



*Friends of Toppenish Creek*

August 5, 2021

WA State Dept of Ecology  
Water Quality Division

Dear Ecology:

The Friends of Toppenish Creek have reviewed Ecology's QAPP for Lower Yakima Valley Groundwater Management Area water testing and we have a few comments – hopefully helpful.

1. The Friends of Toppenish Creek look for ways to help Ecology address the causes of groundwater pollution in the LYV. FOTC believes that Ecology should do more than simply document the decline of the aquifer. FOTC believes that Ecology should take all legally required and necessary actions against polluters.
2. It will take nearly two years to establish a baseline. How many years of sampling are needed to decide whether water quality is getting better or worse? There is no answer to this question in the QAPP.
3. In Section 3.2.1 History of the study area, page 9, the QAPP states: *Concentrated animal feeding operations (CAFOs) have increased in the Lower Yakima Valley, with 37% of the cattle population in Washington State in 2008 (GWAC, 2019).* This is not exactly correct. 37% of the milk cow population in Washington State is located in the LYV. About 21% of the total Washington State cattle population is located in Yakima County according to the USDA National Agricultural Statistical Services at [https://www.nass.usda.gov/Publications/AgCensus/2017/Full\\_Report/Census\\_by\\_State/Washington/index.php](https://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Census_by_State/Washington/index.php)
4. The results of EPA groundwater monitoring on the “dairy cluster” are relevant and would add significant information to Section 3.2.2 – Summary of Previous Studies and Existing Data.

5. In Section 3.2.3 Parameters of Interest and Potential Sources the QAPP states (page 11): *This study is not intended to identify specific sources of nitrate. Instead, this study is intended to provide long term information on the state of the aquifer across the entire GWMA.* Based on this statement alone it is not possible to achieve Objective 4 (page 14) *Assist with evaluating the effectiveness of alternative management strategies implemented in the GWMA.*
6. As you know, FOTC disputes the validity of the Nitrogen Availability Assessment (NAS) which was never approved by the GWAC. We are disappointed that Ecology chose to include data from that faulty study in this document. As you know the NAS omitted nitrogen leaching from compost areas, bio-solids applications, abandoned wells, underground injection wells, industrial facilities, wastewater treatment plants, and fertilizer spills. The percentage attributed to atmospheric deposition only reflects deposition on half of the target area. Thus, the baseline for characterizing atmospheric deposition is skewed.
7. On page 14, the QAPP states: “data collected from select wells in the EPA dairy cluster, which are representative of aquifer conditions, will also be included in this study.”
  - a. How many wells from the EPA dairy cluster will be utilized and how will Ecology decide which wells to sample?
  - b. As we know, nitrate readings from the 23 monitoring wells on the EPA dairy cluster range from 0.41 mg/L to 234 mg/L.
  - c. The dairy cluster and bordering land that was excluded from the GWMA network of monitoring wells covers 20 – 25 square miles, 8% - 9% of the GWMA target area, and the area with the highest nitrate readings.
  - d. If there are 170 monitoring wells for the 270 square mile GWMA target area, then there are about .6 wells per square mile. Will there be 12 – 15 sampled wells in the dairy cluster and surrounding area?
  - e. Regarding the math: if there are 170 wells in the study with 30 dedicated monitoring wells, 3 from the Port of Sunnyside and 137 private domestic drinking water wells, then there is no provision for wells from the EPA dairy cluster.
8. Regarding Section 5.4 Proposed Project Schedule on page 17, we do not see any time or resources allocated for data analysis. Field Work is scheduled for completion in April 2023; the Environmental Information Management (EIM) database should be completed by

December 2023; and a draft of the Final Report to Supervisor is due in September 2023.  
Maybe the QAPP accounts for data analysis within another processes?

9. Regarding Section 5.4, we do not see annual sampling on the schedule after the quarterly sampling is complete in April 2023. Are there any guarantees that the project will continue beyond 2023?
10. Based on Table 6 in Section 5.5, is it reasonable to assume that costs for annual sampling will be approximately \$163,000 per year? Does Ecology anticipate any problems securing this annual funding beyond 2023?
11. FOTC has concerns about Section 6.2.2.2 Representativeness. We apologize that we have no suggested solutions. As Melanie Redding stated in testimony before the WA State Pollution Control Hearings Board, “This is not pancake geology”. There are areas in the GWMA target area in which quite different soil types lie next to each other in alluvial fans. Wells 1,000 feet apart can deliver samples with significantly different nitrate readings. Our basis for saying this is study of the NRCS Soil Survey and data from EPA studies on the “dairy cluster”.
12. FOTC has concerns about Section 6.2.2.3 Completeness. We apologize that we have no suggested solutions.
  - a. The December 3, 2013 PgG document Potential Groundwater Monitoring Stations Yakima Groundwater Management Area, states on page 10:

*The largest number of samples are required for a comparison of averages collected at different times. To meet that objective, PGG estimates on the order of 1,000 samples would be required. That number of samples could be generated by a range of strategies – including sampling each of 170 to 250 stations four to six times over a year.*
  - b. The August 15, 2014 PgG document Interim Final Groundwater Monitoring Plan Lower Yakima Valley GWMA Initial Characterization states on page 10:

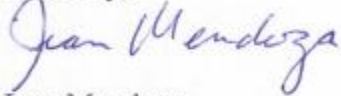
*Sampling schedule should be established following identification of the Groundwater Monitoring well network. As described in the Potential Groundwater Stations report (PGG, 2013), results of approximately 1,000 nitrate and nitrate-related samples are estimated to be required to meet the objective of measuring basin-wide averages at a level of confidence that supports use of the data for future GWMA purposes.*

*Therefore, the sampling frequency is dependent on the number of wells in the Groundwater Monitoring well network.*

- c. If the study goes to once per year sampling, will there be enough samples to satisfy the PgG recommendations? We would appreciate references that address this issue.
13. Salinization of groundwater is a major problem in areas with pollution from manure application to cropland. The EPA tests for sulfate, phosphorous, calcium carbonate, calcium, magnesium, potassium, sodium, chloride, and fluoride in their quarterly sampling on the dairy cluster. Some of the numbers are high. If Ecology does not test for these chemicals now, does that mean it will be difficult to analyze a connection between manure application and groundwater salinization in the future?
14. In this QAPP, what does N/A mean?
15. Many of the links in the Reference Section do not work.

Thank you for reading FOTC observations. This work is important to us on a level that exceeds a desire for academic knowledge. We believe that people in the LYV spend about \$1 million per year for bottled water. We seek a return to pure aquifers, and we count on Ecology to make that happen.

Sincerely,



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