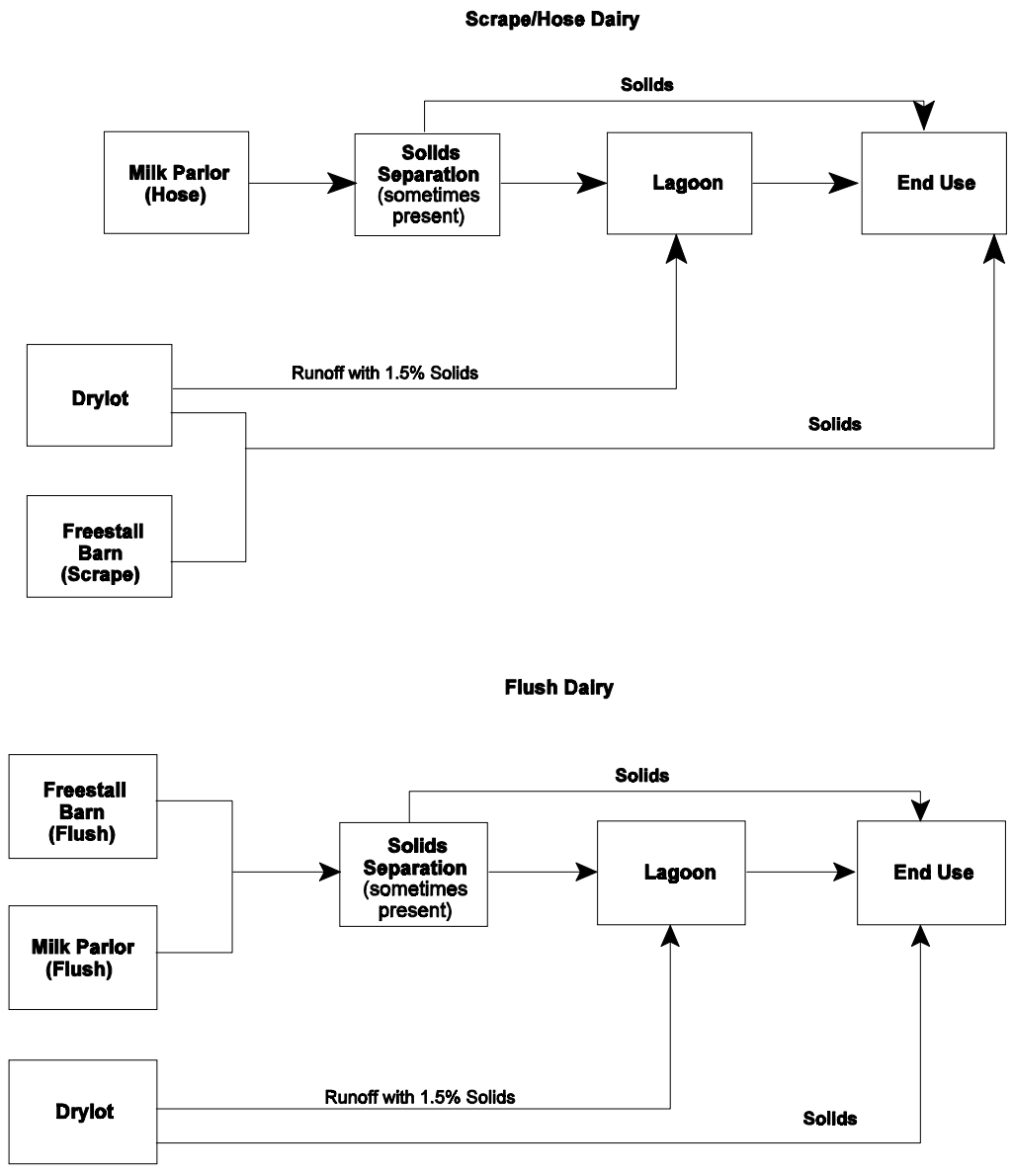


**Figure 11-4. Model Dairy Farms**

### 11.2.4.3 *Size Group*

Data collected during site visits indicate that dairies operate differently depending on their size. For example, larger dairies tend to already have lagoon storage, while moderate-sized dairies may have only a small amount of storage. Also, because feedlots with more than 700 animals are already regulated under the current rule, it was assumed for the cost model that these facilities are already in compliance for many components of the proposed rule. Therefore, three different size groups were used to model dairy operations with more than 200 animals. The size groups are presented in Table 11-6.

**Table 11-6. Size Classes for Model Dairy Farms**

| Size Class | Size Range | Average Head |
|---|---|---|
| Medium 1 | 200-350 | 235 |
| Medium 2 | 350-700 | 460 |
| Large 1 | >700 | 1,419 |

### 11.2.4.4 *Region*

Data from site visits indicate that dairies in various regions of the country have different characteristics primarily related to climate. For example, a dairy in the Pacific region receives a high amount of rainfall annually, and therefore will produce a high amount of runoff from drylots. A dairy in the Central region may not have as high rainfall, and will therefore produce less runoff from drylots. Because operating characteristics may vary between regions, dairies were modeled in five separate regions: Central, Pacific, South, Mid-Atlantic, and Midwest.

In the Large 1 size group, more than 80 percent of dairy operations are located in the Central and Pacific regions. In the medium-sized groups, most operations are located in the Midwest and Mid-Atlantic regions.

## 11.2.5 Beef Feedlots

EPA developed one model farm to represent beef feedlot operations in the United States. The parameters describing the beef model were developed using information from NASS, site visits to beef feedlots across the country, meetings with USDA extension agents, and meetings with the National Cattlemen's Beef Association. A description of the various components of the model farm is presented below, and the sources of the information used to develop that piece of the model farm are referenced. The *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* provides more detailed information of the development of the model beef farm. (ERG, 2000a).

### 11.2.5.1 *Housing*

The large majority of beef feedlot operations in the United States house the cattle on drylots (USDA, 1996a). There is a small number of operations that use confinement barns at beef feedlots, but the vast majority use open lots as do most new operations. Therefore, drylots were assumed as the housing for the model beef farm. The size of the drylot was calculated using animal space requirements suggested by Midwest Plan Service (Midwest Plan Service, 1987).

### 11.2.5.2 *Waste Management System*

The drylot is the main area where waste is produced at beef operations. Waste from the drylot includes solid manure, which has dried on the drylot, and runoff, which results from precipitation that falls on the drylot.

Most beef operations in the United States divert runoff from the drylot to a storage pond (USDA, 1996a). A solids separator is sometimes used to remove solids from the waste stream before it enters the lagoon. Solid waste on the drylot is often mounded to promote drainage away from the lot to provide consistently dry areas for the cattle to rest, and is later moved from the drylot for transportation off site or land application on site (USDA APHIS, 1996a).

The beef model farm was developed following these typical characteristics of beef operations. Figure 11-5 presents the waste management system used as part of the model beef farm.

### 11.2.5.3 *Size Group*

Data collected during site visits indicate that beef feedlots operate differently depending on their size. For example, larger feedlots frequently put waste through a solid separators before transferring it to a holding pond, and moderate sized facilities are less frequently equipped with solids separators. Moreover, feedlots with more than 1,000 beef cattle are already regulated under the current rule. EPA therefore assumes that these facilities are already in compliance for many components of the proposed rule. To account for these differences, four different size groups were used to model beef operations with more than 300 animal units. The size groups are presented in Table 11-7.

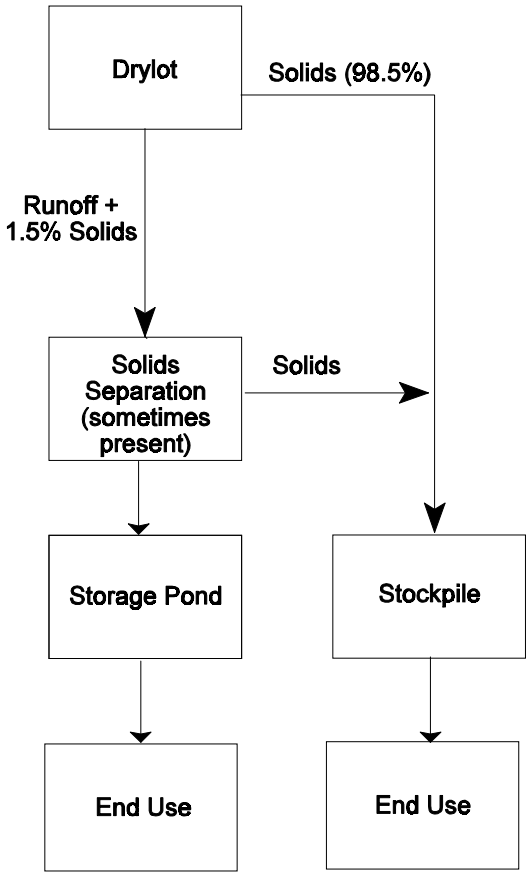


**Figure 11-5. Model Beef Farm**

**Table 11-7. Size Classes for Model Beef Farms**

| Size Class | Size Range | Average Head |
|---|---|---|
| Medium 1 | 300-500 | 600 |
| Medium 2 | 500-1,000 | 1,088 |
| Large 1 | 1,000-8,000 | 2,628 |
| Large 2 | > 8,000 | 43,805 |

#### 11.2.5.4 *Region*

Data from site visits to beef feedlots indicate that beef operations in various regions of the country have different characteristics primarily related to climate. For example, a beef feedlot in the Pacific region receives a high amount of rainfall annually, and therefore will generate a higher volume of runoff than an operation that receives less annual precipitation. To accommodate these climatological differences, beef feedlots were modeled for five separate regions: Central, Pacific, South, Mid-Atlantic, and Midwest.

Approximately 95 percent of Large 1 and Large 2 operations are located in the Central and Midwest regions. Of the Medium 2 facilities, nearly 75 percent are located in the Midwest region.

### 11.2.6 Veal Operations

EPA developed one model farm to represent veal operations in the United States. The parameters describing the veal model farm were developed using information collected during site visits to veal operations in Indiana and discussions with the American Veal Association. A description of the various components of the model farm is presented below, and the sources of the information used to develop that piece of the model farm are referenced. The *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* provides more detailed information of the development of the model veal farm (ERG, 2000a).

#### 11.2.6.1 *Housing*

Veal calves are generally grouped by age in an environmentally controlled building. The majority of veal operations in the United States are equipped with individual stalls or pens with slotted floors, which allow for efficient removal of waste (Crouch, 1999). Since this type of housing is the predominant type of housing used in the veal producing industry, environmentally controlled buildings with individual stalls were designated as the housing for the model veal farm.

### 11.2.6.2 *Waste Management Systems*

Based on site visits, the only significant source of waste at veal operations is from the veal confinement areas. Veal feces are very fluid; therefore, manure is typically handled in a liquid waste management system. Manure and waste that fall through the slotted floor are flushed regularly out of the barn. (Typically, flushing occurs twice daily.) Most veal operations have a lagoon to receive and treat their wastewater from flushing, although some operations have a holding pit system in which the manure drops directly into the pit, which provides storage until land application or transport off site. Wastewater in the lagoon is held in storage for later use as fertilizer on site or for off-site transportation.

EPA developed the veal model farm used in this cost methodology from these general characteristics. The animals are totally confined, and therefore the only source of wastewater is from flushing the manure and waste from the barns. Figure 11-6 presents a diagram of the model veal farm waste management system.

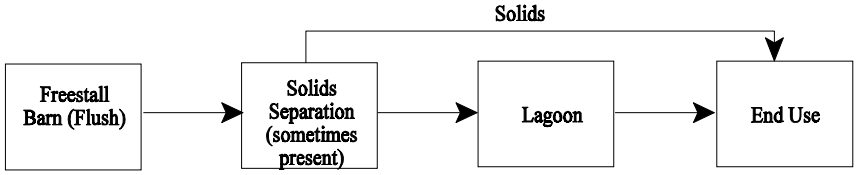


**Figure 11-6. Model Veal Farm**

### 11.2.6.3 *Size Group*

The veal industry standard operating procedures do not vary significantly based on the size of the operation, according to data collected during site visits and discussions with the American Veal Association (Crouch, 1999). Two size groups were used to model the industry, as presented in Table 11-8.

**Table 11-8. Size Classes for Model Veal Farm**

| Size Class | Size Range | Average Head |
|---|---|---|
| Medium 1 | 300-500 | 400 |
| Medium 2 | >500 | 540 |

#### 11.2.6.4 *Region*

The American Veal Association indicates that veal producers are located predominantly in the Midwest and Central regions (Crouch, 1999). Therefore, only these two regions were incorporated in the model veal farm.

### 11.2.7 Heifer Grower Operations

EPA developed one model farm to describe heifer grower operations in the United States. The parameters describing the heifer model farm were developed from information collected during meetings with the National Milk Producers Federation and discussions with the Professional Heifer Growers Association. A description of the various components of the model farm is presented below, and the sources of the information used to develop each piece of the model farm are noted. The *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* provides more detailed information of the development of the heifer model farm (ERG, 2000a).

#### 11.2.7.1 *Housing*

Stand-alone heifer raising operations use two primary methods of housing the animals. One method is to raise the heifers on pasture, and the second method is to raise the heifers on confined drylots. Because this regulation addresses only confined operations, the model heifer farm accounts for animals housed on drylots.

#### 11.2.7.2 *Waste Management System*

The drylot is the main area where waste is produced at heifer operations. Waste from the drylot includes solid manure, which has dried on the drylot, and runoff, which results from precipitation that falls on the drylot.

Heifer operations typically operate like beef feedlots (Cady, 2000). As such, it is assumed that runoff from the drylot is channeled to a storage pond, sometimes passing through a solids separator before entering the pond, while solid waste from the drylot is mounded on the drylot, and is later removed for transportation off site or land application on site.

The waste management system of the model heifer farm is identical to the model beef farm waste management system, which is presented in Figure 11-5.

#### 11.2.7.3 *Size Group*

There is very little information available on the number of operations raising heifers in confinement. It is believed that most large heifer raising operations (more than 1,000 head) are confinement-based, while smaller operations are often pasture-based (Cady, 2000). The average size of heifer grower operations ranges from 50 head to 25,000 head, and varies geographically. The average size of a heifer operation located west of the Mississippi River is 1,000 to 5,000

head, while the average size in the upper Midwest, Northeast, and South is 50 to 200 head. Nationally, the median size of a dairy heifer raising operation is approximately 200 head (Cady, 2000).

Because of the lack of information on the size distribution of confined heifer grower operations, EPA chose three size groups for consistency with the model beef farm size groups, as presented in Table 11-9. The average head for each size group was calculated as the median on the size group range.

**Table 11-9. Size Classes for Model Heifer Farm**

| Size Class | Size Range | Average Head |
|---|---|---|
| Medium 1 | 300-500 animals | 400 |
| Medium 2 | 500-1,000 animals | 750 |
| Large 1 | >1,000 animals | 1,500 |

#### 11.2.7.4 *Region*

There is very little information on the location of heifer grower operations in the United States; however, since they directly support the dairy industry, it can be assumed that they are concentrated in areas where the dairy industry is moving toward specialization (Bocher, 2000). EPA estimates that heifer grower operations are located in four areas of the country: 70 percent in the west, 20 percent in the south/southeast, 7 percent in the northeast, and 3 percent in the upper Midwest.

## 11.3 Design and Cost of Waste and Nutrient Management Technologies

EPA developed computer cost models to estimate compliance costs for each model farm and regulatory option.

The cost models calculates model farm costs in three major steps:

1) Costs are calculated for each technology or practice that makes up each regulatory option for each model farm, based on model farm characteristics, including number of head, waste characteristics, and facility characteristics.

2) The costs for each technology or practice are then weighted for the entire model farm population, using frequency factors to indicate the portion of the model farm population that will incur that cost.

3) The weighted costs for each model farm population are summed, resulting in an average model farm cost for each model population.

The resulting model farm cost represents the average cost that all of the operations within that model population are expected to incur. The compliance costs that a single model farm incurs may be more or less than this average cost.

The cost estimates generated contain the following types of costs:

- Capital costs—Costs for facility upgrades (e.g., construction projects);
- Fixed costs—One-time costs for items that cannot be amortized (e.g., training);
- Annual operating and maintenance (O&M) costs—Annually recurring costs, which may be positive or negative. A positive O&M cost indicates an annual cost to operate, and a negative O&M cost indicates a benefit to operate, due to cost offsets;
- Three-year recurring O&M costs—Costs that occur only once every three years; and
- Annual fertilizer costs—Costs for additional commercial nitrogen fertilizer needed to supplement the nutrients available from manure application.

These costs provide the basis for evaluating the total annualized costs, cost effectiveness, and economic impact of the regulatory options proposed for the CAFOs industry.

The following sections discuss the six primary components of the costing methodology:

- The calculation of manure and nutrient production at each operation;
- Cropland acreage;
- Nutrient management planning;
- Facility upgrades;
- Land application; and
- Off-site transportation of manure.

Further detail on the cost methodology may be found in the *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* and the report on the *Cost Model for Swine and Poultry Sectors* (ERG, 2000a; Tetra Tech, Inc. 2000a).

### 11.3.1 Manure and Nutrient Production

The manure produced at each model farm provides the basis for the design of the technology components and model farm parameters, including determining farm acreage, nutrient management practices, equipment sizes, and the agronomic rate of applying waste to land. The quantity and characteristics of the waste for each model farm are calculated from values provided

in the *Agriculture Waste Management Field Handbook* for beef and dairy operations, and from values in *Nutrients Available from Livestock Manure Relative to Crop Growth* for swine and poultry operations (USDA NRCS, 1992; USDA NRCS, 1998).

The quantity of manure generated from a feedlot operation depends on the animal type and the number of mature and immature animals that are present. Nutrient production at each model farm is calculated using waste characteristics data for excreted manure for each animal type. The mass production of each of these nutrients is calculated using the average weight of the animal while housed at the model farm, the waste concentration data, and the number of animals on site. The total daily rate of manure and nutrient production for each model farm is presented in Table 11-10, and an example of these calculations is shown in Figure 11-7.

## Table 11-10. Manure and Nutrient Production by Model Farm

| Animal Type | Size Class | Average Head | Total Manure (lbs/day) | Nitrogen Production (lb/day) | Phosphorus Production (lb/day) |
|---|---|---|---|---|---|
| Beef | Medium 1 | 600 | 33,151 | 179 | 48 |
| | Medium 2 | 1,088 | 60,113 | 324 | 88 |
| | Large 1 | 2,628 | 145,200 | 784 | 212 |
| | Large 2 | 43,805 | 2,420,270 | 13,062 | 3,534 |
| Dairy | Medium 1 | 235 | 30,673 | 155.45 | 28.11 |
| | Medium 2 | 460 | 60,041 | 304.29 | 55.02 |
| | Large 1 | 1,419 | 185,214 | 938.67 | 169.73 |
| Dairy-Heifer | Medium 1 | 71 | 2,559 | 8 | 2 |
| | Medium 2 | 138 | 5,009 | 15 | 3 |
| | Large 1 | 426 | 15,453 | 47 | 10 |
| Dairy-Calves | Medium 1 | 71 | 1,624 | 5 | 1 |
| | Medium 2 | 138 | 3,178 | 10 | 2 |
| | Large 1 | 426 | 9,804 | 30 | 6 |
| Veal | Medium 1 | 400 | 6,710 | 30 | 7 |
| | Medium 2 | 540 | 9,059 | 40 | 10 |
| Heifers | Medium 1 | 400 | 14,520 | 44 | 9 |
| | Medium 2 | 750 | 27,225 | 83 | 18 |
| | Large 1 | 1,500 | 54,450 | 165 | 35 |
| Swine:GF | Medium 1 | 1,176 | 16,937 | 72 | 21 |
| | Medium 2 | 2,146 | 30,906 | 132 | 38 |
| | Large 1 | 3,491 | 50,277 | 214 | 62 |
| | Large 2 | 22,184 | 319,490 | 1,363 | 395 |
| Swine:FF | Medium 1 | 1,147 | 12,463 | 93 | 27 |
| | Medium 2 | 2,153 | 23,395 | 175 | 51 |
| | Large 1 | 3,453 | 37,521 | 281 | 82 |
| | Large 2 | 37,922 | 412,066 | 3,082 | 901 |
| Layers:All | Medium 1 | 41,786 | 9,083 | 130 | 48 |
| | Medium 2 | 96,595 | 20,997 | 302 | 112 |
| | Large 1 | 287,740 | 62,547 | 899 | 333 |
| | Large 2 | 1,027,318 | 223,313 | 3,208 | 1,190 |
| Broiler | Medium 1 | 44,187 | 18,835 | 267 | 78 |
| | Medium 2 | 73,717 | 31,422 | 446 | 130 |
| | Large 1 | 117,347 | 50,019 | 710 | 206 |
| | Large 2 | 332,073 | 141,546 | 2,009 | 584 |
| Turkey | Medium 1 | 24,936 | 12,764 | 192 | 75 |
| | Medium 2 | 45,486 | 23,284 | 350 | 136 |
| | Large 1 | 133,340 | 68,255 | 1,025 | 399 |

GF = Grower-Finisher
FF = Farrow-to-Finish
Source: Calculated from manure nutrient values presented in USDA NRCS, 1998 and model farm average head.

**Mature dairy cattle (DAIRY, MEDIUM 2 MODEL FARM, 460 head) produce:**

83.5 lb manure /day-1,000 lb live weight
0.45 lb nitrogen (TKN)/day-1,000 lb live weight
0.08 lb phosphorus/day-1,000 lb live weight
Average weight = 1,350 pounds

Mature cattle manure (lb/day) = 83.5 lb/day * 1,350 lb/1,000 lb * 460 head/farm = 51,854 lb/day/farm

Nitrogen production from mature cattle (lb/day)= 0.45 lb/day * 1350 lb/1,000 lb * 460 head/farm = 279 lb/day/farm

Phosphorus production from mature cattle (lb/day)= 0.08 lb/day * 1,350 lb/1,000 lb * 460 head/farm = 50 lb/day/farm

**Heifers on site (138 head) produce:**

66 lb manure/day-1,000 lb live weight
0.2 lb nitrogen (TKN)/day-1,000 lb live weight
0.04 lb phosphorus/day-1,000 lb live weight
Average weight = 550 pounds

Heifer manure (lb/day) = 66 lb/day * 550 lb/1,000 lb *138 head/farm = 5,009 lb/day/farm

Nitrogen production from heifers (lb/day)= 0.2 lb/day * 550 lb/1,000 lb *138 head/farm = 15 1b/day/farm

Phosphorus production from heifers (lb/day) = 0.04 lb/day * 550 lb/1,000 lb *138 head/farm = 3 lb/day/farm

**Calves on site (136 head) produce:**

65.8 lb manure/day-1,000 lb live weight
0.2 lb nitrogen (TKN)/day-1,000 lb live weight
0.04 lb phosphorus/day-1,000 lb live weight
Average weight =350 pounds

Calf manure (lb/day) = 65.8 lb/day * 350 lb/1,000 lb *138 head/farm =3,178 lb/day/farm

Nitrogen production from calves (lb/day)= 0.2 lb/day * 350 lb/1,000 lb *138 head/farm = 10 lb/day/farm

Phosphorus production from calves (lb/day) = 0.04 lb/day * 350 lb/1,000 lb *138 head/farm = 2 lb/day/farm

**TOTAL MANURE PRODUCTION = 51,854 lb + 5,009 lb + 3,178 lb = 60,041 lb/day**
**TOTAL NITROGEN PRODUCTION = 279 lb+ 15 lb + 10 lb = 304 lb/day**
**TOTAL PHOSPHORUS PRODUCTION = 50 lb + 3 lb + 2 lb = 55 lb/day**

**Figure 11-7. Sample Calculation of Manure and Nutrient Production at Model Farm**

### 11.3.2 Available Acreage

Data on the amount of cropland and pastureland available to facilities for land application of manure are limited. Therefore, EPA classified the model farms into three categories that define how much land they have available and how the operation ultimately manages its waste:

Category 1: Facilities with sufficient land to apply all of their generated manure at appropriate agronomic rates. No manure is transported off site.

Category 2: Facilities without sufficient land to apply all of their generated manure at appropriate agronomic rates. The excess manure after agronomic application is transported off site.

Category 3: Facilities without any available land for manure application. All of the manure is transported off site regardless of the regulatory options considered by EPA.

EPA defines Category 1 operations as having a sufficient amount of land, and at a minimum, the available land equals the amount of land required to agronomically apply all of the manure generated at the operation. Category 2 acreages are based on a 1999 USDA analysis that calculated the amount of nutrients present in manure that exceeded the amount that could be applied agronomically (Kellogg et al., 2000). These calculations are discussed in detail below. EPA assumes Category 3 operations have no available land.

#### 11.3.2.1 *Agronomic Application Rates*

Under all regulatory options considered, all operations are required to implement nitrogen-based agronomic application rates when applying animal waste or wastewater. Under Options 2 through 8, however, operations that are located in areas with certain site conditions (e.g., phosphorus-saturated soils) are required to follow more stringent phosphorus-based agronomic application rates. Costs for nitrogen-based application are different than costs for phosphorus-based application. These costs are weighted for a model farm using a "nutrient-based application factor" to account for these different costs, based on the percent of facilities in that region that would apply on a phosphorus-basis verses a nitrogen-basis. The nutrient-based application factors vary according to the type of facility (beef, dairy, swine, or poultry), and they are presented in the cost methodology reports (ERG, 2000a; Tetra Tech, Inc., 2000a).

Agronomic application rates are calculated using crop yields, crop uptakes, and crop utilization factors. These crops vary by region and animal type. EPA selected representative crops for each model farm by contacting USDA state and county cooperative extension services and incorporating data from USDA's *Agriculture Waste Management Field Handbook* (USDA NRCS, 1992). The methods used to calculate nutrient requirements and application rates for the beef and dairy subsectors and the swine and poultry subsectors are described below.

**Beef and Dairy**

For the beef and dairy cost model, extension agents identified typical crops grown by dairy and beef feedlots in that state, specifying the type of crops grown and typical yields. Crop nutrient requirements are calculated by multiplying the expected crop yields (obtained from state cooperative extension services or Census of Agriculture data) by the crop uptake (Lander, 1998) for both nitrogen (N) and phosphorus (P).

$$\text{Crop N Requirements (lb/acre)} = \text{Crop Yield (tons/acre)} \times \text{Crop Uptake (lb/ton)}_{\text{nitrogen}}$$

$$\text{Crop P Requirements (lb/acre)} = \text{Crop Yield (tons/acre)} \times \text{Crop Uptake (lb/ton)}_{\text{phosphorus}}$$

Table 11-11 presents the representative crops, crop yields, crop uptakes, and crop nutrient (nitrogen and phosphorus) requirements for all animal types by region. EPA does not expect crops to vary significantly based on the size of the animal operation. Because veal operations are located predominantly in the Midwest, EPA developed only one set of crop assumptions for veal that reflect the Midwest region.

When more than one crop is grown on the land over the year (double or triple cropping), EPA set the total crop nutrient requirement for that land equal to the sum of the individual crop nutrient requirements.

EPA assumed that 70 percent of the nitrogen and 100 percent of the phosphorus in cattle manure that is applied to the land would be available for crop uptake and utilization over time (Lander, 1998). Therefore, the agronomic application rate is calculated as the total crop nutrient requirement divided by the appropriate utilization factor.

$$\text{Nitrogen-Based Manure Application Rate (lb/acre)} = \text{Total Crop Nitrogen Requirements (lb/acre)} \ / \ 70\%$$

$$\text{Phosphorus-Based Manure Application Rate (lb/acre)} = \text{Total Crop Phosphorus Requirements (lb/acre)} \ / \ 100\%$$

## Table 11-11. Crop Information

| Animal Type | Region | Crops | Crop Yield* | Crop Uptake (lb/ton) | | Crop Requirement (lb/ton) | |
|---|---|---|---|---|---|---|---|
| | | | | Nitrogen | Phosphorus | Nitrogen | Phosphorus |
| Beef/ Heifers | Central | Corn-silage | 20 tpa | 7.1 | 1.1 | 142 | 21 |
| | | Hay | 3 tpa | 25.6 | 4.5 | 77 | 13 |
| | Mid-Atlantic | Corn-silage | 27 tpa | 7.1 | 1.1 | 191 | 28 |
| | | Alfalfa | 6 tpa | 0 | 4.7 | 0 | 28 |
| | Midwest | Corn-silage | 20 tpa | 7.1 | 1.1 | 142 | 21 |
| | | Alfalfa | 6 tpa | 0 | 4.7 | 0 | 28 |
| | Pacific | Corn-silage | 24 tpa | 7.1 | 1.1 | 170 | 25 |
| | | Alfalfa | 8 tpa | 0 | 4.7 | 0 | 38 |
| | | Winter wheat | 18 tpa | 0.03 | 0.01 | 0.5 | 0.1 |
| | South | Corn-silage | 17 tpa | 7.1 | 1.1 | 121 | 18 |
| | | Hay | 2 tpa | 19.8 | 15.3 | 40 | 31 |
| | | Rye | 3 tpa | 0.03 | 0.01 | 0.1 | 0.02 |
| Dairy | Central | Corn-silage | 20 tpa | 7.1 | 1.1 | 142 | 21 |
| | | Hay | 3 tpa | 25.6 | 4.5 | 77 | 13 |
| | Mid-Atlantic | Corn-silage | 17 tpa | 7.1 | 1.15 | 121 | 18 |
| | | Hay | 2 tpa | 19.8 | 15.3 | 40 | 31 |
| | Midwest | Corn-silage | 17 tpa | 7.1 | 1.1 | 121 | 18 |
| | | Hay | 2 tpa | 19.8 | 15.3 | 40 | 31 |
| | Pacific | Corn-silage | 24 tpa | 7.1 | 1.1 | 170 | 25 |
| | | Alfalfa | 8 tpa | 0 | 4.7 | 0 | 38 |
| | | Winter wheat | 18 tpa | 0.03 | 0.01 | 1 | 0.1 |
| | South | Corn-silage | 17 tpa | 7.1 | 1.1 | 121 | 18 |
| | | Hay | 2 tpa | 19.8 | 15.3 | 40 | 31 |
| | | Rye | 3 tpa | 0.03 | 0.01 | 0.1 | 0.02 |
| Swine | Central | Corn | 162 bpa | Not calculated | Not calculated | 129 | 24 |
| | Mid-Atlantic | Corn | 83 bpa | | | 67 | 12 |
| | | Soybean | 28 bpa | Not calculated | Not calculated | 100 | 10 |
| | | Rye | 25 bpa | | | 26 | 4 |
| | Midwest | Corn | 135 bpa | | | 108 | 20 |
| | | Soybean | 48 bpa | Not calculated | Not calculated | 170 | 17 |
| | Pacific | Corn chop | 23 tpa | | | 160 | 24 |
| | | Oats | 90 bpa | Not calculated | Not calculated | 53 | 10 |
| | | Alfalfa | 7 bpa | | | 356 | 33 |
| | South | Bermuda | 8 tpa | Not calculated | Not calculated | 150 | 15 |
| Poultry | Central | Bermuda | 8 tpa | Not calculated | Not calculated | 150 | 15 |
| | Mid-Atlantic | Corn | 123 bpa | | | 98 | 18 |
| | | Soybean | 27 bpa | Not calculated | Not calculated | 94 | 10 |
| | | Wheat | 63 bpa | | | 64 | 13 |
| | Midwest | Fescue | 5 bpa | Not calculated | Not calculated | 99 | 10 |
| | Pacific | Corn chop | 23 tpa | | | 165 | 24 |
| | | Oats | 102 bpa | Not calculated | Not calculated | 60 | 11 |
| | | Alfalfa | 7 tpa | | | 352 | 33 |
| | South | Fescue | 5 tpa | Not calculated | Not calculated | 99 | 10 |
| Veal | All (based on Midwest) | Corn-silage** | 138 bpa | 0.8 (lb/bu) | 0.2 (lb/bu) | 110 | 67 |
| | | Soybeans | 42 bpa | 3.6 (lb/bu) | 0.4 (lb/bu) | 150 | |
| | | Winter wheat | 46 bpa | 1.0 (lb/bu) | 0.2 (lb/bu) | 47 | |

* tpa = tons per acre; bpa = bushels per acre

** Veal crops based on corn-silage 50%, soybeans 50%, and winter wheat 100%

Source: ERG, 2000a; Tetra Tech, 2000a.

**Swine and Poultry**

For the swine and poultry model, EPA used published 1997 Census of Agriculture data to determine the cropland acres of selected crops as a percentage of total harvested crop acres. EPA determined crop yields by dividing the harvested quantity by the acreage obtained from the 1997 Census of Agriculture and from the yields found in USDA's *Agriculture Waste Management Field Handbook*. Using the actual yield data, nutrient requirements and nutrient removal rates were determined from USDA's *Agriculture Waste Management Field Handbook.* The average annual nitrogen and phosphorus crop removal and application rates were calculated by dividing the total crop requirements over the time to complete a full crop rotation.

### 11.3.2.2 *Category 1 and 2 Acreage*

Category 1 acreages are calculated using the agronomic application rates, number of animals, manure generation estimates, nutrient content of the manure, and manure recoverability factors:

$$\text{Category 1 Acreage} = \frac{\#\text{Animals} \times \text{Manure Generation (tons/head)} \times \text{Nutrient Content (lbs/ton manure)} \times \text{Recoverability Factor}}{\text{Agronomic application rate (lb/acre)}}$$

EPA defines recoverability factors as the percentage of manure, based on solids content, that it would be practical to recover. Recoverability factors are developed for each region, using USDA state-specific recoverability factors, and are based on the assumption that the decrease in nutrient value per ton of manure mirrors the reduction in solids content of the recoverable manure (USDA NRCS, 1998).

Category 2 acreages are estimated using excess manure from USDA's analysis of acres required to apply excess manure (Kellogg et al., 2000) and, in some cases, Category 1 acreage.

### 11.3.3 Nutrient Management Planning

To minimize the release of nutrients to surface and ground waters, confined animal feeding operations must prevent excess application of manure nutrients on cropland through the process of nutrient management planning. Confined animal feeding operations apply manure nutrients to the land in the form of solid, liquid, or slurry. Manure is also stored prior to application in stockpiles, tanks, pits, storage ponds, or lagoons. Confined animal feeding operations prevent excess application by developing and abiding by appropriate manure application rates that are designed to add only the nutrients required by the planned crops at the expected yields. Nutrient management planning may also minimize releases of nutrients by specifying the timing and location of manure application.

Five nutrient management practices are included in the costing methodology:

1. **Nutrient management plan—**a documented plan developed for each facility to ensure agronomic application of nutrients on cropland and management of waste on site. The

plan includes costs for development of the plan, training and certification, manure sampling and analysis (collecting samples from solid and liquid waste before each land application period), soil sampling and analysis (once every 3 years for all phosphorus-based options), hydrogeologic assessment for facilities located in ground water protection areas, periodic inspections of on-site facility upgrades, identification and protection of crop setback areas to protect waterfront areas, calibration of the manure spreader before each application period, and ongoing recordkeeping and recording. The plan must be updated at least once every 5 years.

2. **Surface water monitoring—**a practice in which surface water samples are periodically collected and analyzed for indications of contaminated runoff into adjacent waters. Costs account for 12 sampling events per year, including 4 grab samples and 1 quality assurance sample per event, measuring for nitrate-nitrite, total Kjeldahl nitrogen, total phosphorus, and total suspended solids.

3. **Ground water monitoring**—a practice for operations where ground water has a direct hydrogeologic link to surface water. Costs include installation of four 50-foot ground water wells and the collection of a sample from each well twice annually for indications of ground water contamination from the feedlot operation.

4. **Feeding strategies**—a practice in which the animal feed is monitored and adjusted to reduce the quantity of nutrients that are excreted from the animal. Costs include feeding strategies to reduce nitrogen and phosphorus in excrement from poultry and swine.

5. **Timing restrictions**—a practice in which manure is land applied only when the land and crops are most amenable to nutrient utilization. Costs for this practice are calculated for all animal sectors.

Each of these practices is discussed in Section 8.0 of this report, and further detail on the design of each practice may be found in the *Cost Methodology Report for Beef and Dairy Animal Feeding Operations* and the report on the *Cost Model for Swine and Poultry Sectors* (ERG, 2000a; Tetra Tech, Inc., 2000a).

### 11.3.4 Facility Upgrades

Section 8.0 of this report describes treatment technologies and facility upgrades that are presented as part of this cost methodology. These facility upgrades include:

- Anaerobic digestion with energy recovery;
- Anaerobic lagoons;
- Confinement barns for immature animals;
- Covered walkways;
- Field runoff controls;

- Lagoon covers;
- Liners for lagoons and ponds;
- Manure composting equipment;
- Manure storage;
- Solids separation (settling basin);
- Storage ponds;
- Storm water diversions (berms); and,
- Underpit storage.

An overview of the costs and applicability of each of these upgrades to each of the animal sectors is presented below:

**Anaerobic digestion with energy recovery:** Option 6 requires the use of anaerobic digestion for the largest dairy and swine operations, prior to discharge to a storage lagoon. The digester is designed to receive waste from all flushing, hose, and scrape operations, and combines this waste into a reactor to produce methane for energy use at the operation. Covered lagoon digesters are costed for large flush dairies and swine operations, and complete mix digesters are costed for large hose dairies. Runoff from the dairy feedlot is collected separately into a storage pond or lagoon.

**Anaerobic lagoons:** Costs for anaerobic lagoons are included for facilities that collect mixtures of water and manure, such as dairies, veal operations, swine, and wet layer operations. Lagoons receive wastewater from flush barns, flush and hose milking parlors (for dairies), and runoff from drylots. They are designed to accommodate a 25-year, 24-hour storm event and average rainfall for the storage period. The dairy cost model assumes a minimum depth of 10 feet for an anaerobic lagoon and adjusts this depth to account for direct precipitation and freeboard, and to optimize the cut-and-fill ratios for constructing the lagoon. The swine and poultry models design all lagoons as 12 feet deep.

**Confinement barns for immature animals:** Under NSPS Option 8 for dairies, all immature animals are housed in confinement barns. This eliminates the need for drylots and therefore contaminated runoff from the drylots. For calf barns, additional storage area is included for manure storage.

**Covered walkways:** Under NSPS Option 8 for dairies, all potential sources of contaminated runoff are eliminated. Therefore, costs are included to cover animal walkways and handling areas. The cost to cover holding areas and silage areas per barn are also included for dairies in this option.

**Field runoff controls:** Under all options, costs are included to implement and maintain setbacks along waterbodies contained within land-applied cropland for all animal operations. The size and therefore the cost of the setback were calculated based on

national estimates of land area and stream miles and the average size and cost of filter strips (USEPA, 2000; USEPA, 1993).

**Lagoon covers:** Under Option 5, the regulation requires that facilities have zero potential for discharge from the feedlot. This requirement may be met by covering liquid storage basins and preventing direct precipitation from entering and adding to the storage volume. Swine, wet layers, and veal operations under Option 5 have costs for lagoon covers.

**Liners for lagoons and ponds:** The regulation requires that operations that store animal waste (e.g., runoff and/or process water) in a lagoon or pond have a liner in place if they are located in an area where ground water has a hydrogeologic connection to surface water. The liner is composed of two parts: a synthetic portion and a clay portion. The liner is designed to cover the floor of the pond or lagoon, including sloped side walls. Costs are calculated for all animal sectors to install liners in their lagoons and ponds.

**Manure composting equipment:** EPA designed windrow composting systems to treat and manage manure waste from drylots, separated solids, and scraped manure under Option 5 for beef, dairy, and heifer operations. Mortality composting systems are designed for swine and poultry operations to manage mortality waste under all options.

**Manure storage:** The cost model includes costs for the installation and maintenance of concrete pads as part of the waste management system for beef, heifer, and dairy operations under Options 3 and 4. The pads are designed to store waste from drylots, separated solids, and scraped manure. The cost model also includes costs for dry storage of poultry manure as part of all regulatory options. Storage for poultry litter includes a storage structure with a roof, a foundation, and a floor; and the structure receives poultry manure and bedding waste from the poultry house after each cleanout.

**Solids separation (settling basin):** The cost model includes solids separation as part of facility upgrades for beef and dairy operations, to facilitate the management of manure waste by separating the solid portion from the liquid portion. EPA costed earthen separators for beef feedlots, where runoff is the largest expected flow through the separator, and concrete-lined separators for dairy operations, where large amounts of flush water pass through the separator. Concrete is used to prevent erosion of the side slopes of the separator.

**Storage ponds:** The cost model includes the costs of storage ponds for facilities that collect runoff from the feedlot, such as beef facilities in which the cattle are confined on dry lots. The storage pond receives waste from drylot runoff only and is designed to accomodate a 25-year, 24-hour storm event and average rainfall for the storage period.

**Storm water diversions (berms):** Under all regulatory options, EPA requires that all animal operations contain any runoff collecting in potentially contaminated areas. EPA

assumes that large facilities already have storm water diversions in place, because it is required by the current regulation.

**Underpit storage:** Under NSPS Option 8 for dairies, the cost model includes the costs of underpit storage as the waste management system for the mature cow confinement barns and the heifer barns. The cost model includes a barn designed with a slatted floor, and the cows work the manure through the slats into a storage pit underneath the barn. Ventilation in the pit is required for the pit to remove toxic gases, and the manure is stored in the pit until it can be agronomically applied to the land or transported off-site.

EPA calculated the costs of facility upgrades using design specifications in combination with cost estimates for each portion of the upgrade (e.g., excavation, compaction, gravel fill, etc.). Design specifications were obtained from various sources, including the Natural Resources Conservation Service (Conservation Practice Standards), the Midwest Plan Service, the *Agricultural Waste Management Field Handbook*, and other engineering design sources. EPA combined these design specifications with model-farm information—such as the animal type, manure generation, housing methods, and the type of farm—to calculate the required size of the component as well as the materials and labor required to construct and operate the upgrade. Then cost-estimation guides—including *Means Building Construction Cost Data*, *Means Heavy Construction Cost Data*, *Richardson's*, EPA's *FarmWare* Model, and vendor-supplied cost data—were used to determine the costs of each component of the upgrade.

### 11.3.5 Land Application

The cost model calculates costs for land application of manure and other waste for those operations which have land, but are not currently applying their waste. Based on site visits, EPA estimates that all beef, dairy, veal, and heifer operations that have land already have equipment to apply dry waste. Operations that have ponds or lagoons in place similarly have some form of liquid application method available. However, operations that are estimated to build lagoons or ponds in response to the regulation are costed for new equipment to apply liquid waste. These costs are based on installation and operation of a center pivot irrigation system from vendor supplied cost data (Zimmatic, Inc., 1999). For swine and poultry operations, EPA estimated (based on site visits) that all facilities already apply their waste to the land, and no additional costs would be incurred under the regulatory options.

### 11.3.6 Off-Site Transport of Manure

Animal feeding operations use different methods of transportation to remove excess manure waste and wastewater from the feedlot operation. The costs associated with transporting excess waste off site were calculated using two methods: contract hauling waste or purchasing transportation equipment. For poultry and swine operations, EPA based transportation costs on operations contract hauling their waste. For beef and dairy operations, EPA based transportation

costs on either contract hauling or purchasing equipment to self-haul waste (whichever was least expensive).

**Contract Hauling:** EPA evaluated contract hauling as a method of transporting manure waste off site. In this method, the animal feeding operation hires an outside company to transport the excess waste. This method is advantageous to facilities that do not have the capacity to store excess waste on site, or the cropland acreage to agronomically apply the material. In addition, this method is useful for facilities that do not generate enough excess waste to warrant purchasing their own waste transportation trucks.

No capital costs are associated with contract hauling—only the operating cost to haul the waste. For beef and dairy operations, EPA calculated a set rate per mile for solid waste and for liquid waste, using vendor-supplied quotations and the average hauling distance for each region (ERG, 2000b; Tetra Tech, Inc., 2000b). For swine and poultry operations, EPA extracted the costs of contract hauling solid waste and liquid waste from many published articles (Tetra Tech, Inc., 1999).

**Purchase Equipment:** Another method evaluated for the transport of manure waste off site involves purchasing transportation equipment. In this method, the feedlot owner is responsible for purchasing the necessary trucks and hauling the waste to an off-site location. Depending on the type of waste to be transported, a solid waste truck, a liquid tanker truck, or both types of trucks would be required. In addition, the feedlot owner is responsible for determining a suitable location to transport the waste, as well as all costs associated with loading and unloading the trucks, driving the trucks to the off-site location, and maintaining the trucks. EPA did not base compliance costs for swine and poultry operations on purchasing transportation equipment, and therefore no costs are calculated for these facilities under this transportation option.

The capital and annual costs associated with the purchase and operation of a truck for waste transport depend on the type of waste (solid or liquid) and the quantity of waste to be transported. The cost model includes an evaluation of the amount of solid and/or liquid waste the operation will ship off site, and a determination of the capital costs based on that information. Annual costs are also calculated using the quantity of liquid or solid waste, as well as the hauling distance, maintenance costs, labor, fuel rates, and other parameters (ERG, 2000b).

