Olympus Technical Services, Inc.

November 27, 2012

Hugh O'Riordan
Givens Pursley, LLP
601 West Bannock Street
Boise, ID 83702

Via: e-mail - who@givenspursley.com

Re: EPA-910R-12-003 Report Comments
Olympus Project A7194-1

Dear Hugh:

Olympus Technical Services, Inc. (Olympus) has been retained by the Washington Dairy Commission and Givens Pursley, LLP (on behalf of the Idaho Dairymen's Association) to review and provide comments regarding the United States Environmental Protection Agency's (EPA) September 2011 *Relation Between Nitrate in Water Wells and Potential Sources in the Lower Yakima Valley, Washington* (EPA-910R-12-003, Report). The Report presents the results of EPA's sampling of drinking water wells, sampling of potential sources of nitrate that could impact groundwater quality in the Lower Yakima Valley, and EPA's attempt to evaluate direct (nitrate analyses) and indirect methods that could be used to link sources of nitrate impact to groundwater.

The Reports states, in part:

> *"...the primary purpose of this study was to collect data to investigate the contribution of various sources from nearby land uses to the high nitrate levels in groundwater and residential drinking water wells. To accomplish this, EPA sampled and analyzed sources of nitrate (dairies, irrigated croplands, and residential septic systems) and private residential drinking water wells for a variety of chemicals to evaluate whether chemicals, including nitrate, could be used to link the nitrate contamination in groundwater and drinking water wells to the sources."*

While the Report focused its study on two specific areas in the Yakima Valley, the Haak Dairy; and the George DeRuyter & Son Dairy, the D and A Dairy, the Cow Palace 1 and 2, and the Liberty and Bosma Dairy (collectively labeled the Dairy Cluster), there is concern within the dairy industry that the EPA could extrapolate the Report's results for use elsewhere. Additionally, we understand that the EPA has used the Report as a basis for threatening to issue an Administrative Order under the Safe Drinking Water Act to the subject dairies.

Figures 1 and 2 show the locations of the Haak Dairy and the Dairy Cluster, and the nitrate concentration in wells the EPA used to evaluate groundwater upgradient and downgradient of the Haak Dairy and the Dairy Cluster. Olympus used figures shown in the Report to better locate the wells shown on Figures 1 and 2.

Olympus' review identified the following concerns with the Report.

- The EPA's definition of upgradient wells in evaluating background conditions is flawed. For both the Haak Dairy and the Dairy Cluster, the wells defined as upgradient of the subject dairies are located upgradient and cross-gradient of the subject areas. Additionally the Report uses regional groundwater flow data to define upgradient and downgradient (of the dairies) wells; the Report did not consider localized groundwater flow directions and gradients, which may be different from regional flows and gradient. The Report acknowledges such, and states, in part:

  > *"Selection of upgradient and downgradient wells for this study was based on groundwater flow direction and gradient data compiled by USGS. According to USGS, the generalized direction of groundwater flow in the study area in both the shallow sedimentary hydrogeologic unit and the deeper basalts is toward the Yakima River (USGS 2009). Flow directions can vary locally due to canal/lateral leakage, irrigation, drains, streams, pumpage, variations in recharge, spatially varying hydraulic characteristics, and topographic setting (USGS 2009). Groundwater flow directions were determined by USGS by measuring depth to water and reflecting these localized influences at the time it was measured. ..."*

  The use of well WW-1 as a Haak Dairy upgradient well fails to consider its location, immediately downgradient of an irrigation canal. Leakage from this canal could result in considerable dilution of groundwater, near this well, with surface water. The potential dilution could result in inaccurately reporting background conditions. There is considerable acreage (at least one square mile) of agricultural land north and east of this well's location. The Report does not address the potential use of nitrate-based chemical fertilizer(s) on this land. Groundwater below these fields may contain nitrate at elevated concentrations, but irrigation canal dilution may mask its presence (as a background condition).

  Additionally, the EPA failed to identify the uncertainty of defining groundwater flow in fractured basalt. Groundwater flow in fractured flow typically flows in a network of fractures (or micro conduits) and may not follow regional flowpaths.

- The EPA's use of existing study area wells, rather than monitoring wells, adds a high degree of uncertainty in its conclusions. The lack of well completion details make it difficult to evaluate the validity of samples collected from the subject wells. Improperly constructed, leaking, or absent well seals could result in localized (around the well intake) groundwater impact from surface leakage down well casings. While the use of existing wells may be acceptable for screening purposes, the EPA could have conducted a more accurate study had it used monitoring wells to better define the nature and extent of nitrates in groundwater.

