



# Animal Welfare Institute

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American Veterinary Medical Association  
1931 North Meacham Rd., Suite 100  
Schaumburg, IL 60173-4360

**Re: Comment on AVMA's Policy on "Layer Hen Housing Systems"**

Dear American Veterinary Medical Association Animal Welfare Committee,

Thank you for the opportunity to comment on the American Veterinary Medical Association's Policy on "Layer Hen Housing Systems" and materials linked on the policy's webpage. I am submitting these comments as a long-standing AVMA member and practicing veterinarian, and on behalf of the Animal Welfare Institute (AWI) Farm Animal Program, for which I am a veterinary medicine consultant.

We would like to commend the AVMA for recognizing the importance of the veterinary profession taking a position on the housing systems in which animals are kept, especially in the case of hens kept for egg production, since housing systems strongly influence the level of health and welfare typical for resident animals. As the AVMA affirms in its statement on the roles of veterinarians in promoting animal welfare, "there are both societal and professional expectations for veterinarians to provide leadership in animal welfare."<sup>1</sup> In updating the Layer Hen Housing Systems policy, the association has a unique opportunity to encourage a transition toward higher welfare housing systems within the U.S. egg production industry.

We agree with the general principles articulated in the policy, as well as its recognition that animal welfare auditing by a third party is beneficial. However, we are concerned that the policy is too vague to meaningfully influence the egg production industry, is too weak in its recommendations, and overlooks several issues critical to ensuring that hen welfare is adequately promoted and protected by housing systems. The policy, as well as the [literature review](#) and [related resource](#) linked on the policy webpage, would benefit from incorporating more recent scientific literature and updated conceptions of animal welfare and ethics.<sup>2-6</sup> For example, as reviewed by one recent paper on laying hen welfare, "it is now widely accepted that good welfare is not simply the absence of negative subjective states, but also includes the presence of positive experiences."<sup>7</sup>

The policy avoids discussing general classes of housing systems, such as conventional (battery) cages, cage-free barns and aviaries, free-range housing, and pasture-based systems. Some of these are discussed in the policy's accompanying literature review and related resource (pasture systems are omitted, despite the rising popularity of pasture environments for

laying hens and the recent increase in research in on this type of production system<sup>8-11</sup>). However, given what is now understood about animal welfare and the physical, psychological, social, and behavioral needs of chickens,<sup>3,4,6,12,13</sup> it would be beneficial for the AVMA policy to incorporate such discussion. Rather than adopting a stance of “there are pros and cons to all types of housing systems,” as it does in the linked webpages, the AVMA should acknowledge that certain housing systems, such as conventional cages, are incapable of providing hens with an adequate level of welfare, and emphasize that the level of welfare associated with other rearing systems can vary widely based on factors such as the animals’ genetics and early rearing environment, housing system design, and management. The AVMA could then advance animal welfare by focusing on factors that must be attended to if hen welfare is to be adequately protected and promoted in the remaining housing systems.

### Egg industry trends

The U.S. Egg Industry understands that conventional (“battery”) cages are in the process of being replaced by other housing systems. According to WATT Poultry, an industry publication, 38.8% of the total U.S. table egg laying flock is now reared without cages and “the combination of legislation in states that have passed cage-free hen housing mandates and future cage-free egg purchase pledges by major egg purchasing companies, if all are honored, would require for approximately 60% of U.S. hens to be housed cage free from 2025 on”; by 2030, this would reach at least 64.5%.<sup>14</sup> Recently, WATT Poultry surveyed 35 of the top U.S. egg producers, who own or contract the production of 242.53 million of the nation’s 322.3 million hens.<sup>14</sup> Forty-eight percent of respondents reported closing or tearing down cage housing in 2023. Over 87% of respondents predict that all U.S. hens will be housed without cages by 2040.<sup>14</sup>

As the AVMA has previously noted, cage-free housing can pose welfare concerns for hens kept for egg production. In the U.S., cage-free barns are often extremely large, housing up to half a million hens per barn,<sup>15</sup> potentially increasing the risk of large-scale welfare issues. Research indicates that the typical level of welfare in cage-free housing is highly variable and may be affected by numerous factors.<sup>3,12</sup> Thus, it is essential that the veterinary profession advocate for adoption of measures that maximize welfare during the transition away from cage housing, rather than expend its influence justifying the continued use of conventional cages.

### Inability of conventional cages to meet hens’ minimal welfare needs

It is worth briefly reviewing the reasons why conventional cages are incapable of promoting minimally adequate hen welfare, much less “good health and welfare,” as required by the current AVMA policy on layer hen housing. Profound and unmitigable welfare harms, lasting most or all of the lifespan of the bird, are inherent to these systems.<sup>4</sup> The insurmountable welfare deficiencies are problematic whether one utilizes Fraser’s framework incorporating three components of animal welfare (basic health and functioning, affective states, and natural living)<sup>16</sup> or the Five Freedoms/Domains framework.<sup>2,17</sup>

Conventional cages greatly restrict movement and render birds unable to perform exploratory behaviors, foraging, and comfort behaviors (wing flapping, limb stretching, and dustbathing), all of which have been identified by expert bodies as “highly relevant welfare consequences.”<sup>3,4</sup> Conventional cage systems make it impossible for birds to perch, frustrating a strongly motivated behavioral need for roosting.<sup>4</sup> Birds are often unable to adopt the “standing alert” posture.<sup>18</sup> Basic bodily movement, such as flying short distances and running, require a degree of three-dimensional space which is unavailable in conventional cages. Research has

documented that hens confined to cages have a strong preference for accessing a larger vertical space allowance.<sup>4</sup> Birds confined to conventional cages are deprived of the substrate needed for engaging in scratching behavior, and the lack of space has been shown to limit preening.<sup>4</sup> Hens are generally strongly motivated to find appropriate nest sites, but conventional cages typically fail to provide access to nesting boxes.<sup>3,4,18</sup>

These restrictions have physical impacts, such as poor plumage condition, impairment of muscle function, and reduced bone strength, such that hens in conventional cages sustain more fractures at depopulation than hens in other systems.<sup>3,4,19,20</sup> Lack of exercise and the resulting bone weakness can result in vertebral fractures that lead to paralysis (“cage layer fatigue”).<sup>18</sup> Psychologically and emotionally, the restrictions inherent to battery cages impact birds by causing frustration, pain, difficulty resting, lack of agency, and increased stress levels. In most cases, these negative impacts last for the entire life span of the animal.

Because of the extent, severity, and unmitigable nature of the welfare problems associated with conventional cages, both animal welfare scientists and the general public increasingly condemn their use. In 2006, a computer model for welfare assessment of poultry production systems of laying hens was developed by researchers in the Animal Sciences Group at Wageningen University and Research Centre, a university in the Netherlands with a focus on agriculture.<sup>5</sup> It was used to assess 22 types of production systems, and conventional cage systems scored the lowest.<sup>5</sup> The same year, the Laywel report cited in the related resource was released, concluding that, “with the exception of conventional cages, all systems have the potential to provide satisfactory welfare for laying hens.”<sup>21</sup>

Use of conventional cages is banned or restricted in numerous countries and U.S. states.<sup>22–24</sup> In 2023, the European Food Safety Authority (EFSA) Panel on Animal Health and Animal Welfare, which advises the European Union and is comprised of scientists from throughout the continent, produced a detailed scientific opinion entitled “Welfare of laying hens on farm,” which assesses highly relevant welfare consequences, animal-based measures, and hazards leading to the welfare consequences, and recommends measures to prevent or correct the hazards and/or mitigate the welfare consequences.<sup>4</sup> This 188-page, open-access document provides an extensive review of the relevant scientific literature. It also recommends a maximum stocking density of 4 birds per square meter (m<sup>2</sup>) to reduce the risk of plumage damage and allow unconstrained performance of motivated behaviors, including those that occupy most space (e.g. wing flapping). This equates to over 387 square inches (in<sup>2</sup>) per hen. In contrast, the U.S. trade group United Egg Producers recommends a space allowance of between 67 and 86 in<sup>2</sup> for birds in conventional cages.<sup>25,26</sup>

The EFSA scientific opinion is unequivocal in its assessment that cages “should not be used” for laying hens, pullets, or layer breeder chickens.<sup>4</sup>

### Potential welfare concerns with cage-free housing

While conventional cage systems are incompatible with a minimally acceptable level of hen welfare, removing cages does not necessarily guarantee good or even acceptable welfare.<sup>3,4,19,21</sup> Rather, hen welfare can be highly variable in non-cage systems, and welfare risks “need to be addressed by management practices, robust welfare standards, genetic selection, and further research.”<sup>3</sup>

One concern regarding non-cage housing systems is the potential for higher mortality rates. While earlier research suggested hen mortality was higher in cage-free systems,<sup>20,27</sup> a meta-analysis published in 2021 in *Nature* found that, “since 2000, each year of experience with cage-free aviaries was associated with a 0.35–0.65% average drop in cumulative mortality, with no differences in mortality between caged and cage-free systems in more recent years.”

Another question concerns access to the outdoors. In its 2023 scientific opinion on hen welfare on farm, the EFSA Panel recommends, based on the available research, “housing all birds in non-cage systems with easily accessible, elevated platforms and provision of dry and friable litter and access to a covered veranda.”<sup>4</sup> Outdoor access provides numerous welfare benefits, including increased ability to forage and better feather condition,<sup>28</sup> and “mitigate[s] some [welfare] hazards inherent to non-cage systems.”<sup>4</sup> Importantly, this differs dramatically from the predominant cage-free housing systems utilized in the U.S. In WATT Poultry’s industry survey, 58.6% of large egg producers reported adding cage-free housing without outdoor access in 2023, while only 3.4% reported adding cage-free housing with outdoor access.<sup>14</sup> In addition, while the benefit to hen welfare of providing suitable outdoor range (i.e., with substantial tree and vegetation cover) has been demonstrated, it has been shown that excessively large sheds and hen populations decrease birds’ use of these outdoor areas.<sup>29</sup> Unfortunately, in the U.S., very large poultry sheds, containing tens or hundreds of thousands of hens per barn, appear to be becoming the norm.

As the leading veterinary organization in the U.S., the AVMA could make a major positive impact on the welfare of laying hens, pullets, and breeding chickens by advising the industry, policy makers, veterinarians, and reform advocates on means of mitigating animal welfare problems associated with non-cage housing systems. The following welfare concerns associated with non-cage hen housing will be briefly reviewed: injuries, disease, group stress, air quality, predation risk, and vulnerability to barn fires and other catastrophic events. In addition, I will address welfare problems associated with large barn sizes and the need to revise wording around third-party animal welfare certification auditing.

## Injuries

### Keel fractures

Keel fractures are common injuries in laying hens that are well known to cause pain and prolonged negative affective states.<sup>30–35</sup> In the past, keel bone fractures were believed to occur less commonly in hens in conventional cages, presumably because they had less opportunity to incur trauma due to their severe movement restriction, while cage-free hens could collide with perches and other furnishings, as well as other birds.<sup>21,36</sup> However, a 2020 systematic review that examined the connection between housing systems and keel bone fracture (KBF) prevalence found “the general consensus regarding the link between housing system and KBF prevalence may not be supported when the whole body of knowledge is compiled and examined.”<sup>35</sup> Another study found that keel fractures can be more difficult to detect via palpation in caged birds, because they have minimal callus production compared to birds permitted to exercise in non-cage systems, casting doubt on previous research studies that utilized palpation alone to estimate keel bone fracture prevalence in different housing systems.<sup>37</sup>

In addition, recent research that involving the pathological characterization of these injuries via CT scanning and histopathology has found that the vast majority do not appear to be due to trauma, e.g. collisions with other hens or pressure from perches.<sup>37</sup> Perching is a strong behavioral need for chickens, with some research finding that hens are willing to work to gain

access to perches both at night and, to a lesser extent, during the day.<sup>4,13</sup> Thus, providing perches in a manner that minimizes the risk of collisions, permits safe landings, and does not position the beak of one bird near the vent of another, should be advocated.<sup>19,38</sup> Providing ramps and platforms also appears to be protective.<sup>39</sup>

Another issue of concern, particularly given that U.S. laws and regulations prohibiting conventional cages often exempt the pullet life stage, is that keel fractures are significantly more likely in birds are raised in conventional cages and then moved to aviary systems, compared to birds who have access to an aviary environment with perches and platforms during all life phases.<sup>40</sup>

Thus, research suggests that the welfare problem of keel bone fractures and other injuries must be addressed via (1) appropriate aviary design and installation of housing structures that reduce the risk of keel bone damage, (2) rearing pullets in systems with perches and platforms that permit exercise, and (3) addressing non-housing related factors, such as breed disposition, nutrition, hen size, high egg production levels, and early onset of lay.<sup>4,39,40</sup>

### Injurious Pecking and Cannibalism

Injurious pecking, including vent pecking and cannibalism, can be a welfare problem in all types of housing,<sup>19</sup> with some US-based research suggesting that cannibalism is a bigger problem in hens kept in aviary cage-free housing as compared with conventional cages.<sup>20</sup> However, the prevalence and percent of birds affected can vary widely both within and between flocks, making generalizations unreliable.<sup>4</sup> Causes of these behaviors include inability to perform normal foraging, comfort, and exploratory behaviors, lack of suitable litter substrates, inappropriate positioning of perches, poor air quality, high noise levels, inappropriate lighting levels and photoperiods, excessive stocking densities, lack of perches, deficient rearing environments for pullets, and nutritional deficiencies.<sup>4,41-44</sup>

In free-range systems, feather pecking and cannibalism seem to be worse problems when birds do not use the outdoor range provided, thus improving the quality of the outdoor environment to make it more appealing is an important preventive measure (see section on Group Stress below).<sup>29,45</sup> In fact, increased canopy cover in the planted area of an outdoor range is correlated with decreased plumage damage.<sup>45</sup>

While the risks of injurious pecking and cannibalism have traditionally been mitigated by beak trimming, this procedure is associated with acute and chronic pain, even when infrared technology is used in place of the traditional hot blade method.<sup>41,42,46,47</sup> Alternative means of reducing beak sharpness are available, including breeding birds with short or blunt beaks, providing hard, abrasive surface materials that shorten the beak as birds eat, and using hard materials as pecking substrates to redirect pecking behavior toward the environment.<sup>4</sup> In its 2023 opinion, the EFSA finds that “the practice of beak trimming should not be necessary if good management practices are implemented.”<sup>4</sup>

In its policy and related materials on layer hen housing, the AVMA could productively contribute to animal welfare by making recommendations on genetic, environmental, and management considerations likely to impact the prevalence of injurious pecking and cannibalism in the cage-free housing systems that are rapidly replacing conventional cages.