## 11.4 Development of Frequency Factors

EPA recognizes that individual farms have already implemented certain waste management techniques or practices described in Section 11.3. When estimating costs for the implementation of the proposed options, EPA did not include costs for practices or techniques already in place at the farm.

To do this, EPA estimated the current frequency of existing waste management practices at swine, poultry, beef, veal, heifer, and dairy operations to estimate the portion of the operations

that would incur costs to comply with the new regulation. EPA used the frequency information to estimate compliance costs for specific model farms for the regulatory options being considered. For example, based on site visits, all broiler operations are assumed to own or have access to tractors with front-end loaders for use in cleaning out the broiler houses (the frequency factor is 100 percent); therefore, no costs are included for cleaning out the broiler houses. As another example, 40 percent of large beef feedlots are estimated to have settling basins (based on site visits); therefore, only 60 percent of large beef feedlots incur a cost for a settling basin.

Applying the frequency factors to the unit component costs reduces the effective cost of that component for the model farm. Essentially, EPA adjusts the component cost to account for those facilities which already have the component in place, and would not have to install and operate a new component as a result of the proposed regulation.

EPA estimated frequency factors based on the sources below (each source was considered along with its limitations):

- **EPA site visit information**—This information was used to assess general practices of animal feeding operations and how they vary between regions and size classes.

- **Observations by industry experts**—Experts on animal feeding operations were contacted to provide insight into operations and practices, especially where data were limited or not publicly available.

- **USDA NASS**—The data currently available from NASS were used to determine the distribution of animal feeding operations across the regions by size class.

- **USDA APHIS National Animal Health Monitoring System (NAHMS)**—This source provides information on animal housing practices, facility size, and waste system components sorted by size class and region. These data have limited use because of the small number of respondents in the size classes of interest.

- ***State Compendium: Programs and Regulatory Activities Related to AFOs***—This summary of state regulatory programs was used to estimate frequency factors based on current waste-handling requirements that already apply to animal operations in various states and in specific size classes.

## 11.5 Summary of Estimated Model Farm Costs by Regulatory Option

A summary of the estimated regulatory compliance costs is provided in the following tables. Capital, fixed, annual, and 3-year recurring (and, in some cases, 5-year) costs are included for each animal sector and each of the eight regulatory options. Costs are presented in 1997 dollars.



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**Table 11-12. Regulatory Compliance Costs for Swine (FF, farrow-to-finish; GF, grower-finisher) Industry**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 187 | Large1 | 640 | 736 | 181 | 253 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 1 | 868 | Large1 | 635 | 742 | 180 | 254 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 31 | Large1 | 11,597 | 668 | 397 | 181 | 153,926 |
| 1 | Swine | Liquid | FF | Midwest | 2 | 145 | Large1 | 11,495 | 739 | 395 | 251 | 979 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 35 | Large1 | 118,315 | 580 | 22,431 | 0 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 3 | 163 | Large1 | 116,232 | 580 | 22,021 | 0 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 144 | Large2 | 1,139 | 1,340 | 200 | 905 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 1 | 306 | Large2 | 1,040 | 1,228 | 192 | 762 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 69 | Large2 | 394,727 | 808 | 8,613 | 331 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 2 | 147 | Large2 | 24,943 | 976 | 664 | 498 | 547,498 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 86 | Large2 | 554,131 | 580 | 108,310 | 0 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 3 | 182 | Large2 | 448,511 | 580 | 87,492 | 0 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 304 | Medium1a | 1,242 | 672 | 392 | 214 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 1 | 2731 | Medium1a | 1,196 | 644 | 567 | 184 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 22 | Medium1a | 7,500 | 689 | 526 | 232 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 2 | 194 | Medium1a | 7,419 | 709 | 723 | 252 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 34 | Medium1a | 33,260 | 580 | 5,745 | 0 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 3 | 310 | Medium1a | 32,228 | 580 | 5,742 | 0 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 203 | Medium1b | 1,449 | 745 | 440 | 291 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 1 | 1821 | Medium1b | 1,370 | 695 | 596 | 237 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 14 | Medium1b | 8,999 | 685 | 554 | 227 | 55,197 |
| 1 | Swine | Liquid | FF | Midwest | 2 | 129 | Medium1b | 8,883 | 709 | 752 | 252 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 23 | Medium1b | 54,889 | 580 | 9,988 | 0 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 3 | 207 | Medium1b | 53,024 | 580 | 9,820 | 0 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 135 | Medium2 | 1,621 | 816 | 485 | 365 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 1 | 696 | Medium2 | 1,526 | 750 | 627 | 294 | 0 |
| 1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 13 | Medium2 | 10,285 | 720 | 600 | 264 | 89,706 |
| 1 | Swine | Liquid | FF | Midwest | 2 | 68 | Medium2 | 10,266 | 752 | 801 | 297 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 20 | Medium2 | 75,688 | 580 | 14,073 | 0 | 0 |
| 1 | Swine | Liquid | FF | Midwest | 3 | 104 | Medium2 | 75,270 | 580 | 14,189 | 0 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 288 | Large1 | 643 | 738 | 181 | 255 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 1 | 356 | Large1 | 634 | 740 | 180 | 252 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 89 | Large1 | 11,666 | 648 | 398 | 159 | 207,255 |
| 1 | Swine | Liquid | GF | Midwest | 2 | 110 | Large1 | 11,452 | 699 | 394 | 209 | 85,939 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 81 | Large1 | 119,757 | 580 | 29,432 | 0 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 3 | 101 | Large1 | 115,367 | 580 | 28,308 | 0 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 154 | Large2 | 883 | 975 | 189 | 511 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 1 | 78 | Large2 | 920 | 1,050 | 188 | 576 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 180 | Large2 | 19,006 | 760 | 545 | 279 | 498,323 |
| 1 | Swine | Liquid | GF | Midwest | 2 | 92 | Large2 | 20,421 | 892 | 573 | 410 | 342,942 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 94 | Large2 | 290,778 | 580 | 73,215 | 0 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 3 | 48 | Large2 | 327,157 | 580 | 82,531 | 0 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 247 | Medium1a | 1,281 | 685 | 401 | 227 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 1 | 1432 | Medium1a | 1,222 | 651 | 571 | 191 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 30 | Medium1a | 7,735 | 639 | 502 | 180 | 41,347 |
| 1 | Swine | Liquid | GF | Midwest | 2 | 171 | Medium1a | 7,586 | 653 | 698 | 194 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 51 | Medium1a | 37,029 | 580 | 8,304 | 0 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 3 | 294 | Medium1a | 34,999 | 580 | 7,986 | 0 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 44 | Medium1b | 1,449 | 746 | 440 | 292 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 1 | 256 | Medium1b | 1,360 | 692 | 595 | 234 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 5 | Medium1b | 41,311 | 639 | 1,327 | 180 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 2 | 30 | Medium1b | 8,755 | 651 | 720 | 191 | 50,244 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 9 | Medium1b | 54,985 | 580 | 12,882 | 0 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 3 | 53 | Medium1b | 51,801 | 580 | 12,268 | 0 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 122 | Medium2 | 1,626 | 818 | 487 | 368 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 1 | 314 | Medium2 | 1,520 | 748 | 625 | 292 | 0 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 24 | Medium2 | 10,311 | 709 | 594 | 253 | 100,722 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Swine | Liquid | GF | Midwest | 2 | 62 | Medium2 | 10,199 | 734 | 790 | 278 | 15,133 |
| 1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 29 | Medium2 | 76,299 | 580 | 18,320 | 0 | 0 |
| 1 | Swine | Liquid | GF | Midwest | 3 | 74 | Medium2 | 74,370 | 580 | 18,027 | 0 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 1 | 112 | Large1 | 674 | 2,105 | 202 | 1,729 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 1 | 521 | Large1 | 657 | 2,251 | 193 | 1,832 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 2 | 19 | Large1 | 85,724 | 1,134 | 14,957 | 682 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 2 | 87 | Large1 | 11,507 | 1,541 | 10,272 | 1,089 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 3 | 21 | Large1 | 118,315 | 580 | 5,187 | 0 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 3 | 98 | Large1 | 116,232 | 580 | 5,097 | 0 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 1 | 86 | Large2 | 1,303 | 8,018 | 300 | 8,106 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 1 | 184 | Large2 | 1,126 | 7,286 | 245 | 7,094 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 2 | 41 | Large2 | 394,750 | 1,724 | 71,313 | 1,319 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 2 | 88 | Large2 | 319,864 | 2,566 | 51,436 | 2,160 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 3 | 52 | Large2 | 554,131 | 580 | 24,192 | 0 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 3 | 109 | Large2 | 448,511 | 580 | 19,586 | 0 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 1 | 182 | Medium1a | 2,053 | 1,482 | 890 | 1,067 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 1 | 1639 | Medium1a | 1,701 | 1,244 | 878 | 811 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 2 | 13 | Medium1a | 7,939 | 1,127 | 1,435 | 693 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 2 | 116 | Medium1a | 7,858 | 1,231 | 993 | 797 | 731 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 3 | 20 | Medium1a | 33,260 | 580 | 1,588 | 0 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 3 | 186 | Medium1a | 32,228 | 580 | 1,742 | 0 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1b | 2,904 | 2,199 | 1,334 | 1,822 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 1 | 1093 | Medium1b | 2,276 | 1,771 | 1,153 | 1,362 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium1b | 41,731 | 1,127 | 7,184 | 693 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 2 | 77 | Medium1b | 9,322 | 1,231 | 9,843 | 797 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1b | 54,889 | 580 | 2,529 | 0 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1b | 53,024 | 580 | 2,646 | 0 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium2 | 3,696 | 2,889 | 1,760 | 2,549 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 1 | 418 | Medium2 | 2,862 | 2,336 | 1,447 | 1,952 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium2 | 56,904 | 1,544 | 10,128 | 1,132 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 2 | 41 | Medium2 | 11,086 | 1,726 | 2,931 | 1,315 | 0 |
| 2 | Swine | Liquid | FF | Mid-Atlantic | 3 | 12 | Medium2 | 75,688 | 580 | 3,434 | 0 | 0 |
| 2 | Swine | Liquid | FF | Midwest | 3 | 62 | Medium2 | 75,270 | 580 | 3,614 | 0 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 1 | 173 | Large1 | 677 | 2,124 | 202 | 1,750 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 1 | 214 | Large1 | 655 | 2,238 | 193 | 1,818 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 2 | 53 | Large1 | 86,744 | 1,041 | 16,038 | 582 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 2 | 66 | Large1 | 83,631 | 1,379 | 13,896 | 920 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 3 | 49 | Large1 | 119,757 | 580 | 6,146 | 0 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 3 | 61 | Large1 | 115,367 | 580 | 5,920 | 0 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 1 | 92 | Large2 | 968 | 4,444 | 241 | 4,252 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 1 | 47 | Large2 | 982 | 5,447 | 227 | 5,172 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 2 | 108 | Large2 | 208,015 | 1,219 | 39,504 | 775 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 2 | 55 | Large2 | 233,808 | 1,689 | 39,975 | 1,244 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 3 | 56 | Large2 | 290,778 | 580 | 14,948 | 0 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 3 | 29 | Large2 | 327,157 | 580 | 16,821 | 0 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 1 | 148 | Medium1a | 2,204 | 1,607 | 968 | 1,198 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 1 | 859 | Medium1a | 1,780 | 1,314 | 914 | 884 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 2 | 18 | Medium1a | 28,955 | 1,026 | 5,056 | 586 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 2 | 103 | Medium1a | 7,971 | 1,110 | 1,842 | 671 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 3 | 31 | Medium1a | 37,029 | 580 | 1,995 | 0 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 3 | 176 | Medium1a | 34,999 | 580 | 2,089 | 0 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 1 | 26 | Medium1b | 2,907 | 2,202 | 1,336 | 1,825 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 1 | 154 | Medium1b | 2,243 | 1,740 | 1,137 | 1,329 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium1b | 41,698 | 1,026 | 7,518 | 586 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 2 | 18 | Medium1b | 39,438 | 1,110 | 6,639 | 671 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 3 | 5 | Medium1b | 54,985 | 580 | 2,916 | 0 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium1b | 51,801 | 580 | 2,951 | 0 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 1 | 73 | Medium2 | 3,719 | 2,909 | 1,772 | 2,570 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Swine | Liquid | GF | Midwest | 1 | 188 | Medium2 | 2,839 | 2,313 | 1,435 | 1,928 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 2 | 14 | Medium2 | 57,112 | 1,319 | 10,619 | 896 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 2 | 37 | Medium2 | 55,744 | 1,459 | 9,597 | 1,035 | 0 |
| 2 | Swine | Liquid | GF | Mid-Atlantic | 3 | 17 | Medium2 | 76,299 | 580 | 4,011 | 0 | 0 |
| 2 | Swine | Liquid | GF | Midwest | 3 | 44 | Medium2 | 74,370 | 580 | 4,110 | 0 | 0 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 18 | Large1 | 24,532 | 736 | 2,240 | 253 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 95 | Large1 | 27,640 | 742 | 2,524 | 254 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 3 | Large1 | 28,915 | 668 | 2,130 | 181 | 156,629 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 16 | Large1 | 31,082 | 739 | 2,372 | 251 | 3,349 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Large1 | 142,206 | 580 | 24,489 | 0 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 18 | Large1 | 143,237 | 580 | 24,364 | 0 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 27 | Large1 | 24,565 | 2,105 | 2,260 | 1,729 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 143 | Large1 | 27,661 | 2,251 | 2,537 | 1,832 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 4 | Large1 | 103,041 | 1,134 | 16,690 | 682 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 24 | Large1 | 31,094 | 1,541 | 12,248 | 1,089 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 5 | Large1 | 142,206 | 580 | 7,246 | 0 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 27 | Large1 | 143,237 | 580 | 7,440 | 0 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 14 | Large2 | 101,273 | 1,340 | 5,934 | 905 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 34 | Large2 | 95,118 | 1,228 | 5,770 | 762 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 7 | Large2 | 464,669 | 808 | 12,853 | 331 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 16 | Large2 | 90,865 | 976 | 4,848 | 498 | 549,868 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 8 | Large2 | 654,265 | 580 | 114,045 | 0 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 20 | Large2 | 542,589 | 580 | 93,070 | 0 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 21 | Large2 | 101,437 | 8,018 | 6,035 | 8,106 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 50 | Large2 | 95,203 | 7,286 | 5,823 | 7,094 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 10 | Large2 | 464,692 | 1,724 | 75,553 | 1,319 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 24 | Large2 | 385,787 | 2,566 | 55,620 | 2,160 | 2,370 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 12 | Large2 | 654,265 | 580 | 29,927 | 0 | 2,703 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 30 | Large2 | 542,589 | 580 | 25,164 | 0 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 29 | Medium1a | 9,170 | 672 | 1,680 | 214 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 300 | Medium1a | 10,066 | 644 | 2,035 | 184 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 2 | Medium1a | 13,667 | 689 | 1,727 | 232 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 21 | Medium1a | 14,336 | 709 | 2,094 | 252 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Medium1a | 41,187 | 580 | 7,033 | 0 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 34 | Medium1a | 41,098 | 580 | 7,209 | 0 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 44 | Medium1a | 9,981 | 1,482 | 2,178 | 1,067 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 450 | Medium1a | 10,572 | 1,244 | 2,345 | 811 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 3 | Medium1a | 14,106 | 1,127 | 2,636 | 693 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 32 | Medium1a | 14,775 | 1,231 | 2,364 | 797 | 3,779 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 5 | Medium1a | 41,187 | 580 | 2,876 | 0 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 51 | Medium1a | 41,098 | 580 | 3,209 | 0 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 19 | Medium1b | 13,551 | 745 | 1,930 | 291 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 200 | Medium1b | 14,864 | 695 | 2,287 | 237 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 1 | Medium1b | 18,100 | 685 | 1,895 | 227 | 58,051 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 14 | Medium1b | 19,050 | 709 | 2,278 | 252 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 2 | Medium1b | 66,992 | 580 | 11,478 | 0 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 23 | Medium1b | 66,517 | 580 | 11,512 | 0 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 29 | Medium1b | 15,006 | 2,199 | 2,823 | 1,822 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 300 | Medium1b | 15,770 | 1,771 | 2,844 | 1,362 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 2 | Medium1b | 50,832 | 1,127 | 8,525 | 693 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 21 | Medium1b | 19,489 | 1,231 | 11,369 | 797 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Medium1b | 66,992 | 580 | 4,018 | 0 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 34 | Medium1b | 66,517 | 580 | 4,337 | 0 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 13 | Medium2 | 17,618 | 816 | 2,163 | 365 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 76 | Medium2 | 19,809 | 750 | 2,549 | 294 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 1 | Medium2 | 22,108 | 720 | 2,071 | 264 | 92,560 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 7 | Medium2 | 23,782 | 752 | 2,487 | 297 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 2 | Medium2 | 91,685 | 580 | 15,750 | 0 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Swine | Liquid | FF | Midwest | 3 | 11 | Medium2 | 93,553 | 580 | 16,111 | 0 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 1 | 19 | Medium2 | 19,693 | 2,889 | 3,437 | 2,549 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 1 | 115 | Medium2 | 21,145 | 2,336 | 3,369 | 1,952 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 2 | 2 | Medium2 | 68,727 | 1,544 | 11,599 | 1,132 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 2 | 11 | Medium2 | 24,602 | 1,726 | 4,618 | 1,315 | 3,048 |
| 3 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Medium2 | 91,685 | 580 | 5,111 | 0 | 2,854 |
| 3 | Swine | Liquid | FF | Midwest | 3 | 17 | Medium2 | 93,553 | 580 | 5,536 | 0 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 28 | Large1 | 24,796 | 738 | 2,252 | 255 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 39 | Large1 | 27,458 | 740 | 2,515 | 252 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 9 | Large1 | 29,165 | 648 | 2,140 | 159 | 209,958 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 12 | Large1 | 30,914 | 699 | 2,364 | 209 | 88,309 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 8 | Large1 | 143,910 | 580 | 31,503 | 0 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 11 | Large1 | 142,191 | 580 | 30,643 | 0 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 41 | Large1 | 24,830 | 2,124 | 2,273 | 1,750 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 59 | Large1 | 27,479 | 2,238 | 2,528 | 1,818 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 13 | Large1 | 104,243 | 1,041 | 17,780 | 582 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 18 | Large1 | 103,093 | 1,379 | 15,866 | 920 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 12 | Large1 | 143,910 | 580 | 8,217 | 0 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 17 | Large1 | 142,191 | 580 | 8,255 | 0 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 15 | Large2 | 55,373 | 975 | 3,724 | 511 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 9 | Large2 | 70,800 | 1,050 | 4,600 | 576 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 17 | Large2 | 57,498 | 760 | 3,288 | 279 | 501,026 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 10 | Large2 | 69,666 | 892 | 3,963 | 410 | 345,312 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 9 | Large2 | 345,269 | 580 | 76,750 | 0 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 5 | Large2 | 397,037 | 580 | 86,942 | 0 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 22 | Large2 | 55,459 | 4,444 | 3,776 | 4,252 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 13 | Large2 | 70,862 | 5,447 | 4,638 | 5,172 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 26 | Large2 | 246,507 | 1,219 | 42,247 | 775 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 15 | Large2 | 283,053 | 1,689 | 43,365 | 1,244 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 13 | Large2 | 345,269 | 580 | 18,483 | 0 | 2,703 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 8 | Large2 | 397,037 | 580 | 21,232 | 0 | 2,370 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 24 | Medium1a | 9,951 | 685 | 1,724 | 227 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 157 | Medium1a | 10,721 | 651 | 2,069 | 191 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium1a | 14,425 | 639 | 1,727 | 180 | 44,201 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 19 | Medium1a | 14,947 | 653 | 2,091 | 194 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 5 | Medium1a | 45,698 | 580 | 9,628 | 0 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium1a | 44,498 | 580 | 9,484 | 0 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 35 | Medium1a | 10,874 | 1,607 | 2,291 | 1,198 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 236 | Medium1a | 11,279 | 1,314 | 2,412 | 884 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 4 | Medium1a | 35,645 | 1,026 | 6,282 | 586 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 28 | Medium1a | 15,332 | 1,110 | 3,234 | 671 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 7 | Medium1a | 45,698 | 580 | 3,318 | 0 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 48 | Medium1a | 44,498 | 580 | 3,587 | 0 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 4 | Medium1b | 13,570 | 746 | 1,931 | 292 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 28 | Medium1b | 14,587 | 692 | 2,273 | 234 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 0 | Medium1b | 50,425 | 639 | 2,669 | 180 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 3 | Medium1b | 18,735 | 651 | 2,238 | 191 | 53,292 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 1 | Medium1b | 67,106 | 580 | 14,372 | 0 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 6 | Medium1b | 65,028 | 580 | 13,946 | 0 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 6 | Medium1b | 15,028 | 2,202 | 2,826 | 1,825 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 42 | Medium1b | 15,470 | 1,740 | 2,815 | 1,329 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 1 | Medium1b | 50,812 | 1,026 | 8,859 | 586 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 5 | Medium1b | 49,418 | 1,110 | 8,157 | 671 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 1 | Medium1b | 67,106 | 580 | 4,407 | 0 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 9 | Medium1b | 65,028 | 580 | 4,629 | 0 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 12 | Medium2 | 17,737 | 818 | 2,170 | 368 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 34 | Medium2 | 19,612 | 748 | 2,539 | 292 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium2 | 22,212 | 709 | 2,069 | 253 | 103,576 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Swine | Liquid | GF | Midwest | 2 | 7 | Medium2 | 23,581 | 734 | 2,471 | 278 | 18,181 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 3 | Medium2 | 92,409 | 580 | 20,003 | 0 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 8 | Medium2 | 92,462 | 580 | 19,940 | 0 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 1 | 18 | Medium2 | 19,830 | 2,909 | 3,455 | 2,570 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 1 | 52 | Medium2 | 20,930 | 2,313 | 3,348 | 1,928 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium2 | 69,013 | 1,319 | 12,094 | 896 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 2 | 10 | Medium2 | 69,126 | 1,459 | 11,277 | 1,035 | 3,048 |
| 3 | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium2 | 92,409 | 580 | 5,694 | 0 | 2,854 |
| 3 | Swine | Liquid | GF | Midwest | 3 | 12 | Medium2 | 92,462 | 580 | 6,023 | 0 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 57 | Large1 | 640 | 736 | 181 | 253 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 252 | Large1 | 635 | 742 | 180 | 254 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 9 | Large1 | 11,597 | 668 | 397 | 181 | 156,629 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 42 | Large1 | 11,495 | 739 | 395 | 251 | 3,349 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 11 | Large1 | 118,315 | 580 | 22,431 | 0 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 47 | Large1 | 116,232 | 580 | 22,021 | 0 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 85 | Large1 | 674 | 2,105 | 202 | 1,729 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 378 | Large1 | 657 | 2,251 | 193 | 1,832 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 14 | Large1 | 85,724 | 1,134 | 14,957 | 682 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 63 | Large1 | 11,507 | 1,541 | 10,272 | 1,089 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 16 | Large1 | 118,315 | 580 | 5,187 | 0 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 71 | Large1 | 116,232 | 580 | 5,097 | 0 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 44 | Large2 | 1,139 | 1,340 | 200 | 905 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 89 | Large2 | 1,040 | 1,228 | 192 | 762 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 21 | Large2 | 394,727 | 808 | 8,613 | 331 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 43 | Large2 | 24,943 | 976 | 664 | 498 | 549,868 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 26 | Large2 | 554,131 | 580 | 108,310 | 0 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 53 | Large2 | 448,511 | 580 | 87,492 | 0 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 66 | Large2 | 1,303 | 8,018 | 300 | 8,106 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 133 | Large2 | 1,126 | 7,286 | 245 | 7,094 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 32 | Large2 | 394,750 | 1,724 | 71,313 | 1,319 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 64 | Large2 | 319,864 | 2,566 | 51,436 | 2,160 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 39 | Large2 | 554,131 | 580 | 24,192 | 0 | 2,703 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 79 | Large2 | 448,511 | 580 | 19,586 | 0 | 2,370 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 93 | Medium1a | 1,242 | 672 | 392 | 214 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 792 | Medium1a | 1,196 | 644 | 567 | 184 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 7 | Medium1a | 7,500 | 689 | 526 | 232 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 56 | Medium1a | 7,419 | 709 | 723 | 252 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 10 | Medium1a | 33,260 | 580 | 5,745 | 0 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 90 | Medium1a | 32,228 | 580 | 5,742 | 0 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 139 | Medium1a | 2,053 | 1,482 | 890 | 1,067 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 1189 | Medium1a | 1,701 | 1,244 | 878 | 811 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 10 | Medium1a | 7,939 | 1,127 | 1,435 | 693 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 84 | Medium1a | 7,858 | 1,231 | 993 | 797 | 3,779 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 16 | Medium1a | 33,260 | 580 | 1,588 | 0 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 135 | Medium1a | 32,228 | 580 | 1,742 | 0 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 62 | Medium1b | 1,449 | 745 | 440 | 291 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 528 | Medium1b | 1,370 | 695 | 596 | 237 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 4 | Medium1b | 8,999 | 685 | 554 | 227 | 58,051 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 37 | Medium1b | 8,883 | 709 | 752 | 252 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 7 | Medium1b | 54,889 | 580 | 9,988 | 0 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 60 | Medium1b | 53,024 | 580 | 9,820 | 0 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 93 | Medium1b | 2,904 | 2,199 | 1,334 | 1,822 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 793 | Medium1b | 2,276 | 1,771 | 1,153 | 1,362 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium1b | 41,731 | 1,127 | 7,184 | 693 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 56 | Medium1b | 9,322 | 1,231 | 9,843 | 797 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 11 | Medium1b | 54,889 | 580 | 2,529 | 0 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 90 | Medium1b | 53,024 | 580 | 2,646 | 0 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 41 | Medium2 | 1,621 | 816 | 485 | 365 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 202 | Medium2 | 1,526 | 750 | 627 | 294 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 4 | Medium2 | 10,285 | 720 | 600 | 264 | 92,560 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 20 | Medium2 | 10,266 | 752 | 801 | 297 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 6 | Medium2 | 75,688 | 580 | 14,073 | 0 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 30 | Medium2 | 75,270 | 580 | 14,189 | 0 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 62 | Medium2 | 3,696 | 2,889 | 1,760 | 2,549 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 1 | 303 | Medium2 | 2,862 | 2,336 | 1,447 | 1,952 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium2 | 56,904 | 1,544 | 10,128 | 1,132 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 2 | 30 | Medium2 | 11,086 | 1,726 | 2,931 | 1,315 | 3,048 |
| 3.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 9 | Medium2 | 75,688 | 580 | 3,434 | 0 | 2,854 |
| 3.1 | Swine | Liquid | FF | Midwest | 3 | 45 | Medium2 | 75,270 | 580 | 3,614 | 0 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 88 | Large1 | 643 | 738 | 181 | 255 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 103 | Large1 | 634 | 740 | 180 | 252 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 27 | Large1 | 11,666 | 648 | 398 | 159 | 209,958 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 32 | Large1 | 11,452 | 699 | 394 | 209 | 88,309 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 25 | Large1 | 119,757 | 580 | 29,432 | 0 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 29 | Large1 | 115,367 | 580 | 28,308 | 0 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 131 | Large1 | 677 | 2,124 | 202 | 1,750 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 155 | Large1 | 655 | 2,238 | 193 | 1,818 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 41 | Large1 | 86,744 | 1,041 | 16,038 | 582 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 48 | Large1 | 83,631 | 1,379 | 13,896 | 920 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 37 | Large1 | 119,757 | 580 | 6,146 | 0 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 44 | Large1 | 115,367 | 580 | 5,920 | 0 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 47 | Large2 | 883 | 975 | 189 | 511 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 23 | Large2 | 920 | 1,050 | 188 | 576 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 55 | Large2 | 19,006 | 760 | 545 | 279 | 501,026 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 27 | Large2 | 20,421 | 892 | 573 | 410 | 345,312 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 29 | Large2 | 290,778 | 580 | 73,215 | 0 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 14 | Large2 | 327,157 | 580 | 82,531 | 0 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 70 | Large2 | 968 | 4,444 | 241 | 4,252 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 34 | Large2 | 982 | 5,447 | 227 | 5,172 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 82 | Large2 | 208,015 | 1,219 | 39,504 | 775 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 40 | Large2 | 233,808 | 1,689 | 39,975 | 1,244 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 43 | Large2 | 290,778 | 580 | 14,948 | 0 | 2,703 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 21 | Large2 | 327,157 | 580 | 16,821 | 0 | 2,370 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 75 | Medium1a | 1,281 | 685 | 401 | 227 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 416 | Medium1a | 1,222 | 651 | 571 | 191 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 9 | Medium1a | 7,735 | 639 | 502 | 180 | 44,201 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 50 | Medium1a | 7,586 | 653 | 698 | 194 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 16 | Medium1a | 37,029 | 580 | 8,304 | 0 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 85 | Medium1a | 34,999 | 580 | 7,986 | 0 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 113 | Medium1a | 2,204 | 1,607 | 968 | 1,198 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 623 | Medium1a | 1,780 | 1,314 | 914 | 884 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 14 | Medium1a | 28,955 | 1,026 | 5,056 | 586 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 74 | Medium1a | 7,971 | 1,110 | 1,842 | 671 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 23 | Medium1a | 37,029 | 580 | 1,995 | 0 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 128 | Medium1a | 34,999 | 580 | 2,089 | 0 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 13 | Medium1b | 1,449 | 746 | 440 | 292 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 74 | Medium1b | 1,360 | 692 | 595 | 234 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 41,311 | 639 | 1,327 | 180 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 9 | Medium1b | 8,755 | 651 | 720 | 191 | 53,292 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 3 | Medium1b | 54,985 | 580 | 12,882 | 0 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 15 | Medium1b | 51,801 | 580 | 12,268 | 0 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 20 | Medium1b | 2,907 | 2,202 | 1,336 | 1,825 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 111 | Medium1b | 2,243 | 1,740 | 1,137 | 1,329 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 41,698 | 1,026 | 7,518 | 586 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 13 | Medium1b | 39,438 | 1,110 | 6,639 | 671 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium1b | 54,985 | 580 | 2,916 | 0 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 23 | Medium1b | 51,801 | 580 | 2,951 | 0 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 37 | Medium2 | 1,626 | 818 | 487 | 368 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 91 | Medium2 | 1,520 | 748 | 625 | 292 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 7 | Medium2 | 10,311 | 709 | 594 | 253 | 103,576 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 18 | Medium2 | 10,199 | 734 | 790 | 278 | 18,181 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 9 | Medium2 | 76,299 | 580 | 18,320 | 0 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 21 | Medium2 | 74,370 | 580 | 18,027 | 0 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 56 | Medium2 | 3,719 | 2,909 | 1,772 | 2,570 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 1 | 137 | Medium2 | 2,839 | 2,313 | 1,435 | 1,928 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 11 | Medium2 | 57,112 | 1,319 | 10,619 | 896 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 2 | 27 | Medium2 | 55,744 | 1,459 | 9,597 | 1,035 | 3,048 |
| 3.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 13 | Medium2 | 76,299 | 580 | 4,011 | 0 | 2,854 |
| 3.1 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium2 | 74,370 | 580 | 4,110 | 0 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 18 | Large1 | 24,532 | 1,128 | 7,373 | 253 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 95 | Large1 | 27,640 | 1,134 | 7,031 | 254 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 3 | Large1 | 28,915 | 1,060 | 7,263 | 181 | 156,629 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 16 | Large1 | 31,082 | 1,131 | 6,879 | 251 | 3,349 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Large1 | 142,206 | 972 | 29,622 | 0 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 18 | Large1 | 143,237 | 972 | 28,872 | 0 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 27 | Large1 | 24,565 | 2,497 | 7,393 | 1,729 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 143 | Large1 | 27,661 | 2,643 | 7,045 | 1,832 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 4 | Large1 | 103,041 | 1,526 | 21,823 | 682 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 24 | Large1 | 31,094 | 1,933 | 16,756 | 1,089 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 5 | Large1 | 142,206 | 972 | 12,379 | 0 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 27 | Large1 | 143,237 | 972 | 11,948 | 0 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 14 | Large2 | 101,273 | 1,732 | 11,067 | 905 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 34 | Large2 | 95,118 | 1,620 | 10,278 | 762 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 7 | Large2 | 464,669 | 1,200 | 17,986 | 331 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 16 | Large2 | 90,865 | 1,368 | 9,355 | 498 | 549,868 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 8 | Large2 | 654,265 | 972 | 119,178 | 0 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 20 | Large2 | 542,589 | 972 | 97,578 | 0 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 21 | Large2 | 101,437 | 8,410 | 11,168 | 8,106 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 50 | Large2 | 95,203 | 7,678 | 10,331 | 7,094 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 10 | Large2 | 464,692 | 2,116 | 80,686 | 1,319 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 24 | Large2 | 385,787 | 2,958 | 60,127 | 2,160 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 12 | Large2 | 654,265 | 972 | 35,060 | 0 | 2,703 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 30 | Large2 | 542,589 | 972 | 29,672 | 0 | 2,370 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 29 | Medium1a | 9,170 | 1,064 | 7,576 | 214 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 300 | Medium1a | 10,066 | 1,036 | 5,373 | 184 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 2 | Medium1a | 13,667 | 1,081 | 7,622 | 232 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 21 | Medium1a | 14,336 | 1,101 | 5,433 | 252 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Medium1a | 41,187 | 972 | 12,929 | 0 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 34 | Medium1a | 41,098 | 972 | 10,548 | 0 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 44 | Medium1a | 9,981 | 1,874 | 8,074 | 1,067 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 450 | Medium1a | 10,572 | 1,636 | 5,684 | 811 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 3 | Medium1a | 14,106 | 1,519 | 8,532 | 693 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 32 | Medium1a | 14,775 | 1,623 | 5,702 | 797 | 3,779 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 5 | Medium1a | 41,187 | 972 | 8,771 | 0 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 51 | Medium1a | 41,098 | 972 | 6,548 | 0 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 19 | Medium1b | 13,551 | 1,137 | 7,825 | 291 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 200 | Medium1b | 14,864 | 1,087 | 5,626 | 237 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 1 | Medium1b | 18,100 | 1,077 | 7,790 | 227 | 58,051 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 14 | Medium1b | 19,050 | 1,101 | 5,617 | 252 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 2 | Medium1b | 66,992 | 972 | 17,373 | 0 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 23 | Medium1b | 66,517 | 972 | 14,850 | 0 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 29 | Medium1b | 15,006 | 2,591 | 8,719 | 1,822 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 300 | Medium1b | 15,770 | 2,163 | 6,182 | 1,362 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 2 | Medium1b | 50,832 | 1,519 | 14,421 | 693 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Swine | Liquid | FF | Midwest | 2 | 21 | Medium1b | 19,489 | 1,623 | 14,708 | 797 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Medium1b | 66,992 | 972 | 9,914 | 0 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 34 | Medium1b | 66,517 | 972 | 7,676 | 0 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 13 | Medium2 | 17,618 | 1,208 | 8,059 | 365 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 76 | Medium2 | 19,809 | 1,142 | 5,888 | 294 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 1 | Medium2 | 22,108 | 1,112 | 7,967 | 264 | 92,560 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 7 | Medium2 | 23,782 | 1,144 | 5,826 | 297 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 2 | Medium2 | 91,685 | 972 | 21,646 | 0 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 11 | Medium2 | 93,553 | 972 | 19,450 | 0 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 1 | 19 | Medium2 | 19,693 | 3,281 | 9,333 | 2,549 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 1 | 115 | Medium2 | 21,145 | 2,728 | 6,708 | 1,952 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 2 | 2 | Medium2 | 68,727 | 1,936 | 17,495 | 1,132 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 2 | 11 | Medium2 | 24,602 | 2,118 | 7,956 | 1,315 | 3,048 |
| 4 | Swine | Liquid | FF | Mid-Atlantic | 3 | 3 | Medium2 | 91,685 | 972 | 11,007 | 0 | 2,854 |
| 4 | Swine | Liquid | FF | Midwest | 3 | 17 | Medium2 | 93,553 | 972 | 8,875 | 0 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 28 | Large1 | 24,796 | 1,130 | 7,385 | 255 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 39 | Large1 | 27,458 | 1,132 | 7,023 | 252 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 9 | Large1 | 29,165 | 1,040 | 7,273 | 159 | 209,958 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 12 | Large1 | 30,914 | 1,091 | 6,872 | 209 | 88,309 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 8 | Large1 | 143,910 | 972 | 36,636 | 0 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 11 | Large1 | 142,191 | 972 | 35,151 | 0 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 41 | Large1 | 24,830 | 2,516 | 7,406 | 1,750 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 59 | Large1 | 27,479 | 2,630 | 7,036 | 1,818 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 13 | Large1 | 104,243 | 1,433 | 22,912 | 582 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 18 | Large1 | 103,093 | 1,771 | 20,374 | 920 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 12 | Large1 | 143,910 | 972 | 13,350 | 0 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 17 | Large1 | 142,191 | 972 | 12,763 | 0 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 15 | Large2 | 55,373 | 1,367 | 8,857 | 511 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 9 | Large2 | 70,800 | 1,442 | 9,108 | 576 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 17 | Large2 | 57,498 | 1,152 | 8,421 | 279 | 501,026 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 10 | Large2 | 69,666 | 1,284 | 8,471 | 410 | 345,312 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 9 | Large2 | 345,269 | 972 | 81,882 | 0 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 5 | Large2 | 397,037 | 972 | 91,450 | 0 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 22 | Large2 | 55,459 | 4,836 | 8,909 | 4,252 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 13 | Large2 | 70,862 | 5,839 | 9,146 | 5,172 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 26 | Large2 | 246,507 | 1,611 | 47,380 | 775 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 15 | Large2 | 283,053 | 2,081 | 47,873 | 1,244 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 13 | Large2 | 345,269 | 972 | 23,615 | 0 | 2,703 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 8 | Large2 | 397,037 | 972 | 25,740 | 0 | 2,370 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 24 | Medium1a | 9,951 | 1,077 | 7,620 | 227 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 157 | Medium1a | 10,721 | 1,043 | 5,408 | 191 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium1a | 14,425 | 1,031 | 7,623 | 180 | 44,201 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 19 | Medium1a | 14,947 | 1,045 | 5,429 | 194 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 5 | Medium1a | 45,698 | 972 | 15,523 | 0 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium1a | 44,498 | 972 | 12,822 | 0 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 35 | Medium1a | 10,874 | 1,999 | 8,187 | 1,198 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 236 | Medium1a | 11,279 | 1,706 | 5,751 | 884 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 4 | Medium1a | 35,645 | 1,418 | 12,178 | 586 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 28 | Medium1a | 15,332 | 1,502 | 6,572 | 671 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 7 | Medium1a | 45,698 | 972 | 9,214 | 0 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 48 | Medium1a | 44,498 | 972 | 6,925 | 0 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 4 | Medium1b | 13,570 | 1,138 | 7,826 | 292 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 28 | Medium1b | 14,587 | 1,084 | 5,611 | 234 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 0 | Medium1b | 50,425 | 1,031 | 8,564 | 180 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 3 | Medium1b | 18,735 | 1,043 | 5,576 | 191 | 53,292 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 1 | Medium1b | 67,106 | 972 | 20,268 | 0 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 6 | Medium1b | 65,028 | 972 | 17,285 | 0 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 6 | Medium1b | 15,028 | 2,594 | 8,722 | 1,825 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Swine | Liquid | GF | Midwest | 1 | 42 | Medium1b | 15,470 | 2,132 | 6,153 | 1,329 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 1 | Medium1b | 50,812 | 1,418 | 14,755 | 586 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 5 | Medium1b | 49,418 | 1,502 | 11,495 | 671 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 1 | Medium1b | 67,106 | 972 | 10,302 | 0 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 9 | Medium1b | 65,028 | 972 | 7,968 | 0 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 12 | Medium2 | 17,737 | 1,210 | 8,066 | 368 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 34 | Medium2 | 19,612 | 1,140 | 5,877 | 292 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium2 | 22,212 | 1,101 | 7,965 | 253 | 103,576 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 7 | Medium2 | 23,581 | 1,126 | 5,809 | 278 | 18,181 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 3 | Medium2 | 92,409 | 972 | 25,899 | 0 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 8 | Medium2 | 92,462 | 972 | 23,278 | 0 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 1 | 18 | Medium2 | 19,830 | 3,301 | 9,351 | 2,570 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 1 | 52 | Medium2 | 20,930 | 2,705 | 6,687 | 1,928 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium2 | 69,013 | 1,711 | 17,990 | 896 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 2 | 10 | Medium2 | 69,126 | 1,851 | 14,615 | 1,035 | 3,048 |
| 4 | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium2 | 92,409 | 972 | 11,589 | 0 | 2,854 |
| 4 | Swine | Liquid | GF | Midwest | 3 | 12 | Medium2 | 92,462 | 972 | 9,362 | 0 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 57 | Large1 | 640 | 1,128 | 5,314 | 253 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 252 | Large1 | 635 | 1,134 | 4,688 | 254 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 9 | Large1 | 11,597 | 1,060 | 5,530 | 181 | 156,629 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 42 | Large1 | 11,495 | 1,131 | 4,903 | 251 | 3,349 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 11 | Large1 | 118,315 | 972 | 27,563 | 0 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 47 | Large1 | 116,232 | 972 | 26,528 | 0 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 85 | Large1 | 674 | 2,497 | 5,334 | 1,729 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 378 | Large1 | 657 | 2,643 | 4,701 | 1,832 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 14 | Large1 | 85,724 | 1,526 | 20,090 | 682 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 63 | Large1 | 11,507 | 1,933 | 14,779 | 1,089 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 16 | Large1 | 118,315 | 972 | 10,320 | 0 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 71 | Large1 | 116,232 | 972 | 9,605 | 0 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 44 | Large2 | 1,139 | 1,732 | 5,332 | 905 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 89 | Large2 | 1,040 | 1,620 | 4,700 | 762 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 21 | Large2 | 394,727 | 1,200 | 13,746 | 331 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 43 | Large2 | 24,943 | 1,368 | 5,171 | 498 | 549,868 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 26 | Large2 | 554,131 | 972 | 113,443 | 0 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 53 | Large2 | 448,511 | 972 | 92,000 | 0 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 66 | Large2 | 1,303 | 8,410 | 5,433 | 8,106 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 133 | Large2 | 1,126 | 7,678 | 4,753 | 7,094 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 32 | Large2 | 394,750 | 2,116 | 76,446 | 1,319 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 64 | Large2 | 319,864 | 2,958 | 55,943 | 2,160 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 39 | Large2 | 554,131 | 972 | 29,325 | 0 | 2,703 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 79 | Large2 | 448,511 | 972 | 24,094 | 0 | 2,370 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 93 | Medium1a | 1,242 | 1,064 | 6,288 | 214 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 792 | Medium1a | 1,196 | 1,036 | 3,906 | 184 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 7 | Medium1a | 7,500 | 1,081 | 6,422 | 232 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 56 | Medium1a | 7,419 | 1,101 | 4,062 | 252 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 10 | Medium1a | 33,260 | 972 | 11,641 | 0 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 90 | Medium1a | 32,228 | 972 | 9,080 | 0 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 139 | Medium1a | 2,053 | 1,874 | 6,786 | 1,067 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 1189 | Medium1a | 1,701 | 1,636 | 4,216 | 811 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 10 | Medium1a | 7,939 | 1,519 | 7,331 | 693 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 84 | Medium1a | 7,858 | 1,623 | 4,331 | 797 | 3,779 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 16 | Medium1a | 33,260 | 972 | 7,484 | 0 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 135 | Medium1a | 32,228 | 972 | 5,080 | 0 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 62 | Medium1b | 1,449 | 1,137 | 6,336 | 291 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 528 | Medium1b | 1,370 | 1,087 | 3,935 | 237 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 4 | Medium1b | 8,999 | 1,077 | 6,449 | 227 | 58,051 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 37 | Medium1b | 8,883 | 1,101 | 4,091 | 252 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 7 | Medium1b | 54,889 | 972 | 15,884 | 0 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 60 | Medium1b | 53,024 | 972 | 13,159 | 0 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 93 | Medium1b | 2,904 | 2,591 | 7,229 | 1,822 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 793 | Medium1b | 2,276 | 2,163 | 4,491 | 1,362 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium1b | 41,731 | 1,519 | 13,080 | 693 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 56 | Medium1b | 9,322 | 1,623 | 13,182 | 797 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 11 | Medium1b | 54,889 | 972 | 8,424 | 0 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 90 | Medium1b | 53,024 | 972 | 5,985 | 0 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 41 | Medium2 | 1,621 | 1,208 | 6,381 | 365 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 202 | Medium2 | 1,526 | 1,142 | 3,965 | 294 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 4 | Medium2 | 10,285 | 1,112 | 6,496 | 264 | 92,560 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 20 | Medium2 | 10,266 | 1,144 | 4,140 | 297 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 6 | Medium2 | 75,688 | 972 | 19,968 | 0 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 30 | Medium2 | 75,270 | 972 | 17,528 | 0 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 1 | 62 | Medium2 | 3,696 | 3,281 | 7,655 | 2,549 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 1 | 303 | Medium2 | 2,862 | 2,728 | 4,785 | 1,952 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium2 | 56,904 | 1,936 | 16,024 | 1,132 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 2 | 30 | Medium2 | 11,086 | 2,118 | 6,270 | 1,315 | 3,048 |
| 4.1 | Swine | Liquid | FF | Mid-Atlantic | 3 | 9 | Medium2 | 75,688 | 972 | 9,329 | 0 | 2,854 |
| 4.1 | Swine | Liquid | FF | Midwest | 3 | 45 | Medium2 | 75,270 | 972 | 6,953 | 0 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 88 | Large1 | 643 | 1,130 | 5,314 | 255 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 103 | Large1 | 634 | 1,132 | 4,688 | 252 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 27 | Large1 | 11,666 | 1,040 | 5,531 | 159 | 209,958 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 32 | Large1 | 11,452 | 1,091 | 4,902 | 209 | 88,309 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 25 | Large1 | 119,757 | 972 | 34,564 | 0 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 29 | Large1 | 115,367 | 972 | 32,816 | 0 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 131 | Large1 | 677 | 2,516 | 5,335 | 1,750 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 155 | Large1 | 655 | 2,630 | 4,701 | 1,818 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 41 | Large1 | 86,744 | 1,433 | 21,170 | 582 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 48 | Large1 | 83,631 | 1,771 | 18,404 | 920 | 2,370 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 37 | Large1 | 119,757 | 972 | 11,279 | 0 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 44 | Large1 | 115,367 | 972 | 10,428 | 0 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 47 | Large2 | 883 | 1,367 | 5,322 | 511 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 23 | Large2 | 920 | 1,442 | 4,696 | 576 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 55 | Large2 | 19,006 | 1,152 | 5,678 | 279 | 501,026 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 27 | Large2 | 20,421 | 1,284 | 5,081 | 410 | 345,312 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 29 | Large2 | 290,778 | 972 | 78,348 | 0 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 14 | Large2 | 327,157 | 972 | 87,039 | 0 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 70 | Large2 | 968 | 4,836 | 5,374 | 4,252 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 34 | Large2 | 982 | 5,839 | 4,734 | 5,172 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 82 | Large2 | 208,015 | 1,611 | 44,637 | 775 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 40 | Large2 | 233,808 | 2,081 | 44,483 | 1,244 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 43 | Large2 | 290,778 | 972 | 20,081 | 0 | 2,703 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 21 | Large2 | 327,157 | 972 | 21,329 | 0 | 2,370 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 75 | Medium1a | 1,281 | 1,077 | 6,296 | 227 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 416 | Medium1a | 1,222 | 1,043 | 3,910 | 191 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 9 | Medium1a | 7,735 | 1,031 | 6,397 | 180 | 44,201 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 50 | Medium1a | 7,586 | 1,045 | 4,037 | 194 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 16 | Medium1a | 37,029 | 972 | 14,200 | 0 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 85 | Medium1a | 34,999 | 972 | 11,324 | 0 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 113 | Medium1a | 2,204 | 1,999 | 6,863 | 1,198 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 623 | Medium1a | 1,780 | 1,706 | 4,253 | 884 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 14 | Medium1a | 28,955 | 1,418 | 10,952 | 586 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 74 | Medium1a | 7,971 | 1,502 | 5,180 | 671 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 23 | Medium1a | 37,029 | 972 | 7,890 | 0 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 128 | Medium1a | 34,999 | 972 | 5,428 | 0 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 13 | Medium1b | 1,449 | 1,138 | 6,336 | 292 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 74 | Medium1b | 1,360 | 1,084 | 3,933 | 234 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 41,311 | 1,031 | 7,223 | 180 | 2,854 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 9 | Medium1b | 8,755 | 1,043 | 4,059 | 191 | 53,292 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 3 | Medium1b | 54,985 | 972 | 18,777 | 0 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 15 | Medium1b | 51,801 | 972 | 15,607 | 0 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 20 | Medium1b | 2,907 | 2,594 | 7,231 | 1,825 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 111 | Medium1b | 2,243 | 2,132 | 4,475 | 1,329 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 41,698 | 1,418 | 13,413 | 586 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 13 | Medium1b | 39,438 | 1,502 | 9,978 | 671 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium1b | 54,985 | 972 | 8,812 | 0 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 23 | Medium1b | 51,801 | 972 | 6,290 | 0 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 37 | Medium2 | 1,626 | 1,210 | 6,382 | 368 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 91 | Medium2 | 1,520 | 1,140 | 3,964 | 292 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 7 | Medium2 | 10,311 | 1,101 | 6,490 | 253 | 103,576 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 18 | Medium2 | 10,199 | 1,126 | 4,129 | 278 | 18,181 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 9 | Medium2 | 76,299 | 972 | 24,216 | 0 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 21 | Medium2 | 74,370 | 972 | 21,365 | 0 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 1 | 56 | Medium2 | 3,719 | 3,301 | 7,668 | 2,570 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 1 | 137 | Medium2 | 2,839 | 2,705 | 4,774 | 1,928 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 2 | 11 | Medium2 | 57,112 | 1,711 | 16,515 | 896 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 2 | 27 | Medium2 | 55,744 | 1,851 | 12,935 | 1,035 | 3,048 |
| 4.1 | Swine | Liquid | GF | Mid-Atlantic | 3 | 13 | Medium2 | 76,299 | 972 | 9,906 | 0 | 2,854 |
| 4.1 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium2 | 74,370 | 972 | 7,449 | 0 | 3,048 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 75 | Large1 | 118,461 | 736 | 2,537 | 253 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 347 | Large1 | 116,376 | 742 | 2,495 | 254 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 12 | Large1 | 85,713 | 668 | 29,998 | 181 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 58 | Large1 | 84,236 | 739 | 21,380 | 251 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Large1 | 118,315 | 580 | 22,431 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 65 | Large1 | 116,232 | 580 | 22,021 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 112 | Large1 | 118,494 | 2,105 | 2,558 | 1,729 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 521 | Large1 | 116,398 | 2,251 | 2,508 | 1,832 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 19 | Large1 | 85,724 | 1,134 | 14,738 | 682 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 87 | Large1 | 84,247 | 1,541 | 9,166 | 1,089 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 21 | Large1 | 118,315 | 580 | 5,187 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 98 | Large1 | 116,232 | 580 | 5,097 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 58 | Large2 | 554,292 | 1,340 | 11,263 | 905 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 122 | Large2 | 448,663 | 1,228 | 9,145 | 762 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 28 | Large2 | 394,727 | 808 | 8,064 | 331 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 59 | Large2 | 319,841 | 976 | 117,607 | 498 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 34 | Large2 | 554,131 | 580 | 108,310 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 73 | Large2 | 448,511 | 580 | 87,492 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 86 | Large2 | 554,456 | 8,018 | 11,363 | 8,106 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 184 | Large2 | 448,748 | 7,286 | 9,197 | 7,094 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 41 | Large2 | 394,750 | 1,724 | 70,764 | 1,319 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 88 | Large2 | 319,864 | 2,566 | 50,959 | 2,160 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 52 | Large2 | 554,131 | 580 | 24,192 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 109 | Large2 | 448,511 | 580 | 19,586 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1a | 33,877 | 672 | 1,045 | 214 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 1092 | Medium1a | 32,807 | 644 | 1,200 | 184 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 9 | Medium1a | 25,944 | 689 | 896 | 232 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 78 | Medium1a | 25,212 | 709 | 1,080 | 252 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1a | 33,260 | 580 | 5,745 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1a | 32,228 | 580 | 5,742 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 182 | Medium1a | 34,688 | 1,482 | 1,543 | 1,067 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 1639 | Medium1a | 33,312 | 1,244 | 1,510 | 811 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 13 | Medium1a | 26,383 | 1,127 | 1,806 | 693 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 116 | Medium1a | 25,651 | 1,231 | 1,965 | 797 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 20 | Medium1a | 33,260 | 580 | 1,588 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 186 | Medium1a | 32,228 | 580 | 1,742 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium1b | 55,580 | 745 | 1,523 | 291 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Swine | Liquid | FF | Midwest | 1 | 728 | Medium1b | 53,646 | 695 | 1,642 | 237 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium1b | 41,288 | 685 | 13,364 | 227 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 52 | Medium1b | 39,968 | 709 | 1,375 | 252 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 9 | Medium1b | 54,889 | 580 | 9,988 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 83 | Medium1b | 53,024 | 580 | 9,820 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1b | 57,035 | 2,199 | 2,416 | 1,822 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 1093 | Medium1b | 54,552 | 1,771 | 2,198 | 1,362 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium1b | 41,731 | 1,127 | 7,032 | 693 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 77 | Medium1b | 40,407 | 1,231 | 6,334 | 797 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1b | 54,889 | 580 | 2,529 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1b | 53,024 | 580 | 2,646 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 54 | Medium2 | 76,449 | 816 | 1,982 | 365 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 278 | Medium2 | 75,938 | 750 | 2,115 | 294 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 5 | Medium2 | 56,079 | 720 | 18,865 | 264 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 27 | Medium2 | 55,787 | 752 | 1,713 | 297 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 8 | Medium2 | 75,688 | 580 | 14,073 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 42 | Medium2 | 75,270 | 580 | 14,189 | 0 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium2 | 78,524 | 2,889 | 3,256 | 2,549 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 1 | 418 | Medium2 | 77,274 | 2,336 | 2,935 | 1,952 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium2 | 56,904 | 1,544 | 9,952 | 1,132 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 2 | 41 | Medium2 | 56,607 | 1,726 | 3,844 | 1,315 | 0 |
| 5 | Swine | Liquid | FF | Mid-Atlantic | 3 | 12 | Medium2 | 75,688 | 580 | 3,434 | 0 | 0 |
| 5 | Swine | Liquid | FF | Midwest | 3 | 62 | Medium2 | 75,270 | 580 | 3,614 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 115 | Large1 | 119,903 | 738 | 2,566 | 255 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 142 | Large1 | 115,511 | 740 | 2,478 | 252 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 36 | Large1 | 86,735 | 648 | 37,096 | 159 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 44 | Large1 | 83,621 | 699 | 6,641 | 209 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 32 | Large1 | 119,757 | 580 | 29,432 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 40 | Large1 | 115,367 | 580 | 28,308 | 0 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 173 | Large1 | 119,937 | 2,124 | 2,587 | 1,750 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 214 | Large1 | 115,532 | 2,238 | 2,491 | 1,818 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 53 | Large1 | 86,744 | 1,041 | 15,818 | 582 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 66 | Large1 | 83,631 | 1,379 | 13,680 | 920 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 49 | Large1 | 119,757 | 580 | 6,146 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 61 | Large1 | 115,367 | 580 | 5,920 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 62 | Large2 | 290,930 | 975 | 5,990 | 511 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 31 | Large2 | 327,306 | 1,050 | 6,716 | 576 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 72 | Large2 | 208,003 | 760 | 37,346 | 279 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 37 | Large2 | 233,797 | 892 | 24,071 | 410 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 38 | Large2 | 290,778 | 580 | 73,215 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 19 | Large2 | 327,157 | 580 | 82,531 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 92 | Large2 | 291,015 | 4,444 | 6,042 | 4,252 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 47 | Large2 | 327,368 | 5,447 | 6,754 | 5,172 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 108 | Large2 | 208,015 | 1,219 | 39,143 | 775 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 55 | Large2 | 233,808 | 1,689 | 39,587 | 1,244 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 56 | Large2 | 290,778 | 580 | 14,948 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 29 | Large2 | 327,157 | 580 | 16,821 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 99 | Medium1a | 37,659 | 685 | 1,128 | 227 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 573 | Medium1a | 35,584 | 651 | 1,258 | 191 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 12 | Medium1a | 28,569 | 639 | 10,456 | 180 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 68 | Medium1a | 27,131 | 653 | 1,091 | 194 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 20 | Medium1a | 37,029 | 580 | 8,304 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 118 | Medium1a | 34,999 | 580 | 7,986 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 148 | Medium1a | 38,581 | 1,607 | 1,695 | 1,198 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 859 | Medium1a | 36,142 | 1,314 | 1,601 | 884 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 18 | Medium1a | 28,955 | 1,026 | 4,926 | 586 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 103 | Medium1a | 27,516 | 1,110 | 2,234 | 671 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 31 | Medium1a | 37,029 | 580 | 1,995 | 0 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Swine | Liquid | GF | Midwest | 3 | 176 | Medium1a | 34,999 | 580 | 2,089 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 18 | Medium1b | 55,676 | 746 | 1,525 | 292 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 102 | Medium1b | 52,421 | 692 | 1,616 | 234 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 41,311 | 639 | 1,174 | 180 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 12 | Medium1b | 39,051 | 651 | 15,442 | 191 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium1b | 54,985 | 580 | 12,882 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 21 | Medium1b | 51,801 | 580 | 12,268 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 26 | Medium1b | 57,134 | 2,202 | 2,420 | 1,825 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 154 | Medium1b | 53,303 | 1,740 | 2,158 | 1,329 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium1b | 41,698 | 1,026 | 7,365 | 586 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 18 | Medium1b | 39,438 | 1,110 | 6,490 | 671 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 5 | Medium1b | 54,985 | 580 | 2,916 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium1b | 51,801 | 580 | 2,951 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 49 | Medium2 | 77,062 | 818 | 1,996 | 368 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 126 | Medium2 | 75,036 | 748 | 2,096 | 292 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 10 | Medium2 | 56,501 | 709 | 23,148 | 253 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 25 | Medium2 | 55,134 | 734 | 17,748 | 278 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 12 | Medium2 | 76,299 | 580 | 18,320 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 30 | Medium2 | 74,370 | 580 | 18,027 | 0 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 1 | 73 | Medium2 | 79,155 | 2,909 | 3,281 | 2,570 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 1 | 188 | Medium2 | 76,355 | 2,313 | 2,905 | 1,928 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 2 | 14 | Medium2 | 57,112 | 1,319 | 10,443 | 896 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 2 | 37 | Medium2 | 55,744 | 1,459 | 9,422 | 1,035 | 0 |
| 5 | Swine | Liquid | GF | Mid-Atlantic | 3 | 17 | Medium2 | 76,299 | 580 | 4,011 | 0 | 0 |
| 5 | Swine | Liquid | GF | Midwest | 3 | 44 | Medium2 | 74,370 | 580 | 4,110 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 75 | Large1 | 747,825 | 736 | 24,463 | 253 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 347 | Large1 | 733,979 | 742 | 24,013 | 254 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 12 | Large1 | 649,731 | 668 | 25,565 | 181 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 58 | Large1 | 637,703 | 739 | 24,234 | 251 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Large1 | 649,660 | 580 | 24,460 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 65 | Large1 | 637,631 | 580 | 24,011 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 112 | Large1 | 747,858 | 2,105 | 24,484 | 1,729 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 521 | Large1 | 734,000 | 2,251 | 24,026 | 1,832 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 19 | Large1 | 649,742 | 1,134 | 32,648 | 682 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 87 | Large1 | 637,714 | 1,541 | 25,741 | 1,089 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 21 | Large1 | 649,660 | 580 | 24,460 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 98 | Large1 | 637,631 | 580 | 24,011 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 58 | Large2 | 3,646,138 | 1,340 | 118,656 | 905 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 122 | Large2 | 2,943,571 | 1,228 | 95,820 | 762 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 28 | Large2 | 3,167,794 | 808 | 126,318 | 331 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 59 | Large2 | 2,557,406 | 976 | 99,594 | 498 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 34 | Large2 | 3,167,808 | 580 | 118,644 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 73 | Large2 | 2,557,404 | 580 | 95,814 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 86 | Large2 | 3,646,302 | 8,018 | 118,757 | 8,106 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 184 | Large2 | 2,943,657 | 7,286 | 95,873 | 7,094 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 41 | Large2 | 3,167,816 | 1,724 | 171,037 | 1,319 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 88 | Large2 | 2,557,428 | 2,566 | 106,414 | 2,160 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 52 | Large2 | 3,167,808 | 580 | 118,644 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 109 | Large2 | 2,557,404 | 580 | 95,814 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1a | 181,384 | 672 | 6,247 | 214 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 1092 | Medium1a | 174,524 | 644 | 6,200 | 184 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 9 | Medium1a | 173,451 | 689 | 6,381 | 232 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 78 | Medium1a | 166,929 | 709 | 6,356 | 252 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1a | 157,135 | 580 | 6,150 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1a | 151,207 | 580 | 6,127 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 182 | Medium1a | 182,195 | 1,482 | 6,745 | 1,067 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 1639 | Medium1a | 175,029 | 1,244 | 6,510 | 811 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 13 | Medium1a | 158,135 | 1,127 | 7,818 | 693 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Swine | Liquid | FF | Midwest | 2 | 116 | Medium1a | 152,209 | 1,231 | 6,633 | 797 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 20 | Medium1a | 157,135 | 580 | 6,150 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 186 | Medium1a | 151,207 | 580 | 6,127 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium1b | 324,682 | 745 | 10,945 | 291 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 728 | Medium1b | 312,253 | 695 | 10,699 | 237 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium1b | 282,121 | 685 | 11,376 | 227 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 52 | Medium1b | 298,576 | 709 | 10,855 | 252 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 9 | Medium1b | 281,588 | 580 | 10,803 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 83 | Medium1b | 270,848 | 580 | 10,600 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1b | 326,137 | 2,199 | 11,838 | 1,822 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 1093 | Medium1b | 313,159 | 1,771 | 11,256 | 1,362 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium1b | 282,564 | 1,127 | 14,910 | 693 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 77 | Medium1b | 271,826 | 1,231 | 11,808 | 797 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1b | 281,588 | 580 | 10,803 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1b | 270,848 | 580 | 10,600 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 54 | Medium2 | 462,623 | 816 | 15,467 | 365 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 278 | Medium2 | 459,759 | 750 | 15,518 | 294 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 5 | Medium2 | 401,935 | 720 | 16,098 | 264 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 27 | Medium2 | 439,609 | 752 | 15,693 | 297 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 8 | Medium2 | 401,385 | 580 | 15,282 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 42 | Medium2 | 398,978 | 580 | 15,391 | 0 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium2 | 464,698 | 2,889 | 16,742 | 2,549 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 1 | 418 | Medium2 | 461,095 | 2,336 | 16,339 | 1,952 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium2 | 402,760 | 1,544 | 20,573 | 1,132 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 2 | 41 | Medium2 | 400,353 | 1,726 | 16,960 | 1,315 | 0 |
| 5a | Swine | Liquid | FF | Mid-Atlantic | 3 | 12 | Medium2 | 401,385 | 580 | 15,282 | 0 | 0 |
| 5a | Swine | Liquid | FF | Midwest | 3 | 62 | Medium2 | 398,978 | 580 | 15,391 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 115 | Large1 | 757,409 | 738 | 24,775 | 255 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 142 | Large1 | 728,228 | 740 | 23,826 | 252 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 36 | Large1 | 658,057 | 648 | 26,184 | 159 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 44 | Large1 | 632,705 | 699 | 24,558 | 209 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 32 | Large1 | 657,987 | 580 | 24,772 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 40 | Large1 | 632,635 | 580 | 23,824 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 173 | Large1 | 757,443 | 2,124 | 24,796 | 1,750 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 214 | Large1 | 728,249 | 2,238 | 23,839 | 1,818 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 53 | Large1 | 658,067 | 1,041 | 33,898 | 582 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 66 | Large1 | 632,715 | 1,379 | 25,875 | 920 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 49 | Large1 | 657,987 | 580 | 24,772 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 61 | Large1 | 632,635 | 580 | 23,824 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 62 | Large2 | 1,894,502 | 975 | 61,729 | 511 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 31 | Large2 | 2,136,432 | 1,050 | 69,589 | 576 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 72 | Large2 | 1,645,966 | 760 | 64,952 | 279 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 37 | Large2 | 1,856,159 | 892 | 72,043 | 410 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 38 | Large2 | 1,645,936 | 580 | 61,722 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 19 | Large2 | 1,856,136 | 580 | 69,585 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 92 | Large2 | 1,894,588 | 4,444 | 61,781 | 4,252 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 47 | Large2 | 2,136,494 | 5,447 | 69,627 | 5,172 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 108 | Large2 | 1,645,978 | 1,219 | 88,643 | 775 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 55 | Large2 | 1,856,170 | 1,689 | 78,040 | 1,244 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 56 | Large2 | 1,645,936 | 580 | 61,722 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 29 | Large2 | 1,856,136 | 580 | 69,585 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 99 | Medium1a | 206,336 | 685 | 7,065 | 227 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 573 | Medium1a | 192,862 | 651 | 6,799 | 191 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 12 | Medium1a | 179,313 | 639 | 7,404 | 180 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 68 | Medium1a | 184,409 | 653 | 6,926 | 194 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 20 | Medium1a | 178,806 | 580 | 6,960 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 118 | Medium1a | 167,137 | 580 | 6,723 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 148 | Medium1a | 207,259 | 1,607 | 7,632 | 1,198 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Swine | Liquid | GF | Midwest | 1 | 859 | Medium1a | 193,421 | 1,314 | 7,142 | 884 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 18 | Medium1a | 179,700 | 1,026 | 9,337 | 586 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 103 | Medium1a | 168,034 | 1,110 | 7,414 | 671 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 31 | Medium1a | 178,806 | 580 | 6,960 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 176 | Medium1a | 167,137 | 580 | 6,723 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 18 | Medium1b | 325,321 | 746 | 10,966 | 292 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 102 | Medium1b | 304,152 | 692 | 10,435 | 234 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 282,632 | 639 | 11,625 | 180 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 12 | Medium1b | 264,302 | 651 | 10,864 | 191 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium1b | 282,143 | 580 | 10,824 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 21 | Medium1b | 263,811 | 580 | 10,337 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 26 | Medium1b | 326,779 | 2,202 | 11,861 | 1,825 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 154 | Medium1b | 305,035 | 1,740 | 10,977 | 1,329 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium1b | 283,019 | 1,026 | 15,225 | 586 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 18 | Medium1b | 264,688 | 1,110 | 11,597 | 671 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 5 | Medium1b | 282,143 | 580 | 10,824 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 32 | Medium1b | 263,811 | 580 | 10,337 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 49 | Medium2 | 466,674 | 818 | 15,600 | 368 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 126 | Medium2 | 453,791 | 748 | 15,324 | 292 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 10 | Medium2 | 405,442 | 709 | 16,287 | 253 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 25 | Medium2 | 394,335 | 734 | 15,580 | 278 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 12 | Medium2 | 404,903 | 580 | 15,414 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 30 | Medium2 | 393,794 | 580 | 15,197 | 0 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 1 | 73 | Medium2 | 468,767 | 2,909 | 16,885 | 2,570 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 1 | 188 | Medium2 | 455,110 | 2,313 | 16,133 | 1,928 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 2 | 14 | Medium2 | 406,052 | 1,319 | 21,401 | 896 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 2 | 37 | Medium2 | 394,945 | 1,459 | 16,944 | 1,035 | 0 |
| 5a | Swine | Liquid | GF | Mid-Atlantic | 3 | 17 | Medium2 | 404,903 | 580 | 15,414 | 0 | 0 |
| 5a | Swine | Liquid | GF | Midwest | 3 | 44 | Medium2 | 393,794 | 580 | 15,197 | | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | 0 | |
| 6 | Swine | Liquid | FF | Mid-Atlantic | 1 | 112 | Large1 | 98,256 | 42,105 | -8,314 | 1,729 | 5,000 |
| 6 | Swine | Liquid | FF | Midwest | 1 | 521 | Large1 | 155,263 | 42,251 | -15 | 1,832 | 5,000 |
| 6 | Swine | Liquid | FF | Mid-Atlantic | 2 | 19 | Large1 | 183,306 | 41,134 | -3,580 | 682 | 5,000 |
| 6 | Swine | Liquid | FF | Midwest | 2 | 87 | Large1 | 168,426 | 41,541 | -5,311 | 1,089 | 5,000 |
| 6 | Swine | Liquid | FF | Mid-Atlantic | 3 | 21 | Large1 | 215,897 | 40,580 | -3,329 | 0 | 5,000 |
| 6 | Swine | Liquid | FF | Midwest | 3 | 98 | Large1 | 273,151 | 40,580 | -3,604 | 0 | 5,000 |
| 6 | Swine | Liquid | FF | Mid-Atlantic | 1 | 86 | Large2 | 286,501 | 48,018 | -32,752 | 8,106 | 5,000 |
| 6 | Swine | Liquid | FF | Midwest | 1 | 184 | Large2 | 362,915 | 47,286 | -43,278 | 7,094 | 5,000 |
| 6 | Swine | Liquid | FF | Mid-Atlantic | 2 | 41 | Large2 | 679,948 | 41,724 | -9,519 | 1,319 | 5,000 |
| 6 | Swine | Liquid | FF | Midwest | 2 | 88 | Large2 | 795,452 | 42,566 | -12,322 | 2,160 | 5,000 |
| 6 | Swine | Liquid | FF | Mid-Atlantic | 3 | 52 | Large2 | 839,329 | 40,580 | -8,860 | 0 | 5,000 |
| 6 | Swine | Liquid | FF | Midwest | 3 | 109 | Large2 | 924,099 | 40,580 | -9,710 | 0 | 5,000 |
| 6 | Swine | Liquid | GF | Mid-Atlantic | 1 | 173 | Large1 | 98,039 | 27,124 | -17,555 | 1,750 | 5,000 |
| 6 | Swine | Liquid | GF | Midwest | 1 | 214 | Large1 | 155,261 | 27,238 | -15,110 | 1,818 | 5,000 |
| 6 | Swine | Liquid | GF | Mid-Atlantic | 2 | 53 | Large1 | 184,106 | 26,041 | -12,464 | 582 | 5,000 |
| 6 | Swine | Liquid | GF | Midwest | 2 | 66 | Large1 | 238,237 | 26,379 | -10,717 | 920 | 5,000 |
| 6 | Swine | Liquid | GF | Mid-Atlantic | 3 | 49 | Large1 | 217,119 | 25,580 | -11,611 | 0 | 5,000 |
| 6 | Swine | Liquid | GF | Midwest | 3 | 61 | Large1 | 269,973 | 25,580 | -9,383 | 0 | 5,000 |
| 6 | Swine | Liquid | GF | Mid-Atlantic | 1 | 92 | Large2 | 173,966 | 29,444 | -42,722 | 4,252 | 5,000 |
| 6 | Swine | Liquid | GF | Midwest | 1 | 47 | Large2 | 362,771 | 30,447 | -43,296 | 5,172 | 5,000 |
| 6 | Swine | Liquid | GF | Mid-Atlantic | 2 | 108 | Large2 | 381,013 | 26,219 | -29,927 | 775 | 5,000 |
| 6 | Swine | Liquid | GF | Midwest | 2 | 55 | Large2 | 595,597 | 26,689 | -30,331 | 1,244 | 5,000 |
| 6 | Swine | Liquid | GF | Mid-Atlantic | 3 | 56 | Large2 | 463,776 | 25,580 | -28,015 | 0 | 5,000 |
| 6 | Swine | Liquid | GF | Midwest | 3 | 29 | Large2 | 688,946 | 25,580 | -26,702 | 0 | 5,000 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 75 | Large1 | 640 | 736 | 181 | 253 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 347 | Large1 | 635 | 742 | 180 | 254 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 12 | Large1 | 15,128 | 668 | 11,320 | 181 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 58 | Large1 | 14,994 | 739 | 11,220 | 251 | 6 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Large1 | 118,315 | 580 | 22,431 | 0 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 65 | Large1 | 116,232 | 580 | 22,021 | 0 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 112 | Large1 | 674 | 2,105 | 202 | 1,729 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 521 | Large1 | 657 | 2,251 | 193 | 1,832 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 19 | Large1 | 89,254 | 1,134 | 25,880 | 682 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 87 | Large1 | 15,005 | 1,541 | 21,096 | 1,089 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 21 | Large1 | 118,315 | 580 | 5,187 | 0 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 98 | Large1 | 116,232 | 580 | 5,097 | 0 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 58 | Large2 | 1,139 | 1,340 | 200 | 905 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 122 | Large2 | 1,040 | 1,228 | 192 | 762 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 28 | Large2 | 403,602 | 808 | 36,073 | 331 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 59 | Large2 | 32,639 | 976 | 24,477 | 498 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 34 | Large2 | 554,131 | 580 | 108,310 | 0 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 73 | Large2 | 448,511 | 580 | 87,492 | 0 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 86 | Large2 | 1,303 | 8,018 | 300 | 8,106 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 184 | Large2 | 1,126 | 7,286 | 245 | 7,094 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 41 | Large2 | 403,625 | 1,724 | 98,773 | 1,319 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 88 | Large2 | 327,560 | 2,566 | 75,249 | 2,160 | 6 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 52 | Large2 | 554,131 | 580 | 24,192 | 0 | 6 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 109 | Large2 | 448,511 | 580 | 19,586 | 0 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1a | 1,242 | 672 | 392 | 214 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 1092 | Medium1a | 1,196 | 644 | 567 | 184 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 9 | Medium1a | 10,594 | 689 | 6,778 | 232 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 78 | Medium1a | 10,476 | 709 | 6,900 | 252 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1a | 33,260 | 580 | 5,745 | 0 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1a | 32,228 | 580 | 5,742 | 0 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 182 | Medium1a | 2,053 | 1,482 | 890 | 1,067 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 1639 | Medium1a | 1,701 | 1,244 | 878 | 811 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 13 | Medium1a | 11,033 | 1,127 | 7,687 | 693 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Swine | Liquid | FF | Midwest | 2 | 116 | Medium1a | 10,915 | 1,231 | 7,170 | 797 | 731 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 20 | Medium1a | 33,260 | 580 | 1,588 | 0 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 186 | Medium1a | 32,228 | 580 | 1,742 | 0 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium1b | 1,449 | 745 | 440 | 291 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 728 | Medium1b | 1,370 | 695 | 596 | 237 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 6 | Medium1b | 12,776 | 685 | 8,185 | 227 | 55,197 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 52 | Medium1b | 12,605 | 709 | 8,273 | 252 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 9 | Medium1b | 54,889 | 580 | 9,988 | 0 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 83 | Medium1b | 53,024 | 580 | 9,820 | 0 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 122 | Medium1b | 2,904 | 2,199 | 1,334 | 1,822 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 1093 | Medium1b | 2,276 | 1,771 | 1,153 | 1,362 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium1b | 45,508 | 1,127 | 14,816 | 693 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 77 | Medium1b | 13,044 | 1,231 | 17,364 | 797 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 14 | Medium1b | 54,889 | 580 | 2,529 | 0 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 124 | Medium1b | 53,024 | 580 | 2,646 | 0 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 54 | Medium2 | 1,621 | 816 | 485 | 365 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 278 | Medium2 | 1,526 | 750 | 627 | 294 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 5 | Medium2 | 14,634 | 720 | 9,387 | 264 | 89,706 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 27 | Medium2 | 14,604 | 752 | 9,566 | 297 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 8 | Medium2 | 75,688 | 580 | 14,073 | 0 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 42 | Medium2 | 75,270 | 580 | 14,189 | 0 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 1 | 81 | Medium2 | 3,696 | 2,889 | 1,760 | 2,549 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 1 | 418 | Medium2 | 2,862 | 2,336 | 1,447 | 1,952 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 2 | 8 | Medium2 | 61,253 | 1,544 | 18,916 | 1,132 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 2 | 41 | Medium2 | 15,424 | 1,726 | 11,697 | 1,315 | 0 |
| 7 | Swine | Liquid | FF | Mid-Atlantic | 3 | 12 | Medium2 | 75,688 | 580 | 3,434 | 0 | 0 |
| 7 | Swine | Liquid | FF | Midwest | 3 | 62 | Medium2 | 75,270 | 580 | 3,614 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 115 | Large1 | 643 | 738 | 181 | 255 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 142 | Large1 | 634 | 740 | 180 | 252 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 36 | Large1 | 15,218 | 648 | 11,387 | 159 | 207,255 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 44 | Large1 | 14,937 | 699 | 11,178 | 209 | 85,939 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 32 | Large1 | 119,757 | 580 | 29,432 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 40 | Large1 | 115,367 | 580 | 28,308 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 173 | Large1 | 677 | 2,124 | 202 | 1,750 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 214 | Large1 | 655 | 2,238 | 193 | 1,818 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 53 | Large1 | 90,296 | 1,041 | 27,027 | 582 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 66 | Large1 | 87,116 | 1,379 | 24,680 | 920 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 49 | Large1 | 119,757 | 580 | 6,146 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 61 | Large1 | 115,367 | 580 | 5,920 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 62 | Large2 | 883 | 975 | 189 | 511 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 31 | Large2 | 920 | 1,050 | 188 | 576 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 72 | Large2 | 24,844 | 760 | 18,609 | 279 | 498,323 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 37 | Large2 | 26,702 | 892 | 20,006 | 410 | 342,942 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 38 | Large2 | 290,778 | 580 | 73,215 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 19 | Large2 | 327,157 | 580 | 82,531 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 92 | Large2 | 968 | 4,444 | 241 | 4,252 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 47 | Large2 | 982 | 5,447 | 227 | 5,172 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 108 | Large2 | 213,853 | 1,219 | 57,568 | 775 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 55 | Large2 | 240,089 | 1,689 | 59,408 | 1,244 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 56 | Large2 | 290,778 | 580 | 14,948 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 29 | Large2 | 327,157 | 580 | 16,821 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 99 | Medium1a | 1,281 | 685 | 401 | 227 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 573 | Medium1a | 1,222 | 651 | 571 | 191 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 12 | Medium1a | 10,958 | 639 | 7,014 | 180 | 41,347 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 68 | Medium1a | 10,740 | 653 | 7,072 | 194 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 20 | Medium1a | 37,029 | 580 | 8,304 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 118 | Medium1a | 34,999 | 580 | 7,986 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 148 | Medium1a | 2,204 | 1,607 | 968 | 1,198 | 0 |