  Additionally, the Report-referenced downgradient wells for the Dairy Cluster are not adequately located to differentiate potential source areas within the Dairy Cluster area. As discussed above for the Haak Dairy, the accuracy of the Report-defined upgradient well location and groundwater flow direction is also a concern at the Dairy Cluster.

- The EPA reportedly collected soil samples from dairy application fields at a depth of one inch below the ground surface. Collecting samples at a one-inch depth is not adequate for characterization of soil nitrogen. For proper characterization of soil nitrogen, the EPA should have collected soil samples from depths of at least one foot (at a minimum) below the ground surface. To better determine if nitrogen was leaching below the root zone, the EPA should have collected samples to at least the bottom of root zone.

- Laboratories used by the EPA used internally developed methods for some procedures. While these methods may provide acceptable results, the EPA typically requires the use methods which either the EPA or other entities have published guidance.

- The Report's Quality Control/Quality Assurance data validation identified a high number of analytical problems that resulted in qualified and rejected data. While the data used may have been judged valid, the number of qualified and rejected data may be indicative of a poorly designed study.

- As quoted above, the EPA intended to use the Report study to evaluate whether chemicals, including nitrate, could be used to link nitrate contamination in groundwater to sources of nitrate. The EPA's use of assessment methods documented in the Report to issue an Administrative Order of Consent may be an overuse of the Report's conclusions.

On behalf of the Idaho Dairymen's Association, Olympus performed a review of nitrate in groundwater in Jerome and Gooding Counties, Idaho. The subject area is located in the Snake River Plain, on the north side of the Snake River in the Thousand Springs area. The hydrogeologic conditions in this area consist of an overburden of alluvial sediments underlain by basalt flows, with groundwater present in the shallow sediments and in fractures within the basalt flows, similar to the Yakima Valley. We conducted the review in response to Idaho Department of Environmental Quality (IDEQ) concerns regarding dairy operations and IDEQ-reported increasing concentrations of nitrates in groundwater in the subject area. The subject area contains a significant number of dairy operations.

Olympus compiled data for nitrate concentrations in groundwater from the IDEQ, the Idaho Department of Water Resources, and the Idaho State Department of Agriculture into a graphic information system (GIS) database. We used the GIS database to prepare figures showing nitrate concentrations in groundwater on aerial photographs of the subject area. The figures show that in the subject area nitrate concentrations in groundwater generally do not exceed EPA Maximum Concentration Limits for drinking water. The figures did identify nitrate "hot spots", generally in areas near the rim of the Snake River Canyon. The Idaho Dairymen's Association presented the data to the IDEQ Board at its June 29, 2011 meeting.

The source of the "hot spots" is presently being addressed by a study to be conducted by the United States Department of Agriculture, Agricultural Research Service's Northwest Irrigation and Soils Research Lab in Kimberly, Idaho. The study is being conducted with the cooperative support from the Idaho Dairymen's Association, the IDEQ, and other partner organizations. Attachment 1 includes a copy of the printout of the PowerPoint slides presented to the IDEQ Board that proposed the study.

Olympus performed the services reported in this document in a manner consistent with generally accepted principles and practices for the nature of the work completed in the same or similar localities, at the time the work was performed. No other warranty, expressed or implied, is made. Opinions contained in this document apply to conditions existing when the services were performed. All conclusions and recommendations are based on readily available and reasonably ascertainable information on site conditions at the time of the work and for the laws in effect at that time. We are not responsible for any changes in environmental standards, practices, or regulations subsequent to performance of services. This report is not meant to represent a legal opinion. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Thank you for providing Olympus with the opportunity to work with Givens Pursley, the Idaho Dairymans Association, and the Washington Dairy Commission on this project. Please contact me with any questions or comments. I can be reached by telephone at (208) 562-5500 or via e-mail at MBacke@OlyTech.com.