## Disease

In assessing various layer hen housing systems, the AVMA consistently identifies disease risk, especially parasitic diseases and diseases for which wild birds are vectors, as a disadvantage of cage-free systems. While this is certainly an important welfare issue in some cage-free environments, it is important to incorporate more recent research that provides a more nuanced assessment and to cover means of mitigating disease risk in cage-free systems.

## Parasitism

While it has long been presumed that outdoor access increases parasite risk, recent research indicates that a number of factors influence parasite burden and attendant welfare concerns. For example, parasite risk in birds with outdoor access may vary widely with breed, as high egg production levels are metabolically taxing and may impact resistance to parasite infestations.<sup>11</sup> The findings of a study carried out on organic flocks in Europe on *Ascaridia galli* (roundworm) burden contradicted “the general expectation that the risk of helminth infections increases with increased outdoor access.”<sup>48</sup> While little research on this issue has been conducted in the US, a recent review found that organic poultry rearing systems in the United Kingdom do not generally have a major problem with endoparasites.<sup>11</sup>

Pasture-based housing systems are not discussed in the AVMA’s resources on layer hen housing. However, research suggests that at least some varieties of this type of system do not lend themselves to parasite problems. For example, some systems involve keeping birds in mobile houses that are moved every 2 or 3 days to a new patch on the pasture, a practice used to avoid overgrazing and assist in the recovery of the vegetation.<sup>49</sup> Regularly relocating the houses reduces concentration of feces, and potentially infective stages of parasites, in the birds’ environment.<sup>11,49</sup> One study carried out in the state of Georgia found that pastured broiler and layer chickens had considerably lower coccidia oocyte counts compared with what has been reported for conventional broiler flocks (the authors report that comparison with commercial caged layer flocks is challenging, as there are no published numbers of coccidia counts.<sup>49</sup>

Research carried out at the University of California on northern fowl mites and chicken body lice found that the overall abundance for each of these parasites was the same, regardless of whether hens were housed in conventional cages or a cage-free environment containing perches and dustboxes.<sup>50</sup> In addition, providing certain additives to the sand in the dust box (diatomaceous earth, kaolin clay, or sulfur) was effective in reducing ectoparasite loads in hens using the dust boxes, with sulfur controlling mites for a prolonged period, even in hens who did not use the dust box.<sup>50</sup>

## Other infectious diseases

Infectious disease risk is obviously influenced by a range of factors whose relationship to housing systems is often variable. A 2022 review in *Avian Pathology* about infectious disease in free-range v. conventional poultry production systems concluded, “Even though there are more potential routes of infection when birds have range access, good system design and management, associated with vaccination where appropriate, can significantly mitigate the risks.”<sup>51</sup> High particulate matter and ammonia levels in poultry houses are known to increase susceptibility to respiratory disease,<sup>52,53</sup> so outdoor access is considered to be protective for at least some respiratory diseases of laying hens.<sup>4</sup> In addition, solar ultraviolet radiation has been shown to result in an exponential decline in infectivity for various pathogens, including Newcastle disease and highly pathogenic avian influenza (HPAI).<sup>54</sup> Finally, it is well known that “[a]nimals are more susceptible to infection when they are in a poor environment... and/or under

physical or psychological stress,” suggesting that ensuring good welfare has the potential to decrease disease risk.<sup>55</sup>

With regard to HPAI in particular, there has long been concern that outdoor access may increase disease risk.<sup>56</sup> However, research in Europe has described methods of bioexclusion (preventing introduction of infectious material to non-infected premises) specific to free range flocks. These include providing netting, double fencing, and roofing of the free-range area to exclude infected wild birds and their feces from the free range area, managing pasture to avoid puddles and standing water, and landscaping in a manner that discourages visits by wild ducks and geese.<sup>11,56</sup> Vaccination is also increasingly recognized as an important component of addressing HPAI, now that the disease appears to be endemic in wild birds in the Europe and the U.S.<sup>57-63</sup> The U.S. veterinary profession could play an important role in encouraging the removal of barriers to HPAI vaccination in the nation.<sup>58</sup>

Another promising approach is discouraging wild bird visits via lasers (Light Amplification by Stimulated Emission of Radiation), which have been used for about 50 years to deter wild birds, such as around airfields where they pose a risk of bird-strike.<sup>64</sup> Wild birds “perceive the rapid movement of the laser beam across the ground as a physical threat and react by vacating the area.”<sup>64</sup> One study investigating their efficacy at deterring waterfowl and other wild birds from a 38,000 hen free-range layer farm in the Netherlands found that the “overall (all bird species combined) efficacy of the laser for reducing the rate of wild birds visiting the free-range study area was 98.2%, and for the Orders Anseriformes and Passeriformes, respectively, was 99.7% and 96.1%.”<sup>64</sup>

In considering infectious disease risk and layer housing systems, it is important to also consider the impact of group size (i.e., number of laying chickens per barns/shed or per premises) and poultry density in a given area. In the U.S., a key factor associated with increased risk of HPAI infection includes being in an existing control zone, or within 10km of an infected premises.<sup>65,66</sup> This appears to be because the concentration of airborne HPAI virus decreases as the distance from a source farm increases.<sup>67</sup> Epidemiological studies have found that, on commercial operations, “larger flocks were found to have a higher chance of infection, while smaller flocks were at low infection risk,” while small, backyard flocks seem to have a relatively low risk of HPAI infection.<sup>67</sup> Reducing the density of commercial poultry farms, particularly in densely populated poultry areas and areas close to wetlands, has been recommended and employed as one strategy to mitigate HPAI risk.<sup>68</sup>

### Group stress

Group stress is considered a “highly relevant” animal welfare risk for all indoor systems, particularly with the high stocking densities and large group size that are the norm in the US cage-free operations.<sup>4</sup> As mentioned above, the EFSA recommends a maximum stocking density of 4 birds/m<sup>2</sup> (387 in<sup>2</sup>/hen) in order to provide for adequate welfare. In contrast, the U.S. trade group United Egg Producers recommends a space allowance of between 144 to 216 in<sup>2</sup> for birds in cage-free housing.<sup>69</sup>

There is conflicting evidence regarding the impact of flock size on aggression and feather pecking, and virtually no research has been published on the impact on hen welfare of living in groups numbers in the tens or hundreds of thousands, as common in the U.S.<sup>11</sup> However, when hens live in groups small enough that they can recognize other hens as individuals, they seem to prefer to associate with familiar individuals.<sup>11</sup>

The EFSA recommends access to a covered veranda and/or an outdoor range to reduce the risk for group stress and its negative welfare consequences (e.g., feather damage), as well as provide positive effects on behavior.<sup>4</sup> In free range systems, a variety of factors influence how many hens use the outdoor area that is provided. A common problem is that the environment near the popholes becomes degraded.<sup>70</sup> Ensuring that there is sufficient vegetation, including bushes and trees covering at least 50% of the area, can improve range use. There is a continually growing body of literature on how to improve range use which would be helpful to review and include in information resources on layer hen housing.<sup>9,29,45,70</sup>

### Air quality

Air quality is often quite poor in the barns of large cage-free and free-range operations, with excessive levels of ammonia and dust that can negatively impact health and welfare of the birds and of workers.<sup>4,71,72</sup> In most commercial cage-free and free-range systems, at least some manure remains in the house throughout the life of the flock. High levels of ammonia can develop, resulting in burning and discomfort of the eyes, nose, and airways, increased risk of respiratory and ocular illness, and dermatitis.<sup>53,72</sup> Numerous studies have documented ammonia levels far in excess of the maximum allowable concentration accepted under both industry standards and independent third-party certification programs.<sup>72,73</sup>

Dust is composed of particles ranging in size from <4 microns to 100 microns, and is primarily composed of shedding from the birds as well as building materials, feed, and litter.<sup>71</sup> High dust levels can harm health and welfare via multiple mechanisms, including microorganisms attaching to dust particles and impairment of clearance mechanisms of the respiratory tract.<sup>71,74</sup> In the case of HPAI, contaminated dust particles have been found to play a role in disseminating infection to distant farms.<sup>67</sup> Finally, as discussed further below, dust plays a role in increasing the risk of barn fires.<sup>75,76</sup>

There are numerous factors that impact ammonia and dust levels, including some factors that have independent effects on hen health and welfare, such as stocking density, temperature and humidity conditions, ventilation rates, and manure removal protocols.<sup>72</sup> Both of these air quality issues can be mitigated by various management practices. Providing outdoor access can reduce ammonia levels because some of the manure is excreted on pasture.<sup>74</sup> In addition, “Outdoor access is protective of respiratory disorders caused by poor air quality.”<sup>4</sup> Because the main source of dust is the birds and their sheddings, reducing stocking density and flock size appears to be one approach to decreasing dust levels.

### Predation stress

Predation stress is a potential welfare concern primarily for hens and pullets with outdoor access.<sup>4</sup> It includes negative welfare consequences (e.g., fear, pain) of both birds who are attacked as well as those who perceive an attack or a predator's presence, which may lead to panic and even piling.

A range of protective mechanisms are available to reduce the risk of predation stress. Permanent fencing, electrified fencing, and/or netting have been found to be protective against mammalian predators.<sup>9,70</sup> Providing bushes and trees (at least 50% coverage) is beneficial in decreasing predation and predation stress associated with raptors.<sup>4,9</sup> As mentioned above, automated laser devices are also effective in deterring wild birds, including birds of prey.<sup>64</sup> Guard animals, including dogs, alpacas and donkeys, have also been used to guard flocks with outdoor access against predators.<sup>70</sup>



### Increased risk of barn fires

There are no federal mandatory reporting requirements regarding barn fires. However, since 2013, AWI has compiled information through media reports on the prevalence and causes of barn fires.<sup>77</sup> This information indicates that poultry account for roughly 97% of farm animals killed in barn fires. In addition, perhaps because of large flock sizes, lack of adequate fire suppression mechanisms – such as sprinkler systems – and high dust levels within the facilities, hens in cage-free housing appear to be disproportionately represented among barn fire victims. For example, in 2020, 400,000 hens were killed in a fire that destroyed a single cage-free barn in which they were all housed.<sup>78</sup> In total, over 2 million hens were killed at cage-free operations from 2017 through 2023 (see Appendix 1).

High levels of dust in poultry houses, as are common in large cage-free barns, increase the risk of barn fires both by contributing to electrical fires when dust accumulates in and around electrical panels, motors, and ventilation fans, and by preventing the reliable operations of smoke detector systems.<sup>75,76</sup>

In 2022, United Egg Producers released a report on Fire Prevention and Mitigation, which represents an important step in addressing this problem. However, there is more to be done in terms of improving fire safety in layer hen houses. At minimum, the AVMA should encourage adoption of and compliance with the National Fire Protection Association's Fire and Life Safety in Animal Housing Facilities Code (NFPA 150) across the egg production sector.<sup>79</sup> Additional suggested measures include reducing dust levels, ensuring adequate water access for fire suppression, and utilization of smoke detection and sprinkler systems.

### Welfare problems associated with large barn sizes and flock sizes

As the above discussion indicates, many of the welfare concerns associated with cage-free housing result from maintaining very large bird populations in a single barn or single location. High numbers of birds per barn or per operation are often correlated with high stocking densities.<sup>70</sup> High barn populations and high stocking densities can increase risk of injury, particularly from injurious pecking and cannibalism, disease risk, group stress, and high ammonia and dust levels.<sup>4,66,70–72</sup> In housing systems that permit outdoor access, research has found that the proportion of birds utilizing the available outdoor space varies inversely with the size of the barn and the size of the barn population.<sup>29</sup> This may be because it is more challenging for hens in larger flocks or larger barn sizes to access the outdoor area; they will encounter more hens and need to walk a farther distance.<sup>29</sup>

In addition, animal welfare may be compromised near the end of life for birds in excessively large flocks, particularly when they die on farm from disease or emergency depopulation. As mentioned above, mortality rates can vary and, though mortality rates in cage-free housing systems seem to be decreasing over time,<sup>23</sup> birds still become ill and die or require euthanasia due to a range of conditions on a daily basis, and some cage-free systems may still have relatively high mortality rates (e.g., 11.8% in a study published in 2019).<sup>20,27,80</sup> Most if not all of the conditions resulting to mortality result in significant suffering prior to death.<sup>27,80</sup> Thus, timely euthanasia of birds is important to protect hen welfare. Logistically, this can be challenging with large barn populations and high stocking densities.