**Table 11-12. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3 yr rec | 5 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Swine | Liquid | GF | Midwest | 1 | 859 | Medium1a | 1,780 | 1,314 | 914 | 884 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 18 | Medium1a | 32,178 | 1,026 | 11,569 | 586 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 103 | Medium1a | 11,125 | 1,110 | 8,215 | 671 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 31 | Medium1a | 37,029 | 580 | 1,995 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 176 | Medium1a | 34,999 | 580 | 2,089 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 18 | Medium1b | 1,449 | 746 | 440 | 292 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 102 | Medium1b | 1,360 | 692 | 595 | 234 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 2 | Medium1b | 45,091 | 639 | 8,964 | 180 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 12 | Medium1b | 12,441 | 651 | 8,169 | 191 | 50,244 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 4 | Medium1b | 54,985 | 580 | 12,882 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 21 | Medium1b | 51,801 | 580 | 12,268 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 26 | Medium1b | 2,907 | 2,202 | 1,336 | 1,825 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 154 | Medium1b | 2,243 | 1,740 | 1,137 | 1,329 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 3 | Medium1b | 45,478 | 1,026 | 15,155 | 586 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 18 | Medium1b | 43,124 | 1,110 | 14,088 | 671 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 5 | Medium1b | 54,985 | 580 | 2,916 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 32 | Medium1b | 51,801 | 580 | 2,951 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 49 | Medium2 | 1,626 | 818 | 487 | 368 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 126 | Medium2 | 1,520 | 748 | 625 | 292 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 10 | Medium2 | 14,676 | 709 | 9,415 | 253 | 100,722 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 25 | Medium2 | 14,513 | 734 | 9,508 | 278 | 15,133 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 12 | Medium2 | 76,299 | 580 | 18,320 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 30 | Medium2 | 74,370 | 580 | 18,027 | 0 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 1 | 73 | Medium2 | 3,719 | 2,909 | 1,772 | 2,570 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 1 | 188 | Medium2 | 2,839 | 2,313 | 1,435 | 1,928 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 2 | 14 | Medium2 | 61,477 | 1,319 | 19,440 | 896 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 2 | 37 | Medium2 | 60,058 | 1,459 | 18,314 | 1,035 | 0 |
| 7 | Swine | Liquid | GF | Mid-Atlantic | 3 | 17 | Medium2 | 76,299 | 580 | 4,011 | 0 | 0 |
| 7 | Swine | Liquid | GF | Midwest | 3 | 44 | Medium2 | 74,370 | 580 | 4,110 | 0 | 0 |