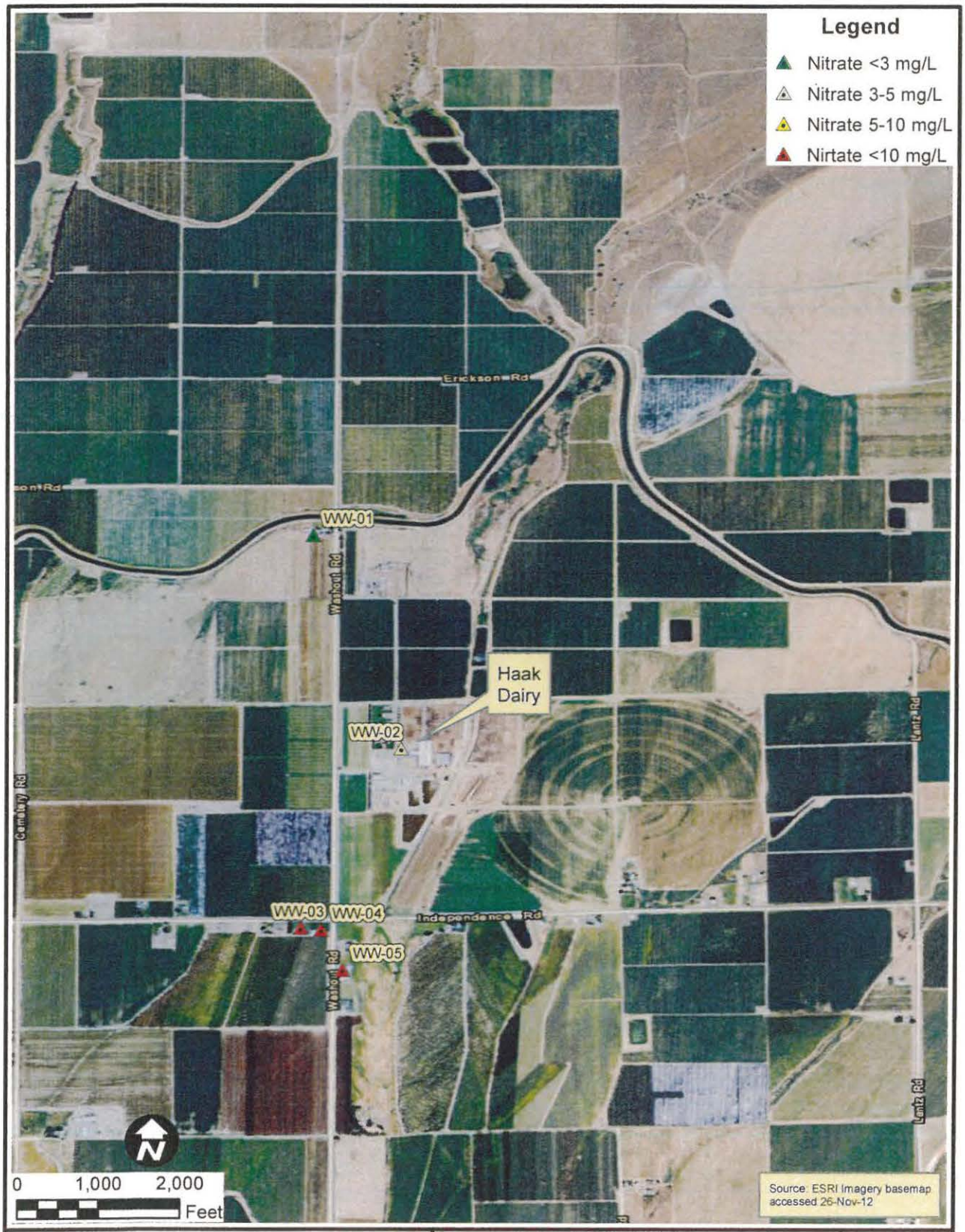
Sincerely,

Olympus Technical Services, Inc.

