

The EPA "science" report from 2013 is here:

<https://www.epa.gov/sites/production/files/2017-12/documents/lower-yakima-valley-groundwater-report-2013.pdf>

Following are a sampling of the letters and documents that were sent to the EPA expressing concerns and criticism of the falsified science. A review will make clear that the suggestion by some that this study was done not to find the truth, but to assign blame based on pre-established conclusions is fully justified.

· **Glorieta Geoscience provides a 27-point criticism of the data and methods used by EPA,** concluding:

"EPA did not produce a study with reproducible results that supports its conclusions that specific sources of nitrate in domestic wells the Yakima Valley can be identified."

More:

"Since EPA did not collect any data to gain a detailed understanding of aquifer properties at the Phase 3 sites, EPA has no defensible argument regarding the source(s) of groundwater nitrate."

· **In a 25-point summary of critical review of data and methods, InterTox (Seattle) experts** conclude:

"U.S. EPA (2012a) emphasizes a number of results in order to support its conclusion that dairies are contributing significantly to well water contamination. However, it downplays results that both suggest other sources also contribute significantly and that demonstrate the difficulty in allotting contamination to any source without a more detailed and careful sampling and analysis program. U.S. EPA also does not adequately emphasize the numerous data quality concerns. A number of issues with the design of the sampling and analytical program are apparent, resulting in data that are insufficient to conduct scientifically reliable assessments of the potential source of contaminants."

· **Arcadis US concludes:**

"EPA has made a number of conclusions in the report that are unsubstantiated by the presented data. Regardless of the overall data quality or applicability as produced for the Report, these conclusions are not supported by the information obtained."

And: "EPA has made no determination on the type and amount of contribution from these sources, nor proven that one source is the primary or exclusive source of nitrate detected in downgradient wells."

· **David Haggith, N3 Certified Crop Advisor:**

"The report states: 'lack of complete well information limits our ability to verify if the wells upgradient and downgradient of the sources draw water from the same water bearing zone.'

Surely this is crucial to the investigation and without this any comparison of contamination levels is tenuous at best. In fact, it seems that there is very little upgradient water information at all. Admittedly there are a limited number of wells to select from in the area above the dairies but statistical significance requires more than the two questionable wells you have selected."

More:

"The study in fact proves nothing we didn't already know. There is contamination of some drinking water wells and we don't know where it is coming from. The study hypothesizes that the dairy farms are the source of this contamination but has not produced any evidence that scientifically proves that their hypothesis is true."

· Yakima County:

"...after our own review of the study and after careful consideration of comments made by ...local, state, and tribal entities, we do not believe that the study provides that strong scientific foundation. Instead, the study has created a considerable amount of confusion, distrust, uncertainty, and skepticism amongst the affected communities and parties. We believe this negativity is largely due to the limitations documented in the study – most notably the lack of well data and trend data."

· Yakama Nation (the area Native American tribe): *"The report, at best, is inconclusive partly because of documented limitations to the study, and partly due to the unexpected lack of bacteria detections...Without the MST component of the study no clear line of evidence towards any one source exists....The report does acknowledge that the study lacked some important information which would have been helpful to clarify the situation. Of primary importance was the lack of well data."*

More:

"Applying studies to the Yakima Valley in which the authors openly state that the research presented is intended to apply specifically to the region in which it was conducted and that their own research shows that lagoon efficiency should be judged on a site specific basis is not only disconcerting but borderline reckless."

· Steve Wangemann, Ph.D. (BIA Soil Scientist) *"While large dairy and livestock operations present a significant potential for groundwater contamination, the current study does not provide the level of scientific proof that I believe is needed to implicate individual operators. The one inch soils samples, for example, are an extremely weak circumstantial link to groundwater contamination, because they do not reflect the nitrate component lost from the root zone by leaching."*

· Rob Duff, Environmental Assessment Program Manager, WA State Department of Ecology: *"The lack of well construction information on many of the wells is unfortunate. In order to make more definitive conclusions on the sources of nitrate contamination, well depth and the screened interval are essential information. It is our hope that EPA will conduct Phase 4 of their planned study, as originally proposed in their quality assurance project plan, and install monitoring wells to refine the conclusions drawn in this study. These additional steps should*

reduce uncertainty regarding the findings and more clearly identify sources of nitrate contamination in Lower Yakima Valley groundwater. Ecology would be happy to provide technical review of the Phase 4 monitoring plan.”