**Table 11-13. Regulatory Compliance Costs for the Poultry (BR, broiler; LA, dry layers; LW, wet layers) Operations**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chic | Solid | BR | Mid-Atlantic | 1 | 47 | Large1 | 64,538 | 2,214 | 2,249 | 2,391 | 0 |
| 1 | Chic | Solid | BR | South | 1 | 98 | Large1 | 65,498 | 2,453 | 2,432 | 2,740 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 2 | 687 | Large1 | 63,405 | 890 | 2,289 | 536 | 0 |
| 1 | Chic | Solid | BR | South | 2 | 1,417 | Large1 | 63,932 | 851 | 2,158 | 496 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 3 | 336 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 1 | Chic | Solid | BR | South | 3 | 694 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 1 | 7 | Large2 | 168,396 | 4,878 | 4,342 | 6,120 | 0 |
| 1 | Chic | Solid | BR | South | 1 | 21 | Large2 | 155,678 | 5,064 | 4,659 | 6,395 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 2 | 132 | Large2 | 165,119 | 1,047 | 3,439 | 756 | 0 |
| 1 | Chic | Solid | BR | South | 2 | 301 | Large2 | 151,693 | 988 | 3,248 | 688 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 3 | 53 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 1 | Chic | Solid | BR | South | 3 | 147 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 1 | 108 | Medium1a | 21,127 | 1,075 | 1,351 | 791 | 0 |
| 1 | Chic | Solid | BR | South | 1 | 170 | Medium1a | 20,967 | 1,172 | 1,383 | 946 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 2 | 904 | Medium1a | 20,831 | 747 | 1,362 | 331 | 0 |
| 1 | Chic | Solid | BR | South | 2 | 1,430 | Medium1a | 20,547 | 736 | 1,382 | 336 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 3 | 677 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 1 | Chic | Solid | BR | South | 3 | 1,072 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 1 | 50 | Medium1b | 29,305 | 1,274 | 1,539 | 1,069 | 0 |
| 1 | Chic | Solid | BR | South | 1 | 78 | Medium1b | 29,076 | 1,410 | 1,614 | 1,279 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 2 | 415 | Medium1b | 28,830 | 747 | 1,559 | 331 | 0 |
| 1 | Chic | Solid | BR | South | 2 | 656 | Medium1b | 28,427 | 736 | 1,614 | 336 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 3 | 311 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 1 | Chic | Solid | BR | South | 3 | 491 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 1 | 61 | Medium2 | 41,467 | 1,570 | 1,714 | 1,483 | 0 |
| 1 | Chic | Solid | BR | South | 1 | 122 | Medium2 | 41,417 | 1,772 | 1,838 | 1,786 | 0 |
| 1 | Chic | Solid | BR | Mid-Atlantic | 2 | 737 | Medium2 | 40,767 | 794 | 1,744 | 397 | 0 |
| 1 | Chic | Solid | BR | South | 2 | 1,467 | Medium2 | 40,467 | 787 | 1,772 | 407 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chic | Solid | BR | Mid-Atlantic | 3 | 486 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 1 | Chic | Solid | BR | South | 3 | 967 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 1 | Chic | Solid | LA | Midwest | 1 | 2 | Large1 | 59,137 | 2,901 | 1,123 | 4,426 | 0 |
| 1 | Chic | Solid | LA | South | 1 | 4 | Large1 | 52,774 | 2,430 | 1,457 | 3,441 | 0 |
| 1 | Chic | Solid | LA | Midwest | 2 | 102 | Large1 | 58,186 | 875 | 1,235 | 660 | 0 |
| 1 | Chic | Solid | LA | South | 2 | 127 | Large1 | 51,323 | 821 | 1,315 | 545 | 0 |
| 1 | Chic | Solid | LA | Midwest | 3 | 115 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 1 | Chic | Solid | LA | South | 3 | 144 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 1 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 259,389 | 10,799 | 4,442 | 19,106 | 0 |
| 1 | Chic | Solid | LA | South | 1 | 0 | Large2 | 158,261 | 6,153 | 4,120 | 10,143 | 0 |
| 1 | Chic | Solid | LA | Midwest | 2 | 23 | Large2 | 254,878 | 1,187 | 3,101 | 1,239 | 0 |
| 1 | Chic | Solid | LA | South | 2 | 40 | Large2 | 153,681 | 1,076 | 2,848 | 1,004 | 0 |
| 1 | Chic | Solid | LA | Midwest | 3 | 26 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 1 | Chic | Solid | LA | South | 3 | 45 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 1 | Chic | Solid | LA | Midwest | 1 | 10 | Medium1a | 8,268 | 895 | 272 | 697 | 0 |
| 1 | Chic | Solid | LA | South | 1 | 9 | Medium1a | 6,146 | 784 | 292 | 478 | 0 |
| 1 | Chic | Solid | LA | Midwest | 2 | 84 | Medium1a | 8,187 | 722 | 317 | 376 | 0 |
| 1 | Chic | Solid | LA | South | 2 | 78 | Medium1a | 6,067 | 696 | 307 | 321 | 0 |
| 1 | Chic | Solid | LA | Midwest | 3 | 46 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 1 | Chic | Solid | LA | South | 3 | 43 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 1 | Chic | Solid | LA | Midwest | 1 | 6 | Medium1b | 11,362 | 1,017 | 333 | 924 | 0 |
| 1 | Chic | Solid | LA | South | 1 | 6 | Medium1b | 8,384 | 863 | 338 | 621 | 0 |
| 1 | Chic | Solid | LA | Midwest | 2 | 55 | Medium1b | 11,224 | 722 | 412 | 376 | 0 |
| 1 | Chic | Solid | LA | South | 2 | 52 | Medium1b | 8,234 | 696 | 368 | 321 | 0 |
| 1 | Chic | Solid | LA | Midwest | 3 | 30 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 1 | Chic | Solid | LA | South | 3 | 29 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 1 | Chic | Solid | LA | Midwest | 1 | 18 | Medium2 | 20,828 | 1,390 | 470 | 1,618 | 0 |
| 1 | Chic | Solid | LA | South | 1 | 20 | Medium2 | 17,759 | 1,194 | 572 | 1,216 | 0 |
| 1 | Chic | Solid | LA | Midwest | 2 | 146 | Medium2 | 20,582 | 865 | 610 | 641 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Chic | Solid | LA | South | 2 | 176 | Medium2 | 17,415 | 813 | 640 | 530 | 0 |
| 1 | Chic | Solid | LA | Midwest | 3 | 117 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 1 | Chic | Solid | LA | South | 3 | 142 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 1 | Chic | Liquid | LW | South | 1 | 24 | Large1 | 1,053 | 1,128 | 460 | 1,097 | 0 |
| 1 | Chic | Liquid | LW | South | 2 | 217 | Large1 | 107,287 | 799 | 23,262 | 505 | 0 |
| 1 | Chic | Liquid | LW | South | 3 | 119 | Large1 | 106,827 | 580 | 7,046 | 0 | 0 |
| 1 | Chic | Liquid | LW | South | 1 | 97 | Medium2 | 415 | 603 | 166 | 153 | 0 |
| 1 | Chic | Liquid | LW | South | 2 | 393 | Medium2 | 10,221 | 590 | 1,232 | 130 | 0 |
| 1 | Chic | Liquid | LW | South | 3 | 310 | Medium2 | 9,949 | 580 | 530 | 0 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 1 | 28 | Large1 | 65,240 | 3,036 | 2,680 | 3,541 | 0 |
| 2 | Chic | Solid | BR | South | 1 | 39 | Large1 | 67,908 | 4,917 | 3,912 | 6,189 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 2 | 412 | Large1 | 63,427 | 916 | 6,327 | 573 | 0 |
| 2 | Chic | Solid | BR | South | 2 | 567 | Large1 | 63,964 | 884 | 3,538 | 543 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 3 | 202 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 2 | Chic | Solid | BR | South | 3 | 278 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 1 | 4 | Large2 | 170,244 | 7,038 | 5,476 | 9,144 | 0 |
| 2 | Chic | Solid | BR | South | 1 | 8 | Large2 | 161,445 | 10,963 | 8,201 | 14,653 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 2 | 79 | Large2 | 165,162 | 1,097 | 10,330 | 827 | 0 |
| 2 | Chic | Solid | BR | South | 2 | 120 | Large2 | 151,736 | 1,033 | 5,286 | 751 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 3 | 32 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 2 | Chic | Solid | BR | South | 3 | 59 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 1 | 65 | Medium1a | 21,351 | 1,324 | 1,488 | 1,139 | 0 |
| 2 | Chic | Solid | BR | South | 1 | 68 | Medium1a | 21,717 | 1,950 | 1,844 | 2,036 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 2 | 542 | Medium1a | 20,856 | 774 | 2,481 | 369 | 0 |
| 2 | Chic | Solid | BR | South | 2 | 572 | Medium1a | 20,571 | 761 | 1,849 | 371 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 3 | 406 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 2 | Chic | Solid | BR | South | 3 | 429 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 1 | 30 | Medium1b | 29,619 | 1,623 | 1,732 | 1,557 | 0 |
| 2 | Chic | Solid | BR | South | 1 | 31 | Medium1b | 30,128 | 2,501 | 2,261 | 2,807 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Chic | Solid | BR | Mid-Atlantic | 2 | 249 | Medium1b | 28,854 | 774 | 3,268 | 369 | 0 |
| 2 | Chic | Solid | BR | South | 2 | 262 | Medium1b | 28,451 | 761 | 2,269 | 371 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 3 | 187 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 2 | Chic | Solid | BR | South | 3 | 196 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 1 | 37 | Medium2 | 41,915 | 2,067 | 1,990 | 2,180 | 0 |
| 2 | Chic | Solid | BR | South | 1 | 49 | Medium2 | 42,929 | 3,340 | 2,766 | 3,982 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 2 | 442 | Medium2 | 40,791 | 821 | 4,249 | 435 | 0 |
| 2 | Chic | Solid | BR | South | 2 | 587 | Medium2 | 40,485 | 805 | 2,779 | 432 | 0 |
| 2 | Chic | Solid | BR | Mid-Atlantic | 3 | 292 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 2 | Chic | Solid | BR | South | 3 | 387 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 2 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 65,120 | 15,651 | 4,798 | 28,125 | 0 |
| 2 | Chic | Solid | LA | South | 1 | 2 | Large1 | 61,940 | 12,589 | 7,086 | 21,728 | 0 |
| 2 | Chic | Solid | LA | Midwest | 2 | 61 | Large1 | 58,227 | 962 | 2,370 | 822 | 0 |
| 2 | Chic | Solid | LA | South | 2 | 51 | Large1 | 51,387 | 892 | 3,330 | 674 | 0 |
| 2 | Chic | Solid | LA | Midwest | 3 | 69 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 2 | Chic | Solid | LA | South | 3 | 58 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 2 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 285,727 | 66,923 | 20,617 | 123,431 | 0 |
| 2 | Chic | Solid | LA | South | 1 | 0 | Large2 | 185,877 | 36,762 | 21,080 | 65,239 | 0 |
| 2 | Chic | Solid | LA | Midwest | 2 | 14 | Large2 | 254,898 | 1,230 | 4,751 | 1,319 | 0 |
| 2 | Chic | Solid | LA | South | 2 | 16 | Large2 | 153,712 | 1,111 | 5,955 | 1,067 | 0 |
| 2 | Chic | Solid | LA | Midwest | 3 | 16 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 2 | Chic | Solid | LA | South | 3 | 18 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 2 | Chic | Solid | LA | Midwest | 1 | 6 | Medium1a | 9,081 | 2,626 | 771 | 3,914 | 0 |
| 2 | Chic | Solid | LA | South | 1 | 4 | Medium1a | 7,157 | 1,905 | 913 | 2,495 | 0 |
| 2 | Chic | Solid | LA | Midwest | 2 | 50 | Medium1a | 8,203 | 757 | 499 | 439 | 0 |
| 2 | Chic | Solid | LA | South | 2 | 31 | Medium1a | 6,092 | 724 | 571 | 371 | 0 |
| 2 | Chic | Solid | LA | Midwest | 3 | 28 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 2 | Chic | Solid | LA | South | 3 | 17 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 2 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1b | 12,489 | 3,418 | 1,025 | 5,387 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Chic | Solid | LA | South | 1 | 2 | Medium1b | 9,787 | 2,417 | 1,199 | 3,419 | 0 |
| 2 | Chic | Solid | LA | Midwest | 2 | 33 | Medium1b | 11,240 | 757 | 639 | 439 | 0 |
| 2 | Chic | Solid | LA | South | 2 | 21 | Medium1b | 8,259 | 724 | 709 | 371 | 0 |
| 2 | Chic | Solid | LA | Midwest | 3 | 18 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 2 | Chic | Solid | LA | South | 3 | 12 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 2 | Chic | Solid | LA | Midwest | 1 | 11 | Medium2 | 22,917 | 5,842 | 1,753 | 9,892 | 0 |
| 2 | Chic | Solid | LA | South | 1 | 8 | Medium2 | 20,801 | 4,566 | 2,440 | 7,285 | 0 |
| 2 | Chic | Solid | LA | Midwest | 2 | 88 | Medium2 | 20,621 | 949 | 1,043 | 797 | 0 |
| 2 | Chic | Solid | LA | South | 2 | 70 | Medium2 | 17,477 | 881 | 1,373 | 654 | 0 |
| 2 | Chic | Solid | LA | Midwest | 3 | 70 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 2 | Chic | Solid | LA | South | 3 | 57 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 2 | Chic | Liquid | LW | South | 1 | 10 | Large1 | 3,767 | 4,135 | 2,126 | 6,511 | 0 |
| 2 | Chic | Liquid | LW | South | 2 | 87 | Large1 | 107,325 | 841 | 20,209 | 580 | 0 |
| 2 | Chic | Liquid | LW | South | 3 | 48 | Large1 | 106,827 | 580 | 2,745 | 0 | 0 |
| 2 | Chic | Liquid | LW | South | 1 | 39 | Medium2 | 529 | 729 | 236 | 380 | 0 |
| 2 | Chic | Liquid | LW | South | 2 | 157 | Medium2 | 10,259 | 632 | 1,126 | 205 | 0 |
| 2 | Chic | Liquid | LW | South | 3 | 124 | Medium2 | 9,949 | 580 | 350 | 0 | 0 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 4 | Large1 | 69,049 | 2,214 | 3,281 | 2,391 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 13 | Large1 | 69,793 | 2,453 | 3,402 | 2,740 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 66 | Large1 | 67,916 | 890 | 3,321 | 536 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 191 | Large1 | 68,226 | 851 | 3,128 | 496 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 32 | Large1 | 67,187 | 580 | 2,387 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 93 | Large1 | 67,437 | 580 | 2,238 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 7 | Large1 | 69,752 | 3,036 | 3,712 | 3,541 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 9 | Large1 | 72,202 | 4,917 | 4,882 | 6,189 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 99 | Large1 | 67,938 | 916 | 7,359 | 573 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 127 | Large1 | 68,259 | 884 | 4,508 | 543 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 48 | Large1 | 67,187 | 580 | 2,387 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 62 | Large1 | 67,437 | 580 | 2,238 | 0 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 1 | Large2 | 178,012 | 4,878 | 5,475 | 6,120 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 3 | Large2 | 164,153 | 5,064 | 5,712 | 6,395 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 13 | Large2 | 174,735 | 1,047 | 4,572 | 756 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 41 | Large2 | 160,168 | 988 | 4,301 | 688 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 5 | Large2 | 173,871 | 580 | 3,182 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 20 | Large2 | 159,244 | 580 | 2,980 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 1 | Large2 | 179,859 | 7,038 | 6,609 | 9,144 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 2 | Large2 | 169,920 | 10,963 | 9,254 | 14,653 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 19 | Large2 | 174,778 | 1,097 | 11,463 | 827 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 27 | Large2 | 160,211 | 1,033 | 6,338 | 751 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 8 | Large2 | 173,871 | 580 | 3,182 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 13 | Large2 | 159,244 | 580 | 2,980 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 10 | Medium1a | 23,506 | 1,075 | 2,340 | 791 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 23 | Medium1a | 23,197 | 1,172 | 2,312 | 946 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 86 | Medium1a | 23,210 | 747 | 2,352 | 331 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 193 | Medium1a | 22,777 | 736 | 2,311 | 336 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 65 | Medium1a | 22,618 | 580 | 2,033 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 144 | Medium1a | 22,101 | 580 | 1,921 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 15 | Medium1a | 23,730 | 1,324 | 2,478 | 1,139 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 15 | Medium1a | 23,947 | 1,950 | 2,772 | 2,036 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 130 | Medium1a | 23,235 | 774 | 3,470 | 369 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 128 | Medium1a | 22,801 | 761 | 2,778 | 371 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 97 | Medium1a | 22,618 | 580 | 2,033 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 96 | Medium1a | 22,101 | 580 | 1,921 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 5 | Medium1b | 32,086 | 1,274 | 2,537 | 1,069 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 11 | Medium1b | 31,682 | 1,410 | 2,551 | 1,279 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 40 | Medium1b | 31,611 | 747 | 2,556 | 331 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 88 | Medium1b | 31,032 | 736 | 2,550 | 336 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 30 | Medium1b | 31,019 | 580 | 2,119 | 0 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Chic | Solid | BR | South | 3 | 66 | Medium1b | 30,357 | 580 | 2,020 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 7 | Medium1b | 32,400 | 1,623 | 2,730 | 1,557 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 7 | Medium1b | 32,734 | 2,501 | 3,197 | 2,807 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 60 | Medium1b | 31,636 | 774 | 4,266 | 369 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 59 | Medium1b | 31,057 | 761 | 3,206 | 371 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 45 | Medium1b | 31,019 | 580 | 2,119 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 44 | Medium1b | 30,357 | 580 | 2,020 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 6 | Medium2 | 44,846 | 1,570 | 2,724 | 1,483 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 16 | Medium2 | 44,594 | 1,772 | 2,786 | 1,786 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 70 | Medium2 | 44,146 | 794 | 2,753 | 397 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 198 | Medium2 | 43,645 | 787 | 2,720 | 407 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 46 | Medium2 | 43,511 | 580 | 2,142 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 130 | Medium2 | 42,920 | 580 | 2,040 | 0 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 1 | 9 | Medium2 | 45,294 | 2,067 | 2,999 | 2,180 | 3,082 |
| 3 | Chic | Solid | BR | South | 1 | 11 | Medium2 | 46,106 | 3,340 | 3,714 | 3,982 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 2 | 106 | Medium2 | 44,170 | 821 | 5,258 | 435 | 3,082 |
| 3 | Chic | Solid | BR | South | 2 | 132 | Medium2 | 43,662 | 805 | 3,726 | 432 | 3,082 |
| 3 | Chic | Solid | BR | Mid-Atlantic | 3 | 70 | Medium2 | 43,511 | 580 | 2,142 | 0 | 3,082 |
| 3 | Chic | Solid | BR | South | 3 | 87 | Medium2 | 42,920 | 580 | 2,040 | 0 | 3,082 |
| 3 | Chic | Solid | LA | Midwest | 1 | 0 | Large1 | 62,939 | 2,901 | 2,281 | 4,426 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 1 | Large1 | 55,975 | 2,430 | 2,405 | 3,441 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 11 | Large1 | 61,988 | 875 | 2,393 | 660 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 17 | Large1 | 54,524 | 821 | 2,263 | 545 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 13 | Large1 | 61,642 | 580 | 1,597 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 19 | Large1 | 54,044 | 580 | 1,360 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 0 | Large1 | 68,922 | 15,651 | 5,955 | 28,125 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 0 | Large1 | 65,141 | 12,589 | 8,034 | 21,728 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 17 | Large1 | 62,029 | 962 | 3,528 | 822 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 11 | Large1 | 54,588 | 892 | 4,278 | 674 | 1,849 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Chic | Solid | LA | Midwest | 3 | 19 | Large1 | 61,642 | 580 | 1,597 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 13 | Large1 | 54,044 | 580 | 1,360 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 270,735 | 10,799 | 5,748 | 19,106 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 0 | Large2 | 165,299 | 6,153 | 5,144 | 10,143 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 3 | Large2 | 266,224 | 1,187 | 4,408 | 1,239 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 5 | Large2 | 160,718 | 1,076 | 3,872 | 1,004 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 3 | Large2 | 265,732 | 580 | 2,788 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 6 | Large2 | 160,008 | 580 | 2,036 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 297,074 | 66,923 | 21,924 | 123,431 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 0 | Large2 | 192,914 | 36,762 | 22,104 | 65,239 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 4 | Large2 | 266,244 | 1,230 | 6,058 | 1,319 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 4 | Large2 | 160,749 | 1,111 | 6,979 | 1,067 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 4 | Large2 | 265,732 | 580 | 2,788 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 4 | Large2 | 160,008 | 580 | 2,036 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 1 | Medium1a | 10,154 | 895 | 1,391 | 697 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 1 | Medium1a | 7,652 | 784 | 1,207 | 478 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 9 | Medium1a | 10,073 | 722 | 1,437 | 376 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 11 | Medium1a | 7,573 | 696 | 1,222 | 321 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 5 | Medium1a | 9,798 | 580 | 1,285 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 6 | Medium1a | 7,205 | 580 | 1,074 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 2 | Medium1a | 10,966 | 2,626 | 1,890 | 3,914 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 1 | Medium1a | 8,663 | 1,905 | 1,828 | 2,495 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 14 | Medium1a | 10,089 | 757 | 1,619 | 439 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 7 | Medium1a | 7,598 | 724 | 1,486 | 371 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 8 | Medium1a | 9,798 | 580 | 1,285 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 4 | Medium1a | 7,205 | 580 | 1,074 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 1 | Medium1b | 13,364 | 1,017 | 1,455 | 924 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 1 | Medium1b | 9,971 | 863 | 1,254 | 621 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 6 | Medium1b | 13,226 | 722 | 1,534 | 376 | 2,746 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Chic | Solid | LA | South | 2 | 7 | Medium1b | 9,821 | 696 | 1,284 | 321 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 3 | Medium1b | 12,952 | 580 | 1,314 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 4 | Medium1b | 9,453 | 580 | 1,078 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 1 | Medium1b | 14,491 | 3,418 | 2,147 | 5,387 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 1 | Medium1b | 11,374 | 2,417 | 2,116 | 3,419 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 9 | Medium1b | 13,242 | 757 | 1,761 | 439 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 5 | Medium1b | 9,846 | 724 | 1,625 | 371 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 5 | Medium1b | 12,952 | 580 | 1,314 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 3 | Medium1b | 9,453 | 580 | 1,078 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 2 | Medium2 | 23,187 | 1,390 | 1,599 | 1,618 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 3 | Medium2 | 19,687 | 1,194 | 1,495 | 1,216 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 16 | Medium2 | 22,940 | 865 | 1,739 | 641 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 24 | Medium2 | 19,343 | 813 | 1,563 | 530 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 13 | Medium2 | 22,599 | 580 | 1,350 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 19 | Medium2 | 18,871 | 580 | 1,135 | 0 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 1 | 3 | Medium2 | 25,276 | 5,842 | 2,882 | 9,892 | 2,746 |
| 3 | Chic | Solid | LA | South | 1 | 2 | Medium2 | 22,729 | 4,566 | 3,363 | 7,285 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 2 | 24 | Medium2 | 22,980 | 949 | 2,172 | 797 | 2,746 |
| 3 | Chic | Solid | LA | South | 2 | 16 | Medium2 | 19,405 | 881 | 2,296 | 654 | 1,849 |
| 3 | Chic | Solid | LA | Midwest | 3 | 19 | Medium2 | 22,599 | 580 | 1,350 | 0 | 2,746 |
| 3 | Chic | Solid | LA | South | 3 | 13 | Medium2 | 18,871 | 580 | 1,135 | 0 | 1,849 |
| 3 | Chic | Liquid | LW | South | 1 | 3 | Large1 | 18,612 | 1,128 | 2,159 | 1,097 | 1,849 |
| 3 | Chic | Liquid | LW | South | 2 | 29 | Large1 | 124,846 | 799 | 24,961 | 505 | 1,849 |
| 3 | Chic | Liquid | LW | South | 3 | 16 | Large1 | 124,386 | 580 | 8,745 | 0 | 1,849 |
| 3 | Chic | Liquid | LW | South | 1 | 2 | Large1 | 21,326 | 4,135 | 3,825 | 6,511 | 1,849 |
| 3 | Chic | Liquid | LW | South | 2 | 19 | Large1 | 124,884 | 841 | 21,907 | 580 | 1,849 |
| 3 | Chic | Liquid | LW | South | 3 | 11 | Large1 | 124,386 | 580 | 4,444 | 0 | 1,849 |
| 3 | Chic | Liquid | LW | South | 1 | 13 | Medium2 | 3,095 | 603 | 1,144 | 153 | 1,849 |
| 3 | Chic | Liquid | LW | South | 2 | 53 | Medium2 | 12,901 | 590 | 2,210 | 130 | 1,849 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Chic | Liquid | LW | South | 3 | 42 | Medium2 | 12,629 | 580 | 1,509 | 0 | 1,849 |
| 3 | Chic | Liquid | LW | South | 1 | 9 | Medium2 | 3,209 | 729 | 1,214 | 380 | 1,849 |
| 3 | Chic | Liquid | LW | South | 2 | 35 | Medium2 | 12,939 | 632 | 2,104 | 205 | 1,849 |
| 3 | Chic | Liquid | LW | South | 3 | 28 | Medium2 | 12,629 | 580 | 1,328 | 0 | 1,849 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 14 | Large1 | 64,538 | 2,214 | 2,249 | 2,391 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 46 | Large1 | 65,498 | 2,453 | 2,432 | 2,740 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 209 | Large1 | 63,405 | 890 | 2,289 | 536 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 659 | Large1 | 63,932 | 851 | 2,158 | 496 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 102 | Large1 | 62,675 | 580 | 1,355 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 323 | Large1 | 63,142 | 580 | 1,268 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 21 | Large1 | 65,240 | 3,036 | 2,680 | 3,541 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 30 | Large1 | 67,908 | 4,917 | 3,912 | 6,189 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 314 | Large1 | 63,427 | 916 | 6,327 | 573 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 440 | Large1 | 63,964 | 884 | 3,538 | 543 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 153 | Large1 | 62,675 | 580 | 1,355 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 215 | Large1 | 63,142 | 580 | 1,268 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 2 | Large2 | 168,396 | 4,878 | 4,342 | 6,120 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 10 | Large2 | 155,678 | 5,064 | 4,659 | 6,395 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 40 | Large2 | 165,119 | 1,047 | 3,439 | 756 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 140 | Large2 | 151,693 | 988 | 3,248 | 688 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 16 | Large2 | 164,255 | 580 | 2,049 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 68 | Large2 | 150,769 | 580 | 1,927 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 3 | Large2 | 170,244 | 7,038 | 5,476 | 9,144 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 7 | Large2 | 161,445 | 10,963 | 8,201 | 14,653 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 60 | Large2 | 165,162 | 1,097 | 10,330 | 827 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 93 | Large2 | 151,736 | 1,033 | 5,286 | 751 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 24 | Large2 | 164,255 | 580 | 2,049 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 46 | Large2 | 150,769 | 580 | 1,927 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 33 | Medium1a | 21,127 | 1,075 | 1,351 | 791 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Chic | Solid | BR | South | 1 | 79 | Medium1a | 20,967 | 1,172 | 1,383 | 946 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 275 | Medium1a | 20,831 | 747 | 1,362 | 331 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 665 | Medium1a | 20,547 | 736 | 1,382 | 336 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 206 | Medium1a | 20,239 | 580 | 1,043 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 499 | Medium1a | 19,872 | 580 | 992 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 49 | Medium1a | 21,351 | 1,324 | 1,488 | 1,139 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 53 | Medium1a | 21,717 | 1,950 | 1,844 | 2,036 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 413 | Medium1a | 20,856 | 774 | 2,481 | 369 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 444 | Medium1a | 20,571 | 761 | 1,849 | 371 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 309 | Medium1a | 20,239 | 580 | 1,043 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 333 | Medium1a | 19,872 | 580 | 992 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 15 | Medium1b | 29,305 | 1,274 | 1,539 | 1,069 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 36 | Medium1b | 29,076 | 1,410 | 1,614 | 1,279 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 126 | Medium1b | 28,830 | 747 | 1,559 | 331 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 305 | Medium1b | 28,427 | 736 | 1,614 | 336 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 95 | Medium1b | 28,237 | 580 | 1,122 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 228 | Medium1b | 27,751 | 580 | 1,083 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 23 | Medium1b | 29,619 | 1,623 | 1,732 | 1,557 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 24 | Medium1b | 30,128 | 2,501 | 2,261 | 2,807 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 189 | Medium1b | 28,854 | 774 | 3,268 | 369 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 203 | Medium1b | 28,451 | 761 | 2,269 | 371 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 142 | Medium1b | 28,237 | 580 | 1,122 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 152 | Medium1b | 27,751 | 580 | 1,083 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 19 | Medium2 | 41,467 | 1,570 | 1,714 | 1,483 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 57 | Medium2 | 41,417 | 1,772 | 1,838 | 1,786 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 224 | Medium2 | 40,767 | 794 | 1,744 | 397 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 683 | Medium2 | 40,467 | 787 | 1,772 | 407 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 148 | Medium2 | 40,132 | 580 | 1,133 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 450 | Medium2 | 39,743 | 580 | 1,092 | 0 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 28 | Medium2 | 41,915 | 2,067 | 1,990 | 2,180 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 1 | 38 | Medium2 | 42,929 | 3,340 | 2,766 | 3,982 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 336 | Medium2 | 40,791 | 821 | 4,249 | 435 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 2 | 455 | Medium2 | 40,485 | 805 | 2,779 | 432 | 3,082 |
| 3.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 222 | Medium2 | 40,132 | 580 | 1,133 | 0 | 3,082 |
| 3.1 | Chic | Solid | BR | South | 3 | 300 | Medium2 | 39,743 | 580 | 1,092 | 0 | 3,082 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 59,137 | 2,901 | 1,123 | 4,426 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 2 | Large1 | 52,774 | 2,430 | 1,457 | 3,441 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 30 | Large1 | 58,186 | 875 | 1,235 | 660 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 59 | Large1 | 51,323 | 821 | 1,315 | 545 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 33 | Large1 | 57,840 | 580 | 439 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 67 | Large1 | 50,843 | 580 | 412 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 65,120 | 15,651 | 4,798 | 28,125 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 1 | Large1 | 61,940 | 12,589 | 7,086 | 21,728 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 44 | Large1 | 58,227 | 962 | 2,370 | 822 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 39 | Large1 | 51,387 | 892 | 3,330 | 674 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 50 | Large1 | 57,840 | 580 | 439 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 45 | Large1 | 50,843 | 580 | 412 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 259,389 | 10,799 | 4,442 | 19,106 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 0 | Large2 | 158,261 | 6,153 | 4,120 | 10,143 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 7 | Large2 | 254,878 | 1,187 | 3,101 | 1,239 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 19 | Large2 | 153,681 | 1,076 | 2,848 | 1,004 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 8 | Large2 | 254,386 | 580 | 1,481 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 21 | Large2 | 152,971 | 580 | 1,012 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 285,727 | 66,923 | 20,617 | 123,431 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 0 | Large2 | 185,877 | 36,762 | 21,080 | 65,239 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 10 | Large2 | 254,898 | 1,230 | 4,751 | 1,319 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 12 | Large2 | 153,712 | 1,111 | 5,955 | 1,067 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 11 | Large2 | 254,386 | 580 | 1,481 | 0 | 2,746 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Chic | Solid | LA | South | 3 | 14 | Large2 | 152,971 | 580 | 1,012 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 3 | Medium1a | 8,268 | 895 | 272 | 697 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 4 | Medium1a | 6,146 | 784 | 292 | 478 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 24 | Medium1a | 8,187 | 722 | 317 | 376 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 36 | Medium1a | 6,067 | 696 | 307 | 321 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 13 | Medium1a | 7,913 | 580 | 166 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 20 | Medium1a | 5,700 | 580 | 159 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1a | 9,081 | 2,626 | 771 | 3,914 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 3 | Medium1a | 7,157 | 1,905 | 913 | 2,495 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 37 | Medium1a | 8,203 | 757 | 499 | 439 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 24 | Medium1a | 6,092 | 724 | 571 | 371 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 20 | Medium1a | 7,913 | 580 | 166 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 13 | Medium1a | 5,700 | 580 | 159 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 2 | Medium1b | 11,362 | 1,017 | 333 | 924 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 3 | Medium1b | 8,384 | 863 | 338 | 621 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 16 | Medium1b | 11,224 | 722 | 412 | 376 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 24 | Medium1b | 8,234 | 696 | 368 | 321 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 9 | Medium1b | 10,950 | 580 | 192 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 13 | Medium1b | 7,867 | 580 | 161 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 3 | Medium1b | 12,489 | 3,418 | 1,025 | 5,387 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 2 | Medium1b | 9,787 | 2,417 | 1,199 | 3,419 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 24 | Medium1b | 11,240 | 757 | 639 | 439 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 16 | Medium1b | 8,259 | 724 | 709 | 371 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 13 | Medium1b | 10,950 | 580 | 192 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 9 | Medium1b | 7,867 | 580 | 161 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 5 | Medium2 | 20,828 | 1,390 | 470 | 1,618 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 9 | Medium2 | 17,759 | 1,194 | 572 | 1,216 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 42 | Medium2 | 20,582 | 865 | 610 | 641 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 82 | Medium2 | 17,415 | 813 | 640 | 530 | 1,849 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Chic | Solid | LA | Midwest | 3 | 34 | Medium2 | 20,240 | 580 | 221 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 66 | Medium2 | 16,943 | 580 | 212 | 0 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 1 | 8 | Medium2 | 22,917 | 5,842 | 1,753 | 9,892 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 1 | 6 | Medium2 | 20,801 | 4,566 | 2,440 | 7,285 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 2 | 64 | Medium2 | 20,621 | 949 | 1,043 | 797 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 2 | 55 | Medium2 | 17,477 | 881 | 1,373 | 654 | 1,849 |
| 3.1 | Chic | Solid | LA | Midwest | 3 | 51 | Medium2 | 20,240 | 580 | 221 | 0 | 2,746 |
| 3.1 | Chic | Solid | LA | South | 3 | 44 | Medium2 | 16,943 | 580 | 212 | 0 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 1 | 11 | Large1 | 1,053 | 1,128 | 460 | 1,097 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 2 | 101 | Large1 | 107,287 | 799 | 23,262 | 505 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 3 | 55 | Large1 | 106,827 | 580 | 7,046 | 0 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 1 | 7 | Large1 | 3,767 | 4,135 | 2,126 | 6,511 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 2 | 67 | Large1 | 107,325 | 841 | 20,209 | 580 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 3 | 37 | Large1 | 106,827 | 580 | 2,745 | 0 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 1 | 45 | Medium2 | 415 | 603 | 166 | 153 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 2 | 183 | Medium2 | 10,221 | 590 | 1,232 | 130 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 3 | 144 | Medium2 | 9,949 | 580 | 530 | 0 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 1 | 30 | Medium2 | 529 | 729 | 236 | 380 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 2 | 122 | Medium2 | 10,259 | 632 | 1,126 | 205 | 1,849 |
| 3.1 | Chic | Liquid | LW | South | 3 | 96 | Medium2 | 9,949 | 580 | 350 | 0 | 1,849 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 4 | Large1 | 69,049 | 2,606 | 9,533 | 2,391 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 13 | Large1 | 69,793 | 2,845 | 9,654 | 2,740 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 66 | Large1 | 67,916 | 1,282 | 9,573 | 536 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 191 | Large1 | 68,226 | 1,243 | 9,380 | 496 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 32 | Large1 | 67,187 | 972 | 8,639 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 93 | Large1 | 67,437 | 972 | 8,490 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 7 | Large1 | 69,752 | 3,428 | 9,964 | 3,541 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 9 | Large1 | 72,202 | 5,309 | 11,134 | 6,189 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 99 | Large1 | 67,938 | 1,308 | 13,611 | 573 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Chic | Solid | BR | South | 2 | 127 | Large1 | 68,259 | 1,276 | 10,760 | 543 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 48 | Large1 | 67,187 | 972 | 8,639 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 62 | Large1 | 67,437 | 972 | 8,490 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 1 | Large2 | 178,012 | 5,270 | 11,727 | 6,120 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 3 | Large2 | 164,153 | 5,456 | 11,964 | 6,395 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 13 | Large2 | 174,735 | 1,439 | 10,824 | 756 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 41 | Large2 | 160,168 | 1,380 | 10,553 | 688 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 5 | Large2 | 173,871 | 972 | 9,434 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 20 | Large2 | 159,244 | 972 | 9,232 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 1 | Large2 | 179,859 | 7,430 | 12,861 | 9,144 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 2 | Large2 | 169,920 | 11,355 | 15,506 | 14,653 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 19 | Large2 | 174,778 | 1,489 | 17,715 | 827 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 27 | Large2 | 160,211 | 1,425 | 12,590 | 751 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 8 | Large2 | 173,871 | 972 | 9,434 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 13 | Large2 | 159,244 | 972 | 9,232 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 10 | Medium1a | 23,506 | 1,467 | 8,592 | 791 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 23 | Medium1a | 23,197 | 1,564 | 8,564 | 946 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 86 | Medium1a | 23,210 | 1,139 | 8,604 | 331 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 193 | Medium1a | 22,777 | 1,128 | 8,563 | 336 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 65 | Medium1a | 22,618 | 972 | 8,285 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 144 | Medium1a | 22,101 | 972 | 8,173 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 15 | Medium1a | 23,730 | 1,716 | 8,730 | 1,139 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 15 | Medium1a | 23,947 | 2,342 | 9,024 | 2,036 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 130 | Medium1a | 23,235 | 1,166 | 9,722 | 369 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 128 | Medium1a | 22,801 | 1,153 | 9,030 | 371 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 97 | Medium1a | 22,618 | 972 | 8,285 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 96 | Medium1a | 22,101 | 972 | 8,173 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 5 | Medium1b | 32,086 | 1,666 | 8,789 | 1,069 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 11 | Medium1b | 31,682 | 1,802 | 8,803 | 1,279 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 40 | Medium1b | 31,611 | 1,139 | 8,808 | 331 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 88 | Medium1b | 31,032 | 1,128 | 8,802 | 336 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 30 | Medium1b | 31,019 | 972 | 8,371 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 66 | Medium1b | 30,357 | 972 | 8,272 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 7 | Medium1b | 32,400 | 2,015 | 8,982 | 1,557 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 7 | Medium1b | 32,734 | 2,893 | 9,449 | 2,807 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 60 | Medium1b | 31,636 | 1,166 | 10,518 | 369 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 59 | Medium1b | 31,057 | 1,153 | 9,458 | 371 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 45 | Medium1b | 31,019 | 972 | 8,371 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 44 | Medium1b | 30,357 | 972 | 8,272 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 6 | Medium2 | 44,846 | 1,962 | 8,976 | 1,483 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 16 | Medium2 | 44,594 | 2,164 | 9,038 | 1,786 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 70 | Medium2 | 44,146 | 1,186 | 9,005 | 397 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 198 | Medium2 | 43,645 | 1,179 | 8,972 | 407 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 46 | Medium2 | 43,511 | 972 | 8,394 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 130 | Medium2 | 42,920 | 972 | 8,292 | 0 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 1 | 9 | Medium2 | 45,294 | 2,459 | 9,251 | 2,180 | 3,082 |
| 4 | Chic | Solid | BR | South | 1 | 11 | Medium2 | 46,106 | 3,732 | 9,966 | 3,982 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 2 | 106 | Medium2 | 44,170 | 1,213 | 11,510 | 435 | 3,082 |
| 4 | Chic | Solid | BR | South | 2 | 132 | Medium2 | 43,662 | 1,197 | 9,978 | 432 | 3,082 |
| 4 | Chic | Solid | BR | Mid-Atlantic | 3 | 70 | Medium2 | 43,511 | 972 | 8,394 | 0 | 3,082 |
| 4 | Chic | Solid | BR | South | 3 | 87 | Medium2 | 42,920 | 972 | 8,292 | 0 | 3,082 |
| 4 | Chic | Solid | LA | Midwest | 1 | 0 | Large1 | 62,939 | 3,293 | 8,533 | 4,426 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 1 | Large1 | 55,975 | 2,822 | 8,657 | 3,441 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 11 | Large1 | 61,988 | 1,267 | 8,645 | 660 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 17 | Large1 | 54,524 | 1,213 | 8,515 | 545 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 13 | Large1 | 61,642 | 972 | 7,849 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 19 | Large1 | 54,044 | 972 | 7,612 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 0 | Large1 | 68,922 | 16,043 | 12,207 | 28,125 | 2,746 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Chic | Solid | LA | South | 1 | 0 | Large1 | 65,141 | 12,981 | 14,286 | 21,728 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 17 | Large1 | 62,029 | 1,354 | 9,780 | 822 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 11 | Large1 | 54,588 | 1,284 | 10,530 | 674 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 19 | Large1 | 61,642 | 972 | 7,849 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 13 | Large1 | 54,044 | 972 | 7,612 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 270,735 | 11,191 | 12,000 | 19,106 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 0 | Large2 | 165,299 | 6,545 | 11,396 | 10,143 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 3 | Large2 | 266,224 | 1,579 | 10,660 | 1,239 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 5 | Large2 | 160,718 | 1,468 | 10,124 | 1,004 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 3 | Large2 | 265,732 | 972 | 9,040 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 6 | Large2 | 160,008 | 972 | 8,288 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 297,074 | 67,315 | 28,176 | 123,431 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 0 | Large2 | 192,914 | 37,154 | 28,356 | 65,239 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 4 | Large2 | 266,244 | 1,622 | 12,310 | 1,319 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 4 | Large2 | 160,749 | 1,503 | 13,231 | 1,067 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 4 | Large2 | 265,732 | 972 | 9,040 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 4 | Large2 | 160,008 | 972 | 8,288 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 1 | Medium1a | 10,154 | 1,287 | 7,643 | 697 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 1 | Medium1a | 7,652 | 1,176 | 7,459 | 478 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 9 | Medium1a | 10,073 | 1,114 | 7,689 | 376 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 11 | Medium1a | 7,573 | 1,088 | 7,474 | 321 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 5 | Medium1a | 9,798 | 972 | 7,537 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 6 | Medium1a | 7,205 | 972 | 7,326 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 2 | Medium1a | 10,966 | 3,018 | 8,142 | 3,914 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 1 | Medium1a | 8,663 | 2,297 | 8,080 | 2,495 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 14 | Medium1a | 10,089 | 1,149 | 7,871 | 439 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 7 | Medium1a | 7,598 | 1,116 | 7,738 | 371 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 8 | Medium1a | 9,798 | 972 | 7,537 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 4 | Medium1a | 7,205 | 972 | 7,326 | 0 | 1,849 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Chic | Solid | LA | Midwest | 1 | 1 | Medium1b | 13,364 | 1,409 | 7,707 | 924 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 1 | Medium1b | 9,971 | 1,255 | 7,506 | 621 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 6 | Medium1b | 13,226 | 1,114 | 7,786 | 376 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 7 | Medium1b | 9,821 | 1,088 | 7,536 | 321 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 3 | Medium1b | 12,952 | 972 | 7,566 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 4 | Medium1b | 9,453 | 972 | 7,330 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 1 | Medium1b | 14,491 | 3,810 | 8,399 | 5,387 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 1 | Medium1b | 11,374 | 2,809 | 8,368 | 3,419 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 9 | Medium1b | 13,242 | 1,149 | 8,013 | 439 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 5 | Medium1b | 9,846 | 1,116 | 7,877 | 371 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 5 | Medium1b | 12,952 | 972 | 7,566 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 3 | Medium1b | 9,453 | 972 | 7,330 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 2 | Medium2 | 23,187 | 1,782 | 7,851 | 1,618 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 3 | Medium2 | 19,687 | 1,586 | 7,747 | 1,216 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 16 | Medium2 | 22,940 | 1,257 | 7,991 | 641 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 24 | Medium2 | 19,343 | 1,205 | 7,815 | 530 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 13 | Medium2 | 22,599 | 972 | 7,602 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 19 | Medium2 | 18,871 | 972 | 7,387 | 0 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 1 | 3 | Medium2 | 25,276 | 6,234 | 9,134 | 9,892 | 2,746 |
| 4 | Chic | Solid | LA | South | 1 | 2 | Medium2 | 22,729 | 4,958 | 9,615 | 7,285 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 2 | 24 | Medium2 | 22,980 | 1,341 | 8,424 | 797 | 2,746 |
| 4 | Chic | Solid | LA | South | 2 | 16 | Medium2 | 19,405 | 1,273 | 8,548 | 654 | 1,849 |
| 4 | Chic | Solid | LA | Midwest | 3 | 19 | Medium2 | 22,599 | 972 | 7,602 | 0 | 2,746 |
| 4 | Chic | Solid | LA | South | 3 | 13 | Medium2 | 18,871 | 972 | 7,387 | 0 | 1,849 |
| 4 | Chic | Liquid | LW | South | 1 | 3 | Large1 | 18,612 | 1,520 | 8,411 | 1,097 | 1,849 |
| 4 | Chic | Liquid | LW | South | 2 | 29 | Large1 | 124,846 | 1,191 | 31,213 | 505 | 1,849 |
| 4 | Chic | Liquid | LW | South | 3 | 16 | Large1 | 124,386 | 972 | 14,997 | 0 | 1,849 |
| 4 | Chic | Liquid | LW | South | 1 | 2 | Large1 | 21,326 | 4,527 | 10,077 | 6,511 | 1,849 |
| 4 | Chic | Liquid | LW | South | 2 | 19 | Large1 | 124,884 | 1,233 | 28,159 | 580 | 1,849 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Chic | Liquid | LW | South | 3 | 11 | Large1 | 124,386 | 972 | 10,696 | 0 | 1,849 |
| 4 | Chic | Liquid | LW | South | 1 | 13 | Medium2 | 3,095 | 995 | 7,396 | 153 | 1,849 |
| 4 | Chic | Liquid | LW | South | 2 | 53 | Medium2 | 12,901 | 982 | 8,462 | 130 | 1,849 |
| 4 | Chic | Liquid | LW | South | 3 | 42 | Medium2 | 12,629 | 972 | 7,761 | 0 | 1,849 |
| 4 | Chic | Liquid | LW | South | 1 | 9 | Medium2 | 3,209 | 1,121 | 7,466 | 380 | 1,849 |
| 4 | Chic | Liquid | LW | South | 2 | 35 | Medium2 | 12,939 | 1,024 | 8,356 | 205 | 1,849 |
| 4 | Chic | Liquid | LW | South | 3 | 28 | Medium2 | 12,629 | 972 | 7,580 | 0 | 1,849 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 14 | Large1 | 64,538 | 2,606 | 8,501 | 2,391 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 46 | Large1 | 65,498 | 2,845 | 8,684 | 2,740 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 209 | Large1 | 63,405 | 1,282 | 8,541 | 536 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 659 | Large1 | 63,932 | 1,243 | 8,410 | 496 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 102 | Large1 | 62,675 | 972 | 7,607 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 323 | Large1 | 63,142 | 972 | 7,520 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 21 | Large1 | 65,240 | 3,428 | 8,932 | 3,541 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 30 | Large1 | 67,908 | 5,309 | 10,164 | 6,189 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 314 | Large1 | 63,427 | 1,308 | 12,579 | 573 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 440 | Large1 | 63,964 | 1,276 | 9,790 | 543 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 153 | Large1 | 62,675 | 972 | 7,607 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 215 | Large1 | 63,142 | 972 | 7,520 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 2 | Large2 | 168,396 | 5,270 | 10,594 | 6,120 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 10 | Large2 | 155,678 | 5,456 | 10,911 | 6,395 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 40 | Large2 | 165,119 | 1,439 | 9,691 | 756 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 140 | Large2 | 151,693 | 1,380 | 9,500 | 688 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 16 | Large2 | 164,255 | 972 | 8,301 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 68 | Large2 | 150,769 | 972 | 8,179 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 3 | Large2 | 170,244 | 7,430 | 11,728 | 9,144 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 7 | Large2 | 161,445 | 11,355 | 14,453 | 14,653 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 60 | Large2 | 165,162 | 1,489 | 16,582 | 827 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 93 | Large2 | 151,736 | 1,425 | 11,538 | 751 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 24 | Large2 | 164,255 | 972 | 8,301 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 46 | Large2 | 150,769 | 972 | 8,179 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 33 | Medium1a | 21,127 | 1,467 | 7,603 | 791 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 79 | Medium1a | 20,967 | 1,564 | 7,635 | 946 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 275 | Medium1a | 20,831 | 1,139 | 7,614 | 331 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 665 | Medium1a | 20,547 | 1,128 | 7,634 | 336 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 206 | Medium1a | 20,239 | 972 | 7,295 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 499 | Medium1a | 19,872 | 972 | 7,244 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 49 | Medium1a | 21,351 | 1,716 | 7,740 | 1,139 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 53 | Medium1a | 21,717 | 2,342 | 8,096 | 2,036 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 413 | Medium1a | 20,856 | 1,166 | 8,733 | 369 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 444 | Medium1a | 20,571 | 1,153 | 8,101 | 371 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 309 | Medium1a | 20,239 | 972 | 7,295 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 333 | Medium1a | 19,872 | 972 | 7,244 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 15 | Medium1b | 29,305 | 1,666 | 7,791 | 1,069 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 36 | Medium1b | 29,076 | 1,802 | 7,866 | 1,279 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 126 | Medium1b | 28,830 | 1,139 | 7,811 | 331 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 305 | Medium1b | 28,427 | 1,128 | 7,866 | 336 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 95 | Medium1b | 28,237 | 972 | 7,374 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 228 | Medium1b | 27,751 | 972 | 7,335 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 23 | Medium1b | 29,619 | 2,015 | 7,984 | 1,557 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 24 | Medium1b | 30,128 | 2,893 | 8,513 | 2,807 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 189 | Medium1b | 28,854 | 1,166 | 9,520 | 369 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 203 | Medium1b | 28,451 | 1,153 | 8,521 | 371 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 142 | Medium1b | 28,237 | 972 | 7,374 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 152 | Medium1b | 27,751 | 972 | 7,335 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 19 | Medium2 | 41,467 | 1,962 | 7,966 | 1,483 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 57 | Medium2 | 41,417 | 2,164 | 8,090 | 1,786 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 224 | Medium2 | 40,767 | 1,186 | 7,996 | 397 | 3,082 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Chic | Solid | BR | South | 2 | 683 | Medium2 | 40,467 | 1,179 | 8,024 | 407 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 148 | Medium2 | 40,132 | 972 | 7,385 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 450 | Medium2 | 39,743 | 972 | 7,344 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 1 | 28 | Medium2 | 41,915 | 2,459 | 8,242 | 2,180 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 1 | 38 | Medium2 | 42,929 | 3,732 | 9,018 | 3,982 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 2 | 336 | Medium2 | 40,791 | 1,213 | 10,501 | 435 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 2 | 455 | Medium2 | 40,485 | 1,197 | 9,031 | 432 | 3,082 |
| 4.1 | Chic | Solid | BR | Mid-Atlantic | 3 | 222 | Medium2 | 40,132 | 972 | 7,385 | 0 | 3,082 |
| 4.1 | Chic | Solid | BR | South | 3 | 300 | Medium2 | 39,743 | 972 | 7,344 | 0 | 3,082 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 59,137 | 3,293 | 7,375 | 4,426 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 2 | Large1 | 52,774 | 2,822 | 7,709 | 3,441 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 30 | Large1 | 58,186 | 1,267 | 7,487 | 660 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 59 | Large1 | 51,323 | 1,213 | 7,567 | 545 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 33 | Large1 | 57,840 | 972 | 6,691 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 67 | Large1 | 50,843 | 972 | 6,664 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 65,120 | 16,043 | 11,050 | 28,125 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 1 | Large1 | 61,940 | 12,981 | 13,338 | 21,728 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 44 | Large1 | 58,227 | 1,354 | 8,622 | 822 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 39 | Large1 | 51,387 | 1,284 | 9,582 | 674 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 50 | Large1 | 57,840 | 972 | 6,691 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 45 | Large1 | 50,843 | 972 | 6,664 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 259,389 | 11,191 | 10,694 | 19,106 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 0 | Large2 | 158,261 | 6,545 | 10,372 | 10,143 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 7 | Large2 | 254,878 | 1,579 | 9,353 | 1,239 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 19 | Large2 | 153,681 | 1,468 | 9,100 | 1,004 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 8 | Large2 | 254,386 | 972 | 7,733 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 21 | Large2 | 152,971 | 972 | 7,264 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 285,727 | 67,315 | 26,869 | 123,431 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 0 | Large2 | 185,877 | 37,154 | 27,332 | 65,239 | 1,849 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Chic | Solid | LA | Midwest | 2 | 10 | Large2 | 254,898 | 1,622 | 11,003 | 1,319 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 12 | Large2 | 153,712 | 1,503 | 12,207 | 1,067 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 11 | Large2 | 254,386 | 972 | 7,733 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 14 | Large2 | 152,971 | 972 | 7,264 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 3 | Medium1a | 8,268 | 1,287 | 6,524 | 697 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 4 | Medium1a | 6,146 | 1,176 | 6,544 | 478 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 24 | Medium1a | 8,187 | 1,114 | 6,569 | 376 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 36 | Medium1a | 6,067 | 1,088 | 6,559 | 321 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 13 | Medium1a | 7,913 | 972 | 6,418 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 20 | Medium1a | 5,700 | 972 | 6,411 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1a | 9,081 | 3,018 | 7,023 | 3,914 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 3 | Medium1a | 7,157 | 2,297 | 7,165 | 2,495 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 37 | Medium1a | 8,203 | 1,149 | 6,751 | 439 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 24 | Medium1a | 6,092 | 1,116 | 6,823 | 371 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 20 | Medium1a | 7,913 | 972 | 6,418 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 13 | Medium1a | 5,700 | 972 | 6,411 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 2 | Medium1b | 11,362 | 1,409 | 6,585 | 924 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 3 | Medium1b | 8,384 | 1,255 | 6,590 | 621 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 16 | Medium1b | 11,224 | 1,114 | 6,664 | 376 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 24 | Medium1b | 8,234 | 1,088 | 6,620 | 321 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 9 | Medium1b | 10,950 | 972 | 6,444 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 13 | Medium1b | 7,867 | 972 | 6,413 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 3 | Medium1b | 12,489 | 3,810 | 7,277 | 5,387 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 2 | Medium1b | 9,787 | 2,809 | 7,451 | 3,419 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 24 | Medium1b | 11,240 | 1,149 | 6,891 | 439 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 16 | Medium1b | 8,259 | 1,116 | 6,961 | 371 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 13 | Medium1b | 10,950 | 972 | 6,444 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 9 | Medium1b | 7,867 | 972 | 6,413 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 5 | Medium2 | 20,828 | 1,782 | 6,722 | 1,618 | 2,746 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Chic | Solid | LA | South | 1 | 9 | Medium2 | 17,759 | 1,586 | 6,824 | 1,216 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 42 | Medium2 | 20,582 | 1,257 | 6,862 | 641 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 82 | Medium2 | 17,415 | 1,205 | 6,892 | 530 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 34 | Medium2 | 20,240 | 972 | 6,473 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 66 | Medium2 | 16,943 | 972 | 6,464 | 0 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 1 | 8 | Medium2 | 22,917 | 6,234 | 8,005 | 9,892 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 1 | 6 | Medium2 | 20,801 | 4,958 | 8,692 | 7,285 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 2 | 64 | Medium2 | 20,621 | 1,341 | 7,295 | 797 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 2 | 55 | Medium2 | 17,477 | 1,273 | 7,625 | 654 | 1,849 |
| 4.1 | Chic | Solid | LA | Midwest | 3 | 51 | Medium2 | 20,240 | 972 | 6,473 | 0 | 2,746 |
| 4.1 | Chic | Solid | LA | South | 3 | 44 | Medium2 | 16,943 | 972 | 6,464 | 0 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 1 | 11 | Large1 | 1,053 | 1,520 | 6,712 | 1,097 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 2 | 101 | Large1 | 107,287 | 1,191 | 29,514 | 505 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 3 | 55 | Large1 | 106,827 | 972 | 13,298 | 0 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 1 | 7 | Large1 | 3,767 | 4,527 | 8,378 | 6,511 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 2 | 67 | Large1 | 107,325 | 1,233 | 26,461 | 580 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 3 | 37 | Large1 | 106,827 | 972 | 8,997 | 0 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 1 | 45 | Medium2 | 415 | 995 | 6,418 | 153 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 2 | 183 | Medium2 | 10,221 | 982 | 7,484 | 130 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 3 | 144 | Medium2 | 9,949 | 972 | 6,782 | 0 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 1 | 30 | Medium2 | 529 | 1,121 | 6,488 | 380 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 2 | 122 | Medium2 | 10,259 | 1,024 | 7,378 | 205 | 1,849 |
| 4.1 | Chic | Liquid | LW | South | 3 | 96 | Medium2 | 9,949 | 972 | 6,602 | 0 | 1,849 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 19 | Large1 | 64,538 | 2,214 | 2,249 | 2,391 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 59 | Large1 | 65,498 | 2,453 | 2,432 | 2,740 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 275 | Large1 | 63,405 | 890 | 2,289 | 536 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 850 | Large1 | 63,932 | 851 | 2,158 | 496 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 134 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 416 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 28 | Large1 | 65,240 | 3,036 | 2,680 | 3,541 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 39 | Large1 | 67,908 | 4,917 | 3,912 | 6,189 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 412 | Large1 | 63,427 | 916 | 6,327 | 573 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 567 | Large1 | 63,964 | 884 | 3,538 | 543 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 202 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 278 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 3 | Large2 | 168,396 | 4,878 | 4,342 | 6,120 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 13 | Large2 | 155,678 | 5,064 | 4,659 | 6,395 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 53 | Large2 | 165,119 | 1,047 | 3,439 | 756 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 181 | Large2 | 151,693 | 988 | 3,248 | 688 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 21 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 88 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 4 | Large2 | 170,244 | 7,038 | 5,476 | 9,144 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 8 | Large2 | 161,445 | 10,963 | 8,201 | 14,653 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 79 | Large2 | 165,162 | 1,097 | 10,330 | 827 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 120 | Large2 | 151,736 | 1,033 | 5,286 | 751 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 32 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 59 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 43 | Medium1a | 21,127 | 1,075 | 1,351 | 791 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 102 | Medium1a | 20,967 | 1,172 | 1,383 | 946 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 362 | Medium1a | 20,831 | 747 | 1,362 | 331 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 858 | Medium1a | 20,547 | 736 | 1,382 | 336 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 271 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 643 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 65 | Medium1a | 21,351 | 1,324 | 1,488 | 1,139 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 68 | Medium1a | 21,717 | 1,950 | 1,844 | 2,036 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 542 | Medium1a | 20,856 | 774 | 2,481 | 369 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 572 | Medium1a | 20,571 | 761 | 1,849 | 371 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 406 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Chic | Solid | BR | South | 3 | 429 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 20 | Medium1b | 29,305 | 1,274 | 1,539 | 1,069 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 47 | Medium1b | 29,076 | 1,410 | 1,614 | 1,279 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 166 | Medium1b | 28,830 | 747 | 1,559 | 331 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 394 | Medium1b | 28,427 | 736 | 1,614 | 336 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 124 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 295 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 30 | Medium1b | 29,619 | 1,623 | 1,732 | 1,557 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 31 | Medium1b | 30,128 | 2,501 | 2,261 | 2,807 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 249 | Medium1b | 28,854 | 774 | 3,268 | 369 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 262 | Medium1b | 28,451 | 761 | 2,269 | 371 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 187 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 196 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 24 | Medium2 | 41,467 | 1,570 | 1,714 | 1,483 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 73 | Medium2 | 41,417 | 1,772 | 1,838 | 1,786 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 295 | Medium2 | 40,767 | 794 | 1,744 | 397 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 880 | Medium2 | 40,467 | 787 | 1,772 | 407 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 194 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 580 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 1 | 37 | Medium2 | 41,915 | 2,067 | 1,990 | 2,180 | 0 |
| 5 | Chic | Solid | BR | South | 1 | 49 | Medium2 | 42,929 | 3,340 | 2,766 | 3,982 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 2 | 442 | Medium2 | 40,791 | 821 | 4,249 | 435 | 0 |
| 5 | Chic | Solid | BR | South | 2 | 587 | Medium2 | 40,485 | 805 | 2,779 | 432 | 0 |
| 5 | Chic | Solid | BR | Mid-Atlantic | 3 | 292 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 5 | Chic | Solid | BR | South | 3 | 387 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 59,137 | 2,901 | 1,123 | 4,426 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 2 | Large1 | 52,774 | 2,430 | 1,457 | 3,441 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 41 | Large1 | 58,186 | 875 | 1,235 | 660 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 76 | Large1 | 51,323 | 821 | 1,315 | 545 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Chic | Solid | LA | Midwest | 3 | 46 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 86 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 65,120 | 15,651 | 4,798 | 28,125 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 2 | Large1 | 61,940 | 12,589 | 7,086 | 21,728 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 61 | Large1 | 58,227 | 962 | 2,370 | 822 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 51 | Large1 | 51,387 | 892 | 3,330 | 674 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 69 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 58 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 259,389 | 10,799 | 4,442 | 19,106 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 0 | Large2 | 158,261 | 6,153 | 4,120 | 10,143 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 9 | Large2 | 254,878 | 1,187 | 3,101 | 1,239 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 24 | Large2 | 153,681 | 1,076 | 2,848 | 1,004 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 10 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 27 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 285,727 | 66,923 | 20,617 | 123,431 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 0 | Large2 | 185,877 | 36,762 | 21,080 | 65,239 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 14 | Large2 | 254,898 | 1,230 | 4,751 | 1,319 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 16 | Large2 | 153,712 | 1,111 | 5,955 | 1,067 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 16 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 18 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1a | 8,268 | 895 | 272 | 697 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 5 | Medium1a | 6,146 | 784 | 292 | 478 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 34 | Medium1a | 8,187 | 722 | 317 | 376 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 47 | Medium1a | 6,067 | 696 | 307 | 321 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 18 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 26 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 6 | Medium1a | 9,081 | 2,626 | 771 | 3,914 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 4 | Medium1a | 7,157 | 1,905 | 913 | 2,495 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 50 | Medium1a | 8,203 | 757 | 499 | 439 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Chic | Solid | LA | South | 2 | 31 | Medium1a | 6,092 | 724 | 571 | 371 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 28 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 17 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 2 | Medium1b | 11,362 | 1,017 | 333 | 924 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 4 | Medium1b | 8,384 | 863 | 338 | 621 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 22 | Medium1b | 11,224 | 722 | 412 | 376 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 31 | Medium1b | 8,234 | 696 | 368 | 321 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 12 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 17 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1b | 12,489 | 3,418 | 1,025 | 5,387 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 2 | Medium1b | 9,787 | 2,417 | 1,199 | 3,419 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 33 | Medium1b | 11,240 | 757 | 639 | 439 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 21 | Medium1b | 8,259 | 724 | 709 | 371 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 18 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 12 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 7 | Medium2 | 20,828 | 1,390 | 470 | 1,618 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 12 | Medium2 | 17,759 | 1,194 | 572 | 1,216 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 58 | Medium2 | 20,582 | 865 | 610 | 641 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 106 | Medium2 | 17,415 | 813 | 640 | 530 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 47 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 85 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 5 | Chic | Solid | LA | Midwest | 1 | 11 | Medium2 | 22,917 | 5,842 | 1,753 | 9,892 | 0 |
| 5 | Chic | Solid | LA | South | 1 | 8 | Medium2 | 20,801 | 4,566 | 2,440 | 7,285 | 0 |
| 5 | Chic | Solid | LA | Midwest | 2 | 88 | Medium2 | 20,621 | 949 | 1,043 | 797 | 0 |
| 5 | Chic | Solid | LA | South | 2 | 70 | Medium2 | 17,477 | 881 | 1,373 | 654 | 0 |
| 5 | Chic | Solid | LA | Midwest | 3 | 70 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 5 | Chic | Solid | LA | South | 3 | 57 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 5 | Chic | Liquid | LW | South | 1 | 14 | Large1 | 107,584 | 1,128 | 2,590 | 1,097 | 0 |
| 5 | Chic | Liquid | LW | South | 2 | 130 | Large1 | 107,287 | 799 | 23,262 | 505 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Chic | Liquid | LW | South | 3 | 71 | Large1 | 106,827 | 580 | 7,046 | 0 | 0 |
| 5 | Chic | Liquid | LW | South | 1 | 10 | Large1 | 110,298 | 4,135 | 4,257 | 6,511 | 0 |
| 5 | Chic | Liquid | LW | South | 2 | 87 | Large1 | 107,325 | 841 | 20,209 | 580 | 0 |
| 5 | Chic | Liquid | LW | South | 3 | 48 | Large1 | 106,827 | 580 | 2,745 | 0 | 0 |
| 5 | Chic | Liquid | LW | South | 1 | 58 | Medium2 | 10,233 | 603 | 362 | 153 | 0 |
| 5 | Chic | Liquid | LW | South | 2 | 236 | Medium2 | 10,221 | 590 | 1,232 | 130 | 0 |
| 5 | Chic | Liquid | LW | South | 3 | 186 | Medium2 | 9,949 | 580 | 530 | 0 | 0 |
| 5 | Chic | Liquid | LW | South | 1 | 39 | Medium2 | 10,347 | 729 | 432 | 380 | 0 |
| 5 | Chic | Liquid | LW | South | 2 | 157 | Medium2 | 10,259 | 632 | 1,126 | 205 | 0 |
| 5 | Chic | Liquid | LW | South | 3 | 124 | Medium2 | 9,949 | 580 | 350 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 19 | Large1 | 64,538 | 2,214 | 2,249 | 2,391 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 59 | Large1 | 65,498 | 2,453 | 2,432 | 2,740 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 275 | Large1 | 63,405 | 890 | 2,289 | 536 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 850 | Large1 | 63,932 | 851 | 2,158 | 496 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 134 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 416 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 28 | Large1 | 65,240 | 3,036 | 2,680 | 3,541 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 39 | Large1 | 67,908 | 4,917 | 3,912 | 6,189 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 412 | Large1 | 63,427 | 916 | 6,327 | 573 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 567 | Large1 | 63,964 | 884 | 3,538 | 543 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 202 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 278 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 3 | Large2 | 168,396 | 4,878 | 4,342 | 6,120 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 13 | Large2 | 155,678 | 5,064 | 4,659 | 6,395 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 53 | Large2 | 165,119 | 1,047 | 3,439 | 756 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 181 | Large2 | 151,693 | 988 | 3,248 | 688 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 21 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 88 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 4 | Large2 | 170,244 | 7,038 | 5,476 | 9,144 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Chic | Solid | BR | South | 1 | 8 | Large2 | 161,445 | 10,963 | 8,201 | 14,653 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 79 | Large2 | 165,162 | 1,097 | 10,330 | 827 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 120 | Large2 | 151,736 | 1,033 | 5,286 | 751 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 32 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 59 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 43 | Medium1a | 21,127 | 1,075 | 1,351 | 791 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 102 | Medium1a | 20,967 | 1,172 | 1,383 | 946 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 362 | Medium1a | 20,831 | 747 | 1,362 | 331 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 858 | Medium1a | 20,547 | 736 | 1,382 | 336 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 271 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 643 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 65 | Medium1a | 21,351 | 1,324 | 1,488 | 1,139 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 68 | Medium1a | 21,717 | 1,950 | 1,844 | 2,036 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 542 | Medium1a | 20,856 | 774 | 2,481 | 369 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 572 | Medium1a | 20,571 | 761 | 1,849 | 371 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 406 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 429 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 20 | Medium1b | 29,305 | 1,274 | 1,539 | 1,069 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 47 | Medium1b | 29,076 | 1,410 | 1,614 | 1,279 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 166 | Medium1b | 28,830 | 747 | 1,559 | 331 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 394 | Medium1b | 28,427 | 736 | 1,614 | 336 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 124 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 295 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 30 | Medium1b | 29,619 | 1,623 | 1,732 | 1,557 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 31 | Medium1b | 30,128 | 2,501 | 2,261 | 2,807 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 249 | Medium1b | 28,854 | 774 | 3,268 | 369 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 262 | Medium1b | 28,451 | 761 | 2,269 | 371 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 187 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 196 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 24 | Medium2 | 41,467 | 1,570 | 1,714 | 1,483 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 73 | Medium2 | 41,417 | 1,772 | 1,838 | 1,786 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 295 | Medium2 | 40,767 | 794 | 1,744 | 397 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 880 | Medium2 | 40,467 | 787 | 1,772 | 407 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 194 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 580 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 1 | 37 | Medium2 | 41,915 | 2,067 | 1,990 | 2,180 | 0 |
| 5a | Chic | Solid | BR | South | 1 | 49 | Medium2 | 42,929 | 3,340 | 2,766 | 3,982 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 2 | 442 | Medium2 | 40,791 | 821 | 4,249 | 435 | 0 |
| 5a | Chic | Solid | BR | South | 2 | 587 | Medium2 | 40,485 | 805 | 2,779 | 432 | 0 |
| 5a | Chic | Solid | BR | Mid-Atlantic | 3 | 292 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 5a | Chic | Solid | BR | South | 3 | 387 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 59,137 | 2,901 | 1,123 | 4,426 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 2 | Large1 | 52,774 | 2,430 | 1,457 | 3,441 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 41 | Large1 | 58,186 | 875 | 1,235 | 660 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 76 | Large1 | 51,323 | 821 | 1,315 | 545 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 46 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 86 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 65,120 | 15,651 | 4,798 | 28,125 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 2 | Large1 | 61,940 | 12,589 | 7,086 | 21,728 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 61 | Large1 | 58,227 | 962 | 2,370 | 822 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 51 | Large1 | 51,387 | 892 | 3,330 | 674 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 69 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 58 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 259,389 | 10,799 | 4,442 | 19,106 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 0 | Large2 | 158,261 | 6,153 | 4,120 | 10,143 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 9 | Large2 | 254,878 | 1,187 | 3,101 | 1,239 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 24 | Large2 | 153,681 | 1,076 | 2,848 | 1,004 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 10 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Chic | Solid | LA | South | 3 | 27 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 285,727 | 66,923 | 20,617 | 123,431 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 0 | Large2 | 185,877 | 36,762 | 21,080 | 65,239 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 14 | Large2 | 254,898 | 1,230 | 4,751 | 1,319 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 16 | Large2 | 153,712 | 1,111 | 5,955 | 1,067 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 16 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 18 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 4 | Medium1a | 8,268 | 895 | 272 | 697 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 5 | Medium1a | 6,146 | 784 | 292 | 478 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 34 | Medium1a | 8,187 | 722 | 317 | 376 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 47 | Medium1a | 6,067 | 696 | 307 | 321 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 18 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 26 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 6 | Medium1a | 9,081 | 2,626 | 771 | 3,914 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 4 | Medium1a | 7,157 | 1,905 | 913 | 2,495 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 50 | Medium1a | 8,203 | 757 | 499 | 439 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 31 | Medium1a | 6,092 | 724 | 571 | 371 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 28 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 17 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 2 | Medium1b | 11,362 | 1,017 | 333 | 924 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 4 | Medium1b | 8,384 | 863 | 338 | 621 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 22 | Medium1b | 11,224 | 722 | 412 | 376 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 31 | Medium1b | 8,234 | 696 | 368 | 321 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 12 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 17 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 4 | Medium1b | 12,489 | 3,418 | 1,025 | 5,387 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 2 | Medium1b | 9,787 | 2,417 | 1,199 | 3,419 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 33 | Medium1b | 11,240 | 757 | 639 | 439 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 21 | Medium1b | 8,259 | 724 | 709 | 371 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Chic | Solid | LA | Midwest | 3 | 18 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 12 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 7 | Medium2 | 20,828 | 1,390 | 470 | 1,618 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 12 | Medium2 | 17,759 | 1,194 | 572 | 1,216 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 58 | Medium2 | 20,582 | 865 | 610 | 641 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 106 | Medium2 | 17,415 | 813 | 640 | 530 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 47 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 85 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 5a | Chic | Solid | LA | Midwest | 1 | 11 | Medium2 | 22,917 | 5,842 | 1,753 | 9,892 | 0 |
| 5a | Chic | Solid | LA | South | 1 | 8 | Medium2 | 20,801 | 4,566 | 2,440 | 7,285 | 0 |
| 5a | Chic | Solid | LA | Midwest | 2 | 88 | Medium2 | 20,621 | 949 | 1,043 | 797 | 0 |
| 5a | Chic | Solid | LA | South | 2 | 70 | Medium2 | 17,477 | 881 | 1,373 | 654 | 0 |
| 5a | Chic | Solid | LA | Midwest | 3 | 70 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 5a | Chic | Solid | LA | South | 3 | 57 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 5a | Chic | Liquid | LW | South | 1 | 14 | Large1 | 1,053 | 1,128 | 460 | 1,097 | 0 |
| 5a | Chic | Liquid | LW | South | 2 | 130 | Large1 | 107,287 | 799 | 23,262 | 505 | 0 |
| 5a | Chic | Liquid | LW | South | 3 | 71 | Large1 | 106,827 | 580 | 136 | 0 | 0 |
| 5a | Chic | Liquid | LW | South | 1 | 10 | Large1 | 3,767 | 4,135 | 2,126 | 6,511 | 0 |
| 5a | Chic | Liquid | LW | South | 2 | 87 | Large1 | 107,325 | 841 | 20,209 | 580 | 0 |
| 5a | Chic | Liquid | LW | South | 3 | 48 | Large1 | 106,827 | 580 | 136 | 0 | 0 |
| 5a | Chic | Liquid | LW | South | 1 | 58 | Medium2 | 415 | 603 | 166 | 153 | 0 |
| 5a | Chic | Liquid | LW | South | 2 | 236 | Medium2 | 10,221 | 590 | 1,232 | 130 | 0 |
| 5a | Chic | Liquid | LW | South | 3 | 186 | Medium2 | 9,949 | 580 | 133 | 0 | 0 |
| 5a | Chic | Liquid | LW | South | 1 | 39 | Medium2 | 529 | 729 | 236 | 380 | 0 |
| 5a | Chic | Liquid | LW | South | 2 | 157 | Medium2 | 10,259 | 632 | 1,126 | 205 | 0 |
| 5a | Chic | Liquid | LW | South | 3 | 124 | Medium2 | 9,949 | 580 | 133 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 19 | Large1 | 64,538 | 2,214 | 2,249 | 2,391 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 59 | Large1 | 65,498 | 2,453 | 2,432 | 2,740 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 275 | Large1 | 63,405 | 890 | 2,289 | 536 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Chic | Solid | BR | South | 2 | 850 | Large1 | 63,932 | 851 | 2,158 | 496 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 134 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 416 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 28 | Large1 | 65,240 | 3,036 | 2,680 | 3,541 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 39 | Large1 | 67,908 | 4,917 | 3,912 | 6,189 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 412 | Large1 | 63,427 | 916 | 6,327 | 573 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 567 | Large1 | 63,964 | 884 | 3,538 | 543 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 202 | Large1 | 62,675 | 580 | 1,355 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 278 | Large1 | 63,142 | 580 | 1,268 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 3 | Large2 | 168,396 | 4,878 | 4,342 | 6,120 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 13 | Large2 | 155,678 | 5,064 | 4,659 | 6,395 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 53 | Large2 | 165,119 | 1,047 | 3,439 | 756 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 181 | Large2 | 151,693 | 988 | 3,248 | 688 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 21 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 88 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 4 | Large2 | 170,244 | 7,038 | 5,476 | 9,144 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 8 | Large2 | 161,445 | 10,963 | 8,201 | 14,653 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 79 | Large2 | 165,162 | 1,097 | 10,330 | 827 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 120 | Large2 | 151,736 | 1,033 | 5,286 | 751 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 32 | Large2 | 164,255 | 580 | 2,049 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 59 | Large2 | 150,769 | 580 | 1,927 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 43 | Medium1a | 21,127 | 1,075 | 1,351 | 791 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 102 | Medium1a | 20,967 | 1,172 | 1,383 | 946 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 362 | Medium1a | 20,831 | 747 | 1,362 | 331 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 858 | Medium1a | 20,547 | 736 | 1,382 | 336 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 271 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 643 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 65 | Medium1a | 21,351 | 1,324 | 1,488 | 1,139 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 68 | Medium1a | 21,717 | 1,950 | 1,844 | 2,036 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 542 | Medium1a | 20,856 | 774 | 2,481 | 369 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 572 | Medium1a | 20,571 | 761 | 1,849 | 371 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 406 | Medium1a | 20,239 | 580 | 1,043 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 429 | Medium1a | 19,872 | 580 | 992 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 20 | Medium1b | 29,305 | 1,274 | 1,539 | 1,069 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 47 | Medium1b | 29,076 | 1,410 | 1,614 | 1,279 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 166 | Medium1b | 28,830 | 747 | 1,559 | 331 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 394 | Medium1b | 28,427 | 736 | 1,614 | 336 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 124 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 295 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 30 | Medium1b | 29,619 | 1,623 | 1,732 | 1,557 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 31 | Medium1b | 30,128 | 2,501 | 2,261 | 2,807 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 249 | Medium1b | 28,854 | 774 | 3,268 | 369 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 262 | Medium1b | 28,451 | 761 | 2,269 | 371 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 187 | Medium1b | 28,237 | 580 | 1,122 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 196 | Medium1b | 27,751 | 580 | 1,083 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 24 | Medium2 | 41,467 | 1,570 | 1,714 | 1,483 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 73 | Medium2 | 41,417 | 1,772 | 1,838 | 1,786 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 295 | Medium2 | 40,767 | 794 | 1,744 | 397 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 880 | Medium2 | 40,467 | 787 | 1,772 | 407 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 194 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 580 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 1 | 37 | Medium2 | 41,915 | 2,067 | 1,990 | 2,180 | 0 |
| 7 | Chic | Solid | BR | South | 1 | 49 | Medium2 | 42,929 | 3,340 | 2,766 | 3,982 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 2 | 442 | Medium2 | 40,791 | 821 | 4,249 | 435 | 0 |
| 7 | Chic | Solid | BR | South | 2 | 587 | Medium2 | 40,485 | 805 | 2,779 | 432 | 0 |
| 7 | Chic | Solid | BR | Mid-Atlantic | 3 | 292 | Medium2 | 40,132 | 580 | 1,133 | 0 | 0 |
| 7 | Chic | Solid | BR | South | 3 | 387 | Medium2 | 39,743 | 580 | 1,092 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 59,137 | 2,901 | 1,123 | 4,426 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Chic | Solid | LA | South | 1 | 2 | Large1 | 52,774 | 2,430 | 1,457 | 3,441 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 41 | Large1 | 58,186 | 875 | 1,235 | 660 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 76 | Large1 | 51,323 | 821 | 1,315 | 545 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 46 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 86 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 1 | Large1 | 65,120 | 15,651 | 4,798 | 28,125 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 2 | Large1 | 61,940 | 12,589 | 7,086 | 21,728 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 61 | Large1 | 58,227 | 962 | 2,370 | 822 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 51 | Large1 | 51,387 | 892 | 3,330 | 674 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 69 | Large1 | 57,840 | 580 | 439 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 58 | Large1 | 50,843 | 580 | 412 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 259,389 | 10,799 | 4,442 | 19,106 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 0 | Large2 | 158,261 | 6,153 | 4,120 | 10,143 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 9 | Large2 | 254,878 | 1,187 | 3,101 | 1,239 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 24 | Large2 | 153,681 | 1,076 | 2,848 | 1,004 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 10 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 27 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 0 | Large2 | 285,727 | 66,923 | 20,617 | 123,431 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 0 | Large2 | 185,877 | 36,762 | 21,080 | 65,239 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 14 | Large2 | 254,898 | 1,230 | 4,751 | 1,319 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 16 | Large2 | 153,712 | 1,111 | 5,955 | 1,067 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 16 | Large2 | 254,386 | 580 | 1,481 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 18 | Large2 | 152,971 | 580 | 1,012 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1a | 8,268 | 895 | 272 | 697 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 5 | Medium1a | 6,146 | 784 | 292 | 478 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 34 | Medium1a | 8,187 | 722 | 317 | 376 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 47 | Medium1a | 6,067 | 696 | 307 | 321 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 18 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 26 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Chic | Solid | LA | Midwest | 1 | 6 | Medium1a | 9,081 | 2,626 | 771 | 3,914 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 4 | Medium1a | 7,157 | 1,905 | 913 | 2,495 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 50 | Medium1a | 8,203 | 757 | 499 | 439 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 31 | Medium1a | 6,092 | 724 | 571 | 371 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 28 | Medium1a | 7,913 | 580 | 166 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 17 | Medium1a | 5,700 | 580 | 159 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 2 | Medium1b | 11,362 | 1,017 | 333 | 924 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 4 | Medium1b | 8,384 | 863 | 338 | 621 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 22 | Medium1b | 11,224 | 722 | 412 | 376 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 31 | Medium1b | 8,234 | 696 | 368 | 321 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 12 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 17 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 4 | Medium1b | 12,489 | 3,418 | 1,025 | 5,387 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 2 | Medium1b | 9,787 | 2,417 | 1,199 | 3,419 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 33 | Medium1b | 11,240 | 757 | 639 | 439 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 21 | Medium1b | 8,259 | 724 | 709 | 371 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 18 | Medium1b | 10,950 | 580 | 192 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 12 | Medium1b | 7,867 | 580 | 161 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 7 | Medium2 | 20,828 | 1,390 | 470 | 1,618 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 12 | Medium2 | 17,759 | 1,194 | 572 | 1,216 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 58 | Medium2 | 20,582 | 865 | 610 | 641 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 106 | Medium2 | 17,415 | 813 | 640 | 530 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 47 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |
| 7 | Chic | Solid | LA | South | 3 | 85 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 7 | Chic | Solid | LA | Midwest | 1 | 11 | Medium2 | 22,917 | 5,842 | 1,753 | 9,892 | 0 |
| 7 | Chic | Solid | LA | South | 1 | 8 | Medium2 | 20,801 | 4,566 | 2,440 | 7,285 | 0 |
| 7 | Chic | Solid | LA | Midwest | 2 | 88 | Medium2 | 20,621 | 949 | 1,043 | 797 | 0 |
| 7 | Chic | Solid | LA | South | 2 | 70 | Medium2 | 17,477 | 881 | 1,373 | 654 | 0 |
| 7 | Chic | Solid | LA | Midwest | 3 | 70 | Medium2 | 20,240 | 580 | 221 | 0 | 0 |

