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November 29, 2012

VIA EMAIL (R10YVNitrate@epa.gov)
Office of Environmental Assessment
Attention: Carol Harrison
United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, Suite 900
Mail Code OEA-095
Seattle, WA 98101

RE: Comments on EPA report entitled *Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley, Washington* (EPA 901-R-12-003) and Request for Independent Third Party Peer Review

Dear Ms. Harrison:

The following comments to the report of the United States Environmental Protection Agency ("EPA") entitled *Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley, Washington* ("Report") and request for independent third party peer review are submitted by:

1) The Washington State Dairy Association ("WSDA"), a nonprofit corporation founded in 1892, and the oldest dairy trade association in the United States;

2) The Idaho Dairyman's Association ("IDA"), a nonprofit corporation founded in 1944 to represent the dairy industry in the state of Idaho; and

3) The Independent Dairy Environmental Action League ("IDEAL"), a nonprofit research foundation established in 2003 to represent the dairy industry in Idaho by engaging in independent research on environmental issues, including nitrates in groundwater (collectively "Commenters").

The Commenters' members and families are directly affected by the Report and believe it contains significant technical errors and data gaps which make it unreliable as a basis for enforcement action under the Safe Drinking Water Act, 42 U.S.C. §300 *et seq.* ("SDWA"), by EPA Region 10. The concerns of the Commenters are set forth in detail below.

I. THE NEED FOR INDEPENDENT PEER REVIEWED SCIENCE

Peer review of scientific documents is necessary to ensure objectivity and to provide credibility. At its core, independent peer review by qualified scientists catches and corrects errors and biases in research. It is a good process. That is precisely why the EPA itself insists that peer review of its scientific documents be conducted in a very specific manner as set forth in its *Peer Review Handbook 3rd Edition* (EPA/100/B-06-002). As stated by the EPA, "[p]eer review of all scientific and technical information that is intended to inform or support [EPA] decisions is encouraged and expected." (**Attachment A**).

Despite the EPA's "encouragement and expectation" that a specific peer review process be followed, such a process was not followed in issuing the Report. Instead, the Report followed a "peer review plan" whereby a "data report" was sent to EPA-selected reviewers. Public nominations or comments were not allowed. This review process fails in several significant respects.

First, the supposed "peer review" used in the Report was wholly inadequate in that it merely consisted of the EPA sending a small group (five individuals, of which four responded)[1] a document package with a list of seven questions the EPA sought input on. Such cherry-picked and directed input on the draft Report does not amount to independent third-party peer review since "peer input is not a substitute for peer review." (EPA's *Peer Review Handbook* at § 1.2.5). The EPA has many knowledgeable resources at its disposal in this important process, including the United States Department of Agriculture's ("USDA") Agricultural Research Service ("ARS") and Natural Resources Conservation Services ("NRCS") and the Washington State Department of Agriculture ("WSDA"). Each of these agencies has significant experience and expertise in scientific agricultural research. Nonetheless, none of these entities were used to conduct an independent peer review of the Report (consistent with EPA policies) and, even more surprisingly, none of them were the lead parties in the Report's development.

Despite not using these valuable resources, EPA had reason to question the accuracy of its Report based on the limited comments it did receive. At least one of the EPA's selected reviewers, Dr. Young, submitted detailed concerns regarding groundwater flow directly and adjacent to non-dairy agricultural fields which undermine some of the critical assumptions and conclusions of the Report. It is unclear what, if anything, the EPA did to change the Report in

[1] According to the EPA's website, the following five individuals comprised the Report's "Peer Review Panel:" Lorraine C. Edmond (USEPA), Stephen Kraemer (USEPA-NERL), Roger Burke (USEPA-NERL), Megan B. Young (USGS-Water) and David Tarkalson (USDA). Edmond apparently did not provide comments, because only those provided by Kraemer, Burke, Young and Tarkalson are posted on the EPA's website and noted in the Report.

response to the concerns raised by Dr. Young.[2] Accordingly, even the limited "peer review" process used by the EPA does not appear to support the conclusions of the Report, but instead stresses the uncertainty of its results.

Second, the "peer review" process used in the Report failed to mention to reviewers that the Report's purpose is enforcement under the SDWA. Based on our discovery to date, we understand that the draft Report sent for review did not disclose the intent to identify dairy farms as the source of nitrates in groundwater. This was confirmed by at least one of the EPA's hand-picked reviewers, Dr. Tarkalson, who, we understand, after learning the true purpose of the Report, requested that his name be removed from the Report.