For example, one study conducted on a 2 million-hen egg farm in rural Michigan that utilized conventional as well as large enriched/enrichable cages found that total cumulative mortality was relatively low (6.8% at 90 weeks); this amounted to an average weekly mortality rate of

0.09%.<sup>80</sup> This equates to an average daily mortality rate of 0.013%. Applying this (conservative) daily mortality rate to a 100,000-hen cage-free barn, one would expect that, on average, up to 1,300 hens may require euthanasia daily. For a cage-free barn housing 500,000 hens, up to 6,500 hens per day may require euthanasia – potentially over 10,000 hens per day if the farm has a higher cumulative mortality rate. Research has found that average labor costs are higher for aviary-style cage-free systems in large part due to hen mortality and health issues.<sup>20</sup>

As described in a book chapter coauthored by American College of Animal Welfare diplomate Jose Linares:<sup>81</sup>

“The economic realities of commercial egg and poultry production can include bird to caregiver ratios of 100,000:1 or greater. In these situations, time constraints are imposed such that only a fraction of a second is available for daily inspection of individual birds.”

Assuming an 8-hour workday, a worker on a farm with a 100,000:1 bird-to-caregiver ratio would be required to euthanize an average of 2.7 birds per minute for their entire shift, in order to ensure that all compromised birds were euthanized rather than left to die of their illness.

With regard to depopulation, the current HPAI epidemic has demonstrated that higher numbers of birds per premises, which is typically associated with high numbers of birds per barn, increases the likelihood that low-welfare depopulation methods will be utilized.<sup>82,83</sup> In the case of HPAI, the USDA requires all birds at the “infected premises” be killed, regardless of whether they show signs of disease, within 48 hours of a presumptive diagnosis.<sup>84</sup> The USDA has noted that “[t]he larger poultry facilities may struggle to meet this goal due to the sheer volume of poultry that need to be depopulated.”<sup>85</sup>

On large egg farms, this means that the depopulation often fails to be carried out with methods considered by the AVMA to be “preferred,” such as using carbon dioxide for whole house, partial house, or containerized gassing.<sup>82,86</sup> Instead, a depopulation method dubbed Ventilation Shutdown Plus Heat (VSD+Heat), which relies on heatstroke to cause death over several hours, is commonly used on egg farms. An analysis commissioned by USDA Veterinary Services and carried out by the Center for Epidemiology and Animal Health (CEAH) regarding the use of VSD+Heat for HPAI-related depopulation found that, for commercial table egg operations, houses depopulated via VSD+Heat tended to be larger than those depopulated with “preferred” method.<sup>87</sup>

AWI analyzed USDA records (publicly available<sup>88</sup> and obtained via Freedom of Information Request [see Appendix 2]) on all egg farms depopulated due to HPAI through July 2023: 37 egg farms housing over 44 million hens. VSD+Heat was used as the sole depopulation method on 14 farms, housing over 10.4 million hens, and as one of multiple methods on 18 farms, housing over 31 million hens (see Appendix 3). Even with use of VSD+Heat, only 7 of these 32 farms depopulated within two days of HPAI confirmation. It was not uncommon for the largest farms, with millions of hens per premises, to exceed the USDA deadline by one to two weeks.

The AVMA recommends in its depopulation guidelines that “use of less preferred methods should not become synonymous with standard practice,”<sup>86</sup> yet this is precisely what has occurred in the egg industry, in part due to the layer hen housing systems currently in use. This has severe implications for animal welfare, as described by the United Kingdom’s Animal Welfare Committee:<sup>89</sup>

“When the ambient temperature exceeds the thermal comfort zone, the birds will start to experience distress and suffering. As heat stress progresses, continuous panting alters the acid-base balance in the blood (respiratory alkalosis) and triggers a physiological stress response (Mitchell and Kettlewell 199812). Increased circulation to the skin and respiratory tract surface for thermoregulation results in under perfusion of other tissues/organs (e.g. kidney, liver, intestine) which leads to tissue damage and dysfunction. Panting causes dehydration and falling effective blood volume, which, coupled with circulatory changes, further compromises tissue perfusion. Acute heat stress also causes muscle damage which induces weakness and fatigue and releases myoglobin in to the circulation causing renal failure. Collectively, these extreme physiological challenges cause multiple organ failure, compromising cardiac, respiratory and cerebral function. Ultimately, death is likely to be caused by heart failure or respiratory failure, secondary to central nervous system dysfunction. **This complex process may be assumed to represent a profoundly negative experience for the bird, and potential welfare harms are likely to include anxiety, fear, pain, malaise, and breathlessness.**”

Based on CEAH analysis mentioned above, another common welfare harm associated with use of heatstroke for depopulation is the high incidence of survivors.<sup>87</sup> These animals have typically been exposed to high levels of environmental heat for a prolonged period, and thus are likely to have significant damage to their gastrointestinal tract, muscles, and other organs.<sup>82,90,91</sup> On commercial egg production operations, 74% of houses depopulated with VSD+Heat required a secondary method to kill survivors.<sup>87</sup> In addition, the CEAH analysis found that, in some cases, it required 5 to 7 days to finish depopulating hens who had survived heatstroke.

Now that HPAI appears to be (or be becoming) endemic in the U.S.,<sup>60,61,63</sup> the ethical obligation to provide animals used in food production with a humane death requires measures to ensure that higher welfare methods of depopulation or mass euthanasia are possible. Decreasing the numbers of birds per barn and per premises is an important measure that has been identified by those working in the industry as well as by HPAI control experts.<sup>68,92,93</sup> In addition, owners of large egg production operations should construct or retrofit layer hen housing systems such that more humane depopulation methods can be easily employed.<sup>86,94</sup>

The impact of layer hen housing systems on animal welfare at the end of life must not be ignored. Over 59 million laying hens and pullets have been depopulated in the past 2 years due to HPAI.<sup>88</sup> At this point, planning and preparing for rapid and humane mass euthanasia must be a crucial component of layer hen housing systems.

#### [Language regarding third-party certification/auditing](#)

AWI strongly supports the auditing of animal agricultural operations by third-party animal welfare certification programs, as implied in the current AVMA policy. However, consumer protection authorities do not recognize certification programs that are developed and administered by industry trade associations to be “independent” or “third-party.” (Industry programs are typically classified as “second-party,” while producer quality assurance programs are considered “first-party.”) This is because industry-backed certification programs have an inherent conflict of interest, with a primary objective of protecting the viability of the industry as opposed to the interests of consumers, animals, or the environment. Industry trade association standards, such

as those promulgated by UEP, are often inadequate to ensure good welfare, given that their requirements are weaker than what is supported by animal welfare science. Thus, even though 90% of eggs produced in the U.S. come from UEP-certified farms, and UEP states that at least 25% of an egg producer's layer houses are audited annually by "trained independent, 'third-party,' auditors," the level of welfare of hens on these farms often fails to be good.<sup>95,96</sup> Auditing to inadequate standards does not ensure good hen welfare. However, authentic independent third-party animal welfare certification programs, such as Global Animal Partnership (Steps 3 and higher) and Certified Animal Welfare Approved by A Greener World, have significantly stricter animal welfare standards.<sup>97,98</sup> AWI regularly updates a table comparing industry guidelines (such as those promulgated by UEP) with those of various independent, third-party animal welfare certification programs.<sup>99</sup> AVMA's policy should be modified to clarify this difference.

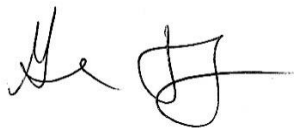
## Recommended Language for AVMA Layer Hen Housing Systems Policy

Based on the information provided above, we encourage the following edits to the AVMA's policy on Layer Hen Housing System:

Laying hen **and pullet** housing systems must provide feed, water, light, air quality, space, and sanitation that promote good health and welfare for the hens. Housing systems ~~should~~ **must** provide for expression of important natural behaviors (**including perching, foraging, dust-bathing, flying, running, walking, stretching of limbs, and laying eggs in a nest**), protect the hens from disease, injury and predation, and promote food safety. **For this reason, the AVMA encourages acceleration of the on-going shift from conventional cages to cage-free systems that provide outdoor access, including free-range and pasture-based production systems. The AVMA encourages the utilization of systems designed and managed in a manner that maximizes animal welfare, including genetic selection for welfare-relevant traits, lower stocking densities, provision of enrichment, and adequate preparedness for emergencies and disasters.** Participation in a nationally recognized, third-party-audited welfare program, **whose standards have been developed independent of the industry itself**, is strongly advised.

Thank you for your consideration. Please feel free to contact me at [gwendy@awionline.org](mailto:gwendy@awionline.org) or (305) 803-0211 should you have any questions or require access to any of the cited research.

Sincerely,



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## Appendix 1

### Barn fires resulting in the death of > 1,000 egg laying hens at cage-free facilities\*:

(2017 – 2023)

- April 30, 2017: 19,750 hens at Breckbill Family Farm, a contract producer for Pete and Gerry's in Strasburg, PA; the cause is unknown.
- April 30, 2019: 250,000 hens at Herbruck's Poultry Ranch in Ionia County, MI; the cause of the fire was sparked from an employee performing maintenance.
- November 20, 2019: Unknown number of hens believed to be well over 1,000 at a Cal-Maine facility in Chase, KS; the exact number of losses was not released and the cause is unknown.
- January 3, 2020: 300,000 hens at a Konos Inc. facility in Ostego Township, MI; the cause is unknown.
- February 27, 2020: 400,000 hens at a Michael Foods facility in Bloomfield, NE; the cause is unknown.
- April 23, 2020: 280,000 hens at a Gemperle Farms facility in Stanislaus County, CA; the cause is unknown.
- July 20, 2020: 280,000 hens at Red Bird Egg Farm in Piles Grove, NJ; the cause is unknown.
- January 21, 2021: 67,000 hens at A&L Farms in Upper Bern Township, Pennsylvania; the cause is unknown.
- March 6, 2021: 166,000 hens at a Hickman's Family Farms facility in Arlington, AZ; the cause was an electrical malfunction.
- November 27, 2021: 200,000 hens at a Hen Haven facility in Clearfield, IA; the cause is unknown.
- January 28, 2023: 100,000 hens at a Hillandale Farms facility in Bozrah, CT; the cause is unknown.

**Total: 2,063,750 hens.**

\* List includes only fires in which it could be confirmed that hens lived in a cage-free facility; in some cases, media accounts did not state the type of housing system.

Appendix 2

FOIA Results:

HPAI Bird Depopulations, February 2022-July 2023

**b6**

Premises	Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
	New York	Ulster 01	Backyard Producer	HPAI 2022	KEDS	2/28/2022
	New York	Dutchess 01	Backyard Producer	HPAI 2022	Cervical Dislocation	2/26/2022
	Michigan	Kalamazoo 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	2/24/2022
	Maine	Knox 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	2/23/2022
	Indiana	Dubois 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	2/23/2022
	New York	Suffolk 01	Backyard Producer	HPAI 2022	Cervical Dislocation	2/20/2022
	Indiana	Greene 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	2/19/2022
	Maine	Knox 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	2/19/2022
	Indiana	Greene 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	2/18/2022
	Kentucky	Fulton 01	Commercial Broiler Production	HPAI 2022	Ventilation Shutdown Plus/Foam/Cervical Dislocation	2/15/2022
	Indiana	Dubois 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	2/15/2022
	Kentucky	Webster 01	Commercial Turkey Meat Bird	HPAI 2022	Ventilation Shutdown Plus/Foam	2/15/2022
	Virginia	Fauquier 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	2/12/2022
	Indiana	Dubois 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	2/9/2022
	Pennsylvania	Delaware 01	Live Bird Sales / Slaughter	LPAI 2022	Cervical Dislocation/Exsanguination	1/7/2022
	Minnesota	Kandiyohi 001	Commercial Turkey Meat Bird	LPAI 2022	Humane/Controlled Slaughter	12/11/2021
	Minnesota	Kandiyohi 002	Commercial Turkey Meat Bird	LPAI 2022	Foam	12/9/2021
	California	Stanislaus 01	Commercial Quail Producer	LPAI 2021	CO2 Cart/Container	10/13/2021
	Pennsylvania	York 01	Other	LPAI 2021	CO2 Cart/Container	6/11/2021