**Table 11-13. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yr. rec. | 5yr. rec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Chic | Solid | LA | South | 3 | 57 | Medium2 | 16,943 | 580 | 212 | 0 | 0 |
| 7 | Chic | Liquid | LW | South | 1 | 14 | Large1 | 1,053 | 1,128 | 460 | 1,097 | 0 |
| 7 | Chic | Liquid | LW | South | 2 | 130 | Large1 | 107,287 | 799 | 23,262 | 505 | 0 |
| 7 | Chic | Liquid | LW | South | 3 | 71 | Large1 | 106,827 | 580 | 7,046 | 0 | 0 |
| 7 | Chic | Liquid | LW | South | 1 | 10 | Large1 | 3,767 | 4,135 | 2,126 | 6,511 | 0 |
| 7 | Chic | Liquid | LW | South | 2 | 87 | Large1 | 107,325 | 841 | 20,209 | 580 | 0 |
| 7 | Chic | Liquid | LW | South | 3 | 48 | Large1 | 106,827 | 580 | 2,745 | 0 | 0 |
| 7 | Chic | Liquid | LW | South | 1 | 58 | Medium2 | 415 | 603 | 166 | 153 | 0 |
| 7 | Chic | Liquid | LW | South | 2 | 236 | Medium2 | 10,221 | 590 | 1,232 | 130 | 0 |
| 7 | Chic | Liquid | LW | South | 3 | 186 | Medium2 | 9,949 | 580 | 530 | 0 | 0 |
| 7 | Chic | Liquid | LW | South | 1 | 39 | Medium2 | 529 | 729 | 236 | 380 | 0 |
| 7 | Chic | Liquid | LW | South | 2 | 157 | Medium2 | 10,259 | 632 | 1,126 | 205 | 0 |
| 7 | Chic | Liquid | LW | South | 3 | 124 | Medium2 | 9,949 | 580 | 350 | 0 | 0 |

