

Air Quality Issues Regarding Proper Disposal of Animals with Chronic Wasting Disease (CWD)

CWD is classified as a transmissible spongiform encephalopathy. This is a neurological disease similar to bovine spongiform encephalopathy (mad cow) which is found in cattle, and scrapie which is found in sheep. The purpose of this document is to address air quality issues regarding disposal of animals with CWD and to provide general information on CWD, i.e. how the disease is spread, the animals it affects and how to prevent/reduce the chance of disease migration.

- Dr. Beth Carlson, with the North Dakota State Veterinarian's Office, has stated that CWD is not transmissible to humans and cows. Dr. Carlson indicated that the disease is spread via urine, feces and saliva between deer, elk and moose.

- Mr. Casey Anderson, Assistant Chief with the North Dakota Game and Fish Department, recommends avoiding game carcass movement/transportation to prevent disease transmission. Mr. Anderson advises:
 - DO NOT haul a carcass to an incinerator, incineration is not a recommended means of disposal.
 - If a nearby landfill accepts game carcasses, then it can be disposed of there.
 - DO NOT haul any carcass from a designated CWD infected area through areas that are not designated to be infected with CWD.
 - Leave brain and spinal tissue behind where the animal was shot if butchering the carcass.

Air Quality Concerns:

- A prion, which is the agent that causes CWD, can be denatured/destroyed if incinerated at a temperature of 1,000° C (1,832°F) or greater.¹
 - NDSU has the only crematorium/incinerator in North Dakota capable of denaturing/destroying a prion.
 - Little is known about the potential risk and transmission of airborne/aerosolized prions from incineration. Further study is needed to determine if incineration in units that do not reach appropriate temperatures to destroy CWD prions would cause prions to become airborne/aerosolized and if that could be another way the disease can be spread.

¹ Samuel E. Saunders, Shannon L. Bartelt-Hunt & Jason C. Bartz (2008) Prions in the environment, *Prion*, 2:4, 162-169, DOI: [10.4161/pri.2.4.7951](https://doi.org/10.4161/pri.2.4.7951).

Summary/Findings:

- Data shows that humans and cattle are not susceptible to CWD.
- Wild game (i.e., deer, elk and moose) that are infected or suspected of being infected with CWD should be disposed of in a manner that causes the least chance of disease migration.
 - Leave the downed/dead animal where it was shot or died.
 - If there is a landfill, located in an area known to have CWD and it will accept the carcass, dispose of the remains in the landfill.
 - DO NOT transport any carcass from designated CWD areas through non-designated CWD areas to reach a landfill.
- Very high temperatures are required to denature/destroy prions so burning in air curtain destructors is not recommended until further study concludes proper temperatures are achieved for prion destruction.
 - While a high incineration temperature (> 1,000°C or 1,832°F) is an effective method to destroy CWD prions, during large outbreaks incineration may not be practical due to the large number of carcasses.
 - Lack of readily available crematoriums/incinerators in North Dakota capable of reaching appropriate temperatures to destroy CWD prions makes incineration impractical.
 - Transportation to or through areas that are not affected by CWD can spread the disease.

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