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Delaware	New Castle 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/ CO2	3/1/2022
Iowa	Pottawattamie 01	Backyard Producer	HPAI 2022	KEDS	3/1/2022
Connecticut	New London 01	Backyard Producer	HPAI 2022	CO2/CED	3/1/2022
Indiana	Dubois 04	Commercial Turkey Meat Bird	HPAI 2022	Foam	3/1/2022
Missouri	Bates 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/5/2022
Missouri	Stoddard 01	Commercial Broiler Production	HPAI 2022	VSD+ heat/foam	3/5/2022
Iowa	Buena Vista 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	3/7/2022
South Dakota	Charles Mix 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/7/2022
Maryland	Cecil 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	3/8/2022
Maryland	Queen Anne's 01	Commercial Broiler Production	HPAI 2022	VSD+ heat	3/9/2022
Missouri	Jasper 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	3/9/2022
Missouri	Lawrence 01	Commercial Turkey Breeder Replacement Hens	HPAI 2022	Foam	3/9/2022
Delaware	New Castle 02	Commercial Table Egg Pullets	HPAI 2022	VSD+ heat/CO2	3/11/2022
Kansas	Franklin 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/12/2022
Illinois	McLean 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/12/2022
Maine	Lincoln 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/13/2022
Maryland	Cecil 02	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	3/13/2022
South Dakota	Charles Mix 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/13/2022
Iowa	Taylor 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2/Cervical Dislocation	3/14/2022
Maine	York 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/16/2022
Missouri	Rails 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/16/2022
Nebraska	Merrick 01	Backyard Producer	HPAI 2022	CO2/Barbiturate	3/16/2022
Delaware	Kent 01	Commercial Broiler Production	HPAI 2022	VSD+ heat/foam	3/17/2022
Kansas	Sedgwick 01	Backyard Producer	HPAI 2022	Cervical Dislocation	3/17/2022
Maine	Lincoln 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/18/2022
New Hampshire	Rockingham 01	Backyard Producer	HPAI 2022	CO2/Cervical Dislocation	3/18/2022
Maine	York 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/19/2022
South Dakota	Kingsbury 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	3/19/2022
South Dakota	Hanson 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/19/2022
Kansas	Dickinson 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/19/2022
Maine	Knox 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/21/2022
Iowa	Warren 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/21/2022
Nebraska	Butler 01	Commercial Broiler Production	HPAI 2022	VSD+ heat	3/22/2022
Maryland	Cecil 04	Commercial Table Egg Pullets	HPAI 2022	VSD+ heat/cervical dislocation	3/22/2022
South Dakota	Hutchinson 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/23/2022
Maine	Cumberland 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/23/2022
South Dakota	Edmunds 01	Commercial Turkey Breeder Hens	HPAI 2022	VSD+ heat	3/23/2022
South Dakota	Hanson 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/24/2022
South Dakota	Beadle 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	3/24/2022
South Dakota	Charles Mix 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/24/2022
Iowa	Buena Vista 02	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	3/24/2022
Iowa	Buena Vista 03	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	3/24/2022
South Dakota	Beadle 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	3/24/2022
South Dakota	Kingsbury 02	Commercial Table Egg Layer	HPAI 2022	CO2 Cart/Container	3/24/2022
Nebraska	Butler 02	Commercial Broiler Production	HPAI 2022	VSD+ heat	3/25/2022
Michigan	Macomb 01	Backyard Producer	HPAI 2022	Injectable	3/25/2022
Kansas	Mitchell 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/26/2022
Minnesota	Mower 01	Backyard Producer	HPAI 2022	KEDS	3/26/2022
South Dakota	Jerauld 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/26/2022
South Dakota	Hutchinson 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/26/2022
Nebraska	Holt 01	Backyard Producer	HPAI 2022	Injectable/Barbiturate/cervical dislocation	3/26/2022
South Dakota	Bon Homme 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/27/2022
Iowa	Franklin 01	Commercial Table Egg Pullets	HPAI 2022	VSD+ heat	3/27/2022
Missouri	Gentry 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/27/2022
Minnesota	Stearns 01	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS/captive bolt	3/27/2022
South Dakota	Clark 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/28/2022
Wyoming	Park 01	Backyard Producer	HPAI 2022	KEDS	3/28/2022
North Carolina	Johnston 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	3/28/2022
Maine	Washington 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/28/2022
South Dakota	Hutchinson 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/28/2022
Minnesota	Meeker 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/28/2022
New York	Suffolk 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/29/2022
South Dakota	McPherson 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/29/2022
Wyoming	Johnson 01	Backyard Producer	HPAI 2022	Euthanasia	3/29/2022
Maine	Knox 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/29/2022
Iowa	Hamilton 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	3/29/2022
New York	Suffolk 02	Commercial Upland Gamebird Producer	HPAI 2022	CO2 Cart/Container	3/30/2022
New York	Suffolk 02	Commercial Upland Gamebird Producer	HPAI 2022	CO2 Cart/Container	3/30/2022
Minnesota	Kandiyohi 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	3/30/2022
Ohio	Franklin 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/30/2022
Maine	Lincoln 03	Backyard Producer	HPAI 2022	Injectable	3/30/2022
Massachusetts	Berkshire 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	3/30/2022
South Dakota	Spink 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/30/2022

South Dakota	Bon Homme 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/30/2022
Iowa	Buena Vista 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	3/30/2022
Wisconsin	Jefferson 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat	3/30/2022
Minnesota	Lac Qui Parle 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/captive bolt	3/30/2022
Minnesota	Stearns 02	Backyard Producer	HPAI 2022	KEDS/captive bolt	3/31/2022
Minnesota	Morrison 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	3/31/2022
South Dakota	Edmunds 02	Commercial Turkey Breeder Hens	HPAI 2022	VSD+ heat	3/31/2022
South Dakota	Brule 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/foam	3/31/2022



Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
New York	Monroe 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/1/2022
Missouri	Jasper 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/1/2022
South Dakota	McPherson 02	Commercial Turkey Breeder Hens	HPAI 2022	Foam	4/1/2022
North Carolina	Johnston 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/1/2022
Iowa	Cherokee 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/1/2022
North Dakota	Dickey 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/1/2022
Minnesota	Stearns 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/Foam	4/2/2022
North Dakota	Dickey 02	Commercial Turkey Meat Bird	HPAI 2022	CO2 Cart/Container	4/2/2022
South Dakota	Edmunds 03	Commercial Turkey Breeder Replacement Hens	HPAI 2022	VSD+ Heat & Foam	4/2/2022
Wisconsin	Rock 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/2/2022
South Dakota	Charles Mix 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/Foam	4/2/2022
North Carolina	Johnston 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/2/2022
Texas	Erath 01	Commercial Upland Gamebird Producer	HPAI 2022	CO2 Cart/Container	4/2/2022
North Carolina	Wayne 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/2/2022
Iowa	Hamilton 02	Commercial Turkey Poult Supplier	HPAI 2022	VSD+ Heat	4/2/2022
Minnesota	Dodge 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/3/2022
Minnesota	LeSueur 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/3/2022
Iowa	Sac 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/3/2022
Nebraska	Scotts Bluff 01	Backyard Producer	HPAI 2022	Injectable	4/3/2022
Minnesota	Kandiyohi 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/3/2022
Iowa	Humboldt 01	Commercial Table Egg Breeder	HPAI 2022	VSD+ Heat	4/3/2022
North Carolina	Wayne 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/4/2022
Illinois	Carroll 01	Backyard Producer	HPAI 2022	KEDS	4/4/2022
South Dakota	Lake 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/4/2022
North Dakota	LaMoure 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/4/2022
South Dakota	Spink 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/Foam	4/4/2022
Minnesota	Kandiyohi 03	Commercial Turkey Breeder Hens	HPAI 2022	Foam/Cervical Dislocation VSD+ Heat & Cervical Dislocation	4/4/2022 4/5/2022
Minnesota	Waseca 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/5/2022
Minnesota	Morrison 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/5/2022
Minnesota	Kandiyohi 04	Commercial Turkey Breeder Hens	HPAI 2022	Foam	4/5/2022
North Dakota	LaMoure 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/Foam	4/5/2022
South Dakota	McPherson 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/5/2022
Wyoming	Fremont 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/5/2022
Minnesota	Morrison 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/5/2022
Iowa	Guthrie 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	4/6/2022
South Dakota	Faulk 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/6/2022
Iowa	Hardin 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/6/2022
Minnesota	Morrison 04	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/6/2022
Minnesota	Waseca 02	Commercial Turkey Meat Bird	HPAI 2022	Foam/Captive Bolt	4/6/2022
Maine	Waldo 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/6/2022
South Dakota	Spink 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/6/2022
South Dakota	Clark 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/6/2022
North Dakota	Cass 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/6/2022
North Carolina	Wayne 03	Commercial Broiler Production	HPAI 2022	Foam	4/6/2022
North Carolina	Wayne 04	Commercial Broiler Production	HPAI 2022	Foam	4/6/2022
Minnesota	Becker 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/6/2022
Minnesota	Big Stone 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/6/2022
Missouri	Lawrence 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/6/2022
South Dakota	Beadle 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/7/2022
New York	Orleans 01	Backyard Producer	HPAI 2022	CO2/Cervical Dislocation	4/7/2022
Wisconsin	Racine 01	Backyard Producer	HPAI 2022	KEDS	4/7/2022
North Carolina	Wayne 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/7/2022
South Dakota	McPherson 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/7/2022
Missouri	Dade 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/7/2022
South Dakota	Clark 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/7/2022
Wyoming	Park 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/7/2022
Minnesota	Kandiyohi 05	Commercial Turkey Breeder Hens	HPAI 2022	Foam	4/7/2022
Minnesota	Stearns 04	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/7/2022
Minnesota	Otter Tail 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/7/2022
Minnesota	Renville 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/8/2022
New York	Fulton 01	Backyard Producer	HPAI 2022	KEDS	4/8/2022
Colorado	Pitkin 01	Backyard Producer	HPAI 2022	Other	4/8/2022
Minnesota	LeSueur 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/8/2022
South Dakota	Edmunds 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/8/2022
Indiana	Elkhart 01	Commercial Duck Breeder	HPAI 2022	KEDS	4/8/2022
Minnesota	Meeker 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/8/2022
Montana	Judith Basin 01	Backyard Producer	HPAI 2022	Cervical Dislocation	4/8/2022
North Dakota	Stutsman 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/8/2022

Minnesota	Stearns 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/8/2022
Minnesota	Swift 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/8/2022
South Dakota	Yankton 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/9/2022
Montana	Cascade 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/9/2022
Wisconsin	Barron 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/10/2022
Minnesota	Todd 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/10/2022
Minnesota	Morrison 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/10/2022
Wyoming	Sheridan 01	Backyard Producer	HPAI 2022	All birds died. No depopulation.	4/11/2022
Kansas	McPherson 01	Commercial Turkey Breeder Hens	HPAI 2022	Foam	4/11/2022
Montana	Toole 01	Backyard Producer	HPAI 2022	Other	4/11/2022
Minnesota	Yellow Medicine 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/11/2022
Minnesota	Morrison 06	Commercial Broiler Production	HPAI 2022	VSD+ Heat	4/11/2022
Minnesota	Kandiyohi 06	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/11/2022
Minnesota	Waseca 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/Cervical Dislocation	4/12/2022
Minnesota	Benton 02	Backyard Producer	HPAI 2022	KEDS	4/12/2022
Minnesota	Blue Earth 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/12/2022
Minnesota	Benton 01	Backyard Producer	HPAI 2022	Other	4/12/2022
Michigan	Menominee 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/12/2022
North Carolina	Wayne 06	Commercial Broiler Production	HPAI 2022	Foam	4/12/2022
North Dakota	Barnes 01	Backyard Producer	HPAI 2022	Other	4/12/2022
Indiana	Elkhart 02	Commercial Duck Meat Bird	HPAI 2022	KEDS	4/13/2022
Minnesota	Blue Earth 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/13/2022
Michigan	Menominee 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/13/2022
Minnesota	Meeker 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/13/2022
Minnesota	Otter Tail 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/13/2022
Idaho	Caribou 01	Backyard Producer	HPAI 2022	N/A; all birds died prior to depopulation	4/14/2022
Michigan	Macomb 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/14/2022
Wisconsin	Polk 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/14/2022
Utah	Utah 01	Backyard Producer	HPAI 2022	Injectable	4/14/2022
South Dakota	Deuel 01	Commercial Upland Gamebird Producer	HPAI 2022	Other	4/14/2022
Wisconsin	Sheboygan 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/14/2022
Wisconsin	Columbia 01	Backyard Producer	HPAI 2022	CO2/Gunshot	4/15/2022
North Dakota	LaMoure 01	Backyard Producer	HPAI 2022	All birds died. No depopulation.	4/15/2022
Michigan	Livingston 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/15/2022
Minnesota	Kandiyohi 07	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/15/2022
Idaho	Gooding 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/15/2022
Minnesota	Morrison 07	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat/CO2	4/15/2022
North Dakota	Sheridan 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/16/2022
Iowa	Osceola 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	4/16/2022
Minnesota	Morrison 08	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/16/2022
Minnesota	Morrison 09	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/16/2022
Minnesota	Kandiyohi 08	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	4/16/2022
Minnesota	Meeker 04	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	4/16/2022
North Dakota	Stutsman 02	Backyard Producer	HPAI 2022	Producer depopulated.	4/17/2022
Pennsylvania	Lancaster 01	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	4/17/2022
Minnesota	Otter Tail 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/KEDS	4/17/2022
Minnesota	Swift 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/17/2022
Colorado	La Plata 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/17/2022
Michigan	Menominee 03	Backyard Producer	HPAI 2022	Injectable	4/18/2022
Minnesota	Morrison 10	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/18/2022
Minnesota	Stearns 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat/Captive Bolt	4/19/2022
Minnesota	Todd 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/19/2022
Minnesota	Todd 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/19/2022
Indiana	Elkhart 03	Commercial Duck Meat Bird	HPAI 2022	KEDS	4/19/2022
Minnesota	Stearns 07	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/19/2022
Minnesota	Morrison 11	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	4/20/2022
Minnesota	Todd 04	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/20/2022
Idaho	Gooding 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/20/2022
Minnesota	Todd 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/20/2022
North Dakota	Renville 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/21/2022
Minnesota	Otter Tail 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/21/2022
Pennsylvania	Lancaster 04	Commercial Broiler Production	HPAI 2022	VSD+ Heat	4/21/2022
Idaho	Madison 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/21/2022
Iowa	Bremer 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/21/2022
North Dakota	Richland 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	4/22/2022
Minnesota	Yellow Medicine 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/22/2022
Minnesota	Swift 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	4/22/2022