## Table 11-14. Regulatory Compliance Costs for the Turkey (SL, slaughter) Operations

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Turk | Solid | SL | Mid-Atlantic | 1 | 30 | Medium1a | 7,842 | 1,483 | 1,755 | 1,380 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 1 | 20 | Medium1b | 12,627 | 2,103 | 2,307 | 2,248 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 1 | 8 | Medium2 | 17,863 | 2,781 | 2,802 | 3,197 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 1 | 5 | Large1 | 37,378 | 5,266 | 4,674 | 6,676 | 0 |
| 1 | Turk | Solid | SL | Midwest | 1 | 26 | Medium1a | 18,125 | 1,314 | 1,224 | 1,032 | 0 |
| 1 | Turk | Solid | SL | Midwest | 1 | 17 | Medium1b | 30,109 | 1,818 | 1,572 | 1,660 | 0 |
| 1 | Turk | Solid | SL | Midwest | 1 | 7 | Medium2 | 44,537 | 2,424 | 2,022 | 2,416 | 0 |
| 1 | Turk | Solid | SL | Midwest | 1 | 7 | Large1 | 153,603 | 7,003 | 6,060 | 8,850 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 2 | 288 | Medium1a | 7,780 | 1,401 | 1,762 | 1,266 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 2 | 192 | Medium1b | 12,098 | 1,401 | 2,416 | 1,266 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 2 | 127 | Medium2 | 16,986 | 1,619 | 2,986 | 1,571 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 2 | 90 | Large1 | 35,073 | 2,239 | 5,167 | 2,439 | 0 |
| 1 | Turk | Solid | SL | Midwest | 2 | 247 | Medium1a | 18,215 | 1,434 | 1,280 | 1,182 | 0 |
| 1 | Turk | Solid | SL | Midwest | 2 | 165 | Medium1b | 29,798 | 1,404 | 1,748 | 1,145 | 0 |
| 1 | Turk | Solid | SL | Midwest | 2 | 113 | Medium2 | 43,935 | 1,623 | 2,367 | 1,418 | 0 |
| 1 | Turk | Solid | SL | Midwest | 2 | 124 | Large1 | 150,038 | 2,261 | 8,147 | 2,403 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 3 | 123 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 3 | 82 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 3 | 59 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 1 | Turk | Solid | SL | Mid-Atlantic | 3 | 60 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 1 | Turk | Solid | SL | Midwest | 3 | 106 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 1 | Turk | Solid | SL | Midwest | 3 | 70 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 1 | Turk | Solid | SL | Midwest | 3 | 52 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 1 | Turk | Solid | SL | Midwest | 3 | 83 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 1 | 18 | Medium1a | 11,037 | 5,716 | 3,718 | 7,306 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1b | 18,016 | 9,242 | 5,617 | 12,243 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 1 | 5 | Medium2 | 25,653 | 13,100 | 7,586 | 17,644 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Large1 | 54,117 | 27,239 | 14,953 | 37,438 | 0 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Turk | Solid | SL | Midwest | 1 | 16 | Medium1a | 22,410 | 7,013 | 3,856 | 8,137 | 0 |
| 2 | Turk | Solid | SL | Midwest | 1 | 10 | Medium1b | 37,336 | 11,429 | 6,010 | 13,644 | 0 |
| 2 | Turk | Solid | SL | Midwest | 1 | 4 | Medium2 | 55,305 | 16,747 | 8,635 | 20,273 | 0 |
| 2 | Turk | Solid | SL | Midwest | 1 | 4 | Large1 | 191,109 | 56,888 | 29,093 | 76,673 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 2 | 173 | Medium1a | 7,929 | 1,599 | 4,331 | 1,543 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1b | 12,220 | 1,563 | 7,131 | 1,493 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 2 | 76 | Medium2 | 17,116 | 1,790 | 9,830 | 1,811 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 2 | 54 | Large1 | 35,423 | 2,699 | 19,871 | 3,082 | 0 |
| 2 | Turk | Solid | SL | Midwest | 2 | 148 | Medium1a | 18,342 | 1,603 | 2,287 | 1,392 | 0 |
| 2 | Turk | Solid | SL | Midwest | 2 | 99 | Medium1b | 29,921 | 1,567 | 3,152 | 1,347 | 0 |
| 2 | Turk | Solid | SL | Midwest | 2 | 68 | Medium2 | 44,064 | 1,795 | 4,303 | 1,632 | 0 |
| 2 | Turk | Solid | SL | Midwest | 2 | 74 | Large1 | 150,389 | 2,727 | 13,404 | 3,036 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 3 | 74 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 3 | 35 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 2 | Turk | Solid | SL | Mid-Atlantic | 3 | 36 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 2 | Turk | Solid | SL | Midwest | 3 | 64 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 2 | Turk | Solid | SL | Midwest | 3 | 42 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 2 | Turk | Solid | SL | Midwest | 3 | 31 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 2 | Turk | Solid | SL | Midwest | 3 | 50 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium1a | 10,925 | 1,483 | 2,759 | 1,380 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Medium1b | 16,881 | 2,103 | 3,334 | 2,248 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 1 | Medium2 | 23,397 | 2,781 | 3,854 | 3,197 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 0 | Large1 | 47,685 | 5,266 | 5,820 | 6,676 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 3 | Medium1a | 21,619 | 1,314 | 2,376 | 1,032 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 2 | Medium1b | 34,915 | 1,818 | 2,749 | 1,660 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 1 | Medium2 | 50,922 | 2,424 | 3,230 | 2,416 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 1 | Large1 | 171,906 | 7,003 | 7,505 | 8,850 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 28 | Medium1a | 10,864 | 1,401 | 2,766 | 1,266 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 18 | Medium1b | 16,351 | 1,401 | 3,443 | 1,266 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 12 | Medium2 | 22,520 | 1,619 | 4,038 | 1,571 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 9 | Large1 | 45,379 | 2,239 | 6,313 | 2,439 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 27 | Medium1a | 21,710 | 1,434 | 2,431 | 1,182 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 18 | Medium1b | 34,604 | 1,404 | 2,925 | 1,145 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 12 | Medium2 | 50,319 | 1,623 | 3,576 | 1,418 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 14 | Large1 | 168,341 | 2,261 | 9,592 | 2,403 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 12 | Medium1a | 9,721 | 580 | 2,300 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 8 | Medium1b | 15,209 | 580 | 2,588 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 6 | Medium2 | 21,213 | 580 | 2,794 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 6 | Large1 | 43,597 | 580 | 3,589 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 12 | Medium1a | 20,734 | 580 | 2,012 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 8 | Medium1b | 33,651 | 580 | 2,153 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 6 | Medium2 | 49,202 | 580 | 2,354 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 9 | Large1 | 166,603 | 580 | 4,503 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 4 | Medium1a | 14,121 | 5,716 | 4,721 | 7,306 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium1b | 22,270 | 9,242 | 6,643 | 12,243 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 1 | Medium2 | 31,186 | 13,100 | 8,638 | 17,644 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 1 | 1 | Large1 | 64,423 | 27,239 | 16,099 | 37,438 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 4 | Medium1a | 25,904 | 7,013 | 5,007 | 8,137 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 3 | Medium1b | 42,142 | 11,429 | 7,187 | 13,644 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 1 | Medium2 | 61,690 | 16,747 | 9,843 | 20,273 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 1 | 1 | Large1 | 209,412 | 56,888 | 30,538 | 76,673 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 41 | Medium1a | 11,013 | 1,599 | 5,334 | 1,543 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 28 | Medium1b | 16,474 | 1,563 | 8,157 | 1,493 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 18 | Medium2 | 22,649 | 1,790 | 10,882 | 1,811 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 2 | 13 | Large1 | 45,729 | 2,699 | 21,017 | 3,082 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 41 | Medium1a | 21,837 | 1,603 | 3,439 | 1,392 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 27 | Medium1b | 34,726 | 1,567 | 4,330 | 1,347 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Turk | Solid | SL | Midwest | 2 | 19 | Medium2 | 50,449 | 1,795 | 5,511 | 1,632 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 2 | 20 | Large1 | 168,691 | 2,727 | 14,849 | 3,036 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 18 | Medium1a | 9,721 | 580 | 2,300 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 12 | Medium1b | 15,209 | 580 | 2,588 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 8 | Medium2 | 21,213 | 580 | 2,794 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Mid-Atlantic | 3 | 9 | Large1 | 43,597 | 580 | 3,589 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 17 | Medium1a | 20,734 | 580 | 2,012 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 12 | Medium1b | 33,651 | 580 | 2,153 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 9 | Medium2 | 49,202 | 580 | 2,354 | 0 | 3,082 |
| 3 | Turk | Solid | SL | Midwest | 3 | 14 | Large1 | 166,603 | 580 | 4,503 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 9 | Medium1a | 7,842 | 1,483 | 1,755 | 1,380 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 6 | Medium1b | 12,627 | 2,103 | 2,307 | 2,248 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Medium2 | 17,863 | 2,781 | 2,802 | 3,197 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 37,378 | 5,266 | 4,674 | 6,676 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 8 | Medium1a | 18,125 | 1,314 | 1,224 | 1,032 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 5 | Medium1b | 30,109 | 1,818 | 1,572 | 1,660 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 2 | Medium2 | 44,537 | 2,424 | 2,022 | 2,416 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 2 | Large1 | 153,603 | 7,003 | 6,060 | 8,850 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 88 | Medium1a | 7,780 | 1,401 | 1,762 | 1,266 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 58 | Medium1b | 12,098 | 1,401 | 2,416 | 1,266 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 39 | Medium2 | 16,986 | 1,619 | 2,986 | 1,571 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 27 | Large1 | 35,073 | 2,239 | 5,167 | 2,439 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 72 | Medium1a | 18,215 | 1,434 | 1,280 | 1,182 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 48 | Medium1b | 29,798 | 1,404 | 1,748 | 1,145 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 33 | Medium2 | 43,935 | 1,623 | 2,367 | 1,418 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 36 | Large1 | 150,038 | 2,261 | 8,147 | 2,403 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 37 | Medium1a | 6,637 | 580 | 1,297 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 25 | Medium1b | 10,955 | 580 | 1,562 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 18 | Medium2 | 15,679 | 580 | 1,742 | 0 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 18 | Large1 | 33,290 | 580 | 2,442 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 31 | Medium1a | 17,240 | 580 | 861 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 20 | Medium1b | 28,845 | 580 | 976 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 15 | Medium2 | 42,817 | 580 | 1,146 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 24 | Large1 | 148,300 | 580 | 3,058 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 14 | Medium1a | 11,037 | 5,716 | 3,718 | 7,306 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 9 | Medium1b | 18,016 | 9,242 | 5,617 | 12,243 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 4 | Medium2 | 25,653 | 13,100 | 7,586 | 17,644 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 54,117 | 27,239 | 14,953 | 37,438 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 11 | Medium1a | 22,410 | 7,013 | 3,856 | 8,137 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 7 | Medium1b | 37,336 | 11,429 | 6,010 | 13,644 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 3 | Medium2 | 55,305 | 16,747 | 8,635 | 20,273 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 1 | 3 | Large1 | 191,109 | 56,888 | 29,093 | 76,673 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 131 | Medium1a | 7,929 | 1,599 | 4,331 | 1,543 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 88 | Medium1b | 12,220 | 1,563 | 7,131 | 1,493 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 58 | Medium2 | 17,116 | 1,790 | 9,830 | 1,811 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 41 | Large1 | 35,423 | 2,699 | 19,871 | 3,082 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 108 | Medium1a | 18,342 | 1,603 | 2,287 | 1,392 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 72 | Medium1b | 29,921 | 1,567 | 3,152 | 1,347 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 49 | Medium2 | 44,064 | 1,795 | 4,303 | 1,632 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 2 | 54 | Large1 | 150,389 | 2,727 | 13,404 | 3,036 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 56 | Medium1a | 6,637 | 580 | 1,297 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 37 | Medium1b | 10,955 | 580 | 1,562 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 27 | Medium2 | 15,679 | 580 | 1,742 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 27 | Large1 | 33,290 | 580 | 2,442 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 46 | Medium1a | 17,240 | 580 | 861 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 30 | Medium1b | 28,845 | 580 | 976 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 23 | Medium2 | 42,817 | 580 | 1,146 | 0 | 3,082 |
| 3.1 | Turk | Solid | SL | Midwest | 3 | 36 | Large1 | 148,300 | 580 | 3,058 | 0 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium1a | 10,925 | 1,875 | 9,011 | 1,380 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Medium1b | 16,881 | 2,495 | 9,586 | 2,248 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 1 | Medium2 | 23,397 | 3,173 | 10,106 | 3,197 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 0 | Large1 | 47,685 | 5,658 | 12,072 | 6,676 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 3 | Medium1a | 21,619 | 1,706 | 8,628 | 1,032 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 2 | Medium1b | 34,915 | 2,210 | 9,001 | 1,660 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 1 | Medium2 | 50,922 | 2,816 | 9,482 | 2,416 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 1 | Large1 | 171,906 | 7,395 | 13,757 | 8,850 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 28 | Medium1a | 10,864 | 1,793 | 9,018 | 1,266 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 18 | Medium1b | 16,351 | 1,793 | 9,695 | 1,266 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 12 | Medium2 | 22,520 | 2,011 | 10,290 | 1,571 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 9 | Large1 | 45,379 | 2,631 | 12,565 | 2,439 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 27 | Medium1a | 21,710 | 1,826 | 8,683 | 1,182 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 18 | Medium1b | 34,604 | 1,796 | 9,177 | 1,145 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 12 | Medium2 | 50,319 | 2,015 | 9,828 | 1,418 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 14 | Large1 | 168,341 | 2,653 | 15,844 | 2,403 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 12 | Medium1a | 9,721 | 972 | 8,552 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 8 | Medium1b | 15,209 | 972 | 8,840 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 6 | Medium2 | 21,213 | 972 | 9,046 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 6 | Large1 | 43,597 | 972 | 9,841 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 12 | Medium1a | 20,734 | 972 | 8,264 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 8 | Medium1b | 33,651 | 972 | 8,405 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 6 | Medium2 | 49,202 | 972 | 8,606 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 9 | Large1 | 166,603 | 972 | 10,755 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 4 | Medium1a | 14,121 | 6,108 | 10,973 | 7,306 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium1b | 22,270 | 9,634 | 12,895 | 12,243 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 1 | Medium2 | 31,186 | 13,492 | 14,890 | 17,644 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 1 | 1 | Large1 | 64,423 | 27,631 | 22,351 | 37,438 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 4 | Medium1a | 25,904 | 7,405 | 11,259 | 8,137 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Turk | Solid | SL | Midwest | 1 | 3 | Medium1b | 42,142 | 11,821 | 13,439 | 13,644 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 1 | Medium2 | 61,690 | 17,139 | 16,095 | 20,273 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 1 | 1 | Large1 | 209,412 | 57,280 | 36,790 | 76,673 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 41 | Medium1a | 11,013 | 1,991 | 11,586 | 1,543 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 28 | Medium1b | 16,474 | 1,955 | 14,409 | 1,493 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 18 | Medium2 | 22,649 | 2,182 | 17,134 | 1,811 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 2 | 13 | Large1 | 45,729 | 3,091 | 27,269 | 3,082 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 41 | Medium1a | 21,837 | 1,995 | 9,691 | 1,392 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 27 | Medium1b | 34,726 | 1,959 | 10,582 | 1,347 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 19 | Medium2 | 50,449 | 2,187 | 11,763 | 1,632 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 2 | 20 | Large1 | 168,691 | 3,119 | 21,101 | 3,036 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 18 | Medium1a | 9,721 | 972 | 8,552 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 12 | Medium1b | 15,209 | 972 | 8,840 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 8 | Medium2 | 21,213 | 972 | 9,046 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Mid-Atlantic | 3 | 9 | Large1 | 43,597 | 972 | 9,841 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 17 | Medium1a | 20,734 | 972 | 8,264 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 12 | Medium1b | 33,651 | 972 | 8,405 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 9 | Medium2 | 49,202 | 972 | 8,606 | 0 | 3,082 |
| 4 | Turk | Solid | SL | Midwest | 3 | 14 | Large1 | 166,603 | 972 | 10,755 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 9 | Medium1a | 7,842 | 1,875 | 8,007 | 1,380 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 6 | Medium1b | 12,627 | 2,495 | 8,559 | 2,248 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Medium2 | 17,863 | 3,173 | 9,054 | 3,197 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 37,378 | 5,658 | 10,926 | 6,676 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 8 | Medium1a | 18,125 | 1,706 | 7,476 | 1,032 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 5 | Medium1b | 30,109 | 2,210 | 7,824 | 1,660 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 2 | Medium2 | 44,537 | 2,816 | 8,274 | 2,416 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 2 | Large1 | 153,603 | 7,395 | 12,312 | 8,850 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 88 | Medium1a | 7,780 | 1,793 | 8,014 | 1,266 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 58 | Medium1b | 12,098 | 1,793 | 8,668 | 1,266 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 39 | Medium2 | 16,986 | 2,011 | 9,238 | 1,571 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 27 | Large1 | 35,073 | 2,631 | 11,419 | 2,439 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 72 | Medium1a | 18,215 | 1,826 | 7,532 | 1,182 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 48 | Medium1b | 29,798 | 1,796 | 8,000 | 1,145 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 33 | Medium2 | 43,935 | 2,015 | 8,619 | 1,418 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 36 | Large1 | 150,038 | 2,653 | 14,399 | 2,403 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 37 | Medium1a | 6,637 | 972 | 7,549 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 25 | Medium1b | 10,955 | 972 | 7,814 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 18 | Medium2 | 15,679 | 972 | 7,994 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 18 | Large1 | 33,290 | 972 | 8,694 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 31 | Medium1a | 17,240 | 972 | 7,113 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 20 | Medium1b | 28,845 | 972 | 7,228 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 15 | Medium2 | 42,817 | 972 | 7,398 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 24 | Large1 | 148,300 | 972 | 9,310 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 14 | Medium1a | 11,037 | 6,108 | 9,970 | 7,306 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 9 | Medium1b | 18,016 | 9,634 | 11,869 | 12,243 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 4 | Medium2 | 25,653 | 13,492 | 13,838 | 17,644 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 54,117 | 27,631 | 21,205 | 37,438 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 11 | Medium1a | 22,410 | 7,405 | 10,108 | 8,137 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 7 | Medium1b | 37,336 | 11,821 | 12,262 | 13,644 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 3 | Medium2 | 55,305 | 17,139 | 14,887 | 20,273 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 1 | 3 | Large1 | 191,109 | 57,280 | 35,345 | 76,673 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 131 | Medium1a | 7,929 | 1,991 | 10,583 | 1,543 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 88 | Medium1b | 12,220 | 1,955 | 13,383 | 1,493 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 58 | Medium2 | 17,116 | 2,182 | 16,082 | 1,811 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 2 | 41 | Large1 | 35,423 | 3,091 | 26,123 | 3,082 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 108 | Medium1a | 18,342 | 1,995 | 8,539 | 1,392 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 72 | Medium1b | 29,921 | 1,959 | 9,404 | 1,347 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 2 | 49 | Medium2 | 44,064 | 2,187 | 10,555 | 1,632 | 3,082 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4.1 | Turk | Solid | SL | Midwest | 2 | 54 | Large1 | 150,389 | 3,119 | 19,656 | 3,036 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 56 | Medium1a | 6,637 | 972 | 7,549 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 37 | Medium1b | 10,955 | 972 | 7,814 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 27 | Medium2 | 15,679 | 972 | 7,994 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Mid-Atlantic | 3 | 27 | Large1 | 33,290 | 972 | 8,694 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 46 | Medium1a | 17,240 | 972 | 7,113 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 30 | Medium1b | 28,845 | 972 | 7,228 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 23 | Medium2 | 42,817 | 972 | 7,398 | 0 | 3,082 |
| 4.1 | Turk | Solid | SL | Midwest | 3 | 36 | Large1 | 148,300 | 972 | 9,310 | 0 | 3,082 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1a | 7,842 | 1,483 | 1,755 | 1,380 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 8 | Medium1b | 12,627 | 2,103 | 2,307 | 2,248 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium2 | 17,863 | 2,781 | 2,802 | 3,197 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 37,378 | 5,266 | 4,674 | 6,676 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 10 | Medium1a | 18,125 | 1,314 | 1,224 | 1,032 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 7 | Medium1b | 30,109 | 1,818 | 1,572 | 1,660 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 3 | Medium2 | 44,537 | 2,424 | 2,022 | 2,416 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 3 | Large1 | 153,603 | 7,003 | 6,060 | 8,850 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1a | 7,780 | 1,401 | 1,762 | 1,266 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 77 | Medium1b | 12,098 | 1,401 | 2,416 | 1,266 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 51 | Medium2 | 16,986 | 1,619 | 2,986 | 1,571 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 36 | Large1 | 35,073 | 2,239 | 5,167 | 2,439 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 99 | Medium1a | 18,215 | 1,434 | 1,280 | 1,182 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 66 | Medium1b | 29,798 | 1,404 | 1,748 | 1,145 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 45 | Medium2 | 43,935 | 1,623 | 2,367 | 1,418 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 50 | Large1 | 150,038 | 2,261 | 8,147 | 2,403 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 33 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 24 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 24 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Turk | Solid | SL | Midwest | 3 | 42 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 28 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 21 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 33 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 18 | Medium1a | 11,037 | 5,716 | 3,718 | 7,306 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1b | 18,016 | 9,242 | 5,617 | 12,243 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 5 | Medium2 | 25,653 | 13,100 | 7,586 | 17,644 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Large1 | 54,117 | 27,239 | 14,953 | 37,438 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 16 | Medium1a | 22,410 | 7,013 | 3,856 | 8,137 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 10 | Medium1b | 37,336 | 11,429 | 6,010 | 13,644 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 4 | Medium2 | 55,305 | 16,747 | 8,635 | 20,273 | 0 |
| 5 | Turk | Solid | SL | Midwest | 1 | 4 | Large1 | 191,109 | 56,888 | 29,093 | 76,673 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 173 | Medium1a | 7,929 | 1,599 | 4,331 | 1,543 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1b | 12,220 | 1,563 | 7,131 | 1,493 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 76 | Medium2 | 17,116 | 1,790 | 9,830 | 1,811 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 2 | 54 | Large1 | 35,423 | 2,699 | 19,871 | 3,082 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 148 | Medium1a | 18,342 | 1,603 | 2,287 | 1,392 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 99 | Medium1b | 29,921 | 1,567 | 3,152 | 1,347 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 68 | Medium2 | 44,064 | 1,795 | 4,303 | 1,632 | 0 |
| 5 | Turk | Solid | SL | Midwest | 2 | 74 | Large1 | 150,389 | 2,727 | 13,404 | 3,036 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 74 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 35 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 5 | Turk | Solid | SL | Mid-Atlantic | 3 | 36 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 64 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 42 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 31 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 5 | Turk | Solid | SL | Midwest | 3 | 50 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1a | 7,842 | 1,483 | 1,755 | 1,380 | 0 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 8 | Medium1b | 12,627 | 2,103 | 2,307 | 2,248 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium2 | 17,863 | 2,781 | 2,802 | 3,197 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 37,378 | 5,266 | 4,674 | 6,676 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 10 | Medium1a | 18,125 | 1,314 | 1,224 | 1,032 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 7 | Medium1b | 30,109 | 1,818 | 1,572 | 1,660 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 3 | Medium2 | 44,537 | 2,424 | 2,022 | 2,416 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 3 | Large1 | 153,603 | 7,003 | 6,060 | 8,850 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1a | 7,780 | 1,401 | 1,762 | 1,266 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 77 | Medium1b | 12,098 | 1,401 | 2,416 | 1,266 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 51 | Medium2 | 16,986 | 1,619 | 2,986 | 1,571 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 36 | Large1 | 35,073 | 2,239 | 5,167 | 2,439 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 99 | Medium1a | 18,215 | 1,434 | 1,280 | 1,182 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 66 | Medium1b | 29,798 | 1,404 | 1,748 | 1,145 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 45 | Medium2 | 43,935 | 1,623 | 2,367 | 1,418 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 50 | Large1 | 150,038 | 2,261 | 8,147 | 2,403 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 33 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 24 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 24 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 42 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 28 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 21 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 33 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 18 | Medium1a | 11,037 | 5,716 | 3,718 | 7,306 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1b | 18,016 | 9,242 | 5,617 | 12,243 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 5 | Medium2 | 25,653 | 13,100 | 7,586 | 17,644 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Large1 | 54,117 | 27,239 | 14,953 | 37,438 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 16 | Medium1a | 22,410 | 7,013 | 3,856 | 8,137 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 10 | Medium1b | 37,336 | 11,429 | 6,010 | 13,644 | 0 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5a | Turk | Solid | SL | Midwest | 1 | 4 | Medium2 | 55,305 | 16,747 | 8,635 | 20,273 | 0 |
| 5a | Turk | Solid | SL | Midwest | 1 | 4 | Large1 | 191,109 | 56,888 | 29,093 | 76,673 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 173 | Medium1a | 7,929 | 1,599 | 4,331 | 1,543 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1b | 12,220 | 1,563 | 7,131 | 1,493 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 76 | Medium2 | 17,116 | 1,790 | 9,830 | 1,811 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 2 | 54 | Large1 | 35,423 | 2,699 | 19,871 | 3,082 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 148 | Medium1a | 18,342 | 1,603 | 2,287 | 1,392 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 99 | Medium1b | 29,921 | 1,567 | 3,152 | 1,347 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 68 | Medium2 | 44,064 | 1,795 | 4,303 | 1,632 | 0 |
| 5a | Turk | Solid | SL | Midwest | 2 | 74 | Large1 | 150,389 | 2,727 | 13,404 | 3,036 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 74 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 35 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 5a | Turk | Solid | SL | Mid-Atlantic | 3 | 36 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 64 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 42 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 31 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 5a | Turk | Solid | SL | Midwest | 3 | 50 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1a | 7,842 | 1,483 | 1,755 | 1,380 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 8 | Medium1b | 12,627 | 2,103 | 2,307 | 2,248 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Medium2 | 17,863 | 2,781 | 2,802 | 3,197 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 2 | Large1 | 37,378 | 5,266 | 4,674 | 6,676 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 10 | Medium1a | 18,125 | 1,314 | 1,224 | 1,032 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 7 | Medium1b | 30,109 | 1,818 | 1,572 | 1,660 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 3 | Medium2 | 44,537 | 2,424 | 2,022 | 2,416 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 3 | Large1 | 153,603 | 7,003 | 6,060 | 8,850 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1a | 7,780 | 1,401 | 1,762 | 1,266 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 77 | Medium1b | 12,098 | 1,401 | 2,416 | 1,266 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 51 | Medium2 | 16,986 | 1,619 | 2,986 | 1,571 | 0 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 36 | Large1 | 35,073 | 2,239 | 5,167 | 2,439 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 99 | Medium1a | 18,215 | 1,434 | 1,280 | 1,182 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 66 | Medium1b | 29,798 | 1,404 | 1,748 | 1,145 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 45 | Medium2 | 43,935 | 1,623 | 2,367 | 1,418 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 50 | Large1 | 150,038 | 2,261 | 8,147 | 2,403 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 33 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 24 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 24 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 42 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 28 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 21 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 33 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 18 | Medium1a | 11,037 | 5,716 | 3,718 | 7,306 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 12 | Medium1b | 18,016 | 9,242 | 5,617 | 12,243 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 5 | Medium2 | 25,653 | 13,100 | 7,586 | 17,644 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 1 | 3 | Large1 | 54,117 | 27,239 | 14,953 | 37,438 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 16 | Medium1a | 22,410 | 7,013 | 3,856 | 8,137 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 10 | Medium1b | 37,336 | 11,429 | 6,010 | 13,644 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 4 | Medium2 | 55,305 | 16,747 | 8,635 | 20,273 | 0 |
| 7 | Turk | Solid | SL | Midwest | 1 | 4 | Large1 | 191,109 | 56,888 | 29,093 | 76,673 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 173 | Medium1a | 7,929 | 1,599 | 4,331 | 1,543 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 115 | Medium1b | 12,220 | 1,563 | 7,131 | 1,493 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 76 | Medium2 | 17,116 | 1,790 | 9,830 | 1,811 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 2 | 54 | Large1 | 35,423 | 2,699 | 19,871 | 3,082 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 148 | Medium1a | 18,342 | 1,603 | 2,287 | 1,392 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 99 | Medium1b | 29,921 | 1,567 | 3,152 | 1,347 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 68 | Medium2 | 44,064 | 1,795 | 4,303 | 1,632 | 0 |
| 7 | Turk | Solid | SL | Midwest | 2 | 74 | Large1 | 150,389 | 2,727 | 13,404 | 3,036 | 0 |

**Table 11-14. (Continued)**

| Option | Animal | Type | Operation | Region | Category | # Facilities | Size ID | Capital | Fixed | O&M | 3yrrec | 5yrrec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 74 | Medium1a | 6,637 | 580 | 1,297 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 49 | Medium1b | 10,955 | 580 | 1,562 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 35 | Medium2 | 15,679 | 580 | 1,742 | 0 | 0 |
| 7 | Turk | Solid | SL | Mid-Atlantic | 3 | 36 | Large1 | 33,290 | 580 | 2,442 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 64 | Medium1a | 17,240 | 580 | 861 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 42 | Medium1b | 28,845 | 580 | 976 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 31 | Medium2 | 42,817 | 580 | 1,146 | 0 | 0 |
| 7 | Turk | Solid | SL | Midwest | 3 | 50 | Large1 | 148,300 | 580 | 3,058 | 0 | 0 |

## Table 11-15. Regulatory Compliance Costs for the Dairy Industry

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dairy | 0 | 0 | Central | 1 | Large1 | 66,157 | 1,980 | 3,364 | 3,034 |
| 1 | Dairy | 0 | 0 | Central | 2 | Large1 | 439,469 | 1,006 | 34,150 | 1,184 |
| 1 | Dairy | 0 | 0 | Central | 3 | Large1 | 66,157 | 190 | 2,533 | 600 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 45,347 | 2,334 | 3,153 | 3,690 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 45,347 | 1,006 | 46,898 | 1,184 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 45,347 | 190 | 2,117 | 600 |
| 1 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 45,347 | 2,492 | 3,245 | 3,982 |
| 1 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 45,347 | 1,164 | 55,084 | 1,497 |
| 1 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 45,347 | 190 | 2,117 | 600 |
| 1 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 66,157 | 2,234 | 3,511 | 3,495 |
| 1 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 439,469 | 986 | 37,270 | 1,158 |
| 1 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 66,157 | 190 | 2,533 | 600 |
| 1 | Dairy | 0 | 0 | South | 1 | Large1 | 66,157 | 2,111 | 3,440 | 3,270 |
| 1 | Dairy | 0 | 0 | South | 2 | Large1 | 66,157 | 782 | 54,494 | 764 |
| 1 | Dairy | 0 | 0 | South | 3 | Large1 | 66,157 | 190 | 2,533 | 600 |
| 1 | Dairy | 0 | 0 | Central | 1 | Medium2 | 31,721 | 1,106 | 2,560 | 1,379 |
| 1 | Dairy | 0 | 0 | Central | 2 | Medium2 | 31,426 | 829 | 27,117 | 866 |
| 1 | Dairy | 0 | 0 | Central | 3 | Medium2 | 28,581 | 190 | 1,964 | 600 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 26,056 | 1,225 | 2,732 | 1,599 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 25,400 | 840 | 13,629 | 882 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 21,117 | 190 | 1,854 | 600 |
| 1 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 25,046 | 1,275 | 2,734 | 1,707 |
| 1 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 24,363 | 894 | 15,789 | 974 |
| 1 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 20,003 | 190 | 1,801 | 600 |
| 1 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 34,281 | 1,191 | 2,769 | 1,533 |
| 1 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 33,882 | 832 | 30,648 | 871 |
| 1 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 31,034 | 190 | 2,087 | 6000 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dairy | 0 | 0 | South | 1 | Medium2 | 33,730 | 1,152 | 2,706 | 1,461 |
| 1 | Dairy | 0 | 0 | South | 2 | Medium2 | 33,357 | 767 | 15,809 | 744 |
| 1 | Dairy | 0 | 0 | South | 3 | Medium2 | 30,533 | 190 | 2,062 | 600 |
| 1 | Dairy | 0 | 0 | Central | 1 | Medium1 | 20,442 | 902 | 2,024 | 1,005 |
| 1 | Dairy | 0 | 0 | Central | 2 | Medium1 | 20,394 | 852 | 4,499 | 897 |
| 1 | Dairy | 0 | 0 | Central | 3 | Medium1 | 17,528 | 190 | 1,681 | 600 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 17,832 | 963 | 2,142 | 1,107 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 17,726 | 894 | 2,798 | 974 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 13,367 | 190 | 1,616 | 600 |
| 1 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 17,220 | 990 | 2,154 | 1,164 |
| 1 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 17,110 | 921 | 2,961 | 1,031 |
| 1 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 12,711 | 190 | 1,585 | 600 |
| 1 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 21,924 | 944 | 2,157 | 1,082 |
| 1 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 21,863 | 883 | 4,972 | 959 |
| 1 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 18,968 | 190 | 1,753 | 600 |
| 1 | Dairy | 0 | 0 | South | 1 | Medium1 | 21,593 | 925 | 2,115 | 1,036 |
| 1 | Dairy | 0 | 0 | South | 2 | Medium1 | 21,526 | 856 | 3,400 | 903 |
| 1 | Dairy | 0 | 0 | South | 3 | Medium1 | 18,656 | 190 | 1,737 | 600 |
| 1 | Dairy | 0 | 0 | Central | 1 | Large1 | 273,999 | 2,458 | 14,034 | 3,933 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 349,278 | 2,759 | 18,597 | 4,491 |
| 1 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 280,372 | 2,795 | 15,173 | 4,554 |
| 1 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 290,359 | 2,530 | 14,893 | 4,057 |
| 1 | Dairy | 0 | 0 | South | 1 | Large1 | 168,524 | 2,382 | 8,716 | 3,783 |
| 1 | Dairy | 0 | 0 | Central | 1 | Medium2 | 109,228 | 1,422 | 6,665 | 1,972 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 136,137 | 1,368 | 8,359 | 1,872 |
| 1 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 108,918 | 1,411 | 7,039 | 1,959 |
| 1 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 119,249 | 1,306 | 7,112 | 1,757 |
| 1 | Dairy | 0 | 0 | South | 1 | Medium2 | 74,211 | 1,209 | 4,776 | 1,569 |
| 1 | Dairy | 0 | 0 | Central | 1 | Medium1 | 20,653 | 1,064 | 2,193 | 1,310 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 17,964 | 1,037 | 2,241 | 1,249 |
| 1 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 17,349 | 1,060 | 2,244 | 1,294 |
| 1 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 21,991 | 1,004 | 2,229 | 1,187 |
| 1 | Dairy | 0 | 0 | South | 1 | Medium1 | 21,627 | 955 | 2,150 | 1,093 |
| 1 | Dairy | 0 | 0 | Central | 2 | Large1 | 273,999 | 1,228 | 78,162 | 1,603 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 349,278 | 1,075 | 57,990 | 1,314 |
| 1 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 280,372 | 1,281 | 45,242 | 1,709 |
| 1 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 290,359 | 1,010 | 76,755 | 1,203 |
| 1 | Dairy | 0 | 0 | South | 2 | Large1 | 168,524 | 742 | 40,386 | 690 |
| 1 | Dairy | 0 | 0 | Central | 2 | Medium2 | 108,613 | 1,057 | 21,077 | 1,289 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 135,282 | 937 | 18,846 | 1,060 |
| 1 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 108,074 | 1,006 | 14,994 | 1,192 |
| 1 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 118,748 | 902 | 21,607 | 993 |
| 1 | Dairy | 0 | 0 | South | 2 | Medium2 | 73,771 | 802 | 15,323 | 812 |
| 1 | Dairy | 0 | 0 | Central | 2 | Medium1 | 20,717 | 1,122 | 3,741 | 1,412 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 17,932 | 1,019 | 3,035 | 1,214 |
| 1 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 17,328 | 1,048 | 2,824 | 1,268 |
| 1 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 21,954 | 971 | 3,676 | 1,121 |
| 1 | Dairy | 0 | 0 | South | 2 | Medium1 | 21,592 | 919 | 3,212 | 1,025 |
| 1 | Dairy | 0 | 0 | Central | 3 | Large1 | 273,999 | 190 | 12,925 | 600 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 349,278 | 190 | 17,313 | 600 |
| 1 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 280,372 | 190 | 13,868 | 600 |
| 1 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 290,359 | 190 | 13,743 | 600 |
| 1 | Dairy | 0 | 0 | South | 3 | Large1 | 168,524 | 190 | 7,652 | 600 |
| 1 | Dairy | 0 | 0 | Central | 3 | Medium2 | 105,511 | 190 | 5,811 | 600 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 130,852 | 190 | 7,341 | 600 |
| 1 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 103,530 | 190 | 5,978 | 600 |
| 1 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 115,834 | 190 | 6,327 | 600 |
| 1 | Dairy | 0 | 0 | South | 3 | Medium2 | 70,929 | 190 | 4,081 | 600 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Dairy | 0 | 0 | Central | 3 | Medium1 | 17,528 | 190 | 1,681 | 600 |
| 1 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 13,367 | 190 | 1,616 | 600 |
| 1 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 12,711 | 190 | 1,585 | 600 |
| 1 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 18,968 | 190 | 1,753 | 600 |
| 1 | Dairy | 0 | 0 | South | 3 | Medium1 | 18,656 | 190 | 1,737 | 600 |
| 2 | Dairy | 0 | 0 | Central | 1 | Large1 | 66,157 | 2,458 | 3,642 | 3,933 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 45,347 | 2,759 | 3,401 | 4,491 |
| 2 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 45,347 | 2,795 | 3,422 | 4,554 |
| 2 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 66,157 | 2,530 | 3,683 | 4,057 |
| 2 | Dairy | 0 | 0 | South | 1 | Large1 | 66,157 | 2,382 | 3,598 | 3,783 |
| 2 | Dairy | 0 | 0 | Central | 2 | Large1 | 66,157 | 1,228 | 67,770 | 1,603 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 45,347 | 1,075 | 42,794 | 1,314 |
| 2 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 45,347 | 1,281 | 33,491 | 1,709 |
| 2 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 66,157 | 1,010 | 65,545 | 1,203 |
| 2 | Dairy | 0 | 0 | South | 2 | Large1 | 66,157 | 742 | 35,267 | 690 |
| 2 | Dairy | 0 | 0 | Central | 3 | Large1 | 66,157 | 190 | 2,533 | 600 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 45,347 | 190 | 2,117 | 600 |
| 2 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 45,347 | 190 | 2,117 | 600 |
| 2 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 66,157 | 190 | 2,533 | 600 |
| 2 | Dairy | 0 | 0 | South | 3 | Large1 | 66,157 | 190 | 2,533 | 600 |
| 2 | Dairy | 0 | 0 | Central | 1 | Medium1 | 20,653 | 1,064 | 2,193 | 1,310 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 17,964 | 1,037 | 2,241 | 1,249 |
| 2 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 17,349 | 1,060 | 2,244 | 1,294 |
| 2 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 21,991 | 1,004 | 2,229 | 1,187 |
| 2 | Dairy | 0 | 0 | South | 1 | Medium1 | 21,627 | 955 | 2,150 | 1,093 |
| 2 | Dairy | 0 | 0 | Central | 2 | Medium1 | 20,717 | 1,122 | 3,741 | 1,412 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 17,932 | 1,019 | 3,035 | 1,214 |
| 2 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 17,328 | 1,048 | 2,824 | 1,268 |
| 2 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 21,954 | 971 | 3,676 | 1,121 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Dairy | 0 | 0 | South | 2 | Medium1 | 21,592 | 919 | 3,212 | 1,025 |
| 2 | Dairy | 0 | 0 | Central | 3 | Medium1 | 17,528 | 190 | 1,681 | 600 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 13,367 | 190 | 1,616 | 600 |
| 2 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 12,711 | 190 | 1,585 | 600 |
| 2 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 18,968 | 190 | 1,753 | 600 |
| 2 | Dairy | 0 | 0 | South | 3 | Medium1 | 18,656 | 190 | 1,737 | 600 |
| 2 | Dairy | 0 | 0 | Central | 1 | Medium2 | 32,299 | 1,422 | 2,818 | 1,972 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 26,402 | 1,368 | 2,872 | 1,872 |
| 2 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 25,392 | 1,411 | 2,863 | 1,959 |
| 2 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 34,450 | 1,306 | 2,873 | 1,757 |
| 2 | Dairy | 0 | 0 | South | 1 | Medium2 | 33,815 | 1,209 | 2,756 | 1,569 |
| 2 | Dairy | 0 | 0 | Central | 2 | Medium2 | 31,683 | 1,057 | 17,230 | 1,289 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 25,547 | 937 | 13,359 | 1,060 |
| 2 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 24,548 | 1,006 | 10,818 | 1,192 |
| 2 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 33,949 | 902 | 17,367 | 993 |
| 2 | Dairy | 0 | 0 | South | 2 | Medium2 | 33,376 | 802 | 13,303 | 812 |
| 2 | Dairy | 0 | 0 | Central | 3 | Medium2 | 28,581 | 190 | 1,964 | 600 |
| 2 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 21,117 | 190 | 1,854 | 600 |
| 2 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 20,003 | 190 | 1,801 | 600 |
| 2 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 31,034 | 190 | 2,087 | 600 |
| 2 | Dairy | 0 | 0 | South | 3 | Medium2 | 30,533 | 190 | 2,062 | 600 |
| 3 | Dairy | 0 | 0 | Central | 1 | Large1 | 205,246 | 5,140 | 10,396 | 3,933 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 296,252 | 4,966 | 15,660 | 4,491 |
| 3 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 322,071 | 5,324 | 16,925 | 4,554 |
| 3 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 212,269 | 4,540 | 10,808 | 4,057 |
| 3 | Dairy | 0 | 0 | South | 1 | Large1 | 321,901 | 4,827 | 16,037 | 3,783 |
| 3 | Dairy | 0 | 0 | Central | 2 | Large1 | 205,246 | 1,228 | 74,524 | 1,603 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 296,252 | 1,075 | 55,052 | 1,314 |
| 3 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 322,071 | 1,281 | 46,995 | 1,709 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 212,269 | 1,010 | 72,669 | 1,203 |
| 3 | Dairy | 0 | 0 | South | 2 | Large1 | 321,901 | 742 | 47,706 | 690 |
| 3 | Dairy | 0 | 0 | Central | 3 | Large1 | 205,246 | 190 | 9,287 | 600 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 296,252 | 190 | 14,376 | 600 |
| 3 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 322,071 | 190 | 15,621 | 600 |
| 3 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 212,269 | 190 | 9,657 | 600 |
| 3 | Dairy | 0 | 0 | South | 3 | Large1 | 321,901 | 190 | 14,972 | 600 |
| 3 | Dairy | 0 | 0 | Central | 1 | Medium1 | 58,077 | 3,284 | 4,014 | 1,310 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 87,351 | 3,204 | 5,634 | 1,249 |
| 3 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 91,593 | 3,356 | 5,868 | 1,294 |
| 3 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 62,841 | 2,791 | 4,225 | 1,187 |
| 3 | Dairy | 0 | 0 | South | 1 | Medium1 | 98,010 | 3,636 | 5,882 | 1,093 |
| 3 | Dairy | 0 | 0 | Central | 2 | Medium1 | 58,142 | 1,122 | 5,562 | 1,412 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 87,319 | 1,019 | 6,428 | 1,214 |
| 3 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 91,573 | 1,048 | 6,448 | 1,268 |
| 3 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 62,804 | 971 | 5,673 | 1,121 |
| 3 | Dairy | 0 | 0 | South | 2 | Medium1 | 97,975 | 919 | 6,944 | 1,025 |
| 3 | Dairy | 0 | 0 | Central | 3 | Medium1 | 54,953 | 190 | 3,501 | 600 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 82,754 | 190 | 5,009 | 600 |
| 3 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 86,955 | 190 | 5,209 | 600 |
| 3 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 59,818 | 190 | 3,749 | 600 |
| 3 | Dairy | 0 | 0 | South | 3 | Medium1 | 95,039 | 190 | 5,469 | 600 |
| 3 | Dairy | 0 | 0 | Central | 1 | Medium2 | 86,664 | 3,642 | 5,515 | 1,972 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 126,691 | 3,535 | 7,877 | 1,872 |
| 3 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 135,126 | 3,708 | 8,336 | 1,959 |
| 3 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 92,200 | 3,093 | 5,742 | 1,757 |
| 3 | Dairy | 0 | 0 | South | 1 | Medium2 | 141,772 | 3,890 | 8,116 | 1,569 |
| 3 | Dairy | 0 | 0 | Central | 2 | Medium2 | 86,048 | 1,057 | 19,928 | 1,289 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 125,836 | 937 | 18,365 | 1,060 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 134,282 | 1,006 | 16,291 | 1,192 |
| 3 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 91,699 | 902 | 20,237 | 993 |
| 3 | Dairy | 0 | 0 | South | 2 | Medium2 | 141,332 | 802 | 18,662 | 812 |
| 3 | Dairy | 0 | 0 | Central | 3 | Medium2 | 82,947 | 190 | 4,662 | 600 |
| 3 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 121,406 | 190 | 6,860 | 600 |
| 3 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 129,738 | 190 | 7,274 | 600 |
| 3 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 88,784 | 190 | 4,956 | 600 |
| 3 | Dairy | 0 | 0 | South | 3 | Medium2 | 138,490 | 190 | 7,421 | 600 |
| 4 | Dairy | 0 | 0 | Central | 1 | Large1 | 205,638 | 5,140 | 16,648 | 3,933 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 296,644 | 4,966 | 21,912 | 4,491 |
| 4 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 322,463 | 5,324 | 23,177 | 4,554 |
| 4 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 212,661 | 4,540 | 17,060 | 4,057 |
| 4 | Dairy | 0 | 0 | South | 1 | Large1 | 322,293 | 4,827 | 22,289 | 3,783 |
| 4 | Dairy | 0 | 0 | Central | 2 | Large1 | 205,638 | 1,228 | 80,776 | 1,603 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 296,644 | 1,075 | 61,304 | 1,314 |
| 4 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 322,463 | 1,281 | 53,247 | 1,709 |
| 4 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 212,661 | 1,010 | 78,921 | 1,203 |
| 4 | Dairy | 0 | 0 | South | 2 | Large1 | 322,293 | 742 | 53,958 | 690 |
| 4 | Dairy | 0 | 0 | Central | 3 | Large1 | 205,638 | 190 | 15,539 | 600 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 296,644 | 190 | 20,628 | 600 |
| 4 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 322,463 | 190 | 21,873 | 600 |
| 4 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 212,661 | 190 | 15,909 | 600 |
| 4 | Dairy | 0 | 0 | South | 3 | Large1 | 322,293 | 190 | 21,224 | 600 |
| 4 | Dairy | 0 | 0 | Central | 1 | Medium1 | 58,469 | 3,284 | 10,266 | 1,310 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 87,743 | 3,204 | 11,886 | 1,249 |
| 4 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 91,985 | 3,356 | 12,120 | 1,294 |
| 4 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 63,233 | 2,791 | 10,477 | 1,187 |
| 4 | Dairy | 0 | 0 | South | 1 | Medium1 | 98,402 | 3,636 | 12,134 | 1,093 |
| 4 | Dairy | 0 | 0 | Central | 2 | Medium1 | 58,534 | 1,122 | 11,814 | 1,412 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 87,711 | 1,019 | 12,680 | 1,214 |
| 4 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 91,965 | 1,048 | 12,700 | 1,268 |
| 4 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 63,196 | 971 | 11,925 | 1,121 |
| 4 | Dairy | 0 | 0 | South | 2 | Medium1 | 98,367 | 919 | 13,196 | 1,025 |
| 4 | Dairy | 0 | 0 | Central | 3 | Medium1 | 55,345 | 190 | 9,753 | 600 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 83,146 | 190 | 11,261 | 600 |
| 4 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 87,347 | 190 | 11,461 | 600 |
| 4 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 60,210 | 190 | 10,001 | 600 |
| 4 | Dairy | 0 | 0 | South | 3 | Medium1 | 95,431 | 190 | 11,721 | 600 |
| 4 | Dairy | 0 | 0 | Central | 1 | Medium2 | 87,056 | 3,642 | 11,767 | 1,972 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 127,083 | 3,535 | 14,129 | 1,872 |
| 4 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 135,518 | 3,708 | 14,588 | 1,959 |
| 4 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 92,592 | 3,093 | 11,994 | 1,757 |
| 4 | Dairy | 0 | 0 | South | 1 | Medium2 | 142,164 | 3,890 | 14,368 | 1,569 |
| 4 | Dairy | 0 | 0 | Central | 2 | Medium2 | 86,440 | 1,057 | 26,180 | 1,289 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 126,228 | 937 | 24,617 | 1,060 |
| 4 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 134,674 | 1,006 | 22,543 | 1,192 |
| 4 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 92,091 | 902 | 26,489 | 993 |
| 4 | Dairy | 0 | 0 | South | 2 | Medium2 | 141,724 | 802 | 24,914 | 812 |
| 4 | Dairy | 0 | 0 | Central | 3 | Medium2 | 83,339 | 190 | 10,914 | 600 |
| 4 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 121,798 | 190 | 13,112 | 600 |
| 4 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 130,130 | 190 | 13,526 | 600 |
| 4 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 89,176 | 190 | 11,208 | 600 |
| 4 | Dairy | 0 | 0 | South | 3 | Medium2 | 138,882 | 190 | 13,673 | 600 |
| 5 | Dairy | 0 | 0 | Central | 1 | Large1 | 75,314 | 2,458 | 31,227 | 3,933 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 54,504 | 2,759 | 43,339 | 4,491 |
| 5 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 54,504 | 2,795 | 44,823 | 4,554 |
| 5 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 75,314 | 2,530 | 27,480 | 4,057 |
| 5 | Dairy | 0 | 0 | South | 1 | Large1 | 75,314 | 2,382 | 26,422 | 3,783 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Dairy | 0 | 0 | Central | 2 | Large1 | 75,314 | 1,228 | 101,067 | 1,603 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 54,504 | 1,075 | 82,623 | 1,314 |
| 5 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 54,504 | 1,281 | 70,773 | 1,709 |
| 5 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 75,314 | 1,010 | 82,352 | 1,203 |
| 5 | Dairy | 0 | 0 | South | 2 | Large1 | 75,314 | 742 | 52,255 | 690 |
| 5 | Dairy | 0 | 0 | Central | 3 | Large1 | 75,314 | 190 | 30,119 | 600 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 54,504 | 190 | 42,055 | 600 |
| 5 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 54,504 | 190 | 43,518 | 600 |
| 5 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 75,314 | 190 | 26,329 | 600 |
| 5 | Dairy | 0 | 0 | South | 3 | Large1 | 75,314 | 190 | 25,358 | 600 |
| 5 | Dairy | 0 | 0 | Central | 1 | Medium1 | 29,810 | 1,064 | 9,121 | 1,310 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 27,120 | 1,037 | 11,362 | 1,249 |
| 5 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 26,505 | 1,060 | 11,488 | 1,294 |
| 5 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 31,147 | 1,004 | 8,737 | 1,187 |
| 5 | Dairy | 0 | 0 | South | 1 | Medium1 | 30,784 | 955 | 8,546 | 1,093 |
| 5 | Dairy | 0 | 0 | Central | 2 | Medium1 | 29,874 | 1,122 | 11,680 | 1,412 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 27,089 | 1,019 | 12,131 | 1,214 |
| 5 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 26,485 | 1,048 | 11,734 | 1,268 |
| 5 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 31,111 | 971 | 9,214 | 1,121 |
| 5 | Dairy | 0 | 0 | South | 2 | Medium1 | 30,749 | 919 | 10,397 | 1,025 |
| 5 | Dairy | 0 | 0 | Central | 3 | Medium1 | 26,685 | 190 | 8,608 | 600 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 22,524 | 190 | 10,736 | 600 |
| 5 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 21,867 | 190 | 10,829 | 600 |
| 5 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 28,124 | 190 | 8,261 | 600 |
| 5 | Dairy | 0 | 0 | South | 3 | Medium1 | 27,813 | 190 | 8,133 | 600 |
| 5 | Dairy | 0 | 0 | Central | 1 | Medium2 | 41,456 | 1,422 | 16,367 | 1,972 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 35,559 | 1,368 | 20,721 | 1,872 |
| 5 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 34,549 | 1,411 | 20,955 | 1,959 |
| 5 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 43,606 | 1,306 | 15,601 | 1,757 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Dairy | 0 | 0 | South | 1 | Medium2 | 42,972 | 1,209 | 15,270 | 1,569 |
| 5 | Dairy | 0 | 0 | Central | 2 | Medium2 | 40,840 | 1,057 | 30,979 | 1,289 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 34,704 | 937 | 31,154 | 1,060 |
| 5 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 33,704 | 1,006 | 30,870 | 1,192 |
| 5 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 43,106 | 902 | 30,278 | 993 |
| 5 | Dairy | 0 | 0 | South | 2 | Medium2 | 42,533 | 802 | 25,792 | 812 |
| 5 | Dairy | 0 | 0 | Central | 3 | Medium2 | 37,738 | 190 | 15,513 | 600 |
| 5 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 30,274 | 190 | 19,703 | 600 |
| 5 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 29,160 | 190 | 19,893 | 600 |
| 5 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 40,191 | 190 | 14,815 | 600 |
| 5 | Dairy | 0 | 0 | South | 3 | Medium2 | 39,690 | 190 | 14,576 | 600 |
| 6 | Dairy | 0 | 0 | Central | 1 | Large1 | 321,284 | 2,458 | -39,295 | 3,933 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 341,247 | 2,759 | -40,410 | 4,491 |
| 6 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 341,247 | 2,795 | -40,389 | 4,554 |
| 6 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 321,284 | 2,530 | -39,253 | 4,057 |
| 6 | Dairy | 0 | 0 | South | 1 | Large1 | 321,284 | 2,382 | -39,339 | 3,783 |
| 6 | Dairy | 0 | 0 | Central | 2 | Large1 | 321,284 | 1,228 | 30,562 | 1,603 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 341,247 | 1,075 | 4,346 | 1,314 |
| 6 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 341,247 | 1,281 | -5,383 | 1,709 |
| 6 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 321,284 | 1,010 | 27,515 | 1,203 |
| 6 | Dairy | 0 | 0 | South | 2 | Large1 | 321,284 | 742 | -4,907 | 690 |
| 6 | Dairy | 0 | 0 | Central | 3 | Large1 | 321,284 | 190 | -40,403 | 600 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 341,247 | 190 | -41,694 | 600 |
| 6 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 341,247 | 190 | -41,694 | 600 |
| 6 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 321,284 | 190 | -40,403 | 600 |
| 6 | Dairy | 0 | 0 | South | 3 | Large1 | 321,284 | 190 | -40,403 | 600 |
| 6 | Dairy | 0 | 0 | Central | 1 | Medium1 | 20,653 | 1,064 | 2,193 | 1,310 |
| 6 | Dairy | 0 | 0 | Central | 3 | Medium1 | 17,528 | 190 | 1,681 | 600 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 13,367 | 190 | 1,616 | 600 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 12,711 | 190 | 1,585 | 600 |
| 6 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 18,968 | 190 | 1,753 | 600 |
| 6 | Dairy | 0 | 0 | South | 3 | Medium1 | 18,656 | 190 | 1,737 | 600 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 17,964 | 1,037 | 2,241 | 1,249 |
| 6 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 17,349 | 1,060 | 2,244 | 1,294 |
| 6 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 21,991 | 1,004 | 2,229 | 1,187 |
| 6 | Dairy | 0 | 0 | South | 1 | Medium1 | 21,627 | 955 | 2,150 | 1,093 |
| 6 | Dairy | 0 | 0 | Central | 2 | Medium1 | 20,717 | 1,122 | 4,998 | 1,412 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 17,932 | 1,019 | 4,249 | 1,214 |
| 6 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 17,328 | 1,048 | 3,922 | 1,268 |
| 6 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 21,954 | 971 | 4,843 | 1,121 |
| 6 | Dairy | 0 | 0 | South | 2 | Medium1 | 21,592 | 919 | 4,188 | 1,025 |
| 6 | Dairy | 0 | 0 | Central | 1 | Medium2 | 180,161 | 1,422 | -6,133 | 1,972 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 188,664 | 1,368 | -7,555 | 1,872 |
| 6 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 187,653 | 1,411 | -7,564 | 1,959 |
| 6 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 182,312 | 1,306 | -6,078 | 1,757 |
| 6 | Dairy | 0 | 0 | South | 1 | Medium2 | 181,678 | 1,209 | -6,195 | 1,569 |
| 6 | Dairy | 0 | 0 | Central | 2 | Medium2 | 179,546 | 1,057 | 10,865 | 1,289 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 187,808 | 937 | 5,610 | 1,060 |
| 6 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 186,809 | 1,006 | 2,649 | 1,192 |
| 6 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 181,811 | 902 | 10,904 | 993 |
| 6 | Dairy | 0 | 0 | South | 2 | Medium2 | 181,238 | 802 | 6,331 | 812 |
| 6 | Dairy | 0 | 0 | Central | 3 | Medium2 | 176,444 | 190 | -6,987 | 600 |
| 6 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 183,378 | 190 | -8,572 | 600 |
| 6 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 182,265 | 190 | -8,625 | 600 |
| 6 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 178,897 | 190 | -6,864 | 600 |
| 6 | Dairy | 0 | 0 | South | 3 | Medium2 | 178,395 | 190 | -6,889 | 600 |
| 7 | Dairy | 0 | 0 | Central | 1 | Large1 | 273,999 | 2,458 | 14,034 | 3,933 |
| 7 | Dairy | 0 | 0 | Central | 2 | Large1 | 273,999 | 1,228 | 78,162 | 1,603 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Dairy | 0 | 0 | Central | 3 | Large1 | 273,999 | 190 | 12,925 | 600 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Large1 | 349,278 | 2,759 | 18,597 | 4,491 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Large1 | 349,278 | 1,075 | 57,990 | 1,314 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Large1 | 349,278 | 190 | 17,313 | 600 |
| 7 | Dairy | 0 | 0 | Midwest | 1 | Large1 | 280,372 | 2,795 | 15,173 | 4,554 |
| 7 | Dairy | 0 | 0 | Midwest | 2 | Large1 | 280,372 | 1,281 | 45,242 | 1,709 |
| 7 | Dairy | 0 | 0 | Midwest | 3 | Large1 | 280,372 | 190 | 13,868 | 600 |
| 7 | Dairy | 0 | 0 | Pacific | 1 | Large1 | 290,359 | 2,530 | 14,893 | 4,057 |
| 7 | Dairy | 0 | 0 | Pacific | 2 | Large1 | 290,359 | 1,010 | 76,755 | 1,203 |
| 7 | Dairy | 0 | 0 | Pacific | 3 | Large1 | 290,359 | 190 | 13,743 | 600 |
| 7 | Dairy | 0 | 0 | South | 1 | Large1 | 168,524 | 2,382 | 8,716 | 3,783 |
| 7 | Dairy | 0 | 0 | South | 2 | Large1 | 168,524 | 742 | 40,386 | 690 |
| 7 | Dairy | 0 | 0 | South | 3 | Large1 | 168,524 | 190 | 7,652 | 600 |
| 7 | Dairy | 0 | 0 | Central | 1 | Medium1 | 20,653 | 1,064 | 2,193 | 1,310 |
| 7 | Dairy | 0 | 0 | Central | 2 | Medium1 | 20,717 | 1,122 | 3,741 | 1,412 |
| 7 | Dairy | 0 | 0 | Central | 3 | Medium1 | 17,528 | 190 | 1,681 | 600 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 17,964 | 1,037 | 2,241 | 1,249 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 17,932 | 1,019 | 3,035 | 1,214 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 13,367 | 190 | 1,616 | 600 |
| 7 | Dairy | 0 | 0 | Midwest | 1 | Medium1 | 17,349 | 1,060 | 2,244 | 1,294 |
| 7 | Dairy | 0 | 0 | Midwest | 2 | Medium1 | 17,328 | 1,048 | 2,824 | 1,268 |
| 7 | Dairy | 0 | 0 | Midwest | 3 | Medium1 | 12,711 | 190 | 1,585 | 600 |
| 7 | Dairy | 0 | 0 | Pacific | 1 | Medium1 | 21,991 | 1,004 | 2,229 | 1,187 |
| 7 | Dairy | 0 | 0 | Pacific | 2 | Medium1 | 21,954 | 971 | 3,676 | 1,121 |
| 7 | Dairy | 0 | 0 | Pacific | 3 | Medium1 | 18,968 | 190 | 1,753 | 600 |
| 7 | Dairy | 0 | 0 | South | 1 | Medium1 | 21,627 | 955 | 2,150 | 1,093 |
| 7 | Dairy | 0 | 0 | South | 2 | Medium1 | 21,592 | 919 | 3,212 | 1,025 |
| 7 | Dairy | 0 | 0 | South | 3 | Medium1 | 18,656 | 190 | 1,737 | 600 |
| 7 | Dairy | 0 | 0 | Central | 1 | Medium2 | 109,228 | 1,422 | 6,665 | 1,972 |

