

James H. Davenport

*Attorney at Law
JHDavenport, LLC*

P.O. Box 297
Buena, WA 98921
(509) 969-2141

Washington State Bar # 7879

jhdavenportllc@gmail.com

March 11, 2019

David Bowen
Department of Ecology
Central Regional Office
1250 W. Alder St.
Union Gap, Wash., 98903-0009.

RECEIVED

MAR 11 2019

Dept of Ecology
Central Regional Office

Re: Written submission in connection with March 12 hearing on Lower Yakima Valley Groundwater Management Area Program

Dear David,

I submit this comment today not in the capacity of my prior contracted assistance to Yakima County in the performance of its role as lead agency in the near six-year process of the Lower Yakima Valley Groundwater Advisory Committee, but rather in the capacity of a private citizen resident of the Lower Yakima Valley which is the subject of the Advisory Committee's inquiry. I am no longer contracted to Yakima County in the former capacity.

I write today in order to make the few following observations, none of which, I hope, are inconsistent with the Washington State departments of Ecology's, Agriculture's or Conservation Commission's, or Yakima County's successful implementation of the GWAC's numerous recommendations, to wit:

1. Use of the community consultation model for developing solutions to environmental contamination problems is only helpful to the extent that it broadly and proportionately represents the affected community.
2. Duly authorized governmental agencies and duly elected public officers are charged with a public duty to execute those rules and regulations currently in effect, and exercise those powers with which they are currently authorized, notwithstanding that they are not recommended by public interest groups.
3. Neither the final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program, nor the recommendations contained therein, are limiting upon the choices available to the public at large or governmental agencies with relevant jurisdiction.

4. The Departments of Ecology, Agriculture and Conservation Commission, as well as Yakima County, the Yakima County Health District and the Southern Yakima Conservation District should not regard the investigation of groundwater contamination in the Lower Yakima Valley as a *fait accompli*, but rather as a *fait ab initio*.
5. Information not provided to the GWAC but obtainable from the Washington State Department of Agriculture should be analyzed:
 - a. Growth in agricultural use intensity (density/acre, acreage farmed, production volume)
 - b. Amount of chemical fertilizer sold or used within GWMA
 - c. Report of dairy nutrient management plan information on distribution of manure (see RCW 90.64.026(3), RCW 42.56.270(7), WAC 16-06-210(29))
 - d. Nitrogen Loading Assessment (as distinguished from Nitrogen Availability Assessment, see: June 19, 2014, August 21, 2014, October 16, 2014, and December 18, 2014 GWAC meeting summaries; Yakima County/Department of Agriculture Interagency Agreement)
6. Information not provided to the GWAC but obtainable from the Department of Ecology should be analyzed:
 - a. Report on enforcement of RCW groundwater standards
 - b. Report on effect of large scale water usage on groundwater quality
7. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does recommend the collection of data from the Ambient Groundwater Monitoring Well system. The Groundwater Monitoring Well system should:
 - a. Maintain a longitudinal record of measurements taken from groundwater monitoring wells so as to document trends in improvement or worsening of the present condition.
 - b. Map the "horizon" of analysis of monitoring well measurements from the groundwater monitoring well system (an undulating plane established by points (elevations) at each monitoring well, with the intervening spaces being calculated with reference to influence from proximate point data) should be mapped. This might indicate how the measured horizon intersects with the geologic regimes already known (theoretically) to exist within the study area.
 - c. Introduce some sort of non-pollutive tracer in selected monitoring wells in order to ascertain whether that tracer expresses itself in other monitoring wells. This may be possible due to the density and location of monitoring wells within the study area. This may provide information helpful in establishing direction of groundwater flow (albeit at a rather surficial elevation).
8. Neither the final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program, nor the recommendations contained therein, identify the means by which to determine the effectiveness of recommended educational or "best management practices" strategies. These should be identified and implemented ("ambient groundwater monitoring" will not accomplish this).

9. Neither the final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program, nor the recommendations contained therein, identify or analyze information about the amount of chemical fertilizers sold or distributed to managers of orchards and crops, or applied to orchards and crops within the study area. This information should be collected and analyzed.

10. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not reflect the often-expressed view/opinion within the Advisory Committee that there exists a "legacy" of groundwater contamination within the Lower Yakima Valley due to the length of agricultural activity which has occurred there. Historic data pertaining to the amount of agricultural production, classified by crop variety (measured in volume, economic value or other metric), acreage farmed, and percentage of farmed acreage property actually under tillage, should be assembled and compared against current data of like kind in order to establish trends in agricultural density and use.

11. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not reflect the often-expressed view/opinion within the Advisory Committee that the effect of groundwater contamination in the Lower Yakima Valley influences the lives and health of human demographic groups disproportionately. Nor does it study or describe the socioeconomic effect of groundwater contamination within the study area upon future generations. Both effects should be studied.

12. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not correlate the economic benefit derived from the private small industrial, agricultural, urban/suburban residential sector sources' activity within the study area with the economic costs likely to be incurred by the public remedial, corrective, educational, or regulatory activities responding to the problem, nor does it quantify the economic value of the natural resource (groundwater) consumed through contamination (an unmeasured and undocumented expense incurred as part of the private small industrial, agricultural, and urban/suburban residential sectors' entrepreneurial enterprise). This relationship should be studied in order to determine correlate costs of remediation, if any, with the economic benefits of groundwater consumption.

13. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not evaluate the causal relationship, if any, between the method and volumes of water applied to the ground surface (either generally or at specifically identifiable locations, or the volume of groundwater stored within the ground, within the studied area, and the extent, location or degree of groundwater contamination within the studied area or at specific contaminated wells. This correlation, if any, should be studied.

14. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not evaluate the correlation, if any, of the location, volume or movement of surface water within lined or unlined artificial conveyance systems (irrigation canals) with the extent, location or degree of groundwater contamination within the studied area. This correlation, if any, should be studied.

15. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not correlate changes in concentration, density, intensity, or use of source-related activities within the studied area with changes, if any, in the extent, location or degree of groundwater contamination within the studied area. This correlation should be studied.
16. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not analyze specific deep soil sampling data collected from known locations. More deep-soil sampling data should be collected, with data collection sites located, and that data analyzed.
17. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not analyze trends in well data from Valley Institute for Research and Education Report (2002), Nitrate Pilot Project Well Samples, LVYGWMA High Risk Well Assessment Well Samples, and USGS 2017 Well Testing Data. Trends in this data should be analyzed.
18. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not identify plausible hypotheses of causation, transmission, or accumulation of contaminant between categorical sources and contamination events or locations. These hypotheses should be stated and explored.
19. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not describe the processes of hydrogeologic or chemical transmission or accumulation of contaminant in the area of contamination. These processes should be more completely explored and described.
20. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not investigate or analyze the geologic and hydrogeologic properties of denser locations of contaminated wells ("hotspots). These should be investigated and analyzed.
21. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not investigate or analyze the plausible causal relationship between specifically identifiable sources and specific contamination events. These should be investigated and analyzed.
22. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not explore the correlation, if any, between specific land use types and proximate water supply contamination events. This potential correlation should be explored.
23. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not address the specific land use regulations, or other regulation types, that might used rectify, ameliorate or otherwise alter the general or specific contamination condition within the study area. These should be explored and analyzed.
24. The final draft of the Lower Yakima Valley Groundwater Advisory Committee's Program does not address the effect of generic or specific sources on the protection of areas with "critical recharging effect on aquifers used for potable water or areas where a drinking aquifer is vulnerable to contamination that would affect the potability of the water" as designated by

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Yakima County pursuant to the Growth Management Act or otherwise (RCW 36.70A; WAC 365-190-030 (3); and YCC 16A, 16C), as “environmentally sensitive or special areas” as contemplated by WAC 197-11-330(2)(e)(i), WAC 197-11-305 (1)(a), WAC 197-11-908(1)(b) and the Growth Management Act. These effects should be described and analyzed.

25. The final draft of the Lower Yakima Valley Groundwater Advisory Committee’s Program does not explore the strategy of taxation on the use or sale of materials containing chemical constituents common to known constituents of groundwater contamination as a means of source reduction. This strategy should be considered.

26. The final draft of the Lower Yakima Valley Groundwater Advisory Committee’s Program does not explore the strategy of usage limitations, imposed through land use regulation, on the nature, density, or intensity of use (analogous to limitations on industrial development). This strategy should be considered.

27. The final draft of the Lower Yakima Valley Groundwater Advisory Committee’s Program does not recommend any remedial action. Remedial actions should be studied.

28. The final draft of the Lower Yakima Valley Groundwater Advisory Committee’s Program does not evaluate the costs or implications of inaction. These should be evaluated.

The purpose of this letter is not criticism. This is not an easy problem. I make these comments with the hope that they will lead to improvement of the quality of the environment in which I live. Thank you for the opportunity to provide comment on this important project.

Best regards,



James H. Davenport