Colorado	Montrose 01	Commercial Broiler Breeder	HPAI 2022	CO2 Whole House	4/22/2022
Nebraska	Dixon 01	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat/CO2	4/22/2022
Minnesota	Stearns 08	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/23/2022
Pennsylvania	Lancaster 02	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	4/23/2022
Iowa	Kossuth 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/23/2022
Minnesota	Rice 01	Backyard Producer	HPAI 2022	KEDS	4/23/2022
Pennsylvania	Lancaster 03	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	4/24/2022
Wisconsin	Polk 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/24/2022
Michigan	Menominee 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/25/2022
Montana	Missoula 01	Backyard Producer	HPAI 2022	Other	4/25/2022
North Dakota	Richland 02	Backyard Producer	HPAI 2022	Other	4/26/2022
Wisconsin	Barron 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	4/27/2022
Michigan	Saginaw 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/27/2022
Vermont	Caledonia 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/27/2022
Minnesota	Swift 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/27/2022
Montana	Glacier 01	Backyard Producer	HPAI 2022	CO2 Whole House	4/27/2022
Indiana	Johnson 01	Backyard Producer	HPAI 2022	Euthanasia/Cervical	
Kansas	Republic 01	Backyard Producer	HPAI 2022	Dislocation/CO2	4/27/2022
Minnesota	Carver 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/28/2022
Wisconsin	Barron 03	Backyard Producer	HPAI 2022	Cervical Dislocation/KEDS	4/28/2022
Minnesota	Stearns 09	Commercial Turkey Breeder Hens	HPAI 2022	Producer depopulated.	4/28/2022
Pennsylvania	Lancaster 06	Commercial Broiler Breeder Pullets	HPAI 2022	Foam	4/28/2022
Michigan	Wexford 01	Backyard Producer	HPAI 2022	Foam	4/28/2022
				CO2 Cart/Container	4/28/2022
Nebraska	Washington 01	Backyard Producer	HPAI 2022	Injectable barbiturate/cervical	
Pennsylvania	Lancaster 05	Commercial Table Egg Layer	HPAI 2022	dislocation	4/28/2022
Wisconsin	Oconto 01	Other	HPAI 2022	VSD+ Heat	4/29/2022
Wisconsin	Fond du Lac 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/29/2022
Pennsylvania	Lancaster 07	Commercial Duck Meat Bird	HPAI 2022	KEDS	4/29/2022
Montana	Pondera 01	Backyard Producer	HPAI 2022	VSD+ Heat	4/29/2022
Michigan	Branch 01	Backyard Producer	HPAI 2022	Cervical Dislocation	4/29/2022
Minnesota	Morrison 12	Backyard Producer	HPAI 2022	Injectable	4/30/2022
Minnesota	Chisago 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/30/2022
Alaska	Matanuska Susitna	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/30/2022
Montana	Fergus 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	4/30/2022
Oklahoma	Sequoyah 01	Commercial Broiler Breeder	HPAI 2022	Cervical Dislocation	4/30/2022
Utah	Cache 01	Commercial Table Egg Layer	HPAI 2022	Cervical Dislocation	4/30/2022
Nebraska	Knox 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	5/13/2022
				VSD+ heat/CO2	5/15/2022

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Premises	Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
	Minnesota	Chisago 02	Backyard Producer	HPAI 2022	KEDS/CO2	5/1/2022
	Wisconsin	Barron 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	5/1/2022
	Wisconsin	Barron 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	5/2/2022
	South Dakota	Beadle 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	5/2/2022
	South Dakota	Hamlin 01	Backyard Producer	HPAI 2022	N/A	5/2/2022
	Minnesota	Chisago 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/2/2022
	Montana	Gallatin 01	Backyard Producer	HPAI 2022	Cervical Dislocation	5/2/2022
	Wisconsin	Polk 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/3/2022
	Minnesota	Lyon 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	5/3/2022
	Wisconsin	Sauk 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/3/2022
	South Dakota	Day 01	Backyard Producer	HPAI 2022	Cervical Dislocation	5/3/2022
	Iowa	Bremer 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/3/2022
	Illinois	Kane 01	Backyard Producer	HPAI 2022	KEDS	5/4/2022
	Pennsylvania	Berks 02	Commercial Duck Meat Bird	HPAI 2022	VSD+ Heat & Foam	5/4/2022
	Pennsylvania	Berks 01	Commercial Duck Breeder	HPAI 2022	Foam	5/4/2022
	Minnesota	Carver 02	Backyard Producer	HPAI 2022	KEDS	5/4/2022
	Montana	Fergus 02	Backyard Producer	HPAI 2022	Cervical Dislocation	5/4/2022
	Wisconsin	Pierce 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/5/2022
	Minnesota	Anoka 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/5/2022
	Wisconsin	Barron 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	5/6/2022
	Michigan	Oakland 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/6/2022
	Washington	Pacific 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/6/2022
	Oregon	Linn 01	Backyard Producer	HPAI 2022	CO2 Cart/Container & Captive Bolt	5/6/2022
	Washington	Spokane 01	Backyard Producer	HPAI 2022	CO2 Cart/Container & Gunshot	5/7/2022
	Pennsylvania	Berks 03	Commercial Poultry Slaughter	HPAI 2022	Foam	5/8/2022
	Pennsylvania	Berks 04	Commercial Duck Breeder	HPAI 2022	Foam	5/8/2022
	Pennsylvania	Lancaster 08	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	5/9/2022
	Minnesota	Todd 06	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/9/2022
	Colorado	Weld 01	Commercial Table Egg Layer	HPAI 2022	CO2 & VSD+ Heat	5/9/2022
	Minnesota	Crow Wing 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/9/2022
	Pennsylvania	Berks 05	Commercial Duck Meat Bird	HPAI 2022	VSD+ Heat	5/10/2022
	Idaho	Canyon 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/10/2022
	Washington	Pierce 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/10/2022
	Michigan	Muskegon 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	5/10/2022
	Idaho	Ada 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/11/2022
	Minnesota	Chisago 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/11/2022
	Minnesota	Chisago 05	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/11/2022
	Minnesota	Grant 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/11/2022
	Utah	Cache 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/11/2022
	Washington	Clallam 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/12/2022
	Washington	Clallam 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/12/2022
	Wisconsin	Barron 07	Commercial Turkey Meat Bird	HPAI 2022	Foam	5/12/2022
	Wyoming	Lincoln 01	Backyard Producer	HPAI 2022	Cervical Dislocation	5/12/2022
	Indiana	Allen 01	Backyard Producer	HPAI 2022	Injectable	5/12/2022
	Washington	Whatcom 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/13/2022
	Idaho	Ada 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/13/2022
	Washington	Okanogan 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/13/2022

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Wisconsin	Marinette 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/14/2022
Washington	Pierce 01	Backyard Producer	HPAI 2022	CO2 Cart/Container & Gunshot	5/14/2022
Pennsylvania	Berks 06	Commercial Table Egg Breeder	HPAI 2022	VSD+ Heat	5/15/2022
Minnesota	Clay 01	Backyard Producer	HPAI 2022	N/A	5/15/2022
Wisconsin	Dunn 01	Backyard Producer	HPAI 2022	Cervical Dislocation	5/15/2022
Illinois	Boone 01	Backyard Producer	HPAI 2022	Cervical Dislocation	5/16/2022
Pennsylvania	Berks 07	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	5/16/2022
Idaho	Canyon 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/16/2022
Idaho	Ada 04	Backyard Producer	HPAI 2022	CO2 Cart/Container & Injectable	5/17/2022
Utah	Salt Lake 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/17/2022
North Dakota	Burke 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/17/2022
Pennsylvania	Berks 08	Commercial Duck Breeder	HPAI 2022	Foam	5/18/2022
New Jersey	Monmouth 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/18/2022
Minnesota	Kandiyohi 09	Commercial Turkey Breeder Toms	HPAI 2022	Foam	5/18/2022
Oregon	Lane 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/18/2022
Colorado	Jefferson 01	Animal Rescue / Rehabilitation	HPAI 2022	Injectable	5/18/2022
Minnesota	Polk 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/19/2022
Idaho	Canyon 05	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/19/2022
Idaho	Canyon 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/19/2022
Idaho	Canyon 07	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/20/2022
Idaho	Ada 06	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/20/2022
Minnesota	Dakota 01	Commercial Turkey Meat Bird	HPAI 2022	Foam & KEDS	5/20/2022
South Dakota	Codington 01	Backyard Producer	HPAI 2022	Cervical Dislocation	5/21/2022
Pennsylvania	Berks 09	Commercial Duck Breeder	HPAI 2022	Foam	5/22/2022
Idaho	Canyon 09	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/23/2022
Utah	Sanpete 01	Commercial Turkey Meat Bird	LPAI 2022	Humane/Controlled Slaughter	5/23/2022
Wisconsin	Bayfield 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/23/2022
Idaho	Ada 09	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/23/2022
Washington	Thurston 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/24/2022
Idaho	Canyon 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/24/2022
Idaho	Ada 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/24/2022
Idaho	Canyon 10	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/24/2022
Idaho	Canyon 06	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/25/2022
Washington	King 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/26/2022
Idaho	Ada 10	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/26/2022
Washington	King 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/27/2022
Washington	King 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/27/2022
Minnesota	Becker 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/27/2022
Idaho	Ada 11	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/27/2022
Washington	Snohomish 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	5/28/2022

(b)(3) Section 1619 of the Farm Bill

Premises	Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
	Washington	Snohomish 02	Backyard Producer	HPAI 2022	Longnetting/CO2 Cart/Container	6/1/2022
	Pennsylvania	Berks 10	Commercial Duck Meat Bird	HPAI 2022	VSD+ Heat	6/2/2022
	Indiana	Allen 02	Backyard Producer	HPAI 2022	Injectable	6/3/2022
	Indiana	Allen 03	Backyard Producer	HPAI 2022	Injectable	6/3/2022
	Washington	King 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/6/2022
	North Dakota	McHenry 01	Backyard Producer	HPAI 2022	Cervical Dislocation	6/6/2022
	Washington	Snohomish 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/8/2022
	Washington	Snohomish 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/8/2022
	Oregon	Polk 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/9/2022
	Washington	Yakima 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/10/2022
	Colorado	Weld 03	Commercial Table Egg Pullets	HPAI 2022	CO2 Cart/Container	6/10/2022
	Washington	Yakima 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/11/2022
	Utah	Salt Lake 02	Petting Zoo/Exhibition Farm	HPAI 2022	CO2 Cart/Container	6/11/2022
	Wyoming	Sheridan 02	Backyard Producer	HPAI 2022	N/A	6/13/2022
	Washington	King 05	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/18/2022
	Washington	King 06	Backyard Producer	HPAI 2022	Cervical Dislocation	6/18/2022
	Washington	Yakima 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/18/2022
	Washington	Snohomish 05	Backyard Producer	HPAI 2022	Firearm/CO2 Cart/Container	6/20/2022
	Colorado	Weld 02	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	6/24/2022
	Washington	Yakima 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/28/2022
	Maine	Cumberland 02	Backyard Producer	HPAI 2022	Injectable	6/29/2022
	Washington	Kitsap 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	6/30/2022

(b)(3) Section 1619 of  
the Farm bill

Premises	Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
	Utah	Salt Lake 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/1/2022
	Washington	Jefferson 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/2/2022
	Oregon	Linn 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/2/2022
	Nevada	Carson City 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/8/2022
	Oregon	Deschutes 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/11/2022
	Utah	Sanpete 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat	7/13/2022
	Oregon	Deschutes 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/14/2022
	Oregon	Deschutes 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/15/2022
	Washington	Snohomish 06	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/18/2022
	Utah	Sanpete 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/CO2	7/19/2022
	Oregon	Deschutes 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/20/2022
	Florida	Seminole 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/22/2022
	Montana	Flathead 01	Backyard Producer	HPAI 2022	Cervical Dislocation	7/23/2022
	Washington	Jefferson 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	7/23/2022
					VSD+ heat/CO2/Cervical	
	Utah	Sanpete 03	Commercial Turkey Meat Bird	HPAI 2022	Dislocation	7/26/2022
	Oregon	Coos 01	Backyard Producer	HPAI 2022	Long range shot	7/27/2022