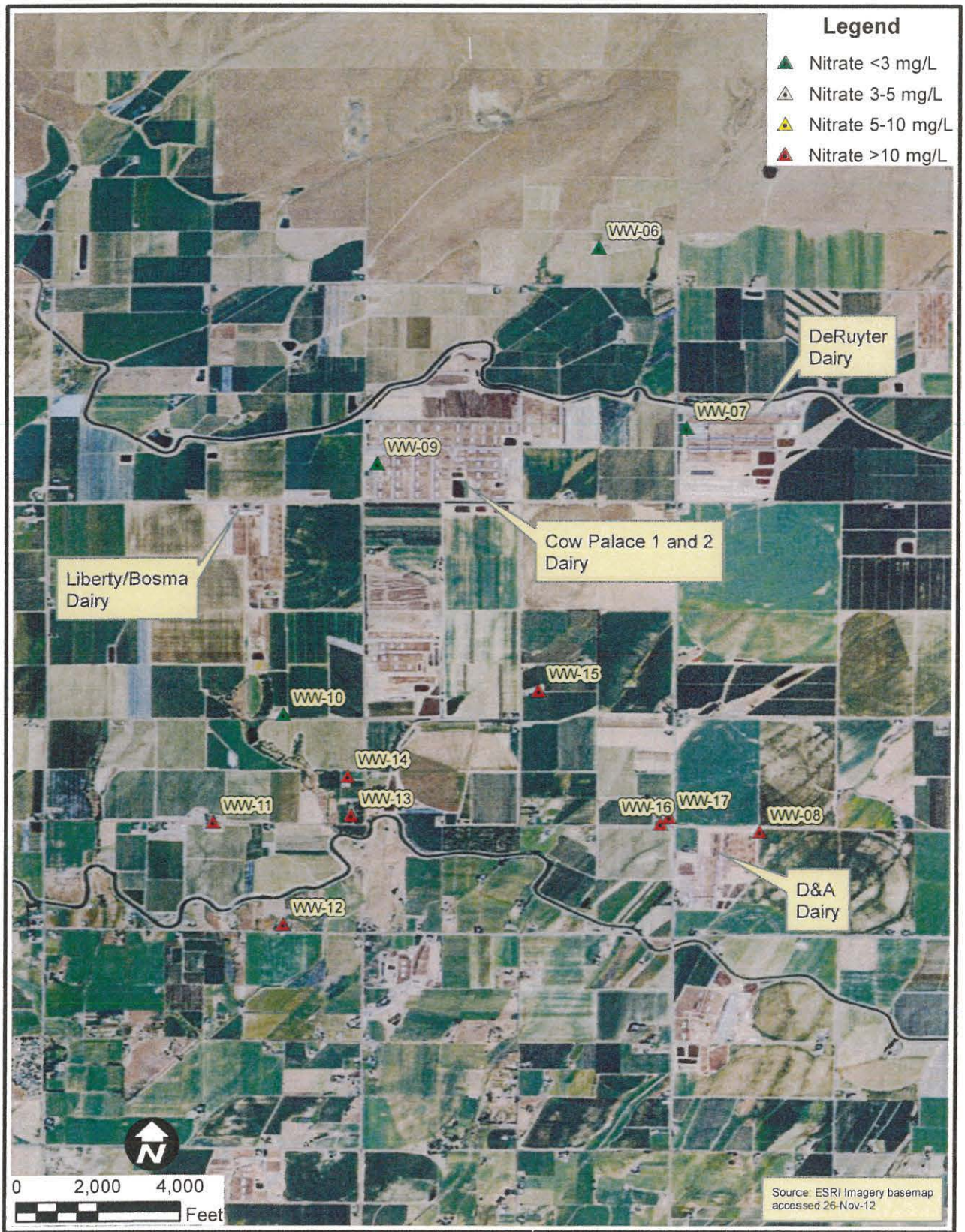
Michael Backe, P.G.

Attachments: Figures 1 and 2
Attachment 1

cc: Bob Naerebout, Idaho Dairymen's Association (via: e-mail)
Jay Gordon, Washington Dairy Commission (via: e-mail)



Olympus Technical Services, Inc.	NITRATE IN GROUNDWATER CONCENTRATIONS Haak Dairy	FIGURE 1



Olympus Technical Services, Inc.	NITRATE IN GROUNDWATER CONCENTRATIONS Dairy Cluster	FIGURE 2

ATTACHMENT 1

JUNE 10, 2011 POWERPOINT PRESENTATION

Idaho Dairymen's Association

June 29, 2011

Department of Environmental Quality Board Meeting

Proposed Groundwater Nitrate Study

Conducted by USDA Agricultural Research Service

Magic Valley Area

PURPOSE

www.idahoconservation.org

Idaho Conservation League

PO Box 844, Boise, ID 83701
208.345.6933

Regional Administrator Dennis McLerran
Environmental Protection Agency, Region 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101

February 22, 2011

Re: ICL Petition to Review Certain Projects within the Eastern Snake River Plain Sole Source Aquifer

Dear Regional Administrator,

The Idaho Conservation League submits this petition under the Safe Drinking Water Act and its implementing regulations to review specific projects within the Eastern Snake River Plain Sole Source Aquifer ("ESRP aquifer") that receive federal financial assistance. *See* 42 U.S.C. § 300h-3(c); 40 C.F.R. §149.104.

