UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
CHEMICAL SAFETY
AND POLLUTION PREVENTION

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Kara Valentine
Deputy Director of Air, Land and Energy
Nebraska Department of Environment and Energy
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Lincoln, NE 68509-8922

Dear Ms. Valentine,

Thank you for your inquiry to the Environmental Protection Agency (EPA) concerning the wastewater discharge situation with a Nebraska ethanol production facility. The EPA was informed that water from the facility's wastewater containment ponds (referred to as lagoons) contains various concentrations of pesticides and has been applied to nearby fields in the past. The EPA is taking this opportunity to explain our process for assessing pesticide risk to human health and the environment and why the residues detected in the wastewater lagoons far exceed the registered application rates for which EPA has conducted safety assessments for pesticide products. Our assessments include estimating pesticide concentrations in drinking water by determining the potential for runoff to surface water and leaching into ground water. We would also point out that our discussion here is limited to the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and does not include an analysis of any possible implications under other statutes that may be implicated.

In accordance with FIFRA, the EPA registers a pesticide when it determines that it will not cause unreasonable adverse effects on humans or the environment, while taking into account the economic, social, and environmental costs and benefits of the use of the pesticide. Under FIFRA, the EPA is charged with balancing risks posed by the use of a pesticide against its benefits. The EPA must determine if the benefits in light of its use outweigh the risks in order for the EPA to register a pesticide.

In evaluating a pesticide registration application, the EPA assesses a wide variety of exposure information (i.e., where and how the pesticide is used) and studies concerning environmental fate (i.e., how the chemical will move in the environment) and toxicity (i.e., effects on humans and other non-target organisms) to determine the likelihood of adverse effects (i.e., risk) from exposures associated with the proposed use of the product. Risk assessments are developed to

evaluate the environmental fate of the pesticide compound, as well as how it might affect a wide range of non-target organisms including humans and terrestrial and aquatic wildlife (plants and animals). On the basis of these assessments, the EPA evaluates and approves language for each pesticide label to ensure the directions for use and safety measures are appropriate to mitigate any potential unreasonable risk. In this way, the pesticide label communicates essential limitations and mitigations that are necessary to prevent unreasonable adverse effects. It is a violation of FIFRA to use a pesticide in a manner inconsistent with its labeling.

The EPA's evaluation of environmental fate studies determines how fast and by what means a pesticide degrades, what chemicals it breaks down to, how much of the pesticide or its breakdown chemicals will travel from the application site, and where they will accumulate in the environment. The studies also assess how the pesticide breaks down in water, soil, and from exposure to light; how easily it evaporates in air; and how quickly it travels through soil. The EPA uses these tests to develop estimates of pesticide concentrations in the environment. The typical sources of pesticide exposure to humans are through food and drinking water. Most of the foods we eat have been grown with the use of pesticides and pesticide residues may be present inside or on the surfaces of these foods. Some pesticides applied to farmland or other land structures can make their way to the ground water or surface water systems that feed drinking water supplies. Humans may also be exposed to pesticides by inhalation of dust blown from treated fields.

The EPA's ecological risk assessments evaluate the likelihood that exposure to one or more pesticides may cause harmful ecological effects. The effects can be direct (e.g., fish die from a pesticide entering waterways, or birds do not reproduce normally after ingesting contaminated fish). Some of the impacts on animals that EPA evaluates are the short- and long-term effects of varying amounts of pesticide exposure to insects and other invertebrates, fish, and birds. For plants, the EPA evaluates how toxic the pesticide is to plants, how the pesticide affects a seed's ability to germinate and emerge, as well as the plant's health and vigor as it grows.

According to the analysis conducted in November 2019 by the South Dakota Agricultural Laboratories for the Nebraska Department of Environment and Energy, the pesticides detected in the wastewater lagoons include neonicotinoid insecticides and fungicides in the strobiluron and triazole classes, as well as two herbicides. EPA concludes that applying this water to nearby fields is likely to result in application of these compounds to farmlands at rates that far exceed the registered application rates for which EPA has conducted safety assessments for products containing these pesticides. Some of these pesticides are known to leach and may contaminate groundwater. Some may be persistent, and runoff will contaminate aquatic ecosystems. Additionally, there are systemic pesticides in these samples and based on the high levels detected, they can be taken up into plant tissues and result in levels of residues in nectar and pollen that may harm pollinators or in leaves or other plant parts that are consumed by birds and mammals. Information on the profile and characteristics specific to each of the chemicals in the wastewater is available at: https://iaspub.epa.gov/apex/pesticides/f?p=chemicalsearch:1

The EPA has a comprehensive and robust assessment process for assessing the environmental effects of a chemical used as a pesticide, but the wastewater produced by the Nebraska ethanol facility represents a level of contamination that has no uniformity or limit on the number and

amount of pesticides present. The EPA cannot conclude that discharging this water onto land will not result in unreasonable adverse effects on humans or the environment.

Sincerely,

MICHAEL GOODIS

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Ed Messina, Esq., Acting Director
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Cc DeAndre Singletary, Region 7