Premises	Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
00RM8UA	California	Sacramento 01	Backyard Producer	HPAI 2022	Other	8/9/2022
0012N0A	Florida	Osceola 01	Backyard Producer	HPAI 2022	Injectable	8/11/2022
00RM5FH	Pennsylvania	Northampton 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	8/11/2022
00R0EZ6	Washington	Walla Walla 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	8/16/2022
00HUWA5	Washington	Kitsap 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	8/19/2022
0018RCR	California	Butte 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	8/19/2022
00HTED9	California	Contra Costa 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	8/22/2022
0011EDS	Utah	Weber 01	Backyard Producer	HPAI 2022	Injectable CO2/long netting/cervical dislocation	8/24/2022
00LXN42	Washington	Pierce 04	Backyard Producer	HPAI 2022		8/25/2022
001MDJR	Washington	Cowlitz 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	8/25/2022
00RLZJ6	Georgia	Henry 01	Animal Rescue / Rehabilitation	HPAI 2022	CO2 Cart/Container	8/26/2022
000N5TC	California	Fresno 01	Commercial Broiler Breeder	HPAI 2022	VSD+ Heat & Foam	8/26/2022
000N5SE	California	Fresno 02	Commercial Broiler Breeder	HPAI 2022	Foam	8/27/2022
00RLLT3	Virginia	Caroline 01	Non Animal Production	HPAI 2022	CO2 Cart/Container	8/28/2022
00RLR2X	California	Tuolumne 02	Commercial Turkey Meat Bird	HPAI 2022	Cervical Dislocation	8/28/2022
00RLRRK	California	Tuolumne 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	8/29/2022
00RLRMU	California	Sacramento 02	Commercial Turkey Meat Bird	HPAI 2022	CO2 Cart/Container	8/29/2022
00RLLGT	Minnesota	Meeker 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	8/29/2022
00NB9H0	California	Tuolumne 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	8/30/2022
00RLDVV	Minnesota	Meeker 06	Commercial Turkey Meat Bird	HPAI 2022	Foam	8/30/2022
00RL07Q	Indiana	Elkhart 04	Backyard Producer	HPAI 2022	CO2/Injectable	8/31/2022
00RKVZX	Minnesota	Hennepin 01	Backyard Producer	HPAI 2022	KEDS	8/31/2022



Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
California	Tuolumne 04	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/1/2022
North Dakota	Cass 02	Backyard Producer	HPAI 2022	KEDS	9/1/2022
Wisconsin	Washington 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/2/2022
California	Fresno 03	Commercial Broiler Breeder	HPAI 2022	Foam	9/3/2022
Minnesota	Meeker 07	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/4/2022
California	Sacramento 03	Backyard Producer	HPAI 2022	KEDS	9/6/2022
Minnesota	Morrison 13	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	9/7/2022
Minnesota	Freeborn 01	Backyard Producer	HPAI 2022	KEDS	9/10/2022
Minnesota	Becker 03	Commercial Turkey Breeder Hens	HPAI 2022	VSD+ Heat	9/10/2022
Minnesota	Stearns 10	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/10/2022
California	Fresno 04	Commercial Broiler Breeder	HPAI 2022	Foam	9/11/2022
Minnesota	Meeker 08	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/11/2022
Ohio	Ashland 02	Backyard Producer	HPAI 2022	Gunshot/Cervical Dislocation	9/12/2022
Ohio	Ashland 01	Backyard Producer	HPAI 2022	Gunshot/Cervical Dislocation	9/12/2022
Minnesota	Brown 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/12/2022
Michigan	Ingham 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/13/2022
Minnesota	Otter Tail 05	Commercial Turkey Breeder Hens	HPAI 2022	Foam	9/13/2022
Utah	Sanpete 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	9/13/2022
Ohio	Defiance 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2/Cervical Dislocation	9/13/2022
Minnesota	Isanti 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/14/2022
Montana	Teton 01	Backyard Producer	HPAI 2022	Cervical dislocation/stunning/exsanguination	9/14/2022
Ohio	Williams 01	Backyard Producer	HPAI 2022	CO2/gunshot	9/14/2022
California	El Dorado 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/15/2022
Washington	Pierce 05	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/15/2022
California	Fresno 05	Commercial Broiler Breeder	HPAI 2022	Foam	9/15/2022
Ohio	Summit 01	Backyard Producer	HPAI 2022	KEDS/Cervical dislocation	9/15/2022
Tennessee	Obion 01	Backyard Producer	HPAI 2022	KEDS/Cervical dislocation	9/16/2022
Idaho	Twin Falls 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/16/2022
Massachusetts	Bristol 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/16/2022
North Dakota	Ward 01	Backyard Producer	HPAI 2022	Gunshot	9/17/2022
Michigan	Macomb 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/17/2022
Nebraska	Dawes 01	Backyard Producer	HPAI 2022	Cervical Dislocation	9/17/2022
Minnesota	Brown 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/17/2022
Minnesota	Stearns 11	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/18/2022
South Dakota	Clark 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	9/18/2022
South Dakota	Clark 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	9/19/2022
Minnesota	Otter Tail 06	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/20/2022
Minnesota	Roseau 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/21/2022
Minnesota	Todd 07	Backyard Producer	HPAI 2022	CO2/KEDS	9/21/2022
Pennsylvania	Washington 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/21/2022
Pennsylvania	Washington 02	Backyard Producer	HPAI 2022	CO2/Cervical dislocation	9/21/2022
South Dakota	Kingsbury 03	Backyard Producer	HPAI 2022	Cervical Dislocation	9/22/2022
Utah	Sanpete 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	9/22/2022
Utah	Sanpete 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	9/22/2022
Pennsylvania	Washington 01	Backyard Producer	HPAI 2022	CO2/Cervical dislocation	9/22/2022
California	Fresno 06	Backyard Producer	HPAI 2022	Injectable	9/23/2022
Delaware	Kent 03	Backyard Producer	HPAI 2022	CO2/captive bolt/cervical dislocation	9/23/2022
Delaware	Kent 02	Backyard Producer	HPAI 2022	CO2/captive bolt/cervical dislocation	9/23/2022
Maryland	Anne Arundel 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/24/2022
South Dakota	McPherson 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	9/25/2022
Idaho	Gooding 03	Commercial Upland Gamebird Producer	HPAI 2022	CO2 Cart/Container	9/25/2022
New Hampshire	Merrimack 01	Backyard Producer	HPAI 2022	Cervical Dislocation	9/26/2022
Minnesota	Goodhue 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/26/2022
North Dakota	Ransom 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	9/27/2022
California	Calaveras 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/27/2022
Pennsylvania	Lancaster 09	Backyard Producer	HPAI 2022	Cervical Dislocation	9/28/2022
Wisconsin	Dunn 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/28/2022
Oregon	Tillamook 02	Backyard Producer	HPAI 2022	CO2/firearm	9/28/2022
Oregon	Tillamook 01	Backyard Producer	HPAI 2022	All birds died prior to depop.	9/28/2022
Utah	Sanpete 09	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/28/2022
North Dakota	Nelson 01	Backyard Producer	HPAI 2022	Cervical Dislocation	9/29/2022
Wisconsin	Racine 02	Commercial Duck Meat Bird	HPAI 2022	Foam/Keds	9/29/2022
Utah	Sanpete 08	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	9/29/2022
Pennsylvania	York 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/29/2022
Utah	Sanpete 07	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	9/29/2022
Oregon	Douglas 01	Backyard Producer	HPAI 2022	CO2/firearm	9/30/2022
Alaska	Matanuska-Susitna 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/30/2022

Michigan	Tuscola 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/30/2022
Colorado	Mesa 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	9/30/2022
Utah	Sanpete 11	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/30/2022
Utah	Sanpete 10	Commercial Turkey Meat Bird	HPAI 2022	Foam	9/30/2022

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Alaska	Matanuska-Susitna 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/3/2022
Nebraska	Box Butte 01	Backyard Producer	HPAI 2022	Barbiturate/cervical dislocation	10/4/2022
Pennsylvania	Berks 11	Backyard Producer	HPAI 2022	Injectable	10/5/2022
New Mexico	Bernalillo 01	Backyard Producer	HPAI 2022	Injectable	10/5/2022
South Dakota	Brule 02	Commercial Upland Gamebird Producer	HPAI 2022	Cervical Dislocation	10/5/2022
Connecticut	New Haven 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/5/2022
Montana	Glacier 02	Backyard Producer	HPAI 2022	Stunning/exsanguination	10/5/2022
Nebraska	York 01	Commercial Upland Gamebird Producer	HPAI 2022	VSD+ heat & CO2	10/5/2022
Pennsylvania	Westmoreland 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/5/2022
Kansas	Johnson 01	Backyard Producer	HPAI 2022	Injectable	10/5/2022
Michigan	Lapeer 01	Backyard Producer	HPAI 2022	Captive Bolt/ TEDS	10/6/2022
Pennsylvania	Monroe 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/6/2022
Minnesota	Pope 01	Backyard Producer	HPAI 2022	All birds died. No depopulation occurred.	10/6/2022
Kansas	Neosho 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/6/2022
South Dakota	Gregory 01	Commercial Upland Gamebird Producer	HPAI 2022	Cervical Dislocation	10/7/2022
California	Del Norte 01	Independent Table Egg Producer	HPAI 2022	Cervical Dislocation	10/7/2022
California	Monterey 01	Commercial Duck Breeder	HPAI 2022	CO2 Cart/Container	10/7/2022
Utah	Sanpete 13	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/7/2022
Arkansas	Madison 01	Commercial Broiler Breeder Pullets	HPAI 2022	Foam	10/7/2022
Utah	Sanpete 12	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/8/2022
South Dakota	Hamlin 02	Backyard Producer	HPAI 2022	Cervical Dislocation	10/8/2022
Florida	Martin 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/8/2022
Kentucky	Fayette 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/8/2022
South Dakota	Beadle 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ & Foam	10/10/2022
Pennsylvania	Adams 01	Backyard Producer	HPAI 2022	Foam	10/11/2022
Colorado	Boulder 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/11/2022
Wyoming	Fremont 02	Backyard Producer	HPAI 2022	All birds died. No depopulation occurred.	10/11/2022
Michigan	Genesee 01	Backyard Producer	HPAI 2022	Injectable	10/11/2022
Florida	Broward 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/11/2022
California	Stanislaus 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/12/2022
Colorado	Weld 05	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/13/2022
Michigan	Lapeer 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/13/2022
Alaska	Matanuska-Susitna 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/13/2022
Colorado	Larimer 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/13/2022
Utah	Sanpete 14	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/13/2022
New Jersey	Warren 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/14/2022
Pennsylvania	Adams 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/14/2022
Arkansas	Pope 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/14/2022
Florida	Osceola 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/14/2022
Wisconsin	St. Croix 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/14/2022
Kentucky	Logan 01	Backyard Producer	HPAI 2022	CO2/Long netting	10/14/2022
North Dakota	Traill 01	Backyard Producer	HPAI 2022	CO2/gunshot	10/16/2022
Utah	Sanpete 15	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/16/2022
Florida	Broward 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/17/2022
Oklahoma	Creek 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/17/2022
Oklahoma	Tulsa 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/17/2022
Utah	Sanpete 16	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/17/2022
Colorado	Jefferson 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/19/2022
Florida	Okeechobee 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/19/2022
Florida	Indian River 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/19/2022
Utah	Sanpete 17	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/19/2022
South Dakota	Roberts 01	Commercial Breeder Operation	HPAI 2022	Humane/Controlled Slaughter	10/20/2022
South Dakota	Spink 04	Backyard Producer	HPAI 2022	CO2/cervical dislocation/gunshot	10/20/2022
Iowa	Dallas 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/20/2022
Texas	Rockwall 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/20/2022
Montana	Hill 01	Backyard Producer	HPAI 2022	Cervical Dislocation	10/20/2022
Kansas	Shawnee 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/20/2022
Nebraska	York 02	Commercial Upland Gamebird Producer	HPAI 2022	Foam	10/20/2022
Florida	Indian River 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/20/2022
Minnesota	tasca 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/21/2022
Oklahoma	Cleveland 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/21/2022
North Carolina	Wake 01	Backyard Producer	HPAI 2022	Cervical Dislocation/long netting	10/21/2022
Idaho	Valley 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/21/2022
Rhode Island	Newport 01	Animal Rescue / Rehabilitation	HPAI 2022	CO2 Cart/Container	10/21/2022
Florida	Lake 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/22/2022
Virginia	Southampton 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/22/2022
Minnesota	Swift 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/24/2022
Florida	Indian River 04	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/24/2022
Florida	Saint Lucie 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/24/2022
Utah	Sanpete 18	Commercial Turkey Meat Bird	HPAI 2022	VSD+ heat/KEDS	10/24/2022
New Jersey	Ocean 01	Animal Rescue / Rehabilitation	HPAI 2022	CO2 Cart/Container	10/25/2022

Minnesota	Le Sueur 03	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/25/2022
South Dakota	Grant 01	Backyard Producer	HPAI 2022	Cervical Dislocation	10/26/2022
Florida	Pasco 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/26/2022
Minnesota	Stearns 12	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	10/27/2022
Minnesota	Swift 06	Commercial Turkey Meat Bird	HPAI 2022	Foam/cervical dislocation	10/28/2022
Montana	Granite 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/28/2022
Florida	Hillsborough 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/31/2022
Minnesota	Stearns 13	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	10/31/2022
Oregon	Deschutes 07	Backyard Producer	HPAI 2022	CO2 Cart/Container	10/31/2022
Tennessee	Tipton 01	Backyard Producer	HPAI 2022	CO2/KEDS	10/31/2022

