To: Minnesota Poultry Producers and Veterinarians:

RE: Virulent Newcastle Disease virus (vNDV) in double-crested cormorants (DCCO)

The Minnesota Board of Animal Health has been informed that Virulent Newcastle Disease virus (vNDV) in double-crested cormorants (DCCO) has been confirmed in Mille Lacs County, Minnesota. In addition there are several other suspected cases with results pending in other Minnesota counties. Details from the Minnesota Department of Natural Resources (DNR) and the National Wildlife Health Center (NWHC) in Madison, Wisconsin follow:

• Mille Lacs County / Spirit Island: Mortality was observed in double-crested cormorants (DCCO) on Spirit Island, which is part of Mille Lacs National Wildlife Refuge. A total of 9 euthanized birds were collected July 15; all exhibited lethargy, head bobbing, and were near death. Estimated dead birds at the time of this submission was 100, with an additional 100 estimated sick. The birds with early symptoms were lethargic with no real obvious signs like wing droop or inability to hold up their heads. Birds near death were lying in various positions and showed slight signs of spasms or fighting for each breath. The sick birds were obvious as they were covered in bird droppings. All birds are negative for avian influenza by matrix RT-PCR (tracheal and cloacal swabs).

The DCCOs were positive for avian paramyxovirus-1 (APMV-1), also known as Newcastle Disease, by matrix PCR testing. Preliminary sequencing performed at NWHC has identified vNDV in the birds submitted. Samples were sent to the USDA's National Veterinary Services Laboratories (NVSL) for confirmatory testing.

Spirit Island is a remote island located in the south central area of Lake Mille Lacs. The entire island is 0.32 acres of large jumbled boulders almost exclusively used as a nesting rookery by double-crested cormorants. There are an estimated 500 nesting pairs that use this small island. This area is an occasional loafing area for white pelican, great blue heron, and herring gulls.

• Big Stone County / Marsh Lake: Avian mortality was observed at Marsh Lake beginning July 16. Birds are exhibiting neurological symptoms. Six birds were euthanized by cervical dislocation and were submitted for diagnostic evaluation (1 American White Pelican, 3 double-crested cormorants, and 2 ring-billed gulls). The DCCO was positive for APMV-1 and is the likely cause of the observed DCCO mortality. Testing to determine if this Virus is vNDV is being conducted. Additional birds (pelicans, gulls, and a Canada goose) that displayed neurologic signs, were submitted yesterday (July 25) from the Marsh Lake site.

• Pope County / Lake Johanna: DCCOs with neurologic signs noted, vNDV suspected, carcasses submitted to the NWHC Laboratory in Madison, Wisconsin for testing.

• McLeod County: Pelican found sick in the city of Hutchinson (car dealership parking lot), vNDV suspected, carcass submitted to the NWHC Laboratory in Madison, Wisconsin for testing.

• Faribault County / Minnesota Lake: DCCO found sick, vNDV suspected, carcass submitted to the NWHC Laboratory in Madison, Wisconsin for testing.
• **Rice County / Satakah Lake:** Report of neurologic DCCOs on Satakah Lake, fresh carcasses shipped to NWHC today (July 26). There were 1,500 cormorants observed and about a half dozen sick at this point.

• **History of vNDV in Minnesota double-crested cormorants**

Double-crested cormorants (DCCO) seem to be highly susceptible to Newcastle Disease virus (AMPV-1) and it has been observed in this species in the past (2008, 2010, 2012 and 2014). vNDV was last detected in Minnesota DCCO in 2014 from Pigeon Lake (Meeker County, Minnesota). The time of the year is similar as samples from Pigeon Lake were collected during July and August, 2014. At that time it was determined that the virus strain was virulent, or when identified in domestic poultry it is known as Exotic Newcastle Disease (END). In 1992, multiple mortality events occurred in DCCO colonies across the Great Lakes, upper Midwest and Canada, killing an estimated 35,000 birds.

• **Poultry Producers**

Exotic Newcastle Disease (END) is a highly contagious, viral disease that affects all species of birds. The disease spreads rapidly and causes high mortality rates, sometimes without the birds ever showing any signs of sickness. END is spread primarily through direct contact between healthy and sick birds through droppings and secretions from the beak, mouth, and eyes. Birds infected with END may show any of the following symptoms: sudden death, lack of energy and appetite, decreased egg production, diarrhea, nervous system disorders (tremors, paralysis), and severe respiratory symptoms such as nasal discharge, coughing, and sneezing. Spread to humans by close contact with sick birds; Newcastle disease rarely affects people. Symptoms include conjunctivitis, a relatively mild inflammation of the inner eyelids.

Wild birds can be a potential source of Newcastle disease and can transmit the virus to domestic poultry if there is contact with them. The Board recommends poultry producers, large and small, increase their on-farm biosecurity practices to prevent introductions into their poultry operations. Such practices include visitor and vehicle restrictions, preventing wild bird introductions (especially birds that tend to nest in or feed with domestic birds), controlling movements associated with the disposal and handling of bird carcasses, litter, and manure and monitoring poultry flocks for any signs of illness. Testing sick birds at a poultry diagnostic laboratory is essential in order to establish an accurate disease diagnosis.

It is important poultry producers keep a watchful eye on their own flocks, as well as wild birds in their area. Through careful biosecurity measures and diligent observation, Minnesota’s poultry producers can prevent the introduction of this disease into their poultry operations. If producers observe birds showing any of the clinical signs listed above, they should immediately contact their veterinarian, the Board (320-231-5170) or the University of Minnesota Veterinary Diagnostic Laboratory (1-800-605-8787).

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