Third, a review of the Report highlights significant technical mistakes with it and its assumptions. For example, the Report begins by stating that nitrate levels in residential drinking water wells above the EPA maximum contaminant level ("MCL") drinking water standard of 10 mg/liter is a problem for only 9-12% of the residential wells in the lower Yakima Valley. Yet, the wells chosen by EPA for the Report (some still undisclosed) were not chosen from a cross-section of residential wells in the Yakima Valley, they were specifically selected for their high levels of nitrates, thereby biasing the Report from its inception. Similarly, the Report implies that nitrogen simply leaches from dairy lagoons to groundwater. Michael R. Murray, Ph.D, an experienced soil scientist with HDR Engineering, reviewed the Report and found that such a conclusion is an over simplification which ignores nitrogen cycle dynamics and, based on available scientific research, is "simply not accurate." (**Attachment B at 1**). Further, and perhaps of most concern, the Report relies upon a limited and selected set of data of well water and soil samples taken one time. In effect, the Report takes a snapshot of groundwater data from wells and selected soil samples while excluding long-term trends in the Yakima Valley. The Report creates confusion by lumping together land application of manure at dairy farms pursuant to the WSDA's approved Nutrient Management Plans ("NMP") with the use of commercial fertilizer not similarly regulated by the State of Washington or EPA. Historic application of commercial fertilizers has significantly different impact on groundwater than manure applied under the terms of a NMP.

Despite its title which claims to discuss the relationship between nitrates in well waters and potential sources in the Lower Yakima Valley, the Report appears designed to look at individual "hot spots" pre-identified as dairy farms surrounding wells with suspected elevated levels of nitrates with the idea of using ". . . analytical techniques to trace the nitrate back to specific sources." The Report does not analyze other obvious sources, such as adjacent farms. The Report needs to be peer reviewed by experts in agricultural sciences to ensure that it studies the entire lower Yakima Valley and not be limited to serving as the basis for an enforcement action against individual dairies.

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[2] The Commenters have sent a request under the Freedom of Information Act for all peer review documents associated with the Report so that we can better analyze the EPA's "peer review" process and the accuracy of the Report's information and conclusions, but we have not yet received them as of the date of this letter.

The Report has not been subject to a rigorous independent third party peer review and, as such, is not valid as a scientific document for purposes of an enforcement proceeding under Section 1431 of the SDWA, 42 U.S.C. § 300i(a). Nor is the Report admissible into evidence in support of any federal court proceeding under the standards set forth in *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579 (1993). *See, e.g.*, **Attachment C** (*U.S. v. Fleet Management, Ltd.*, 2009 WL 1483143 (3rd Cir. 2009) (expert testimony based on "the best inference" drawn from allegations, which excluded other explanations from consideration, held inadmissible under *Daubert*). While the EPA has allowed public comment on the Report, public comment does not substitute for peer review, and public involvement is not a peer review mechanism. (EPA's *Peer Review Handbook* at § 1.2.8). What is needed is full disclosure by EPA and rigorous public involvement, followed by independent third party peer review.

II. EPA RELIES UPON LIMITED AND NON-REPRESENTATIVE DATA

IDA and IDEAL have been collecting data regarding nitrates in groundwater along the Snake River Plain in Idaho for a number of years. This data establishes that nitrates in groundwater are below MCL standards in areas where dairy farming practices are subject to NMPs (with the exception of a few "hot spots"). (**Attachment D**). The Idaho data seems to be consistent with the situation in the lower Yakima Valley.

In June 2011, Yakima County Public Services issued a final report entitled *Lower Yakima Basin Nitrate Treatment Pilot Program* ("Yakima Final Report"), which summarized the results of its Nitrate Treatment Pilot Program in the Lower Yakima Valley whose goals were to provide "public education, technical assistance and water treatment systems to households with people at high public health risk from nitrate contamination." (**Attachment E at 1**) (report included without Appendix). The Yakima Final Report gives scientific insight on two important issues. First, the Yakima Final Report found that "the percentage of homes with nitrates that exceed the drinking water standard of 10 ppm appears lower than originally estimated. Previous estimates indicated that 21 percent of the wells in the Program area were contaminated; however, the program's in-home testing results indicated only 9 percent were at or above the 10 ppm standard." (**Attachment E at 2 & 12**). This difference may be accounted for by the fact that there has been little analysis of wells with low levels of nitrates in the Yakima Valley. EPA's certified lab results for private wells indicated a 21% rate of contamination exceeding drinking water standards (**Attachment E, Figure 3 at 13**). However, the Yakima Final Report states that this database specifically excluded many wells less than 10 ppm "because households were not eligible for financial assistance [under the Nitrate Treatment Pilot Program]." (***Id.***) This indicates a strong bias to overstate nitrate levels. Second, Figure 2 of the Yakima Final Report shows a geographical concentration of exceedences largely in urban areas with some rural hot spots. (**Attachment E, Figure 2**).

