



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
WATER AND WATERSHEDS

January 15, 2016

Kevin Freeman
Project Coordinator
Inland Earth Sciences
8704 E. Dalton Avenue
Spokane, WA 99212

Re: Dairy Application Field Reports
Administrative Order on Consent ("Consent Order")
Docket No. SDWA-10-2013-0080
Yakima Valley Dairies, Washington

Dear Mr. Freeman:

EPA has completed our review of the following documents:

- 2013 Post-Harvest Sampling Report Dairy Application Field Management – Cow Palace Dairy (August 27, 2015)
- 2013 Post-Harvest Sampling Report Dairy Application Field Management – George DeRuyter & Son and D & A Dairies (August 27, 2015)
- 2013 Post-Harvest Sampling Report Dairy Application Field Management – Liberty and H & S Bosma Dairies (August 27, 2015)
- 2014 Pre-Planting Sampling Dairy Application Field Report – Cow Palace Dairy (August 13, 2015)
- 2014 Spring Pre-Plant Soil Sampling Dairy Application Field Report – George DeRuyter & Son and D & A Dairies (August 13, 2015)
- 2014 Spring Pre-Plant Sampling Dairy Application Field Report – Liberty and H & S Bosma Dairies (August 13, 2015)
- 2014 Post-Harvest Sampling Dairy Application Field Report – Cow Palace Dairy (August 13, 2015)
- 2014 Post-Harvest Sampling Report Dairy Applications Field Management - George DeRuyter & Son and D & A Dairies (August 19, 2015)
- 2014 Fall Post-Harvest Sampling Dairy Application Field Report - Liberty and H & S Bosma Dairies (August 13, 2015)

As you are aware, each of the Reports listed above contains an appendix (Appendix G) which contains a set of "Fertility Reports." Each Fertility Report provides data results for a specific dairy crop field, including quantities of nitrogen in units of lbs./acre that were measured at the 1-foot (0-12"), 2-foot (12-24"), and 3-foot (24-36") soil depths. Based on the data, nutrient

budgeting calculations are provided that yield a recommendation for whether additional nitrogen can be applied to a field, and, if so, the appropriate quantity of nitrogen that can be applied.

On November 25, 2015, I sent you an email message requesting additional information regarding the calculations. On December 1, 2015, you sent an email message back with written responses. Based on EPA's review of your written responses, it appears that quantities of "positionally unavailable" nitrogen were inappropriately included in the nitrogen budget calculations. Nitrogen that was noted as "positionally unavailable" appears to be a substantial portion of the nitrogen that was measured at the 3-foot soil depth. Because the 3-foot depth is not considered to be part of the root zone for the main crops grown by the Dairies, corn and triticale, nitrogen measured at the 3-foot depth should not have been included in the nutrient budget calculations for these crops. (Nitrogen at the 3-foot depth could potentially be included in the calculations for established, perennial stands of alfalfa, which can put down roots deeper than 2 feet deep and effectively pull nitrogen from the 3-foot depth).

EPA's intent in including samples taken at the 3-foot soil depth was to measure nitrogen that had escaped the Dairies' cropping system --- to assess the environmental impact of any over-application of manure to the crop fields. In general, nitrogen measured at the 3-foot depth is on its way to contaminate the aquifer. Your decision to include quantities of nitrogen measured at the 3-foot depth in the nutrient budget calculations would imply that there is some sort of demand within the cropping system that is expected to claim and absorb that nitrogen when that nitrogen has exited the crop system and is external to it.

Including "positionally unavailable" nitrogen that was measured at the 3-foot depth has inappropriately skewed the calculations in favor of allowing more manure application when less manure application was appropriate. In some cases, the inclusion of 3-foot soil nitrogen amounts resulted in a recommendation to apply manure to a field when none should have been applied. In many other cases, however, there was already so much excess nitrogen in the root zone (i.e., the first two feet of soil) due to past over-applications of manure that the calculations resulted in a recommendation of no manure application, notwithstanding the inappropriate inclusion of the 3-foot "positionally unavailable" soil nitrogen.

Because decisions regarding manure application have presumably already been made based on the calculations in the Fertility Reports, EPA is not requiring that the calculations be corrected in these Reports. However, this problem must be corrected going forward. In future calculations, "positionally unavailable" nitrogen from the 3-foot depth must be omitted from the nutrient budget calculations.

Based on our review, and on the condition that so-called "positionally unavailable" nitrogen at the 3-foot depth not be included in future nitrogen budget calculations, in accordance with Paragraph 14 of the Consent Order, EPA hereby approves these Reports.

In addition, please ensure that future reports are entitled consistently. Specifically, use the following format for each Dairy:

- [year] Fall Post-Harvest Sampling Dairy Application Field Report – [Dairy name]
[(month, day and year of report)]
- [year] Spring Pre-Planting Sampling Dairy Application Field Report – [Dairy name]
[(month, day, year of report)]

You may contact me at (206) 553-6904, or your legal counsel may contact Jennifer MacDonald at (206) 553-8311, if you have any questions regarding this letter.

Sincerely,



Eric Winiecki
EPA Project Coordinator
Office of Water and Watersheds

cc: Jennifer MacDonald
Rene Fuentes
Brendan Monahan
Patrick Ryan
Charlie Tebbutt
Lori Terry Gregory
Dave Erickson