



AltEn Environmental Contamination

January 29, 2023

Questions and Answers

What is the AltEn environmental contamination?

In 2015, AltEn began using disposed seed corn as the stock for extraction of ethanol as opposed to feed corn. Seed corn is coated with neonicotinoid insecticides (“neonics”) and fungicides. This practice continued until February 2021, when the Nebraska Department of Environment and Energy ordered the plant to stop production, following a rupture in a large tank leading to 4 million gallons of highly contaminated sludge spilling into the surrounding area, including Johnson Creek and the unnamed creek that runs across the University of Nebraska’s Eastern Nebraska Research, Extension and Education Center (ENREC) property. After the plant closure, the AltEn property was estimated to contain 150 million gallons of highly contaminated wastewater and 85,000 tons of highly contaminated solid residue (“wetcake”).

While there were long standing complaints of the odors from AltEn and health concerns, the death of bees on the ENREC property was a signal of the extensive neonic contamination of the area.

To date, approximately 50 million gallons of the wastewater has been cleaned up and piped out for application to farm fields; that process continues and is anticipated to take approximately two years. The solid residue is now piled on 16 acres of AltEn land, it has been capped with a concrete-type layer that reduces dust but has some cracks. It is known that the liners in the wastewater lagoons are ripped, and some contamination of ground water nearby has been found. The solid residue also is thought to be resulting in contamination of ground water below the piles. To date, there is no known process to clean up the solid residue.

What are the most recent findings from the AltEn Health Study Group?

The AltEn Health Study Group has been conducting studies since the Spring of 2021, looking at possible effects on water and air quality; bees and other insects; song birds and tadpoles; and humans. Monthly analyses of water quality in Johnson Creek shows that the neonicotinoids and fungicides are still present in the creek in 2022, but their levels are lower than in 2021. Groundwater in soil core samples from the ENREC property also shows contamination.

Tadpoles living near the AltEn site or near fields where wetcake was applied, have detectable levels of the pesticides. Songbird eggs collected from nests in the area around AltEn contain higher levels of the pesticides than do eggs collected from nests further away. Study of bee hives shows that the percentage of colonies surviving was higher in 2022 than in 2021, but the bees are still showing signs of damage from exposure to the AltEn pesticides.

In addition, the Group conducted a survey of health concerns among residents of the surrounding area in Summer, 2022, finding that respiratory problems were most often reported, as well as concerns about area contamination and lack of information about the site clean-up. A small study of houses in Mead was conducted in the Summer, 2022. All of the 11 houses

sampled in Mead had detectable levels of some neonicotinoids and fungicides in swipe samples of dust from inside and outside the house, as well as in air samples taken both inside and outside the house. In contrast, similar samples from Kennard, NE, a similar small rural community far away from the AltEn site and from Omaha had negligible levels of the pesticides.

What are neonics?

Neonics, or neonicotinoids, are a class of insecticides that act in the central nervous system of insects. There are seven main neonics that have been available since 1990 to protect plants (crops, fruit, and vegetables), livestock

and pets from insect attack. In contrast to many insecticides, the neonics are very water-soluble. Neonics are one of the most commonly used insecticides in the United States, although not in Nebraska.

What is the latest position of EPA on neonics?

In June of 2022, the Environmental Protection Agency released their final biological evaluation confirming that three widely used neonicotinoid insecticides [i.e., imidacloprid, clothianidin, and thiamethoxam] likely harm roughly three-fourths of all endangered plants and animals, including all 39 species of amphibians protected under the Endangered Species Act. Species found to be

likely harmed by all three of the neonicotinoids included rusty patched bumblebees, whooping cranes, chinook salmon, northern long-eared bats, and orcas. Through a consultative registration review process, EPA is considering mitigations measures. The European Union banned the use of imidacloprid, clothianidin, and thiamethoxam in 2013.

Have neonics been found in humans?

Yes. The most extensive study was conducted by the Centers for Disease Control and Prevention (CDC) as part of their ongoing National Health and Nutrition Survey (NHANES) study of a representative U.S. population. As part of the 2015-2016 NHANES cycle, neonics were analyzed in urine samples from 3000 people;

of those people, 49% were found to have detectable levels of neonics. Their presence was attributed to eating contaminated fruits and vegetables. Because neonics are very water-soluble and within the fruits and vegetables, they cannot be washed off.

What are the health impacts of animal neonic contamination?

Exposure to neonics has been associated with a variety of health impacts in animals. To name a few, they have been found to impact the reproductive and nervous systems in laboratory

rats and mice. They have been found to have numerous health impacts on aquatic and land wildlife, from deer to rabbits.

What are the health impacts of human neonic contamination?

Exposure to neonics has been associated with a variety of health impacts in humans. It affects testosterone levels in both men and women. Exposure is associated with increased numbers of birth defects. Body mass index, insulin resistance and glucose levels are impacted

by neonics. In fact, exposure to neonics has been associated with damage to cells, genes, reproductive organs, and the immune and neurological systems. There is little and contradictory data on proof of health effects with neonics.

How can I protect myself if I live in or near this community?

The impacts on human health from exposure to neonicotinoids at the levels seen at the houses on surfaces or in the air are not known at this time. The AltEn Health Study Group is not a regulatory agency and cannot provide

certified advice. Nonetheless, our suggestions to residents are to talk with experts about the possibility of putting special filters on the house heating and cooling systems, cleaning the house surfaces regularly and wearing shoes outside.

What is the AltEn Health Study Group?

The AltEn Study Group is composed of academic and public health organizations that are contributing to investigation of the effects of the pesticide contamination from the AltEn ethanol plant on environmental and human health in support of the local communities. Members

include the University of Nebraska Medical Center (UNMC), University of Nebraska-Lincoln (UNL), Creighton University, and Three Rivers Health Department. The group began working in 2021.

Who is on the Community Advisory Board of the AltEn Health Study Group?

The members of the Community Advisory Board for the AltEn Health Study Group include:

- Terry Miller, Emergency Management Director, Village of Mead
- June Moline, City Clerk, Village of Mead
- P.J. Quinn, Principal, Mead High School
- Dalene Selko, Resident of Mead
- William Thorson, President, Mead Village Board

Who has funded this work?

This work was originally funded by a \$200,000 grant from the Claire M. Hubbard Foundation to start investigation into environmental and human health effects. The Nebraska Unicameral

in 2022 awarded \$1,000,000 to the University of Nebraska to support the AltEn Health Study Group and continue this work.

What are the future plans for the AltEn Health Study Group?

The Group plans to continue studying the effects of the AltEn contamination on birds, tadpoles, aquatic organisms and possibly other wildlife, as well as bees and other beneficial insects. Periodic sampling of surface and ground water, as well as soil cores, will continue. A larger, structured study of AltEn contaminants in dust and air samples from houses and other buildings in the area surrounding the AltEn site will be conducted. Finally, a medical registry will be established for residents in Saunders County and AltEn workers to track long-term health effects possibly associated with exposure to AltEn contaminants.

When will this study end?

At least for five to ten years or sooner if there is no funding to continue the work. The AltEn Health Study group has proposed to continue to monitor the environmental, animal, and health effects. The medical registry may be extended to track the health of newborns.

Where can I go for more details?

We have set up a website with a variety of information about the AltEn contamination. The address is unmc.edu/env-pollution

Who can I contact for more details?

You can contact any of the participants in the AltEn Health Study Group, who are listed on the unmc.edu/env-pollution website; in particular, you can contact **Eleanor Rogan**, who is leading the studies.

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