A review of the Report in light of the data from Idaho and the lower Yakima Valley indicates that the Report is a "hot spot" analysis and not a regional approach as the title and EPA press release implies. This fundamental flaw in the Report's overall reliability is compounded by the lack of knowledge about the specific wells EPA selected in the Report which may present

higher levels of nitrates than in fact occur. As EPA's chosen reviewer Dr. Young points out, these selected wells need to be carefully studied and it is unwise to make definitive statements about nitrate sources within the Report given the inherent limitations of the study with respect to data on well location and depth, mixing/flow paths and potential mixed land use.

The Commenters are particularly concerned with the fact that the Report does not indicate what, if any, effort was made to coordinate with the WSDA which is responsible for NMPs at each dairy. This is a significant omission because a NMP is specifically designed to regulate the impacts of dairy farming on groundwater and is the key state legal process to ensure compliance with federal and state drinking water standards. We have sent a public records request to WSDA to determine the extent of EPA consultations. Our conversations with WSDA personnel so far reveal little or no contact by EPA regarding the correctness of the data in the Report.

Washington State and local authorities have acted for years to protect the health of Yakima Valley residents. Indeed, as recently as June 2011, the Washington Department of Ecology and the Yakima County Public Works Department worked together to create a Lower Yakima Valley Groundwater Management Area ("GWMA") specifically to resolve SDWA concerns. (**Attachment F**). EPA has not challenged these local and state efforts to manage groundwater contamination. Instead, EPA has failed to consult with State and local authorities to confirm that any endangerment to public health exists before issuing the Report and using it as a threatened enforcement tool under the SWDA. This failure to consult with the WSDA and local authorities (like the failure to obtain appropriate peer review) is compounded by the EPA's failure to collect adequate data over time. The data collected by EPA and used in the Report is 1) inadequate to determine the source of nitrates in individual wells, and 2) inadequate to determine if NMP are being properly implemented or are effective in controlling dairy farm impacts on groundwater. Oddly, the Report does not even discuss whether the wells tested are regulated as drinking water wells under the jurisdiction of the SDWA and, in fact, the key wells have not been identified to the public.

III. EPA NOT APPROPRIATE GOVERNMENT ENTITY FOR REGIONAL ANALYSIS OF NITRATES IN GROUNDWATER

EPA is not the appropriate governmental entity to prepare the Report or to conduct this study. The ARS has been conducting peer reviewed, scientific studies of agricultural impacts on nitrates in groundwater for years. ARS, as the United States Department of Agriculture's research arm, specializes in issues such as nitrates in groundwater and the impact of agriculture. The ARS was first authorized by Congress by the Organic Act of 1862 to be the premier agricultural science research agency in the United States, if not in the world. Similarly, EPA failed to consult with the NRCS which is the congressionally approved arm of the USDA to provide financial, technical and field office assistance to local communities. NRCS has conducted studies on the transport of nitrogen for years, yet they were not consulted. There seems to be no reason why the EPA Region 10 is conducting independent research that overlaps with ARS and/or NRCS activities.

EPA did consult with one ARS scientist in Kimberly, Idaho (Dr. Tarkalson) without revealing the enforcement purpose of the Report. We understand that this scientist has asked EPA to remove his name from the Report. EPA is, apparently, unaware that IDA, the Idaho Department of Environmental Quality ("IDEQ") and third parties are in the process of contracting with ARS in Kimberly, Idaho to conduct research on the impacts of dairy farms on nitrates in groundwater. (A copy of the proposal is **Attachment G**.) This proposed research will, among other things, study: (1) nutrient budgets for dairy farms; (2) nutrient budgets for crop fields; (3) use simulation models to estimate nitrogen losses from agricultural sources; and (4) monitor water quality in select springs and wells. This is the type of approach that should be taken in the lower Yakima Valley.

IV. THE REPORT IS AN ENFORCEMENT DOCUMENT

The Report seems tailored to bring an enforcement action under Section 1431 of the SDWA and, in fact, EPA is seeking a "voluntary" consent order under threat of unilateral action against individual Yakima area dairies. The Report has also triggered threats of citizen suits against individual dairies. This is hardly indicative of a scientific inquiry and seems to place the Report into the status of a litigation document and not a scientific inquiry. This, to us, is a clear indicator that the EPA document needs to be peer reviewed by the ARS, NRCS or independent third party scientists before it is released in final form.