Since 1973, the Idaho Conservation League has been Idaho's voice for clean water, clean air and wilderness—values that are the foundation for Idaho's extraordinary quality of life. The Idaho Conservation League works to protect these values through public education, outreach, advocacy and policy development. As Idaho's largest state-based conservation organization, we represent over 20,000 supporters, many of whom have a deep personal interest in protecting Idaho's groundwater quality.

The Idaho Conservation League has a long history of working to protect Idaho's groundwater quality. Idaho is an arid state and over 95% of Idahoans get their drinking water from underground sources - mostly from private wells. Although groundwater plays such a significant role in the lives of Idahoans, groundwater quality is not well protected in Idaho and is therefore vulnerable to large-scale contamination.

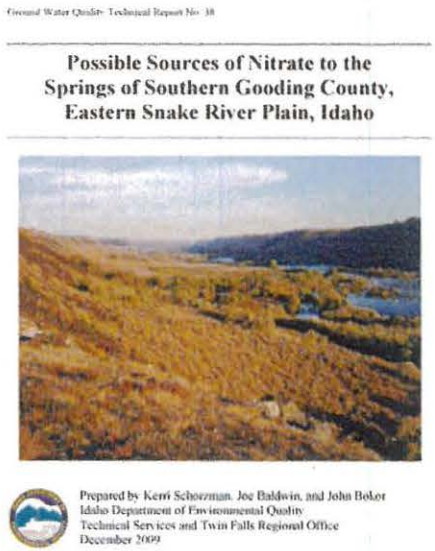
The Idaho Conservation League is particularly concerned with nutrient loading over the Eastern Snake River Plain Sole Source Aquifer. Accordingly, the Idaho Conservation League hereby petitions the Regional Administrator to review nutrient management-related projects slated for federal financial assistance in 2011, 2012, and 2013 within Cassia, Twin Falls, Jerome and Gooding Counties. 40 C.F.R. § 149.104. Specifically, we petition the Administrator to review the projects described below to determine if these projects "may contaminate [the Eastern River Plain Sole Source Aquifer] through a

ICL petitions EPA to review nutrient management-related projects slated for federal financial assistance ICL Sites DEQ study

"According to Idaho's Department of Environmental Quality, there are 32 regions in Idaho were nitrate contamination in groundwater is a concern, and almost half of these areas are within the ESRP aquifer flow region.1 The ESRP has a long history of agricultural production and has experienced a dramatic increase in animal feeding operations over the last 15 years. As a result, communities within this area experience nitrate contamination issues within in the sole source aquifer as well as private and public drinking water wells."

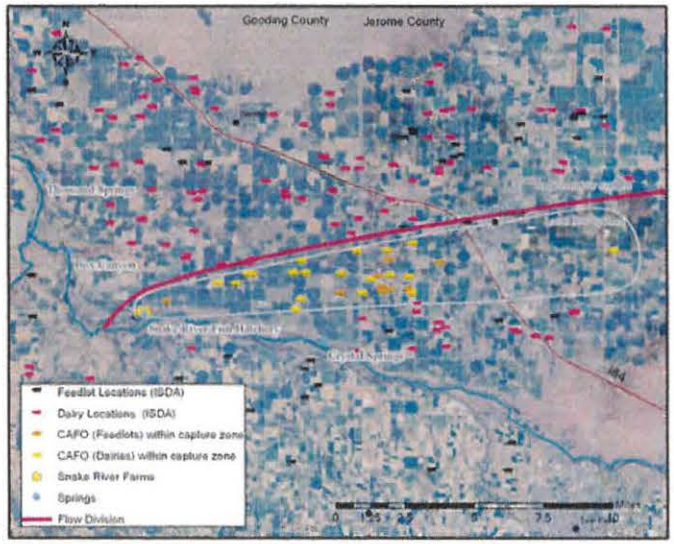
CONCERNS

DEQ-published studies may lead to the perception that the Dairy Industry is the source of Nitrate affecting groundwater quality


Ground Water Quality Technical Report No. 38

Possible Sources of Nitrate to the Springs of Southern Gooding County, Eastern Snake River Plain, Idaho