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Pennsylvania	Allegheny 01	Backyard Producer	HPAI 2022	Cervical dislocation/gunshot	11/2/2022
Wisconsin	Waukesha 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/2/2022
New Jersey	Bergen 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/3/2022
Wisconsin	Marathon 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/3/2022
Arizona	Yavapai 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/3/2022
Oregon	Yamhill 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/3/2022
Massachusetts	Middlesex 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/3/2022
California	San Diego 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/3/2022
North Dakota	Boltineau 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/3/2022
Pennsylvania	Lehigh 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	11/4/2022
New York	Wayne 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/4/2022
Pennsylvania	Dauphin 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/4/2022
Arizona	Yavapai 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/4/2022
Pennsylvania	Lehigh 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	11/4/2022
South Carolina	Beaufort 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/5/2022
Wyoming	Converse 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/5/2022
Washington	Snohomish 07	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/5/2022
Virginia	Gloucester 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/5/2022
Mississippi	Lawrence 01	Commercial Broiler Breeder	HPAI 2022	Foam	11/6/2022
New York	Sullivan 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/6/2022
Florida	Broward 03	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/7/2022
Pennsylvania	Lehigh 03	Commercial Turkey Breeder Hens	HPAI 2022	KEDS	11/7/2022
Pennsylvania	Lehigh 04	Commercial Turkey Meat Bird	HPAI 2022	Foam	11/8/2022
Ohio	Butler 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/9/2022
Iowa	Wright 02	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	11/9/2022
North Dakota	Ward 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/9/2022
Pennsylvania	Lehigh 05	Commercial Turkey Meat Bird	HPAI 2022	Foam	11/10/2022
Michigan	Lapeer 03	Hunting Preserve	HPAI 2022	CO2 Cart/Container	11/10/2022
Pennsylvania	Lehigh 06	Commercial Turkey Breeder Toms	HPAI 2022	KEDS	11/10/2022
Michigan	Lapeer 04	Hunting Preserve	HPAI 2022	CO2 Cart/Container	11/11/2022
North Dakota	Mountrail 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/12/2022
New York	Queens 01	Live Bird Sales / Slaughter	HPAI 2022	Humane/Controlled Slaughter	11/13/2022
Florida	Duval 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/14/2022
Minnesota	Otter Tail 07	Commercial Turkey Meat Bird	HPAI 2022	Foam	11/14/2022
Wisconsin	Jefferson 02	Commercial Upland Gamebird Producer	HPAI 2022	Cervical dislocation/ CO2/foam	11/15/2022
Florida	Broward 04	Backyard Producer	HPAI 2022	Injectable	11/15/2022
Florida	Hillsborough 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/15/2022
Tennessee	Bledsoe 01	Commercial Broiler Breeder	HPAI 2022	VSD+ heat/cervical dislocation	11/15/2022
Pennsylvania	Berks 12	Backyard Producer	HPAI 2022	KEDS	11/17/2022
North Carolina	Union 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/18/2022
Utah	Utah 02	Petting Zoo/Exhibition Farm	HPAI 2022	Cervical dislocation/long netting	11/18/2022
Maine	Washington 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/18/2022
Florida	Seminole 02	Backyard Producer	HPAI 2022	CO2/KEDS	11/18/2022
South Dakota	Edmunds 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/19/2022
California	Fresno 07	Commercial Duck Breeder	HPAI 2022	Foam	11/19/2022
South Dakota	Beadle 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/21/2022
Missouri	Webster 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/21/2022
Minnesota	Todd 08	Commercial Turkey Meat Bird	HPAI 2022	Foam/cervical dislocation	11/21/2022
South Dakota	Brule 03	Backyard Producer	HPAI 2022	Cervical Dislocation	11/22/2022
Florida	Broward 05	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/22/2022
South Dakota	Beadle 07	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/23/2022
North Carolina	Durham 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/23/2022
Oregon	Columbia 01	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/23/2022
Tennessee	Davidson 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/23/2022
South Dakota	Faulk 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/25/2022
South Dakota	Spink 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/25/2022
South Dakota	Spink 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/25/2022
Utah	Iron 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/25/2022
Missouri	Webster 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	11/25/2022
South Dakota	Beadle 08	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/27/2022
South Dakota	Turner 01	Backyard Producer	HPAI 2022	Cervical Dislocation	11/28/2022
South Dakota	Hanson 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/28/2022
Maryland	Washington 01	Commercial Table Egg Breeder	HPAI 2022	VSD+ Heat	11/29/2022
Missouri	Jackson 02	Backyard Producer	HPAI 2022	Cervical Dislocation	11/30/2022
South Dakota	Hamlin 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/30/2022
South Dakota	Charles Mix 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	11/30/2022
Nebraska	Knox 02	Backyard Producer	HPAI 2022	CO2 Cart/Container	11/30/2022

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
South Dakota	Lake 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	12/1/2022
South Dakota	Brookings 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/1/2022
South Dakota	Clark 06	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/1/2022
South Dakota	Clark 07	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	12/2/2022
North Carolina	Union 02	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/2/2022
Iowa	Buena Vista 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/2/2022
South Dakota	Charles Mix 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	12/3/2022
Texas	Denton 01	WOAH Non-Poultry	HPAI 2022	No depopulation occurred. All birds died.	12/4/2022
Missouri	Harrison 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/4/2022
Oklahoma	Pawnee 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/5/2022
Alabama	Lawrence 01	WOAH Non-Poultry	HPAI 2022	KEDS	12/6/2022
South Dakota	Kingsbury 04	WOAH Non-Poultry	HPAI 2022	Humane depopulation	12/6/2022
Minnesota	Dodge 02	Commercial Turkey Meat Bird	HPAI 2022	Foam	12/7/2022
Iowa	Sac 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/7/2022
South Dakota	Hamlin 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	12/7/2022
Missouri	Dade 02	WOAH Non-Poultry	HPAI 2022	Owner depopulated the birds.	12/7/2022
Iowa	Cherokee 02	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/7/2022
Minnesota	Wadena 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	12/8/2022
Oregon	Clackamas 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/8/2022
Oregon	Polk 02	WOAH Non-Poultry	HPAI 2022	CO2/firearm	12/8/2022
Vermont	Lamoille 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/8/2022
South Dakota	Hanson 04	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	12/9/2022
North Carolina	Onslow 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/9/2022
Oregon	Columbia 02	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/9/2022
Missouri	Osage 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	12/9/2022
Iowa	Sac 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/10/2022
South Dakota	Spink 07	WOAH Poultry	HPAI 2022	Cervical Dislocation	12/10/2022
Minnesota	Redwood 01	WOAH Non-Poultry	HPAI 2022	KEDS	12/11/2022
Indiana	Daviess 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	12/11/2022
Iowa	Buena Vista 06	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/12/2022
Oregon	Linn 03	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/12/2022
Colorado	Prowers 01	Commercial Upland Gamebird Producer	HPAI 2022	CO2 Cart/Container	12/12/2022
Indiana	Martin 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	12/12/2022
Iowa	Cherokee 03	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/13/2022
Iowa	Ida 01	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat	12/13/2022
Montana	Flathead 02	WOAH Non-Poultry	HPAI 2022	No depopulation occurred. All birds died.	12/13/2022
Oregon	Polk 03	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/14/2022
Florida	Duval 02	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/15/2022
Nebraska	Knox 03	WOAH Poultry	HPAI 2022	Cervical dislocation/gunshot	12/16/2022
Tennessee	Weakley 01	WOAH Poultry	HPAI 2022	Foam/cervical dislocation	12/16/2022
California	Butte 02	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/17/2022
South Dakota	Moody 01	Commercial Table Egg Layer	HPAI 2022	VSD+ Heat	12/18/2022
South Dakota	Hanson 05	Commercial Turkey Meat Bird	HPAI 2022	VSD+ Heat & Foam	12/19/2022
Washington	Franklin 01	Commercial Table Egg Layer	HPAI 2022	CO2/Cervical dislocation	12/19/2022
Oregon	Umatilla 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/20/2022
Washington	Pierce 06	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/21/2022
Missouri	Bates 02	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/21/2022
Tennessee	Weakley 02	WOAH Poultry	HPAI 2022	CO2/Cervical dislocation	12/22/2022
Michigan	Sanilac 01	WOAH Non-Poultry	HPAI 2022	Injectable	12/26/2022
Tennessee	Weakley 04	Commercial Broiler Breeder	HPAI 2022	Foam	12/28/2022
Tennessee	Weakley 03	Commercial Broiler Breeder	HPAI 2022	Foam	12/28/2022
Kansas	Elk 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	12/28/2022
Washington	Snohomish 08	WOAH Poultry	HPAI 2022	CO2 Cart/Container	12/29/2022
Oregon	Josephine 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	12/30/2022
Colorado	Weld 07	Commercial Table Egg Layer	HPAI 2022	CO2 Cart/Container	12/31/2022

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Missouri	Johnson 01	WOAH Non-Poultry	HPAI 2022	CO2/KEDS	1/5/2023
California	Glenn 01	Commercial Upland Gamebird Producer	HPAI 2022	CO2/KEDS	1/5/2023
Washington	Thurston 02	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	1/5/2023
Colorado	Weld 08	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	1/6/2023
Montana	Cascade 02	WOAH Non-Poultry	HPAI 2022	Gunshot	1/6/2023
Nebraska	Scotts Bluff 02	WOAH Non-Poultry	HPAI 2022	Injectable barbiturate/cervical dislocation	1/7/2023
Kansas	Anderson 01	Commercial Upland Gamebird Producer	HPAI 2022	Foam	1/10/2023
California	Tehama 01	WOAH Poultry	HPAI 2022	Cervical Dislocation	1/13/2023
Ohio	Licking 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	1/14/2023
Texas	Lampasas 01	WOAH Poultry	HPAI 2022	CO2 Cart/Container	1/18/2023
Colorado	Larimer 03	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	1/20/2023
Kansas	Mitchell 02	Commercial Upland Gamebird Producer	HPAI 2022	CO2 Cart/Container	1/20/2023
Virginia	Rockingham 01	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	1/20/2023
Tennessee	Weakley 05	Commercial Broiler Production	HPAI 2022	VSD+ heat	1/20/2023
Oregon	Polk 04	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	1/23/2023
New Hampshire	Belknap 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	1/23/2023
Virginia	Rockingham 02	Commercial Turkey Meat Bird	HPAI 2022	Foam/TEDS	1/25/2023
North Carolina	Rowan 01	WOAH Non-Poultry	HPAI 2022	Injectable	1/25/2023
Iowa	Buena Vista 07	Commercial Turkey Meat Bird	HPAI 2022	Foam	1/26/2023
Maine	Hancock 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	1/27/2023
Pennsylvania	Lancaster 10	Commercial Duck Meat Bird	HPAI 2022	VSD+ heat	1/31/2023

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Pennsylvania	Lancaster 11	WOAH Poultry	HPAI 2022	Foam	2/1/2023
Maine	Kennebec 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	2/3/2023
California	Merced 01	Commercial Duck Breeder	HPAI 2022	CO2 Cart/Container	2/5/2023
Maine	Hancock 02	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	2/6/2023
Mississippi	Leake 01	Commercial Broiler Production	HPAI 2022	Foam/CO2	2/7/2023
Mississippi	Leake 02	Commercial Broiler Production	HPAI 2022	Foam	2/8/2023
Pennsylvania	Lancaster 12	WOAH Poultry	HPAI 2022	Foam	2/9/2023
Washington	Benton 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	2/10/2023
Kansas	Mitchell 03	Commercial Upland Gamebird	HPAI 2022	CO2 Cart/Container	2/10/2023
Missouri	Carroll 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	2/11/2023
Pennsylvania	Tioga 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	2/16/2023
Florida	Hillsborough 03	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	2/17/2023
Nebraska	Lincoln 01	WOAH Poultry	HPAI 2022	Injectable	2/19/2023
Pennsylvania	Lancaster 13	Commercial Broiler Production	HPAI 2022	Foam	2/20/2023
Mississippi	Copiah 01	WOAH Poultry	HPAI 2022	CO2 Cart/Container	2/21/2023
Pennsylvania	Lancaster 14	WOAH Poultry	HPAI 2022	Foam	2/21/2023
Pennsylvania	Lancaster 15	WOAH Poultry	HPAI 2022	Foam/Cervical Dislocation	2/22/2023
Virginia	Alexandria 01	Live Bird Market	HPAI 2022	CO2 Cart/Container	2/23/2023
Illinois	Wayne 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	2/23/2023
Pennsylvania	Lancaster 16	WOAH Poultry	HPAI 2022	Foam	2/23/2023
Pennsylvania	Chester 01	WOAH Poultry	HPAI 2022	Foam/Cervical Dislocation	2/25/2023
Colorado	Moffat 01	WOAH Non-Poultry	HPAI 2022	CO2/Cervical Dislocation	2/25/2023
Florida	Miami-Dade 01	Live Bird Market	HPAI 2022	CO2 Cart/Container	2/27/2023
Pennsylvania	Lancaster 17	WOAH Poultry	HPAI 2022	Combination-see comments	2/27/2023



Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Pennsylvania	Lancaster 18	Commercial Turkey Meat Bird	HPAI 2022	Foam/Cervical Dislocation Mechanically-assisted cervical	3/3/2023
Pennsylvania	Northumberland 01	WOAH Poultry	HPAI 2022	dislocation/sharpshooter	3/4/2023
Pennsylvania	Lancaster 19	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	3/4/2023
Pennsylvania	Chester 02	WOAH Poultry	HPAI 2022	Foam	3/5/2023
Pennsylvania	Chester 03	WOAH Poultry	HPAI 2022	Foam	3/5/2023
Pennsylvania	Lancaster 21	WOAH Poultry	HPAI 2022	Foam/Cervical Dislocation	3/6/2023
Virginia	Rockingham 03	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	3/6/2023
Pennsylvania	Lancaster 23	WOAH Poultry	HPAI 2022	KEDS	3/6/2023
Pennsylvania	Bucks 01	WOAH Poultry	HPAI 2022	Owner depopulated all birds.	3/6/2023
Pennsylvania	Lancaster 20	Commercial Duck Breeder	HPAI 2022	Foam	3/9/2023
Pennsylvania	Lancaster 24	WOAH Poultry	HPAI 2022	Foam/Cervical Dislocation	3/10/2023
Pennsylvania	Lancaster 25	WOAH Poultry	HPAI 2022	Foam	3/13/2023
Pennsylvania	Lancaster 28	WOAH Poultry	HPAI 2022	Foam	3/13/2023
Pennsylvania	Lancaster 29	WOAH Poultry	HPAI 2022	Foam	3/13/2023
Pennsylvania	Lancaster 27	WOAH Poultry	HPAI 2022	Foam	3/13/2023
Pennsylvania	Lancaster 26	WOAH Poultry	HPAI 2022	Foam	3/14/2023
Iowa	Chickasaw 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	3/14/2023
Pennsylvania	Lancaster 30	WOAH Poultry	HPAI 2022	Other	3/14/2023
Pennsylvania	Chester 04	Commercial Turkey Meat Bird	HPAI 2022	Foam/KEDS	3/15/2023
Missouri	Maries 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	3/15/2023
Pennsylvania	Lancaster 31	WOAH Poultry	HPAI 2022	Foam	3/15/2023
Pennsylvania	Mifflin 01	WOAH Non-Poultry	HPAI 2022	KEDS	3/15/2023
Mississippi	Monroe 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation Foam/Cervical	3/16/2023
Pennsylvania	Lancaster 32	WOAH Poultry	HPAI 2022	dislocation/longrange shot	3/17/2023
Florida	Hillsborough 04	WOAH Poultry	HPAI 2022	CO2 Cart/Container	3/20/2023
Oregon	Klamath 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	3/21/2023
South Dakota	Spink 08	Commercial Upland Gamebird Producer	HPAI 2022	Cervical Dislocation	3/21/2023
Michigan	Lapeer 05	WOAH Poultry	HPAI 2022	CO2 Cart/Container Humane/Controlled Slaughter	3/23/2023
New York	Queens 02	WOAH Poultry	HPAI 2022	Slaughter	3/23/2023
Kansas	Ellsworth 01	WOAH Non-Poultry	HPAI 2022	Cervical Dislocation	3/23/2023
Oregon	Umatilla 02	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	3/24/2023
Colorado	Arapahoe 01	WOAH Non-Poultry	HPAI 2022	CO2 Cart/Container	3/25/2023
Colorado	Yuma 01	WOAH Poultry	HPAI 2022	CO2 Cart/Container	3/28/2023

Incident Site	Special ID	Production Type	Incident
Minnesota	Le Sueur 04	WOAH Non-Poultry	HPAI 2022
New York	Queens 03	Live Bird Market	HPAI 2022
Kansas	Mitchell 04	WOAH Non-Poultry	HPAI 2022
Colorado	Pueblo 01	WOAH Non-Poultry	HPAI 2022
Montana	Rosebud 01	WOAH Non-Poultry	HPAI 2022
Nebraska	Sheridan 01	WOAH Non-Poultry	HPAI 2022
New York	Putnam 01	WOAH Poultry	HPAI 2022
Colorado	Moffat 02	WOAH Non-Poultry	HPAI 2022
North Dakota	Dickey 03	Commercial Turkey Meat Bird	HPAI 2022
Idaho	Bonneville 01	WOAH Non-Poultry	HPAI 2022
New York	Kings 02	Live Bird Market	HPAI 2022
South Dakota	Beadle 09	Commercial Turkey Meat Bird	HPAI 2022
New York	Putnam 02	WOAH Poultry	HPAI 2022

<b>Euthanasia Method</b>	<b>Euth Complete</b>
CO2 Cart/Container	4/2/2023
Humane euthanasia/CO2	4/6/2023
CO2 Cart/Container	4/8/2023
Cervical Dislocation	4/11/2023
No depopulation occurred. All birds died.	4/13/2023
Injectable	4/14/2023
CO2 Cart/Container	4/14/2023
CO2 Cart/Container	4/18/2023
VSD+ Heat & Foam	4/19/2023
CO2 Cart/Container	4/19/2023
Humane/Controlled Slaughter	4/19/2023
VSD+ Heat & Foam	4/19/2023
CO2 Cart/Container	4/20/2023

<b>Incident Site</b>	<b>Special ID</b>	<b>Production Type</b>	<b>Incident</b>
Minnesota	Nobles 01	WOAH Non-Poultry	HPAI 2022
North Carolina	Rowan 02	WOAH Non-Poultry	HPAI 2022
Missouri	Phelps 01	WOAH Non-Poultry	HPAI 2022

Euthanasia Method	Euth Complete
KEDS	5/10/2023
Cervical Dislocation	5/17/2023
CO2 Cart/Container	5/17/2023

Incident Site	Special ID	Production Type	Incident	Euthanasia Method	Euth Complete
Colorado	Weld 04	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	10/10/2022
California	Stanislaus 01	Commercial Turkey Meat Bird	HPAI 2022	Foam	10/2/2022
Iowa	Wright 01	Commercial Table Egg Layer	HPAI 2022	VSD+ heat	11/3/2022
South Dakota	Gregory 02	Commercial Upland Gamebird Producer	HPAI 2022	CO2/cervical dislocation	11/3/2022
Nebraska	Dixon 02	Commercial Table Egg Layer	HPAI 2022	VSD+ heat/CO2	12/4/2022
Illinois	Grundy 01	WOAH Poultry	HPAI 2022	Cervical dislocation/CO2	12/1/2022
Colorado	Weld 06	Commercial Table Egg Layer	HPAI 2022	CO2 Cart/Container	1/2/2023
California	Glenn 01	Commercial Upland Gamebird Producer	HPAI 2022	Cervical dislocation/CO2	1/5/2023

Appendix 3

Depopulation Methods Used in Commercial Table Egg Layer, Breeder, and Pullet Operations,  
February 2022-July 2023

Confirmation Date	Depop Completion Date	Duration	State	County Name	Special ID	Type of Production	# of birds killed	Methods Used	VSD+Heat used? (alone, combo,no)	CO2 used? (alone, combo,no)		
2022-03-14	2022-03-30	16	Wisconsin	Jefferson	Jefferson 01	Commercial Table Egg Layer	2,750,700	VSD+Heat	Alone	No	alone =	10,425,700
2022-12-14	2022-12-18	4	South Dakota	Moody	Moody 01	Commercial Table Egg Layer	1,332,100	VSD+Heat	Alone	No	Combo =	31,132,500
2022-04-20	2022-04-24	4	Pennsylvania	Lancaster	Lancaster 03	Commercial Table Egg Layer	879,400	VSD+Heat	Alone	No	No VSD+ =	2,871,500
2022-04-20	2022-04-23	3	Pennsylvania	Lancaster	Lancaster 02	Commercial Table Egg Layer	1,127,700	VSD+Heat	Alone	No		44,429,700
2022-10-31	2022-11-03	3	Iowa	Wright	Wright 01	Commercial Table Egg Layer	1,100,000	VSD+Heat	Alone	No		
2022-11-06	2022-11-09	3	Iowa	Wright	Wright 02	Commercial Table Egg Layer	1,022,800	VSD+Heat	Alone	No		
2022-04-26	2022-04-29	3	Pennsylvania	Lancaster	Lancaster 05	Commercial Table Egg Layer	307,400	VSD+Heat	Alone	No		
2022-04-15	2022-04-17	2	Pennsylvania	Lancaster	Lancaster 01	Commercial Table Egg Layer	1,380,500	VSD+Heat	Alone	No		
2022-03-25	2022-03-27	2	Iowa	Franklin	Franklin 01	Commercial Table Egg Pullets	250,200	VSD+Heat	Alone	No		
2022-05-14	2022-05-15	1	Pennsylvania	Berks	Berks 06	Commercial Table Egg Breeder	83,700	VSD+Heat	Alone	No		
2022-04-02	2022-04-03	1	Iowa	Humboldt	Humboldt 01	Commercial Table Egg Breeder	15,300	VSD+Heat	Alone	No		
2022-05-17	2022-05-16	0	Pennsylvania	Berks	Berks 07	Commercial Table Egg Layer	79,000	VSD+Heat	Alone	No		
2022-05-10	2022-05-09	0	Pennsylvania	Lancaster	Lancaster 08	Commercial Table Egg Layer	72,300	VSD+Heat	Alone	No		
2022-11-29	2022-11-29	0	Maryland	Washington	Washington 01	Commercial Table Egg Breeder	24,600	VSD+Heat	Alone	No		
2022-09-21	2022-10-10	19	Colorado	Weld	Weld 04	Commercial Table Egg Layer	1,150,000	VSD+Heat/CO2	Combo	Combo		
2022-04-27	2022-05-15	18	Nebraska	Knox	Knox 01	Commercial Table Egg Layer	2,118,000	VSD+Heat, CO2	Combo	Combo		
2022-04-25	2022-05-13	18	Utah	Cache	Cache 01	Commercial Table Egg Layer	1,501,200	VSD+Heat, CO2	Combo	Combo		
2022-06-07	2022-06-24	17	Colorado	Weld	Weld 02	Commercial Table Egg Layer	1,936,800	VSD+Heat, CO2	Combo	Combo		
2022-03-31	2022-04-16	16	Iowa	Osceola	Osceola 01	Commercial Table Egg Layer	5,011,700	VSD+Heat, CO2	Combo	Combo		



2022-09-03	2022-09-13	10 Ohio	Defiance	Defiance 01	Commercial Table Egg Layer	3,748,500	VSD+Heat,CO2/Cervical dislocation	Combo	Combo
2022-04-12	2022-04-22	10 Nebraska	Dixon	Dixon 01	Commercial Table Egg Layer	1,746,900	VSD+Heat, CO2	Combo	Combo
2022-04-29	2022-05-09	10 Colorado	Weld	Weld 01	Commercial Table Egg Layer	1,366,200	VSD+Heat, CO2	Combo	Combo
2022-11-25	2022-12-04	9 Nebraska	Dixon	Dixon 02	Commercial Table Egg Layer	1,700,000	VSD+Heat, CO2	Combo	Combo
2022-03-28	2022-04-06	9 Iowa	Guthrie	Guthrie 01	Commercial Table Egg Layer	1,460,000	VSD+Heat, CO2	Combo	Combo
2022-03-17	2022-03-24	7 Iowa	Buena Vista	Buena Vista 02	Commercial Table Egg Layer	5,347,500	VSD+Heat, CO2	Combo	Combo
2022-02-22	2022-03-01	7 Delaware	New Castle	New Castle 01	Commercial Table Egg Layer	1,046,900	VSD+Heat, CO2	Combo	Combo
2022-03-10	2022-03-14	4 Iowa	Taylor	Taylor 01	Commercial Table Egg Layer	915,900	VSD+Heat, CO2, Cervical dislocation	Combo	Combo
2022-03-04	2022-03-08	4 Maryland	Cecil	Cecil 01	Commercial Table Egg Layer	644,000	VSD+Heat, CO2	Combo	Combo
2022-03-18	2022-03-22	4 Maryland	Cecil	Cecil 04	Commercial Table Egg Pullets	315,400	VSD+Heat, Cervical Dislocation	Combo	No
2022-03-10	2022-03-13	3 Maryland	Cecil	Cecil 02	Commercial Table Egg Layer	663,400	VSD+Heat, CO2	Combo	Combo
2022-03-08	2022-03-11	3 Delaware	New Castle	New Castle 02	Commercial Table Egg Pullets	243,900	VSD+Heat, CO2	Combo	Combo
2022-04-12	2022-04-15	3 Minnesota	Morrison	Morrison 07	Commercial Table Egg Layer	216,200	VSD+Heat, CO2	Combo	Combo
2022-12-16	2023-01-02	17 Colorado	Weld	Weld 06	Commercial Table Egg Layer	1,291,000	CO2 Cart/Container	No	Alone
2022-12-20	2022-12-31	11 Colorado	Weld	Weld 07	Commercial Table Egg Layer	239,700	CO2 Cart/Container	No	Alone
2022-12-14	2022-12-19	5 Washington	Franklin	Franklin 01	Commercial Table Egg Layer	1,015,500	CO2, cervical dislocation	No	Combo
2022-06-09	2022-06-10	1 Colorado	Weld	Weld 03	Commercial Table Egg Pullets	205,000	CO2 Cart/Container	No	Alone
2022-03-23	2022-03-24	1 South Dakota	Kingsbury	Kingsbury 02	Commercial Table Egg Layer	120,300	CO2 Cart/Container	No	Alone

44,429,700