**Table 11-15. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Dairy | 0 | 0 | Central | 2 | Medium2 | 108,613 | 1,057 | 21,077 | 1,289 |
| 7 | Dairy | 0 | 0 | Central | 3 | Medium2 | 105,511 | 190 | 5,811 | 600 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 136,137 | 1,368 | 8,359 | 1,872 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 135,282 | 937 | 18,846 | 1,060 |
| 7 | Dairy | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 130,852 | 190 | 7,341 | 600 |
| 7 | Dairy | 0 | 0 | Midwest | 1 | Medium2 | 108,918 | 1,411 | 7,039 | 1,959 |
| 7 | Dairy | 0 | 0 | Midwest | 2 | Medium2 | 108,074 | 1,006 | 14,994 | 1,192 |
| 7 | Dairy | 0 | 0 | Midwest | 3 | Medium2 | 103,530 | 190 | 5,978 | 600 |
| 7 | Dairy | 0 | 0 | Pacific | 1 | Medium2 | 119,249 | 1,306 | 7,112 | 1,757 |
| 7 | Dairy | 0 | 0 | Pacific | 2 | Medium2 | 118,748 | 902 | 21,607 | 993 |
| 7 | Dairy | 0 | 0 | Pacific | 3 | Medium2 | 115,834 | 190 | 6,327 | 600 |
| 7 | Dairy | 0 | 0 | South | 1 | Medium2 | 74,211 | 1,209 | 4,776 | 1,569 |
| 7 | Dairy | 0 | 0 | South | 2 | Medium2 | 73,771 | 802 | 15,323 | 812 |
| 7 | Dairy | 0 | 0 | South | 3 | Medium2 | 70,929 | 190 | 4,081 | 600 |

## Table 11-16. Regulatory Compliance Costs for the Beef Industry

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Beef | 0 | 0 | Central | 1 | Large1 | 869 | 1,941 | 2,061 | 2,962 |
| 1 | Beef | 0 | 0 | Central | 2 | Large1 | 869 | 1,283 | 47,302 | 1,717 |
| 1 | Beef | 0 | 0 | Central | 3 | Large1 | 869 | 190 | 1,253 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 2,464 | 2,014 | 2,184 | 3,100 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 2,464 | 1,264 | 24,559 | 1,671 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 2,464 | 190 | 1,333 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Large1 | 2,321 | 2,476 | 2,445 | 3,961 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Large1 | 2,321 | 1,464 | 28,815 | 2,060 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Large1 | 2,321 | 190 | 1,326 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Large1 | 1,741 | 2,330 | 2,331 | 3,685 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Large1 | 1,741 | 1,487 | 53,685 | 2,091 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Large1 | 1,741 | 190 | 1,297 | 600 |
| 1 | Beef | 0 | 0 | South | 1 | Large1 | 3,771 | 2,272 | 2,399 | 3,567 |
| 1 | Beef | 0 | 0 | South | 2 | Large1 | 3,771 | 1,375 | 26,763 | 1,881 |
| 1 | Beef | 0 | 0 | South | 3 | Large1 | 3,771 | 190 | 1,399 | 600 |
| 1 | Beef | 0 | 0 | Central | 1 | Large2 | 12,238 | 21,531 | 14,027 | 39,812 |
| 1 | Beef | 0 | 0 | Central | 2 | Large2 | 664,614 | 13,927 | 145,574 | 25,512 |
| 1 | Beef | 0 | 0 | Central | 3 | Large2 | 12,238 | 190 | 1,822 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 38,849 | 22,767 | 16,077 | 42,133 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 687,347 | 14,089 | 105,111 | 25,809 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 38,849 | 190 | 3,152 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Large2 | 36,430 | 30,494 | 20,451 | 56,680 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Large2 | 622,064 | 18,774 | 108,476 | 34,627 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Large2 | 36,430 | 190 | 3,032 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Large2 | 26,754 | 28,019 | 18,527 | 52,032 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Large2 | 701,378 | 18,285 | 162,592 | 33,710 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Large2 | 26,754 | 190 | 2,548 | 600 |
| 1 | Beef | 0 | 0 | South | 1 | Large2 | 60,622 | 27,068 | 19,667 | 50,234 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Beef | 0 | 0 | South | 2 | Large2 | 638,840 | 16,695 | 103,905 | 30,712 |
| 1 | Beef | 0 | 0 | South | 3 | Large2 | 60,622 | 190 | 4,241 | 600 |
| 1 | Beef | 0 | 0 | Central | 1 | Medium2 | 40,168 | 1,206 | 5,024 | 1,573 |
| 1 | Beef | 0 | 0 | Central | 2 | Medium2 | 38,706 | 1,090 | 6,719 | 1,358 |
| 1 | Beef | 0 | 0 | Central | 3 | Medium2 | 7,501 | 190 | 1,477 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 46,348 | 1,237 | 5,445 | 1,635 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 44,611 | 1,102 | 5,939 | 1,374 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 13,266 | 190 | 1,766 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 45,620 | 1,429 | 5,981 | 1,994 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 42,943 | 1,248 | 6,658 | 1,650 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 9,702 | 190 | 1,593 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 49,009 | 1,368 | 5,984 | 1,871 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 46,865 | 1,217 | 7,974 | 1,589 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 14,043 | 190 | 1,804 | 600 |
| 1 | Beef | 0 | 0 | South | 1 | Medium2 | 49,496 | 1,345 | 5,944 | 1,820 |
| 1 | Beef | 0 | 0 | South | 2 | Medium2 | 47,240 | 1,183 | 6,524 | 1,522 |
| 1 | Beef | 0 | 0 | South | 3 | Medium2 | 14,877 | 190 | 1,846 | 600 |
| 1 | Beef | 0 | 0 | Central | 1 | Medium1 | 37,279 | 879 | 2,930 | 954 |
| 1 | Beef | 0 | 0 | Central | 2 | Medium1 | 37,095 | 859 | 2,897 | 908 |
| 1 | Beef | 0 | 0 | Central | 3 | Medium1 | 8,366 | 190 | 1,563 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 40,380 | 890 | 3,204 | 969 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 40,195 | 871 | 3,088 | 943 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 11,355 | 190 | 1,712 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 39,249 | 963 | 3,772 | 1,107 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 38,928 | 933 | 3,630 | 1,046 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 9,479 | 190 | 1,622 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 41,387 | 940 | 3,699 | 1,076 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 41,113 | 913 | 3,675 | 1,020 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 11,859 | 190 | 1,738 | 600 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Beef | 0 | 0 | South | 1 | Medium1 | 41,550 | 933 | 3,646 | 1,046 |
| 1 | Beef | 0 | 0 | South | 2 | Medium1 | 41,278 | 906 | 3,501 | 1,010 |
| 1 | Beef | 0 | 0 | South | 3 | Medium1 | 12,101 | 190 | 1,750 | 600 |
| 1 | Beef | 0 | 0 | Central | 1 | Large1 | 20,155 | 3,352 | 3,846 | 5,612 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 47,073 | 2,420 | 4,650 | 3,862 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Large1 | 14,357 | 2,548 | 3,089 | 4,096 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Large1 | 45,036 | 3,144 | 4,970 | 5,216 |
| 1 | Beef | 0 | 0 | South | 1 | Large1 | 3,771 | 2,778 | 2,693 | 4,521 |
| 1 | Beef | 0 | 0 | Central | 1 | Large2 | 128,183 | 32,110 | 25,979 | 59,719 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 297,158 | 25,630 | 30,658 | 47,522 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Large2 | 105,992 | 30,960 | 24,200 | 57,556 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Large2 | 287,781 | 34,574 | 35,392 | 64,367 |
| 1 | Beef | 0 | 0 | South | 1 | Large2 | 60,622 | 30,666 | 21,761 | 57,004 |
| 1 | Beef | 0 | 0 | Central | 1 | Medium2 | 78,618 | 1,974 | 7,400 | 3,018 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 66,676 | 1,510 | 6,870 | 2,145 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 55,271 | 1,543 | 6,578 | 2,206 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 74,817 | 1,910 | 7,985 | 2,894 |
| 1 | Beef | 0 | 0 | South | 1 | Medium2 | 62,761 | 1,935 | 7,253 | 2,935 |
| 1 | Beef | 0 | 0 | Central | 1 | Medium1 | 41,488 | 1,162 | 4,162 | 1,485 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 41,610 | 991 | 3,791 | 1,160 |
| 1 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 39,795 | 1,005 | 3,973 | 1,185 |
| 1 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 43,854 | 1,139 | 4,770 | 1,448 |
| 1 | Beef | 0 | 0 | South | 1 | Medium1 | 44,360 | 1,148 | 4,728 | 1,458 |
| 1 | Beef | 0 | 0 | Central | 2 | Large1 | 20,155 | 3,985 | 16,993 | 6,797 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 47,073 | 2,298 | 15,699 | 3,621 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Large1 | 14,357 | 1,811 | 24,514 | 2,713 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Large1 | 45,036 | 2,812 | 25,420 | 4,583 |
| 1 | Beef | 0 | 0 | South | 2 | Large1 | 3,771 | 2,614 | 17,620 | 4,214 |
| 1 | Beef | 0 | 0 | Central | 2 | Large2 | 503,452 | 46,972 | 115,571 | 87,690 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 297,158 | 24,601 | 174,430 | 45,589 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Large2 | 650,147 | 21,138 | 106,790 | 39,075 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Large2 | 287,781 | 35,006 | 318,176 | 65,170 |
| 1 | Beef | 0 | 0 | South | 2 | Large2 | 60,622 | 29,544 | 201,385 | 54,892 |
| 1 | Beef | 0 | 0 | Central | 2 | Medium2 | 90,190 | 2,518 | 10,055 | 4,040 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 69,691 | 1,683 | 8,685 | 2,470 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 56,652 | 1,585 | 7,658 | 2,283 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 75,218 | 1,969 | 9,792 | 3,001 |
| 1 | Beef | 0 | 0 | South | 2 | Medium2 | 64,706 | 2,080 | 8,673 | 3,213 |
| 1 | Beef | 0 | 0 | Central | 2 | Medium1 | 45,174 | 1,429 | 5,584 | 1,981 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 42,861 | 1,098 | 4,628 | 1,366 |
| 1 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 40,581 | 1,064 | 4,329 | 1,293 |
| 1 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 44,588 | 1,204 | 5,390 | 1,561 |
| 1 | Beef | 0 | 0 | South | 2 | Medium1 | 45,668 | 1,258 | 5,479 | 1,671 |
| 1 | Beef | 0 | 0 | Central | 3 | Large1 | 20,155 | 190 | 2,217 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 47,073 | 190 | 3,563 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Large1 | 14,357 | 190 | 1,928 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Large1 | 45,036 | 190 | 3,462 | 600 |
| 1 | Beef | 0 | 0 | South | 3 | Large1 | 3,771 | 190 | 1,399 | 600 |
| 1 | Beef | 0 | 0 | Central | 3 | Large2 | 128,183 | 190 | 7,619 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 297,158 | 190 | 16,067 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Large2 | 105,992 | 190 | 6,510 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Large2 | 287,781 | 190 | 15,599 | 600 |
| 1 | Beef | 0 | 0 | South | 3 | Large2 | 60,622 | 190 | 4,241 | 600 |
| 1 | Beef | 0 | 0 | Central | 3 | Medium2 | 24,794 | 190 | 2,342 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 28,068 | 190 | 2,506 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 16,774 | 190 | 1,947 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 28,524 | 190 | 2,528 | 600 |
| 1 | Beef | 0 | 0 | South | 3 | Medium2 | 14,877 | 190 | 1,846 | 600 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Beef | 0 | 0 | Central | 3 | Medium1 | 8,366 | 190 | 1,563 | 600 |
| 1 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 11,355 | 190 | 1,712 | 600 |
| 1 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 9,479 | 190 | 1,622 | 600 |
| 1 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 11,859 | 190 | 1,738 | 600 |
| 1 | Beef | 0 | 0 | South | 3 | Medium1 | 12,101 | 190 | 1,750 | 600 |
| 2 | Beef | 0 | 0 | Central | 1 | Large1 | 869 | 3,352 | 2,882 | 5,612 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 2,464 | 2,420 | 2,420 | 3,862 |
| 2 | Beef | 0 | 0 | Midwest | 1 | Large1 | 2,321 | 2,548 | 2,487 | 4,096 |
| 2 | Beef | 0 | 0 | Pacific | 1 | Large1 | 1,741 | 3,144 | 2,805 | 5,216 |
| 2 | Beef | 0 | 0 | South | 1 | Large1 | 3,771 | 2,778 | 2,693 | 4,521 |
| 2 | Beef | 0 | 0 | Central | 2 | Large1 | 869 | 3,985 | 16,029 | 6,797 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 2,464 | 2,298 | 13,469 | 3,621 |
| 2 | Beef | 0 | 0 | Midwest | 2 | Large1 | 2,321 | 1,811 | 23,912 | 2,713 |
| 2 | Beef | 0 | 0 | Pacific | 2 | Large1 | 1,741 | 2,812 | 23,255 | 4,583 |
| 2 | Beef | 0 | 0 | South | 2 | Large1 | 3,771 | 2,614 | 17,620 | 4,214 |
| 2 | Beef | 0 | 0 | Central | 3 | Large1 | 869 | 190 | 1,253 | 600 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 2,464 | 190 | 1,333 | 600 |
| 2 | Beef | 0 | 0 | Midwest | 3 | Large1 | 2,321 | 190 | 1,326 | 600 |
| 2 | Beef | 0 | 0 | Pacific | 3 | Large1 | 1,741 | 190 | 1,297 | 600 |
| 2 | Beef | 0 | 0 | South | 3 | Large1 | 3,771 | 190 | 1,399 | 600 |
| 2 | Beef | 0 | 0 | Central | 1 | Large2 | 12,238 | 32,110 | 20,182 | 59,719 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 38,849 | 25,630 | 17,743 | 47,522 |
| 2 | Beef | 0 | 0 | Midwest | 1 | Large2 | 36,430 | 30,960 | 20,722 | 57,556 |
| 2 | Beef | 0 | 0 | Pacific | 1 | Large2 | 26,754 | 34,574 | 22,341 | 64,367 |
| 2 | Beef | 0 | 0 | South | 1 | Large2 | 60,622 | 30,666 | 21,761 | 57,004 |
| 2 | Beef | 0 | 0 | Central | 2 | Large2 | 387,507 | 46,972 | 109,774 | 87,690 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 38,849 | 24,601 | 161,515 | 45,589 |
| 2 | Beef | 0 | 0 | Midwest | 2 | Large2 | 580,585 | 21,138 | 103,312 | 39,075 |
| 2 | Beef | 0 | 0 | Pacific | 2 | Large2 | 26,754 | 35,006 | 305,125 | 65,170 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Beef | 0 | 0 | South | 2 | Large2 | 60,622 | 29,544 | 201,385 | 54,892 |
| 2 | Beef | 0 | 0 | Central | 3 | Large2 | 12,238 | 190 | 1,822 | 600 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 38,849 | 190 | 3,152 | 600 |
| 2 | Beef | 0 | 0 | Midwest | 3 | Large2 | 36,430 | 190 | 3,032 | 600 |
| 2 | Beef | 0 | 0 | Pacific | 3 | Large2 | 26,754 | 190 | 2,548 | 600 |
| 2 | Beef | 0 | 0 | South | 3 | Large2 | 60,622 | 190 | 4,241 | 600 |
| 2 | Beef | 0 | 0 | Central | 1 | Medium1 | 41,488 | 1,162 | 4,162 | 1,485 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 41,610 | 991 | 3,791 | 1,160 |
| 2 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 39,795 | 1,005 | 3,973 | 1,185 |
| 2 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 43,854 | 1,139 | 4,770 | 1,448 |
| 2 | Beef | 0 | 0 | South | 1 | Medium1 | 44,360 | 1,148 | 4,728 | 1,458 |
| 2 | Beef | 0 | 0 | Central | 2 | Medium1 | 45,174 | 1,429 | 5,584 | 1,981 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 42,861 | 1,098 | 4,628 | 1,366 |
| 2 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 40,581 | 1,064 | 4,329 | 1,293 |
| 2 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 44,588 | 1,204 | 5,390 | 1,561 |
| 2 | Beef | 0 | 0 | South | 2 | Medium1 | 45,668 | 1,258 | 5,479 | 1,671 |
| 2 | Beef | 0 | 0 | Central | 3 | Medium1 | 8,366 | 190 | 1,563 | 600 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 11,355 | 190 | 1,712 | 600 |
| 2 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 9,479 | 190 | 1,622 | 600 |
| 2 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 11,859 | 190 | 1,738 | 600 |
| 2 | Beef | 0 | 0 | South | 3 | Medium1 | 12,101 | 190 | 1,750 | 600 |
| 2 | Beef | 0 | 0 | Central | 1 | Medium2 | 61,325 | 1,974 | 6,535 | 3,018 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 51,874 | 1,510 | 6,130 | 2,145 |
| 2 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 48,199 | 1,543 | 6,225 | 2,206 |
| 2 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 60,336 | 1,910 | 7,261 | 2,894 |
| 2 | Beef | 0 | 0 | South | 1 | Medium2 | 62,761 | 1,935 | 7,253 | 2,935 |
| 2 | Beef | 0 | 0 | Central | 2 | Medium2 | 72,897 | 2,518 | 9,190 | 4,040 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 54,889 | 1,683 | 7,945 | 2,470 |
| 2 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 49,580 | 1,585 | 7,304 | 2,283 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 60,737 | 1,969 | 9,068 | 3,001 |
| 2 | Beef | 0 | 0 | South | 2 | Medium2 | 64,706 | 2,080 | 8,673 | 3,213 |
| 2 | Beef | 0 | 0 | Central | 3 | Medium2 | 7,501 | 190 | 1,477 | 600 |
| 2 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 13,266 | 190 | 1,766 | 600 |
| 2 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 9,702 | 190 | 1,593 | 600 |
| 2 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 14,043 | 190 | 1,804 | 600 |
| 2 | Beef | 0 | 0 | South | 3 | Medium2 | 14,877 | 190 | 1,846 | 600 |
| 3 | Beef | 0 | 0 | Central | 1 | Large1 | 43,694 | 5,760 | 4,466 | 5,612 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 126,820 | 5,101 | 7,645 | 3,862 |
| 3 | Beef | 0 | 0 | Midwest | 1 | Large1 | 109,638 | 5,601 | 6,693 | 4,096 |
| 3 | Beef | 0 | 0 | Pacific | 1 | Large1 | 67,590 | 5,250 | 5,602 | 5,216 |
| 3 | Beef | 0 | 0 | South | 1 | Large1 | 127,811 | 5,424 | 7,953 | 4,521 |
| 3 | Beef | 0 | 0 | Central | 2 | Large1 | 43,694 | 3,985 | 17,613 | 6,797 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 126,820 | 2,298 | 18,694 | 3,621 |
| 3 | Beef | 0 | 0 | Midwest | 2 | Large1 | 109,638 | 1,811 | 28,118 | 2,713 |
| 3 | Beef | 0 | 0 | Pacific | 2 | Large1 | 67,590 | 2,812 | 26,053 | 4,583 |
| 3 | Beef | 0 | 0 | South | 2 | Large1 | 127,811 | 2,614 | 22,880 | 4,214 |
| 3 | Beef | 0 | 0 | Central | 3 | Large1 | 43,694 | 190 | 2,837 | 600 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 126,820 | 190 | 6,558 | 600 |
| 3 | Beef | 0 | 0 | Midwest | 3 | Large1 | 109,638 | 190 | 5,532 | 600 |
| 3 | Beef | 0 | 0 | Pacific | 3 | Large1 | 67,590 | 190 | 4,094 | 600 |
| 3 | Beef | 0 | 0 | South | 3 | Large1 | 127,811 | 190 | 6,659 | 600 |
| 3 | Beef | 0 | 0 | Central | 1 | Large2 | 460,625 | 34,915 | 33,080 | 59,719 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 1,249,800 | 28,569 | 61,283 | 47,522 |
| 3 | Beef | 0 | 0 | Midwest | 1 | Large2 | 1,116,166 | 34,059 | 54,907 | 57,556 |
| 3 | Beef | 0 | 0 | Pacific | 1 | Large2 | 658,940 | 37,208 | 45,465 | 64,367 |
| 3 | Beef | 0 | 0 | South | 1 | Large2 | 1,276,807 | 33,588 | 66,488 | 57,004 |
| 3 | Beef | 0 | 0 | Central | 2 | Large2 | 835,894 | 46,972 | 122,672 | 87,690 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 1,249,800 | 24,601 | 205,056 | 45,589 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Beef | 0 | 0 | Midwest | 2 | Large2 | 1,660,321 | 21,138 | 137,496 | 39,075 |
| 3 | Beef | 0 | 0 | Pacific | 2 | Large2 | 658,940 | 35,006 | 328,249 | 65,170 |
| 3 | Beef | 0 | 0 | South | 2 | Large2 | 1,276,807 | 29,544 | 246,112 | 54,892 |
| 3 | Beef | 0 | 0 | Central | 3 | Large2 | 460,625 | 190 | 14,720 | 600 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 1,249,800 | 190 | 46,693 | 600 |
| 3 | Beef | 0 | 0 | Midwest | 3 | Large2 | 1,116,166 | 190 | 37,216 | 600 |
| 3 | Beef | 0 | 0 | Pacific | 3 | Large2 | 658,940 | 190 | 25,671 | 600 |
| 3 | Beef | 0 | 0 | South | 3 | Large2 | 1,276,807 | 190 | 48,969 | 600 |
| 3 | Beef | 0 | 0 | Central | 1 | Medium1 | 53,321 | 3,344 | 4,643 | 1,485 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 76,294 | 3,394 | 5,328 | 1,160 |
| 3 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 70,522 | 3,847 | 5,280 | 1,185 |
| 3 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 62,755 | 2,623 | 5,616 | 1,448 |
| 3 | Beef | 0 | 0 | South | 1 | Medium1 | 79,171 | 2,917 | 6,282 | 1,458 |
| 3 | Beef | 0 | 0 | Central | 2 | Medium1 | 57,007 | 1,429 | 6,065 | 1,981 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 77,544 | 1,098 | 6,164 | 1,366 |
| 3 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 71,308 | 1,064 | 5,636 | 1,293 |
| 3 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 63,489 | 1,204 | 6,237 | 1,561 |
| 3 | Beef | 0 | 0 | South | 2 | Medium1 | 80,479 | 1,258 | 7,032 | 1,671 |
| 3 | Beef | 0 | 0 | Central | 3 | Medium1 | 20,199 | 190 | 2,044 | 600 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 46,039 | 190 | 3,249 | 600 |
| 3 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 40,207 | 190 | 2,929 | 600 |
| 3 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 30,760 | 190 | 2,584 | 600 |
| 3 | Beef | 0 | 0 | South | 3 | Medium1 | 46,912 | 190 | 3,304 | 600 |
| 3 | Beef | 0 | 0 | Central | 1 | Medium2 | 84,414 | 4,156 | 7,481 | 3,018 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 117,418 | 3,913 | 9,039 | 2,145 |
| 3 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 106,151 | 4,385 | 8,690 | 2,206 |
| 3 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 95,342 | 3,394 | 8,828 | 2,894 |
| 3 | Beef | 0 | 0 | South | 1 | Medium2 | 128,175 | 3,704 | 10,172 | 2,935 |
| 3 | Beef | 0 | 0 | Central | 2 | Medium2 | 95,986 | 2,518 | 10,137 | 4,040 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 120,433 | 1,683 | 10,855 | 2,470 |
| 3 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 107,532 | 1,585 | 9,770 | 2,283 |
| 3 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 95,744 | 1,969 | 10,635 | 3,001 |
| 3 | Beef | 0 | 0 | South | 2 | Medium2 | 130,120 | 2,080 | 11,592 | 3,213 |
| 3 | Beef | 0 | 0 | Central | 3 | Medium2 | 30,590 | 190 | 2,424 | 600 |
| 3 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 78,810 | 190 | 4,675 | 600 |
| 3 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 67,654 | 190 | 4,059 | 600 |
| 3 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 49,050 | 190 | 3,371 | 600 |
| 3 | Beef | 0 | 0 | South | 3 | Medium2 | 80,290 | 190 | 4,766 | 600 |
| 4 | Beef | 0 | 0 | Central | 1 | Large1 | 44,086 | 5,760 | 10,718 | 5,612 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 127,212 | 5,101 | 13,897 | 3,862 |
| 4 | Beef | 0 | 0 | Midwest | 1 | Large1 | 110,030 | 5,601 | 12,945 | 4,096 |
| 4 | Beef | 0 | 0 | Pacific | 1 | Large1 | 67,982 | 5,250 | 11,854 | 5,216 |
| 4 | Beef | 0 | 0 | South | 1 | Large1 | 128,203 | 5,424 | 14,205 | 4,521 |
| 4 | Beef | 0 | 0 | Central | 2 | Large1 | 44,086 | 3,985 | 23,865 | 6,797 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 127,212 | 2,298 | 24,946 | 3,621 |
| 4 | Beef | 0 | 0 | Midwest | 2 | Large1 | 110,030 | 1,811 | 34,370 | 2,713 |
| 4 | Beef | 0 | 0 | Pacific | 2 | Large1 | 67,982 | 2,812 | 32,305 | 4,583 |
| 4 | Beef | 0 | 0 | South | 2 | Large1 | 128,203 | 2,614 | 29,132 | 4,214 |
| 4 | Beef | 0 | 0 | Central | 3 | Large1 | 44,086 | 190 | 9,089 | 600 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 127,212 | 190 | 12,810 | 600 |
| 4 | Beef | 0 | 0 | Midwest | 3 | Large1 | 110,030 | 190 | 11,784 | 600 |
| 4 | Beef | 0 | 0 | Pacific | 3 | Large1 | 67,982 | 190 | 10,346 | 600 |
| 4 | Beef | 0 | 0 | South | 3 | Large1 | 128,203 | 190 | 12,911 | 600 |
| 4 | Beef | 0 | 0 | Central | 1 | Large2 | 461,017 | 34,915 | 39,332 | 59,719 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 1,250,192 | 28,569 | 67,535 | 47,522 |
| 4 | Beef | 0 | 0 | Midwest | 1 | Large2 | 1,116,558 | 34,059 | 61,159 | 57,556 |
| 4 | Beef | 0 | 0 | Pacific | 1 | Large2 | 659,332 | 37,208 | 51,717 | 64,367 |
| 4 | Beef | 0 | 0 | South | 1 | Large2 | 1,277,199 | 33,588 | 72,740 | 57,004 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Beef | 0 | 0 | Central | 2 | Large2 | 836,286 | 46,972 | 128,924 | 87,690 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 1,250,192 | 24,601 | 211,308 | 45,589 |
| 4 | Beef | 0 | 0 | Midwest | 2 | Large2 | 1,660,713 | 21,138 | 143,748 | 39,075 |
| 4 | Beef | 0 | 0 | Pacific | 2 | Large2 | 659,332 | 35,006 | 334,501 | 65,170 |
| 4 | Beef | 0 | 0 | South | 2 | Large2 | 1,277,199 | 29,544 | 252,364 | 54,892 |
| 4 | Beef | 0 | 0 | Central | 3 | Large2 | 461,017 | 190 | 20,972 | 600 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 1,250,192 | 190 | 52,945 | 600 |
| 4 | Beef | 0 | 0 | Midwest | 3 | Large2 | 1,116,558 | 190 | 43,468 | 600 |
| 4 | Beef | 0 | 0 | Pacific | 3 | Large2 | 659,332 | 190 | 31,923 | 600 |
| 4 | Beef | 0 | 0 | South | 3 | Large2 | 1,277,199 | 190 | 55,221 | 600 |
| 4 | Beef | 0 | 0 | Central | 1 | Medium1 | 53,713 | 3,344 | 10,895 | 1,485 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 76,686 | 3,394 | 11,580 | 1,160 |
| 4 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 70,914 | 3,847 | 11,532 | 1,185 |
| 4 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 63,147 | 2,623 | 11,868 | 1,448 |
| 4 | Beef | 0 | 0 | South | 1 | Medium1 | 79,563 | 2,917 | 12,534 | 1,458 |
| 4 | Beef | 0 | 0 | Central | 2 | Medium1 | 57,399 | 1,429 | 12,317 | 1,981 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 77,936 | 1,098 | 12,416 | 1,366 |
| 4 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 71,700 | 1,064 | 11,888 | 1,293 |
| 4 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 63,881 | 1,204 | 12,489 | 1,561 |
| 4 | Beef | 0 | 0 | South | 2 | Medium1 | 80,871 | 1,258 | 13,284 | 1,671 |
| 4 | Beef | 0 | 0 | Central | 3 | Medium1 | 20,591 | 190 | 8,296 | 600 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 46,431 | 190 | 9,501 | 600 |
| 4 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 40,599 | 190 | 9,181 | 600 |
| 4 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 31,152 | 190 | 8,836 | 600 |
| 4 | Beef | 0 | 0 | South | 3 | Medium1 | 47,304 | 190 | 9,556 | 600 |
| 4 | Beef | 0 | 0 | Central | 1 | Medium2 | 84,806 | 4,156 | 13,733 | 3,018 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 117,810 | 3,913 | 15,291 | 2,145 |
| 4 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 106,543 | 4,385 | 14,942 | 2,206 |
| 4 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 95,734 | 3,394 | 15,080 | 2,894 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Beef | 0 | 0 | South | 1 | Medium2 | 128,567 | 3,704 | 16,424 | 2,935 |
| 4 | Beef | 0 | 0 | Central | 2 | Medium2 | 96,378 | 2,518 | 16,389 | 4,040 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 120,825 | 1,683 | 17,107 | 2,470 |
| 4 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 107,924 | 1,585 | 16,022 | 2,283 |
| 4 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 96,136 | 1,969 | 16,887 | 3,001 |
| 4 | Beef | 0 | 0 | South | 2 | Medium2 | 130,512 | 2,080 | 17,844 | 3,213 |
| 4 | Beef | 0 | 0 | Central | 3 | Medium2 | 30,982 | 190 | 8,676 | 600 |
| 4 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 79,202 | 190 | 10,927 | 600 |
| 4 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 68,046 | 190 | 10,311 | 600 |
| 4 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 49,442 | 190 | 9,623 | 600 |
| 4 | Beef | 0 | 0 | South | 3 | Medium2 | 80,682 | 190 | 11,018 | 600 |
| 5 | Beef | 0 | 0 | Central | 1 | Large1 | 10,026 | 3,352 | 100,067 | 5,612 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 11,621 | 2,420 | 86,435 | 3,862 |
| 5 | Beef | 0 | 0 | Midwest | 1 | Large1 | 11,478 | 2,548 | 89,251 | 4,096 |
| 5 | Beef | 0 | 0 | Pacific | 1 | Large1 | 10,897 | 3,144 | 86,829 | 5,216 |
| 5 | Beef | 0 | 0 | South | 1 | Large1 | 12,927 | 2,778 | 86,609 | 4,521 |
| 5 | Beef | 0 | 0 | Central | 2 | Large1 | 10,026 | 3,985 | 113,155 | 6,797 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 11,621 | 2,298 | 97,417 | 3,621 |
| 5 | Beef | 0 | 0 | Midwest | 2 | Large1 | 11,478 | 1,811 | 110,595 | 2,713 |
| 5 | Beef | 0 | 0 | Pacific | 2 | Large1 | 10,897 | 2,812 | 107,079 | 4,583 |
| 5 | Beef | 0 | 0 | South | 2 | Large1 | 12,927 | 2,614 | 101,415 | 4,214 |
| 5 | Beef | 0 | 0 | Central | 3 | Large1 | 10,026 | 190 | 98,439 | 600 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 11,621 | 190 | 85,349 | 600 |
| 5 | Beef | 0 | 0 | Midwest | 3 | Large1 | 11,478 | 190 | 88,090 | 600 |
| 5 | Beef | 0 | 0 | Pacific | 3 | Large1 | 10,897 | 190 | 85,321 | 600 |
| 5 | Beef | 0 | 0 | South | 3 | Large1 | 12,927 | 190 | 85,314 | 600 |
| 5 | Beef | 0 | 0 | Central | 1 | Large2 | 21,395 | 32,110 | 1,639,971 | 59,719 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 48,006 | 25,630 | 1,418,158 | 47,522 |
| 5 | Beef | 0 | 0 | Midwest | 1 | Large2 | 45,587 | 30,960 | 1,466,719 | 57,556 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Beef | 0 | 0 | Pacific | 1 | Large2 | 35,911 | 34,574 | 1,422,903 | 64,367 |
| 5 | Beef | 0 | 0 | South | 1 | Large2 | 69,779 | 30,666 | 1,420,514 | 57,004 |
| 5 | Beef | 0 | 0 | Central | 2 | Large2 | 382,306 | 46,972 | 1,728,577 | 87,690 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 48,006 | 24,601 | 1,560,703 | 45,589 |
| 5 | Beef | 0 | 0 | Midwest | 2 | Large2 | 647,503 | 21,138 | 1,556,128 | 39,075 |
| 5 | Beef | 0 | 0 | Pacific | 2 | Large2 | 35,911 | 35,006 | 1,702,393 | 65,170 |
| 5 | Beef | 0 | 0 | South | 2 | Large2 | 69,779 | 29,544 | 1,598,328 | 54,892 |
| 5 | Beef | 0 | 0 | Central | 3 | Large2 | 21,395 | 190 | 1,621,611 | 600 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 48,006 | 190 | 1,403,567 | 600 |
| 5 | Beef | 0 | 0 | Midwest | 3 | Large2 | 45,587 | 190 | 1,449,029 | 600 |
| 5 | Beef | 0 | 0 | Pacific | 3 | Large2 | 35,911 | 190 | 1,403,110 | 600 |
| 5 | Beef | 0 | 0 | South | 3 | Large2 | 69,779 | 190 | 1,402,994 | 600 |
| 5 | Beef | 0 | 0 | Central | 1 | Medium1 | 50,645 | 1,162 | 18,957 | 1,485 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 50,767 | 991 | 16,579 | 1,160 |
| 5 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 48,951 | 1,005 | 17,186 | 1,185 |
| 5 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 53,011 | 1,139 | 17,559 | 1,448 |
| 5 | Beef | 0 | 0 | South | 1 | Medium1 | 53,517 | 1,148 | 17,501 | 1,458 |
| 5 | Beef | 0 | 0 | Central | 2 | Medium1 | 54,331 | 1,429 | 20,368 | 1,981 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 52,018 | 1,098 | 17,404 | 1,366 |
| 5 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 49,737 | 1,064 | 17,535 | 1,293 |
| 5 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 53,744 | 1,204 | 18,165 | 1,561 |
| 5 | Beef | 0 | 0 | South | 2 | Medium1 | 54,824 | 1,258 | 18,243 | 1,671 |
| 5 | Beef | 0 | 0 | Central | 3 | Medium1 | 17,522 | 190 | 16,358 | 600 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 20,512 | 190 | 14,500 | 600 |
| 5 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 18,636 | 190 | 14,835 | 600 |
| 5 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 21,016 | 190 | 14,527 | 600 |
| 5 | Beef | 0 | 0 | South | 3 | Medium1 | 21,257 | 190 | 14,522 | 600 |
| 5 | Beef | 0 | 0 | Central | 1 | Medium2 | 70,481 | 1,974 | 46,776 | 3,018 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 61,030 | 1,510 | 40,912 | 2,145 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 57,355 | 1,543 | 42,149 | 2,206 |
| 5 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 69,492 | 1,910 | 42,047 | 2,894 |
| 5 | Beef | 0 | 0 | South | 1 | Medium2 | 71,918 | 1,935 | 41,994 | 2,935 |
| 5 | Beef | 0 | 0 | Central | 2 | Medium2 | 82,054 | 2,518 | 49,374 | 4,040 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 64,046 | 1,683 | 42,667 | 2,470 |
| 5 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 58,737 | 1,585 | 43,191 | 2,283 |
| 5 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 69,894 | 1,969 | 43,783 | 3,001 |
| 5 | Beef | 0 | 0 | South | 2 | Medium2 | 73,863 | 2,080 | 43,369 | 3,213 |
| 5 | Beef | 0 | 0 | Central | 3 | Medium2 | 16,658 | 190 | 41,719 | 600 |
| 5 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 22,423 | 190 | 36,548 | 600 |
| 5 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 18,859 | 190 | 37,518 | 600 |
| 5 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 23,200 | 190 | 36,591 | 600 |
| 5 | Beef | 0 | 0 | South | 3 | Medium2 | 24,033 | 190 | 36,588 | 600 |
| 6 | Beef | 0 | 0 | Central | 1 | Large1 | 869 | 3,352 | 2,882 | 5,612 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 2,464 | 2,420 | 2,420 | 3,862 |
| 6 | Beef | 0 | 0 | Midwest | 1 | Large1 | 2,321 | 2,548 | 2,487 | 4,096 |
| 6 | Beef | 0 | 0 | Pacific | 1 | Large1 | 1,741 | 3,144 | 2,805 | 5,216 |
| 6 | Beef | 0 | 0 | South | 1 | Large1 | 3,771 | 2,778 | 2,693 | 4,521 |
| 6 | Beef | 0 | 0 | Central | 2 | Large1 | 869 | 3,985 | 16,029 | 6,797 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 2,464 | 2,298 | 13,469 | 3,621 |
| 6 | Beef | 0 | 0 | Midwest | 2 | Large1 | 2,321 | 1,811 | 23,912 | 2,713 |
| 6 | Beef | 0 | 0 | Pacific | 2 | Large1 | 1,741 | 2,812 | 23,255 | 4,583 |
| 6 | Beef | 0 | 0 | South | 2 | Large1 | 3,771 | 2,614 | 17,620 | 4,214 |
| 6 | Beef | 0 | 0 | Central | 3 | Large1 | 869 | 190 | 1,253 | 600 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 2,464 | 190 | 1,333 | 600 |
| 6 | Beef | 0 | 0 | Midwest | 3 | Large1 | 2,321 | 190 | 1,326 | 600 |
| 6 | Beef | 0 | 0 | Pacific | 3 | Large1 | 1,741 | 190 | 1,297 | 600 |
| 6 | Beef | 0 | 0 | South | 3 | Large1 | 3,771 | 190 | 1,399 | 600 |
| 6 | Beef | 0 | 0 | Central | 1 | Large2 | 12,238 | 32,110 | 20,182 | 59,719 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 38,849 | 25,630 | 17,743 | 47,522 |
| 6 | Beef | 0 | 0 | Midwest | 1 | Large2 | 36,430 | 30,960 | 20,722 | 57,556 |
| 6 | Beef | 0 | 0 | Pacific | 1 | Large2 | 26,754 | 34,574 | 22,341 | 64,367 |
| 6 | Beef | 0 | 0 | South | 1 | Large2 | 60,622 | 30,666 | 21,761 | 57,004 |
| 6 | Beef | 0 | 0 | Central | 2 | Large2 | 387,507 | 46,972 | 109,774 | 87,690 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 38,849 | 24,601 | 161,515 | 45,589 |
| 6 | Beef | 0 | 0 | Midwest | 2 | Large2 | 580,585 | 21,138 | 103,312 | 39,075 |
| 6 | Beef | 0 | 0 | Pacific | 2 | Large2 | 26,754 | 35,006 | 305,125 | 65,170 |
| 6 | Beef | 0 | 0 | South | 2 | Large2 | 60,622 | 29,544 | 201,385 | 54,892 |
| 6 | Beef | 0 | 0 | Central | 3 | Large2 | 12,238 | 190 | 1,822 | 600 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 38,849 | 190 | 3,152 | 600 |
| 6 | Beef | 0 | 0 | Midwest | 3 | Large2 | 36,430 | 190 | 3,032 | 600 |
| 6 | Beef | 0 | 0 | Pacific | 3 | Large2 | 26,754 | 190 | 2,548 | 600 |
| 6 | Beef | 0 | 0 | South | 3 | Large2 | 60,622 | 190 | 4,241 | 600 |
| 6 | Beef | 0 | 0 | Central | 1 | Medium1 | 41,488 | 1,162 | 4,162 | 1,485 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 41,610 | 991 | 3,791 | 1,160 |
| 6 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 39,795 | 1,005 | 3,973 | 1,185 |
| 6 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 43,854 | 1,139 | 4,770 | 1,448 |
| 6 | Beef | 0 | 0 | South | 1 | Medium1 | 44,360 | 1,148 | 4,728 | 1,458 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 11,355 | 190 | 1,712 | 600 |
| 6 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 9,479 | 190 | 1,622 | 600 |
| 6 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 11,859 | 190 | 1,738 | 600 |
| 6 | Beef | 0 | 0 | South | 3 | Medium1 | 12,101 | 190 | 1,750 | 600 |
| 6 | Beef | 0 | 0 | Central | 2 | Medium1 | 45,174 | 1,429 | 5,584 | 1,981 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 42,861 | 1,098 | 4,628 | 1,366 |
| 6 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 40,581 | 1,064 | 4,329 | 1,293 |
| 6 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 44,588 | 1,204 | 5,390 | 1,561 |
| 6 | Beef | 0 | 0 | South | 2 | Medium1 | 45,668 | 1,258 | 5,479 | 1,671 |
| 6 | Beef | 0 | 0 | Central | 3 | Medium1 | 8,366 | 190 | 1,563 | 600 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Beef | 0 | 0 | Central | 1 | Medium2 | 61,325 | 1,974 | 6,535 | 3,018 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 51,874 | 1,510 | 6,130 | 2,145 |
| 6 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 48,199 | 1,543 | 6,225 | 2,206 |
| 6 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 60,336 | 1,910 | 7,261 | 2,894 |
| 6 | Beef | 0 | 0 | South | 1 | Medium2 | 62,761 | 1,935 | 7,253 | 2,935 |
| 6 | Beef | 0 | 0 | Central | 2 | Medium2 | 72,897 | 2,518 | 9,190 | 4,040 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 54,889 | 1,683 | 7,945 | 2,470 |
| 6 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 49,580 | 1,585 | 7,304 | 2,283 |
| 6 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 60,737 | 1,969 | 9,068 | 3,001 |
| 6 | Beef | 0 | 0 | South | 2 | Medium2 | 64,706 | 2,080 | 8,673 | 3,213 |
| 6 | Beef | 0 | 0 | Central | 3 | Medium2 | 7,501 | 190 | 1,477 | 600 |
| 6 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 13,266 | 190 | 1,766 | 600 |
| 6 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 9,702 | 190 | 1,593 | 600 |
| 6 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 14,043 | 190 | 1,804 | 600 |
| 6 | Beef | 0 | 0 | South | 3 | Medium2 | 14,877 | 190 | 1,846 | 600 |
| 7 | Beef | 0 | 0 | Central | 1 | Large1 | 20,155 | 3,352 | 3,846 | 5,612 |
| 7 | Beef | 0 | 0 | Central | 2 | Large1 | 20,155 | 3,985 | 16,993 | 6,797 |
| 7 | Beef | 0 | 0 | Central | 3 | Large1 | 20,155 | 190 | 2,217 | 600 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large1 | 47,073 | 2,420 | 4,650 | 3,862 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large1 | 47,073 | 2,298 | 15,699 | 3,621 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large1 | 47,073 | 190 | 3,563 | 600 |
| 7 | Beef | 0 | 0 | Midwest | 1 | Large1 | 14,357 | 2,548 | 3,089 | 4,096 |
| 7 | Beef | 0 | 0 | Midwest | 2 | Large1 | 14,357 | 1,811 | 24,514 | 2,713 |
| 7 | Beef | 0 | 0 | Midwest | 3 | Large1 | 14,357 | 190 | 1,928 | 600 |
| 7 | Beef | 0 | 0 | Pacific | 1 | Large1 | 45,036 | 3,144 | 4,970 | 5,216 |
| 7 | Beef | 0 | 0 | Pacific | 2 | Large1 | 45,036 | 2,812 | 25,420 | 4,583 |
| 7 | Beef | 0 | 0 | Pacific | 3 | Large1 | 45,036 | 190 | 3,462 | 600 |
| 7 | Beef | 0 | 0 | South | 1 | Large1 | 3,771 | 2,778 | 2,693 | 4,521 |
| 7 | Beef | 0 | 0 | South | 2 | Large1 | 3,771 | 2,614 | 17,620 | 4,214 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Beef | 0 | 0 | South | 3 | Large1 | 3,771 | 190 | 1,399 | 600 |
| 7 | Beef | 0 | 0 | Central | 1 | Large2 | 128,183 | 32,110 | 25,979 | 59,719 |
| 7 | Beef | 0 | 0 | Central | 2 | Large2 | 503,452 | 46,972 | 115,571 | 87,690 |
| 7 | Beef | 0 | 0 | Central | 3 | Large2 | 128,183 | 190 | 7,619 | 600 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 1 | Large2 | 297,158 | 25,630 | 30,658 | 47,522 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 2 | Large2 | 297,158 | 24,601 | 174,430 | 45,589 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 3 | Large2 | 297,158 | 190 | 16,067 | 600 |
| 7 | Beef | 0 | 0 | Midwest | 1 | Large2 | 105,992 | 30,960 | 24,200 | 57,556 |
| 7 | Beef | 0 | 0 | Midwest | 2 | Large2 | 650,147 | 21,138 | 106,790 | 39,075 |
| 7 | Beef | 0 | 0 | Midwest | 3 | Large2 | 105,992 | 190 | 6,510 | 600 |
| 7 | Beef | 0 | 0 | Pacific | 1 | Large2 | 287,781 | 34,574 | 35,392 | 64,367 |
| 7 | Beef | 0 | 0 | Pacific | 2 | Large2 | 287,781 | 35,006 | 318,176 | 65,170 |
| 7 | Beef | 0 | 0 | Pacific | 3 | Large2 | 287,781 | 190 | 15,599 | 600 |
| 7 | Beef | 0 | 0 | South | 1 | Large2 | 60,622 | 30,666 | 21,761 | 57,004 |
| 7 | Beef | 0 | 0 | South | 2 | Large2 | 60,622 | 29,544 | 201,385 | 54,892 |
| 7 | Beef | 0 | 0 | South | 3 | Large2 | 60,622 | 190 | 4,241 | 600 |
| 7 | Beef | 0 | 0 | Central | 1 | Medium1 | 41,488 | 1,162 | 4,162 | 1,485 |
| 7 | Beef | 0 | 0 | Central | 2 | Medium1 | 45,174 | 1,429 | 5,584 | 1,981 |
| 7 | Beef | 0 | 0 | Central | 3 | Medium1 | 8,366 | 190 | 1,563 | 600 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 41,610 | 991 | 3,791 | 1,160 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 42,861 | 1,098 | 4,628 | 1,366 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 11,355 | 190 | 1,712 | 600 |
| 7 | Beef | 0 | 0 | Midwest | 1 | Medium1 | 39,795 | 1,005 | 3,973 | 1,185 |
| 7 | Beef | 0 | 0 | Midwest | 2 | Medium1 | 40,581 | 1,064 | 4,329 | 1,293 |
| 7 | Beef | 0 | 0 | Midwest | 3 | Medium1 | 9,479 | 190 | 1,622 | 600 |
| 7 | Beef | 0 | 0 | Pacific | 1 | Medium1 | 43,854 | 1,139 | 4,770 | 1,448 |
| 7 | Beef | 0 | 0 | Pacific | 2 | Medium1 | 44,588 | 1,204 | 5,390 | 1,561 |
| 7 | Beef | 0 | 0 | Pacific | 3 | Medium1 | 11,859 | 190 | 1,738 | 600 |
| 7 | Beef | 0 | 0 | South | 1 | Medium1 | 44,360 | 1,148 | 4,728 | 1,458 |