· **Washington State Department of Agriculture:** *“...after reviewing the report WSDA is concerned that the report under-emphasized the degree of uncertainty associated with the identification of specific sources. We are also concerned regarding the over-emphasis of the data and the identification of potential sources beyond a reasonable area.”* WSDA also discusses limitations of the study that are noted in the report, and discusses questionable assumptions used in calculations. It disputes that the conclusions are supported by the data presented.

John R. David, National Nutrient Management Specialist, Ecological Sciences Division, NRCS: Noted some assumptions of EPA were *“misleading.”*

“EPA’s restricted access to important sites or data made it difficult to estimate the pollution contribution from individual farms.” “It appears that the high levels of nitrate found in drinking water wells in the Yakima Valley are coming from multiple sources. More information is needed to help focus attention on site/management issues contributing to pollutants.”

· **Richard Fasching, NRCS Portland:**

“The conclusions pertaining to the dairies are based on data that does not properly represent the sources or the extent of nitrates.”

“After reading the report and reviewing the numerous data and conclusions derived from it, I am highly skeptical of their conclusions based on their testing methods, procedures, and interpretations of these recorded throughout the report. The report is filled with considerable errors in calculations and interpretations that, based on the performed tests, methods and interpretations, cannot be scientifically defended to derive at the stated conclusions.”

“It is my suggestion that this report be retracted and data collection begin in earnest including the above listed management information and the appropriate tests using proper data collection methods and testing techniques.”

· **David Tarkalson, Soil Scientist/Systems Agronomist, USDA-ARS NW Irrigation & Soils Research Lab:** *“I would request that my name and affiliation be removed as a reviewer from the final report. The final version of the report contains information that I did not review in the original draft. A couple examples include: 1. the inclusion of quantities of lagoon liquid leakage and 2. differing interpretation of pharmaceutical data.”*

· **Saqib Mukhtar, Ph. D., (then Associate Dean for Biological & Agricultural Engineering, Texas A & M):**

“This review document discusses the lack of replicated and statistically deficient sampling of potential sources and sinks of nitrate and other analytes in the Lower Yakima Valley. Other observations pointing out to study assumptions are also provided. This phase 3 report by EPA also points to limited or non-existent information (page 84, Section X) on several important

aspects including incomplete information on well parameters and realistic groundwater flow direction specific to the study sites. Lack of historical information and production and management data on dairies and irrigated crop fields also were cited. Additionally, nonexistent or insufficient information on presence of livestock, possible wildlife presence, use of synthetic and organic fertilizers in the vicinity of the residential drinking well water sites further dilute the validity of results shown and conclusions made in this study. Based upon the data and results provided in this report, no direct correlations can be made between nitrate in water wells and any one specific potential source of nitrogen in the Lower Yakima Valley. ”

· **Joseph H. Harrison, Ph. D., Livestock Nutrient Management Specialist, Washington State University:** “1. Lack of replication of samples (water, manure, soil) over time. 2. Soil samples collected at 1 inch of depth (should have been 1 foot or deeper). 3. Relating aged water (16-42 years to contemporary analytes in soil, water and manure. Lack of specific data on ground water flow direction. Due to the concerns mentioned above, and the lack of information confirming the integrity of the wells from which water was obtained, the report does not accomplish its goal of providing information on ‘the contribution from various land uses to the high nitrate levels in groundwater and residential drinking water wells.’ ”

This is just a start. There are many more written critiques of the EPA "science" report:
ftp://ftp.epa.gov/reg10ftp/sites/yakima/EPA_2013_Report/