EPA is seeking to use the Report as the basis for an enforcement order under the emergency provisions of Section 1431 of the Safe Drinking Water Act (42 U.S.C. § 300i(a)). The Section provides:

> PART D—EMERGENCY POWERS
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> EMERGENCY POWERS
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> SEC. 1431. (a) ... the Administrator, upon receipt of information that a contaminant which is present in or is likely to enter a public water system or an underground source of drinking water, or that there is a threatened or potential terrorist attack (or other intentional act designed to disrupt the provision of safe drinking water or to impact adversely the safety of drinking water supplied to communities and individuals), which may present an imminent and substantial endangerment to the health of persons, and that appropriate State and local authorities have not acted to protect the health of such persons, may take such actions as he may deem necessary in order to protect the health of such persons. To the extent he determines it to be practicable in light of such imminent endangerment, he shall consult with the State and local authorities in order to confirm the correctness of the information on which

> action proposed to be taken under this subsection is based and to ascertain the action which such authorities are or will be taking.

While Congress intended Section 1431 to confer broad powers to the EPA in emergency situations that pose a substantial and imminent threat to public health, "the EPA's emergency power is not without limitation." *W. R. Grace & Co. v. United States Environmental Protection Agency*, 261 F.3d 330, 339 (3rd Cir. 2001). For instance, the clear intent of Congress in enacting Section 1431 was "that this broad administrative authority not be used when the system of regulatory authorities provided elsewhere in the bill could be used adequately to protect the public health." *Id.* In other words, EPA could not invoke its emergency powers to take action under Section 1431 when, and if, local and state authorities had already identified and were acting to appropriately address the situation. Given this, EPA's proposed enforcement actions in the lower Yakima Valley do not meet SDWA statutory standards.

First, based on our investigation to date, it appears that there has been no consultation with the WSDA, the state agency responsible for enforcing State of Washington groundwater regulations at dairies pursuant to NMPs. Indeed, based on the comments recently submitted by the WSDA, it appears that WSDA takes issue with many aspects of the Report, including the accuracy of some of its fundamental conclusions and its overall purpose:

> After reviewing the report WSDA is concerned that the report underemphasizes 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. . . . as an overall comment, the report appears to suffer from a redirection of the study purpose sometime after the initial phase. The study appeared to change from a data collection/research emphasis to a data collection effort with regulatory actions in mind. The result is a report that does not truly satisfy either goal.

(**Attachment H at 2**). Similarly, it appears that EPA has not consulted with local counties which are, as authorized by law, under the local GWMA programs, to protect groundwater from contamination.[3] Thus, a fundamental prerequisite to the invocation of Section 1431 has not been satisfied by EPA.

Second, even if EPA had formally "consulted" with state and local officials "in order to confirm the correctness of" its supposition that dairy farms pose a substantial threat to the public health and safety because of nitrates in groundwater – which it did not – EPA cannot demonstrate that state and local authorities are doing nothing to address and resolve the issue of nitrates in the groundwater of the lower Yakima Valley. Indeed, just the opposite is true. State

[3] **Attachment I** is a list from the Groundwater Resource Library of Reports and Studies which clearly shows the long-term efforts of local governments to resolve groundwater issues.

and local officials have been working for years to address and resolve this issue, including the creation of a GWMA in the Yakima Valley, which is ready, willing and able to address such concerns. As noted in the WSDA's recent comments to EPA on the Report "[t]he report raises many questions that should provide the Groundwater Management Area Committee a technical starting point." (**Attachment H at 4**).

Third, the "imminent and substantial" threat to public health and safety required by Section 1431 is questionable for at least two reasons. First, EPA has refused to identify the contaminated wells so that alternative water sources, such as available reverse osmosis treatment systems, can be provided at no cost to affected families by local authorities. This indicates no serious or imminent threat to family health. And, second, EPA has taken two and a half years to analyze a well-known problem. Again, this fact alone indicates no imminent threat to public health.

Third, as described above, the EPA study is severely flawed and cannot, properly, form the basis for regulatory action under the SWDA. This fundamental fact is confirmed by the WSDA: "The degree of uncertainties raised in the report is limiting as to its use for regulatory purposes." (**Attachment H at 4**). Commenters believe that EPA efforts to avoid the independent peer review procedure set forth in the EPA's own *Peer Review Handbook* suggest knowledge by the agency of the Reports' technical shortcomings.

In light of the serious concerns raised with the accuracy of the Report's findings and conclusions, coupled with the EPA's inability to meet the statutory requirements necessary to assert regulatory power under Section 1431 of the SWDA, we recommend that EPA immediately withdraw the Report and enter into a careful, independent peer review procedure in consultation with the ARS, NRCS and independent scientists. The WSDA, IDA and IDEAL, among others, are ready to collaborate in this effort to bring about a result that is science-based and accurate.

Thank you for the opportunity to comment on the Report.

Very truly yours,

W. Hugh O'Riordan

Very truly yours,

Debora K. Kristensen

Attachments
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