**Table 11-16. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Beef | 0 | 0 | South | 2 | Medium1 | 45,668 | 1,258 | 5,479 | 1,671 |
| 7 | Beef | 0 | 0 | South | 3 | Medium1 | 12,101 | 190 | 1,750 | 600 |
| 7 | Beef | 0 | 0 | Central | 1 | Medium2 | 78,618 | 1,974 | 7,400 | 3,018 |
| 7 | Beef | 0 | 0 | Central | 2 | Medium2 | 90,190 | 2,518 | 10,055 | 4,040 |
| 7 | Beef | 0 | 0 | Central | 3 | Medium2 | 24,794 | 190 | 2,342 | 600 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 66,676 | 1,510 | 6,870 | 2,145 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 69,691 | 1,683 | 8,685 | 2,470 |
| 7 | Beef | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 28,068 | 190 | 2,506 | 600 |
| 7 | Beef | 0 | 0 | Midwest | 1 | Medium2 | 55,271 | 1,543 | 6,578 | 2,206 |
| 7 | Beef | 0 | 0 | Midwest | 2 | Medium2 | 56,652 | 1,585 | 7,658 | 2,283 |
| 7 | Beef | 0 | 0 | Midwest | 3 | Medium2 | 16,774 | 190 | 1,947 | 600 |
| 7 | Beef | 0 | 0 | Pacific | 1 | Medium2 | 74,817 | 1,910 | 7,985 | 2,894 |
| 7 | Beef | 0 | 0 | Pacific | 2 | Medium2 | 75,218 | 1,969 | 9,792 | 3,001 |
| 7 | Beef | 0 | 0 | Pacific | 3 | Medium2 | 28,524 | 190 | 2,528 | 600 |
| 7 | Beef | 0 | 0 | South | 1 | Medium2 | 62,761 | 1,935 | 7,253 | 2,935 |
| 7 | Beef | 0 | 0 | South | 2 | Medium2 | 64,706 | 2,080 | 8,673 | 3,213 |
| 7 | Beef | 0 | 0 | South | 3 | Medium2 | 14,877 | 190 | 1,846 | 600 |

## Table 11-17. Regulatory Compliance Costs for the Veal Industry

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Veal | 0 | 0 | Central | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Central | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Central | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | South | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | South | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | South | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Central | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Central | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Central | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | South | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Veal | 0 | 0 | South | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | South | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Central | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 1 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 1 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | South | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Central | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 1 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 1 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | South | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 1 | Veal | 0 | 0 | Central | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | South | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Central | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | South | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 1 | Veal | 0 | 0 | Central | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | South | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Central | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 0 | 190 | 1,210 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 1 | Veal | 0 | 0 | South | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Central | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 2 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 2 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 2 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 2 | Veal | 0 | 0 | South | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 2 | Veal | 0 | 0 | Central | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | South | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Central | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | South | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Central | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 2 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 2 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 2 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 2 | Veal | 0 | 0 | South | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 2 | Veal | 0 | 0 | Central | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | South | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 2 | Veal | 0 | 0 | Central | 3 | Medium2 | 0 | 190 | 1,210 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 2 | Veal | 0 | 0 | South | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 3 | Veal | 0 | 0 | Central | 1 | Medium1 | 250 | 2,795 | 1,519 | 1,318 |
| 3 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 455 | 2,733 | 1,523 | 1,317 |
| 3 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 524 | 2,889 | 1,524 | 1,317 |
| 3 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 228 | 2,326 | 1,519 | 1,318 |
| 3 | Veal | 0 | 0 | South | 1 | Medium1 | 432 | 3,421 | 1,523 | 1,318 |
| 3 | Veal | 0 | 0 | Central | 2 | Medium1 | 250 | 690 | 1,295 | 600 |
| 3 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 455 | 690 | 1,299 | 600 |
| 3 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 524 | 690 | 1,300 | 600 |
| 3 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 228 | 690 | 1,295 | 600 |
| 3 | Veal | 0 | 0 | South | 2 | Medium1 | 432 | 690 | 1,299 | 600 |
| 3 | Veal | 0 | 0 | Central | 3 | Medium1 | 250 | 190 | 1,215 | 600 |
| 3 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 455 | 190 | 1,219 | 600 |
| 3 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 524 | 190 | 1,220 | 600 |
| 3 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 228 | 190 | 1,215 | 600 |
| 3 | Veal | 0 | 0 | South | 3 | Medium1 | 432 | 190 | 1,219 | 600 |
| 3 | Veal | 0 | 0 | Central | 1 | Medium2 | 1,085 | 2,795 | 1,624 | 1,318 |
| 3 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 1,996 | 2,733 | 1,717 | 1,317 |
| 3 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 2,259 | 2,889 | 1,743 | 1,317 |
| 3 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 998 | 2,326 | 1,616 | 1,318 |
| 3 | Veal | 0 | 0 | South | 1 | Medium2 | 1,847 | 3,421 | 1,701 | 1,318 |
| 3 | Veal | 0 | 0 | Central | 2 | Medium2 | 1,085 | 690 | 1,400 | 600 |
| 3 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 1,996 | 690 | 1,493 | 600 |
| 3 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 2,259 | 690 | 1,519 | 600 |
| 3 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 998 | 690 | 1,392 | 600 |
| 3 | Veal | 0 | 0 | South | 2 | Medium2 | 1,847 | 690 | 1,477 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Veal | 0 | 0 | Central | 3 | Medium2 | 1,085 | 190 | 1,320 | 600 |
| 3 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 1,996 | 190 | 1,413 | 600 |
| 3 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 2,259 | 190 | 1,439 | 600 |
| 3 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 998 | 190 | 1,312 | 600 |
| 3 | Veal | 0 | 0 | South | 3 | Medium2 | 1,847 | 190 | 1,397 | 600 |
| 4 | Veal | 0 | 0 | Central | 1 | Medium1 | 642 | 2,795 | 7,771 | 1,318 |
| 4 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 847 | 2,733 | 7,775 | 1,317 |
| 4 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 916 | 2,889 | 7,776 | 1,317 |
| 4 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 620 | 2,326 | 7,771 | 1,318 |
| 4 | Veal | 0 | 0 | South | 1 | Medium1 | 824 | 3,421 | 7,775 | 1,318 |
| 4 | Veal | 0 | 0 | Central | 2 | Medium1 | 642 | 690 | 7,547 | 600 |
| 4 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 847 | 690 | 7,551 | 600 |
| 4 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 916 | 690 | 7,552 | 600 |
| 4 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 620 | 690 | 7,547 | 600 |
| 4 | Veal | 0 | 0 | South | 2 | Medium1 | 824 | 690 | 7,551 | 600 |
| 4 | Veal | 0 | 0 | Central | 3 | Medium1 | 642 | 190 | 7,467 | 600 |
| 4 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 847 | 190 | 7,471 | 600 |
| 4 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 916 | 190 | 7,472 | 600 |
| 4 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 620 | 190 | 7,467 | 600 |
| 4 | Veal | 0 | 0 | South | 3 | Medium1 | 824 | 190 | 7,471 | 600 |
| 4 | Veal | 0 | 0 | Central | 1 | Medium2 | 1,477 | 2,795 | 7,876 | 1,318 |
| 4 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 2,388 | 2,733 | 7,969 | 1,317 |
| 4 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 2,651 | 2,889 | 7,995 | 1,317 |
| 4 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 1,390 | 2,326 | 7,868 | 1,318 |
| 4 | Veal | 0 | 0 | South | 1 | Medium2 | 2,239 | 3,421 | 7,953 | 1,318 |
| 4 | Veal | 0 | 0 | Central | 2 | Medium2 | 1,477 | 690 | 7,652 | 600 |
| 4 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 2,388 | 690 | 7,745 | 600 |
| 4 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 2,651 | 690 | 7,771 | 600 |
| 4 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 1,390 | 690 | 7,644 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Veal | 0 | 0 | South | 2 | Medium2 | 2,239 | 690 | 7,729 | 600 |
| 4 | Veal | 0 | 0 | Central | 3 | Medium2 | 1,477 | 190 | 7,572 | 600 |
| 4 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 2,388 | 190 | 7,665 | 600 |
| 4 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 2,651 | 190 | 7,691 | 600 |
| 4 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 1,390 | 190 | 7,564 | 600 |
| 4 | Veal | 0 | 0 | South | 3 | Medium2 | 2,239 | 190 | 7,649 | 600 |
| 5 | Veal | 0 | 0 | Central | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 5 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 5 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 5 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 5 | Veal | 0 | 0 | South | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 5 | Veal | 0 | 0 | Central | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | South | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Central | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | South | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Central | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 5 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 5 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 5 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 5 | Veal | 0 | 0 | South | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 5 | Veal | 0 | 0 | Central | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 0 | 690 | 1,290 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | South | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 5 | Veal | 0 | 0 | Central | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 5 | Veal | 0 | 0 | South | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Central | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 6 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 6 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 6 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 6 | Veal | 0 | 0 | South | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 6 | Veal | 0 | 0 | Central | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | South | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Central | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | South | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Central | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 6 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 6 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 6 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 6 | Veal | 0 | 0 | South | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 6 | Veal | 0 | 0 | Central | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 0 | 690 | 1,290 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | South | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 6 | Veal | 0 | 0 | Central | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 6 | Veal | 0 | 0 | South | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Central | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 7 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 7 | Veal | 0 | 0 | Midwest | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,317 |
| 7 | Veal | 0 | 0 | Pacific | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 7 | Veal | 0 | 0 | South | 1 | Medium1 | 0 | 1,075 | 1,514 | 1,318 |
| 7 | Veal | 0 | 0 | Central | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Midwest | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Pacific | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | South | 2 | Medium1 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Central | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Midwest | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Pacific | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | South | 3 | Medium1 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Central | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 7 | Veal | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 7 | Veal | 0 | 0 | Midwest | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,317 |
| 7 | Veal | 0 | 0 | Pacific | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 7 | Veal | 0 | 0 | South | 1 | Medium2 | 0 | 1,075 | 1,514 | 1,318 |
| 7 | Veal | 0 | 0 | Central | 2 | Medium2 | 0 | 690 | 1,290 | 600 |

**Table 11-17. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Veal | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Midwest | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Pacific | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | South | 2 | Medium2 | 0 | 690 | 1,290 | 600 |
| 7 | Veal | 0 | 0 | Central | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Midwest | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | Pacific | 3 | Medium2 | 0 | 190 | 1,210 | 600 |
| 7 | Veal | 0 | 0 | South | 3 | Medium2 | 0 | 190 | 1,210 | 600 |

## Table 11-18. Regulatory Compliance Costs for the Heifer Industry

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Heifers | 0 | 0 | Central | 1 | Large1 | 532 | 1,025 | 1,511 | 1,230 |
| 1 | Heifers | 0 | 0 | Central | 2 | Large1 | 532 | 1,006 | 2,012 | 1,184 |
| 1 | Heifers | 0 | 0 | Central | 3 | Large1 | 532 | 190 | 1,237 | 600 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 1,386 | 1,094 | 1,594 | 1,363 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 1,386 | 1,063 | 1,833 | 1,302 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 1,386 | 190 | 1,279 | 600 |
| 1 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 1,308 | 1,133 | 1,613 | 1,435 |
| 1 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 1,308 | 1,102 | 1,898 | 1,374 |
| 1 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 1,308 | 190 | 1,275 | 600 |
| 1 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 999 | 1,133 | 1,598 | 1,435 |
| 1 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 999 | 1,102 | 2,161 | 1,374 |
| 1 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 999 | 190 | 1,260 | 600 |
| 1 | Heifers | 0 | 0 | South | 1 | Large1 | 2,084 | 1,040 | 1,598 | 1,251 |
| 1 | Heifers | 0 | 0 | South | 2 | Large1 | 2,084 | 1,010 | 1,859 | 1,190 |
| 1 | Heifers | 0 | 0 | South | 3 | Large1 | 2,084 | 190 | 1,314 | 600 |
| 1 | Heifers | 0 | 0 | Central | 1 | Medium1 | 35,474 | 779 | 1,877 | 759 |
| 1 | Heifers | 0 | 0 | Central | 2 | Medium1 | 35,474 | 759 | 3,714 | 733 |
| 1 | Heifers | 0 | 0 | Central | 3 | Medium1 | 7,236 | 190 | 1,538 | 600 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 38,395 | 798 | 2,035 | 805 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 38,395 | 767 | 2,941 | 744 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 10,157 | 190 | 1,684 | 600 |
| 1 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 36,618 | 809 | 2,017 | 820 |
| 1 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 36,584 | 779 | 4,716 | 759 |
| 1 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 8,346 | 190 | 1,596 | 600 |
| 1 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 38,887 | 809 | 2,129 | 820 |
| 1 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 38,853 | 779 | 4,146 | 759 |
| 1 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 10,615 | 190 | 1,707 | 600 |
| 1 | Heifers | 0 | 0 | South | 1 | Medium1 | 39,071 | 782 | 2,059 | 764 |
| 1 | Heifers | 0 | 0 | South | 2 | Medium1 | 39,071 | 752 | 3,049 | 723 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Heifers | 0 | 0 | South | 3 | Medium1 | 10,833 | 190 | 1,718 | 600 |
| 1 | Heifers | 0 | 0 | Central | 1 | Medium2 | 37,198 | 859 | 2,730 | 908 |
| 1 | Heifers | 0 | 0 | Central | 2 | Medium2 | 36,983 | 836 | 2,938 | 877 |
| 1 | Heifers | 0 | 0 | Central | 3 | Medium2 | 8,468 | 190 | 1,586 | 600 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 41,877 | 890 | 3,297 | 969 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 41,618 | 863 | 3,252 | 933 |
| 1 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 12,851 | 190 | 1,806 | 600 |
| 1 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 39,428 | 913 | 3,395 | 1,020 |
| 1 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 39,125 | 883 | 5,300 | 959 |
| 1 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 10,174 | 190 | 1,674 | 600 |
| 1 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 42,674 | 909 | 3,520 | 1,015 |
| 1 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 42,409 | 883 | 3,827 | 959 |
| 1 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 13,458 | 190 | 1,836 | 600 |
| 1 | Heifers | 0 | 0 | South | 1 | Medium2 | 42,754 | 863 | 3,053 | 933 |
| 1 | Heifers | 0 | 0 | South | 2 | Medium2 | 42,468 | 832 | 2,927 | 871 |
| 1 | Heifers | 0 | 0 | South | 3 | Medium2 | 13,988 | 190 | 1,863 | 600 |
| 2 | Heifers | 0 | 0 | Central | 1 | Large1 | 532 | 1,372 | 1,713 | 1,881 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 1,386 | 1,202 | 1,657 | 1,565 |
| 2 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 1,308 | 1,152 | 1,624 | 1,472 |
| 2 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 999 | 1,325 | 1,710 | 1,798 |
| 2 | Heifers | 0 | 0 | South | 1 | Large1 | 2,084 | 1,139 | 1,656 | 1,439 |
| 2 | Heifers | 0 | 0 | Central | 2 | Large1 | 532 | 2,038 | 2,295 | 3,139 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 1,386 | 1,485 | 2,052 | 2,092 |
| 2 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 1,308 | 1,247 | 1,929 | 1,646 |
| 2 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 999 | 1,548 | 2,565 | 2,205 |
| 2 | Heifers | 0 | 0 | South | 2 | Large1 | 2,084 | 1,378 | 2,222 | 1,890 |
| 2 | Heifers | 0 | 0 | Central | 3 | Large1 | 532 | 190 | 1,237 | 600 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 1,386 | 190 | 1,279 | 600 |
| 2 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 1,308 | 190 | 1,275 | 600 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 999 | 190 | 1,260 | 600 |
| 2 | Heifers | 0 | 0 | South | 3 | Large1 | 2,084 | 190 | 1,314 | 600 |
| 2 | Heifers | 0 | 0 | Central | 1 | Medium1 | 36,722 | 901 | 2,816 | 990 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 38,836 | 844 | 2,511 | 890 |
| 2 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 36,821 | 829 | 2,218 | 858 |
| 2 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 39,674 | 890 | 3,037 | 971 |
| 2 | Heifers | 0 | 0 | South | 1 | Medium1 | 39,701 | 858 | 2,818 | 909 |
| 2 | Heifers | 0 | 0 | Central | 2 | Medium1 | 37,038 | 945 | 4,782 | 1,076 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 38,877 | 841 | 5,176 | 878 |
| 2 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 36,946 | 825 | 3,368 | 847 |
| 2 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 39,481 | 869 | 4,530 | 931 |
| 2 | Heifers | 0 | 0 | South | 2 | Medium1 | 39,399 | 830 | 3,590 | 859 |
| 2 | Heifers | 0 | 0 | Central | 3 | Medium1 | 7,236 | 190 | 1,538 | 600 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 10,157 | 190 | 1,684 | 600 |
| 2 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 8,346 | 190 | 1,596 | 600 |
| 2 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 10,615 | 190 | 1,707 | 600 |
| 2 | Heifers | 0 | 0 | South | 3 | Medium1 | 10,833 | 190 | 1,718 | 600 |
| 2 | Heifers | 0 | 0 | Central | 1 | Medium2 | 40,313 | 1,088 | 3,877 | 1,341 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 42,915 | 978 | 3,833 | 1,133 |
| 2 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 39,888 | 951 | 3,605 | 1,090 |
| 2 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 44,488 | 1,065 | 4,499 | 1,308 |
| 2 | Heifers | 0 | 0 | South | 1 | Medium2 | 44,339 | 1,004 | 4,039 | 1,191 |
| 2 | Heifers | 0 | 0 | Central | 2 | Medium2 | 42,350 | 1,259 | 7,144 | 1,672 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 43,575 | 1,039 | 4,862 | 1,262 |
| 2 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 40,362 | 990 | 4,101 | 1,160 |
| 2 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 44,653 | 1,086 | 5,442 | 1,349 |
| 2 | Heifers | 0 | 0 | South | 2 | Medium2 | 44,527 | 1,028 | 4,789 | 1,228 |
| 2 | Heifers | 0 | 0 | Central | 3 | Medium2 | 8,468 | 190 | 1,586 | 600 |
| 2 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 12,851 | 190 | 1,806 | 600 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 10,174 | 190 | 1,674 | 600 |
| 2 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 13,458 | 190 | 1,836 | 600 |
| 2 | Heifers | 0 | 0 | South | 3 | Medium2 | 13,988 | 190 | 1,863 | 600 |
| 3 | Heifers | 0 | 0 | Central | 1 | Large1 | 17,194 | 3,781 | 2,609 | 1,881 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 63,166 | 3,883 | 4,861 | 1,565 |
| 3 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 48,366 | 4,206 | 4,107 | 1,472 |
| 3 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 34,401 | 3,431 | 3,437 | 1,798 |
| 3 | Heifers | 0 | 0 | South | 1 | Large1 | 64,315 | 3,786 | 4,872 | 1,439 |
| 3 | Heifers | 0 | 0 | Central | 2 | Large1 | 17,194 | 2,038 | 3,191 | 3,139 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 63,166 | 1,485 | 5,256 | 2,092 |
| 3 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 48,366 | 1,247 | 4,412 | 1,646 |
| 3 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 34,401 | 1,548 | 4,293 | 2,205 |
| 3 | Heifers | 0 | 0 | South | 2 | Large1 | 64,315 | 1,378 | 5,438 | 1,890 |
| 3 | Heifers | 0 | 0 | Central | 3 | Large1 | 17,194 | 190 | 2,132 | 600 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 63,166 | 190 | 4,483 | 600 |
| 3 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 48,366 | 190 | 3,758 | 600 |
| 3 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 34,401 | 190 | 2,987 | 600 |
| 3 | Heifers | 0 | 0 | South | 3 | Large1 | 64,315 | 190 | 4,531 | 600 |
| 3 | Heifers | 0 | 0 | Central | 1 | Medium1 | 44,768 | 3,083 | 3,216 | 990 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 66,364 | 3,248 | 3,883 | 890 |
| 3 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 59,466 | 3,671 | 3,346 | 858 |
| 3 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 54,895 | 2,375 | 3,796 | 971 |
| 3 | Heifers | 0 | 0 | South | 1 | Medium1 | 67,532 | 2,627 | 4,206 | 909 |
| 3 | Heifers | 0 | 0 | Central | 2 | Medium1 | 45,084 | 945 | 6,546 | 1,076 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 66,404 | 841 | 5,422 | 878 |
| 3 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 59,591 | 825 | 5,767 | 847 |
| 3 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 54,702 | 869 | 6,498 | 931 |
| 3 | Heifers | 0 | 0 | South | 2 | Medium1 | 67,230 | 830 | 4,978 | 859 |
| 3 | Heifers | 0 | 0 | Central | 3 | Medium1 | 15,282 | 190 | 1,939 | 600 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 37,684 | 190 | 3,057 | 600 |
| 3 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 30,991 | 190 | 2,724 | 600 |
| 3 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 25,836 | 190 | 2,466 | 600 |
| 3 | Heifers | 0 | 0 | South | 3 | Medium1 | 38,664 | 190 | 3,106 | 600 |
| 3 | Heifers | 0 | 0 | Central | 1 | Medium2 | 51,275 | 3,270 | 4,488 | 1,341 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 81,183 | 3,381 | 5,862 | 1,133 |
| 3 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 70,809 | 3,793 | 5,281 | 1,090 |
| 3 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 65,502 | 2,550 | 5,607 | 1,308 |
| 3 | Heifers | 0 | 0 | South | 1 | Medium2 | 83,247 | 2,773 | 6,090 | 1,191 |
| 3 | Heifers | 0 | 0 | Central | 2 | Medium2 | 53,312 | 1,259 | 6,051 | 1,672 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 81,842 | 1,039 | 8,370 | 1,262 |
| 3 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 71,283 | 990 | 7,263 | 1,160 |
| 3 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 65,666 | 1,086 | 6,550 | 1,349 |
| 3 | Heifers | 0 | 0 | South | 2 | Medium2 | 83,435 | 1,028 | 6,840 | 1,228 |
| 3 | Heifers | 0 | 0 | Central | 3 | Medium2 | 19,431 | 190 | 2,197 | 600 |
| 3 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 51,119 | 190 | 3,834 | 600 |
| 3 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 41,096 | 190 | 3,350 | 600 |
| 3 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 34,472 | 190 | 2,944 | 600 |
| 3 | Heifers | 0 | 0 | South | 3 | Medium2 | 52,896 | 190 | 3,913 | 600 |
| 4 | Heifers | 0 | 0 | Central | 1 | Large1 | 17,586 | 3,781 | 8,861 | 1,881 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 63,558 | 3,883 | 11,113 | 1,565 |
| 4 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 48,758 | 4,206 | 10,359 | 1,472 |
| 4 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 34,793 | 3,431 | 9,689 | 1,798 |
| 4 | Heifers | 0 | 0 | South | 1 | Large1 | 64,707 | 3,786 | 11,124 | 1,439 |
| 4 | Heifers | 0 | 0 | Central | 2 | Large1 | 17,586 | 2,038 | 9,443 | 3,139 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 63,558 | 1,485 | 11,508 | 2,092 |
| 4 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 48,758 | 1,247 | 10,664 | 1,646 |
| 4 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 34,793 | 1,548 | 10,545 | 2,205 |
| 4 | Heifers | 0 | 0 | South | 2 | Large1 | 64,707 | 1,378 | 11,690 | 1,890 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Heifers | 0 | 0 | Central | 3 | Large1 | 17,586 | 190 | 8,384 | 600 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 63,558 | 190 | 10,735 | 600 |
| 4 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 48,758 | 190 | 10,010 | 600 |
| 4 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 34,793 | 190 | 9,239 | 600 |
| 4 | Heifers | 0 | 0 | South | 3 | Large1 | 64,707 | 190 | 10,783 | 600 |
| 4 | Heifers | 0 | 0 | Central | 1 | Medium1 | 45,160 | 3,083 | 9,468 | 990 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 66,756 | 3,248 | 10,135 | 890 |
| 4 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 59,858 | 3,671 | 9,598 | 858 |
| 4 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 55,287 | 2,375 | 10,048 | 971 |
| 4 | Heifers | 0 | 0 | South | 1 | Medium1 | 67,924 | 2,627 | 10,458 | 909 |
| 4 | Heifers | 0 | 0 | Central | 2 | Medium1 | 45,476 | 945 | 11,434 | 1,076 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 66,796 | 841 | 11,674 | 878 |
| 4 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 59,983 | 825 | 10,748 | 847 |
| 4 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 55,094 | 869 | 11,541 | 931 |
| 4 | Heifers | 0 | 0 | South | 2 | Medium1 | 67,622 | 830 | 11,999 | 859 |
| 4 | Heifers | 0 | 0 | Central | 3 | Medium1 | 15,674 | 190 | 8,191 | 600 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 38,076 | 190 | 9,309 | 600 |
| 4 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 31,383 | 190 | 8,976 | 600 |
| 4 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 26,228 | 190 | 8,718 | 600 |
| 4 | Heifers | 0 | 0 | South | 3 | Medium1 | 39,056 | 190 | 9,358 | 600 |
| 4 | Heifers | 0 | 0 | Central | 1 | Medium2 | 51,667 | 3,270 | 10,740 | 1,341 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 81,575 | 3,381 | 12,114 | 1,133 |
| 4 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 71,201 | 3,793 | 11,533 | 1,090 |
| 4 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 65,894 | 2,550 | 11,859 | 1,308 |
| 4 | Heifers | 0 | 0 | South | 1 | Medium2 | 83,639 | 2,773 | 12,342 | 1,191 |
| 4 | Heifers | 0 | 0 | Central | 2 | Medium2 | 53,704 | 1,259 | 12,303 | 1,672 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 82,234 | 1,039 | 14,622 | 1,262 |
| 4 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 71,675 | 990 | 13,515 | 1,160 |
| 4 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 66,058 | 1,086 | 12,802 | 1,349 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 4 | Heifers | 0 | 0 | South | 2 | Medium2 | 83,827 | 1,028 | 13,092 | 1,228 |
| 4 | Heifers | 0 | 0 | Central | 3 | Medium2 | 19,823 | 190 | 8,449 | 600 |
| 4 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 51,511 | 190 | 10,086 | 600 |
| 4 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 41,488 | 190 | 9,602 | 600 |
| 4 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 34,864 | 190 | 9,196 | 600 |
| 4 | Heifers | 0 | 0 | South | 3 | Medium2 | 53,288 | 190 | 10,165 | 600 |
| 5 | Heifers | 0 | 0 | Central | 1 | Large1 | 9,689 | 1,372 | 2,199 | 1,881 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 10,542 | 1,202 | 2,142 | 1,565 |
| 5 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 10,465 | 1,152 | 2,110 | 1,472 |
| 5 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 10,156 | 1,325 | 2,195 | 1,798 |
| 5 | Heifers | 0 | 0 | South | 1 | Large1 | 11,241 | 1,139 | 2,141 | 1,439 |
| 5 | Heifers | 0 | 0 | Central | 2 | Large1 | 9,689 | 2,038 | 2,768 | 3,139 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 10,542 | 1,485 | 2,522 | 2,092 |
| 5 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 10,465 | 1,247 | 2,398 | 1,646 |
| 5 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 10,156 | 1,548 | 3,002 | 2,205 |
| 5 | Heifers | 0 | 0 | South | 2 | Large1 | 11,241 | 1,378 | 2,679 | 1,890 |
| 5 | Heifers | 0 | 0 | Central | 3 | Large1 | 9,689 | 190 | 1,722 | 600 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 10,542 | 190 | 1,765 | 600 |
| 5 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 10,465 | 190 | 1,761 | 600 |
| 5 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 10,156 | 190 | 1,745 | 600 |
| 5 | Heifers | 0 | 0 | South | 3 | Large1 | 11,241 | 190 | 1,800 | 600 |
| 5 | Heifers | 0 | 0 | Central | 1 | Medium1 | 45,878 | 901 | 3,114 | 990 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 47,993 | 844 | 2,809 | 890 |
| 5 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 45,978 | 829 | 2,516 | 858 |
| 5 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 48,831 | 890 | 3,335 | 971 |
| 5 | Heifers | 0 | 0 | South | 1 | Medium1 | 48,858 | 858 | 3,116 | 909 |
| 5 | Heifers | 0 | 0 | Central | 2 | Medium1 | 46,194 | 945 | 5,055 | 1,076 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 48,034 | 841 | 5,467 | 878 |
| 5 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 46,103 | 825 | 4,933 | 847 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 5 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 48,638 | 869 | 4,798 | 931 |
| 5 | Heifers | 0 | 0 | South | 2 | Medium1 | 48,556 | 830 | 3,868 | 859 |
| 5 | Heifers | 0 | 0 | Central | 3 | Medium1 | 16,393 | 190 | 1,836 | 600 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 19,314 | 190 | 1,982 | 600 |
| 5 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 17,503 | 190 | 1,893 | 600 |
| 5 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 19,772 | 190 | 2,005 | 600 |
| 5 | Heifers | 0 | 0 | South | 3 | Medium1 | 19,990 | 190 | 2,016 | 600 |
| 5 | Heifers | 0 | 0 | Central | 1 | Medium2 | 49,469 | 1,088 | 4,435 | 1,341 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 52,072 | 978 | 4,392 | 1,133 |
| 5 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 49,044 | 951 | 4,163 | 1,090 |
| 5 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 53,644 | 1,065 | 5,057 | 1,308 |
| 5 | Heifers | 0 | 0 | South | 1 | Medium2 | 53,495 | 1,004 | 4,598 | 1,191 |
| 5 | Heifers | 0 | 0 | Central | 2 | Medium2 | 51,507 | 1,259 | 5,962 | 1,672 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 52,731 | 1,039 | 5,380 | 1,262 |
| 5 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 49,519 | 990 | 4,638 | 1,160 |
| 5 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 53,809 | 1,086 | 5,952 | 1,349 |
| 5 | Heifers | 0 | 0 | South | 2 | Medium2 | 53,684 | 1,028 | 5,317 | 1,228 |
| 5 | Heifers | 0 | 0 | Central | 3 | Medium2 | 17,625 | 190 | 2,145 | 600 |
| 5 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 22,008 | 190 | 2,364 | 600 |
| 5 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 19,331 | 190 | 2,233 | 600 |
| 5 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 22,615 | 190 | 2,394 | 600 |
| 5 | Heifers | 0 | 0 | South | 3 | Medium2 | 23,145 | 190 | 2,421 | 600 |
| 6 | Heifers | 0 | 0 | Central | 1 | Large1 | 532 | 1,372 | 1,713 | 1,881 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 1,386 | 1,202 | 1,657 | 1,565 |
| 6 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 1,308 | 1,152 | 1,624 | 1,472 |
| 6 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 999 | 1,325 | 1,710 | 1,798 |
| 6 | Heifers | 0 | 0 | South | 1 | Large1 | 2,084 | 1,139 | 1,656 | 1,439 |
| 6 | Heifers | 0 | 0 | Central | 2 | Large1 | 532 | 2,038 | 2,295 | 3,139 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 1,386 | 1,485 | 2,052 | 2,092 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 1,308 | 1,247 | 1,929 | 1,646 |
| 6 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 999 | 1,548 | 2,565 | 2,205 |
| 6 | Heifers | 0 | 0 | South | 2 | Large1 | 2,084 | 1,378 | 2,222 | 1,890 |
| 6 | Heifers | 0 | 0 | Central | 3 | Large1 | 532 | 190 | 1,237 | 600 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 1,386 | 190 | 1,279 | 600 |
| 6 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 1,308 | 190 | 1,275 | 600 |
| 6 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 999 | 190 | 1,260 | 600 |
| 6 | Heifers | 0 | 0 | South | 3 | Large1 | 2,084 | 190 | 1,314 | 600 |
| 6 | Heifers | 0 | 0 | Central | 3 | Medium1 | 7,236 | 190 | 1,538 | 600 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 10,157 | 190 | 1,684 | 600 |
| 6 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 8,346 | 190 | 1,596 | 600 |
| 6 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 10,615 | 190 | 1,707 | 600 |
| 6 | Heifers | 0 | 0 | South | 3 | Medium1 | 10,833 | 190 | 1,718 | 600 |
| 6 | Heifers | 0 | 0 | Central | 1 | Medium1 | 36,722 | 901 | 2,816 | 990 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 38,836 | 844 | 2,511 | 890 |
| 6 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 36,821 | 829 | 2,218 | 858 |
| 6 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 39,674 | 890 | 3,037 | 971 |
| 6 | Heifers | 0 | 0 | South | 1 | Medium1 | 39,701 | 858 | 2,818 | 909 |
| 6 | Heifers | 0 | 0 | Central | 2 | Medium1 | 37,038 | 945 | 4,782 | 1,076 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 38,877 | 841 | 4,049 | 878 |
| 6 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 36,946 | 825 | 3,368 | 847 |
| 6 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 39,481 | 869 | 4,530 | 931 |
| 6 | Heifers | 0 | 0 | South | 2 | Medium1 | 39,399 | 830 | 3,590 | 859 |
| 6 | Heifers | 0 | 0 | Central | 1 | Medium2 | 40,313 | 1,088 | 3,877 | 1,341 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 42,915 | 978 | 3,833 | 1,133 |
| 6 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 39,888 | 951 | 3,605 | 1,090 |
| 6 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 44,488 | 1,065 | 4,499 | 1,308 |
| 6 | Heifers | 0 | 0 | South | 1 | Medium2 | 44,339 | 1,004 | 4,039 | 1,191 |
| 6 | Heifers | 0 | 0 | Central | 2 | Medium2 | 42,350 | 1,259 | 5,440 | 1,672 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 43,575 | 1,039 | 4,862 | 1,262 |
| 6 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 40,362 | 990 | 4,101 | 1,160 |
| 6 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 44,653 | 1,086 | 5,442 | 1,349 |
| 6 | Heifers | 0 | 0 | South | 2 | Medium2 | 44,527 | 1,028 | 4,789 | 1,228 |
| 6 | Heifers | 0 | 0 | Central | 3 | Medium2 | 8,468 | 190 | 1,586 | 600 |
| 6 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 12,851 | 190 | 1,806 | 600 |
| 6 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 10,174 | 190 | 1,674 | 600 |
| 6 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 13,458 | 190 | 1,836 | 600 |
| 6 | Heifers | 0 | 0 | South | 3 | Medium2 | 13,988 | 190 | 1,863 | 600 |
| 7 | Heifers | 0 | 0 | Central | 1 | Large1 | 532 | 1,372 | 1,713 | 1,881 |
| 7 | Heifers | 0 | 0 | Central | 2 | Large1 | 532 | 2,038 | 2,295 | 3,139 |
| 7 | Heifers | 0 | 0 | Central | 3 | Large1 | 532 | 190 | 1,237 | 600 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Large1 | 1,386 | 1,202 | 1,657 | 1,565 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Large1 | 1,386 | 1,485 | 2,052 | 2,092 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Large1 | 1,386 | 190 | 1,279 | 600 |
| 7 | Heifers | 0 | 0 | Midwest | 1 | Large1 | 1,308 | 1,152 | 1,624 | 1,472 |
| 7 | Heifers | 0 | 0 | Midwest | 2 | Large1 | 1,308 | 1,247 | 1,929 | 1,646 |
| 7 | Heifers | 0 | 0 | Midwest | 3 | Large1 | 1,308 | 190 | 1,275 | 600 |
| 7 | Heifers | 0 | 0 | Pacific | 1 | Large1 | 999 | 1,325 | 1,710 | 1,798 |
| 7 | Heifers | 0 | 0 | Pacific | 2 | Large1 | 999 | 1,548 | 2,565 | 2,205 |
| 7 | Heifers | 0 | 0 | Pacific | 3 | Large1 | 999 | 190 | 1,260 | 600 |
| 7 | Heifers | 0 | 0 | South | 1 | Large1 | 2,084 | 1,139 | 1,656 | 1,439 |
| 7 | Heifers | 0 | 0 | South | 2 | Large1 | 2,084 | 1,378 | 2,222 | 1,890 |
| 7 | Heifers | 0 | 0 | South | 3 | Large1 | 2,084 | 190 | 1,314 | 600 |
| 7 | Heifers | 0 | 0 | Central | 1 | Medium1 | 36,722 | 901 | 2,816 | 990 |
| 7 | Heifers | 0 | 0 | Central | 2 | Medium1 | 37,038 | 945 | 6,146 | 1,076 |
| 7 | Heifers | 0 | 0 | Central | 3 | Medium1 | 7,236 | 190 | 1,538 | 600 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium1 | 38,836 | 844 | 2,511 | 890 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium1 | 38,877 | 841 | 4,049 | 878 |

**Table 11-18. (Continued)**

| Option | Animal | Man type | Operation | Region | Category | Size ID | Capital | Fixed | O & M | 3 yr rec |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium1 | 10,157 | 190 | 1,684 | 600 |
| 7 | Heifers | 0 | 0 | Midwest | 1 | Medium1 | 36,821 | 829 | 2,218 | 858 |
| 7 | Heifers | 0 | 0 | Midwest | 2 | Medium1 | 36,946 | 825 | 3,368 | 847 |
| 7 | Heifers | 0 | 0 | Midwest | 3 | Medium1 | 8,346 | 190 | 1,596 | 600 |
| 7 | Heifers | 0 | 0 | Pacific | 1 | Medium1 | 39,674 | 890 | 3,037 | 971 |
| 7 | Heifers | 0 | 0 | Pacific | 2 | Medium1 | 39,481 | 869 | 4,530 | 931 |
| 7 | Heifers | 0 | 0 | Pacific | 3 | Medium1 | 10,615 | 190 | 1,707 | 600 |
| 7 | Heifers | 0 | 0 | South | 1 | Medium1 | 39,701 | 858 | 2,818 | 909 |
| 7 | Heifers | 0 | 0 | South | 2 | Medium1 | 39,399 | 830 | 4,359 | 859 |
| 7 | Heifers | 0 | 0 | South | 3 | Medium1 | 10,833 | 190 | 1,718 | 600 |
| 7 | Heifers | 0 | 0 | Central | 1 | Medium2 | 40,313 | 1,088 | 3,877 | 1,341 |
| 7 | Heifers | 0 | 0 | Central | 2 | Medium2 | 42,350 | 1,259 | 7,144 | 1,672 |
| 7 | Heifers | 0 | 0 | Central | 3 | Medium2 | 8,468 | 190 | 1,586 | 600 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 1 | Medium2 | 42,915 | 978 | 3,833 | 1,133 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 2 | Medium2 | 43,575 | 1,039 | 4,862 | 1,262 |
| 7 | Heifers | 0 | 0 | Mid-Atlantic | 3 | Medium2 | 12,851 | 190 | 1,806 | 600 |
| 7 | Heifers | 0 | 0 | Midwest | 1 | Medium2 | 39,888 | 951 | 3,605 | 1,090 |
| 7 | Heifers | 0 | 0 | Midwest | 2 | Medium2 | 40,362 | 990 | 4,101 | 1,160 |
| 7 | Heifers | 0 | 0 | Midwest | 3 | Medium2 | 10,174 | 190 | 1,674 | 600 |
| 7 | Heifers | 0 | 0 | Pacific | 1 | Medium2 | 44,488 | 1,065 | 4,499 | 1,308 |
| 7 | Heifers | 0 | 0 | Pacific | 2 | Medium2 | 44,653 | 1,086 | 5,442 | 1,349 |
| 7 | Heifers | 0 | 0 | Pacific | 3 | Medium2 | 13,458 | 190 | 1,836 | 600 |
| 7 | Heifers | 0 | 0 | South | 1 | Medium2 | 44,339 | 1,004 | 4,039 | 1,191 |
| 7 | Heifers | 0 | 0 | South | 2 | Medium2 | 44,527 | 1,028 | 4,789 | 1,228 |
| 7 | Heifers | 0 | 0 | South | 3 | Medium2 | 13,988 | 190 | 1,863 | 600 |