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December 9, 2005

Ms. Kimberly Snell-Zarcone
Staff Attorney
Citizens for Pennsylvania's Future
601 N. Third Street
Harrisburg, PA 17101-1113

RE: Kreider Dairy Farms

Dear Ms. Snell-Zarcone:

Stell Environmental Enterprises, Inc. (SEE) is pleased to provide consulting services to PennFuture related to the analysis of water quality issues surrounding the Kreider Dairy Farm located along Indian Village Road, Penn Township, Lancaster County. The services provided were in accordance with your letter dated October 28, 2005. This letter documents the review performed by SEE and presents the technical issues identified.

I reviewed the information you provided regarding the Kreider Dairy Farm. This information included the following documents:

Document 1. Water Management Permit No. 3602202, dated November 24, 2003;

Document 2. Pennsylvania Department of Environmental Protection (DEP) Water Management Program Water Quality Protection Report, NPDES Permit No. PA0088285, dated April 27, 2004;

Document 3. Nutrient Management Plan for Kreider Farms, dated November 1, 2004;

Document 4. Water Quality Management Permit No. 3604203, dated November 5, 2004;

Document 5. Preparedness, Prevention & Contingency Plans for Kreider Farms, dated May 16, 2005;

Document 6. DEP General Information Form – Authorization Application and Individual NPDES Permit Application for Concentrated Animal Feeding Operations, Permit No. PA0088285, dated May 19, 2005; and

Document 7. Lititz Borough and Warwick Township Wellhead Protection Program, dated September 2001.

Review of the documents listed above identified two technical issues which are discussed below.

**Ground Water Monitoring of Manure Storage Facilities**

The manure storage facilities at the Kreider Dairy Farms consist of a circular concrete storage structure (900,000 gallons), a 2nd stage earthen impoundment (4,390,000 gallons), and a 3rd stage earthen impoundment (7,500,000 gallons). These facilities receive manure from the farming operations as well as wastewater from the dairy operation and an egg wash.

Document 4 listed above indicates that the DEP had concerns over the levels of manure-related pollutants detected in ground water monitoring wells located around the manure storage facilities since the wells were installed in 2000. DEP suggested that two earthen impoundments (2nd stage and 3rd stage impoundments) be rehabilitated by installing synthetic liner material and leak detection piping. The 2nd stage impoundment was rehabilitated in August 2004. The 3rd stage impoundment is scheduled for rehabilitation in 2006.

The 2nd stage earthen impoundment was rehabilitated in August 2004, during which time manure was observed on top of the ground water within the area of the impoundment. In Document 2, listed above, a statement was made by the DEP Reviewer/Permit Engineer Mr. Sean Furjanic indicating that pollutants may be reaching the ground water from the manure impoundments causing the observed and documented contamination. Despite the observed impact to ground water caused by the manure, DEP reduced the required frequency of ground water monitoring to an annual event and eliminated all monitoring requirements once the 3rd stage impoundment is rehabilitated, as presented in Document 2.

Continued ground water monitoring at this site is necessary to protect human health and the environment. This opinion is based upon the observed manure in contact with the ground water in 2004 and the existence of this contamination source throughout a period of operation from 1961 to August 2004. Additionally, the area of contaminated ground water should be delineated horizontally and vertically to identify potential downgradient receptors. This would be required for sites causing ground water contamination under other regulatory programs administered by the DEP, such as Pennsylvania's Land Recycling Program, Hazardous Sites Cleanup Program, or Storage Tank Cleanup Program.

I contacted Mr. Sean Furjanic (DEP, Water Management Program, Permits Section) regarding the Kreider Dairy Farm. We discussed the documented ground water contamination and the potential impact to public water supply wells located in the area. Mr. Furjanic informed me that a water supply well used currently by Penn Township is located on the Kreider Dairy Farm. I informed him that Document 7 indicates that much of the Kreider Dairy Farm and manure storage facilities are located within the wellhead protection area for the Lititz water supply wells. I expressed concern that both of these water supplies could potentially be impacted by ground water contamination caused by the Kreider Dairy Farm operation. He agreed that this was possible.

It is my professional opinion that the existing monitoring wells do not adequately monitor the ground water impacted by the manure storage lagoons. The existing well depths vary between 75 feet and 400 feet. The wells monitor water deep within the bedrock and not shallow water within the unconsolidated soils. Ground water was observed at the ground surface in the area of the 2nd stage impoundment; thus, wells designed to characterize this water would have to be screened much shallower, within the soils. I strongly recommend that ground water contamination be delineated and,

in the event that there is a potential for downgradient receptors to be impacted, appropriate steps be taken to ensure the protection of human health. I also recommend implementation of a ground water monitoring program that includes the continuation of quarterly monitoring of a properly designed monitoring well network.

**Permitting Requirements for Spray Irrigation Fields Associated with Manure Storage and Disposal Facilities**

Mr. Furjanic and I also discussed the permitting requirements for spray irrigation fields associated with manure storage and disposal facilities. I expressed to him that I have had experience completing spray irrigation field permitting for food processing waste and municipal sewage. Permitting for both of these types of facilities required a hydrogeologic study, ground water mounding analysis, and nitrate dispersion plume modeling to demonstrate proper site characteristics and operational parameters. These studies ensure treatment of the effluent wastewater so that no adverse environmental impacts would be caused by the spray irrigation fields. Mr. Furjanic informed me that spray irrigation field permitting for concentrated animal feeding operations do not require any of these detailed studies, but only a nutrient management evaluation to determine that nutrient loading is not in excess of nutrients needed by crops growing on the spray fields.

It is my professional opinion that permitting for a spray irrigation field associated with concentrated animal feeding operations should require a hydrogeologic study, ground water mounding analysis, and nitrate dispersion plume modeling. The potential impacts to ground water, and ultimately impacts to human health and the environment, posed by effluent discharged by concentrated animal feeding operations are no less than the potential impacts cause by food processing waste or treated municipal sewage; thus, the permitting requirements for spray irrigation fields associated with concentrated animal feeding operations should be a least as stringent as those for spray fields permitted under other regulatory programs.

If you have any questions regarding the information presented in this letter or wish to discuss my comments, please feel free to contact me.

Sincerely,

Mary Jane Stell

Mary Jane Stell, P.G.
President