Prepared by Kerri Schoeman, Joe Baldwin, and John Bolor
Idaho Department of Environmental Quality
Technical Services and Twin Falls Regional Office
December 2009



CONCERNS

Geographic Information System Data Sources

- Idaho Department of Environmental Quality

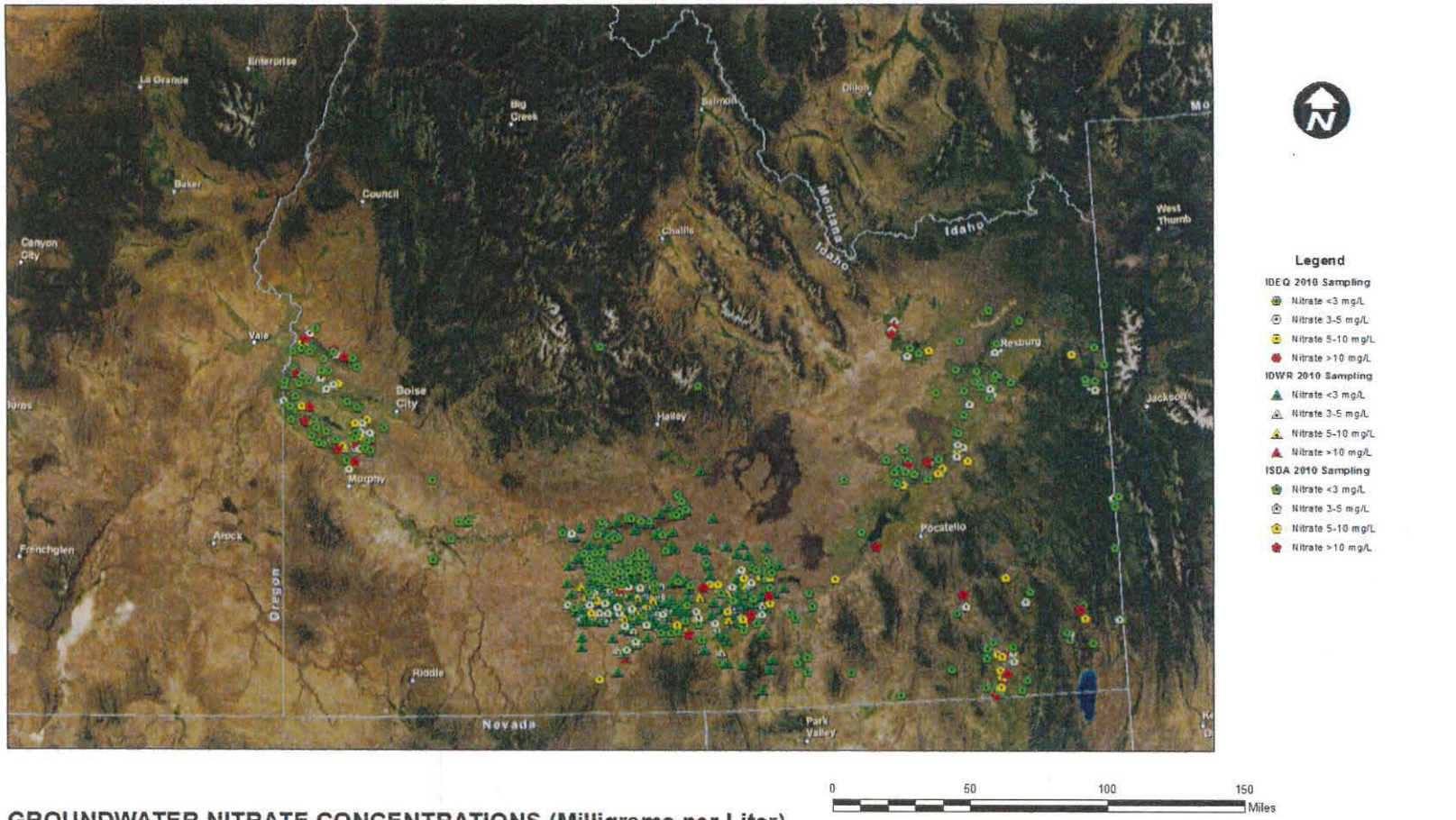
  (Snake River Rim Sampling 2010)

- Idaho State Department of Agriculture

  (Annual Dairy Sampling 2010)

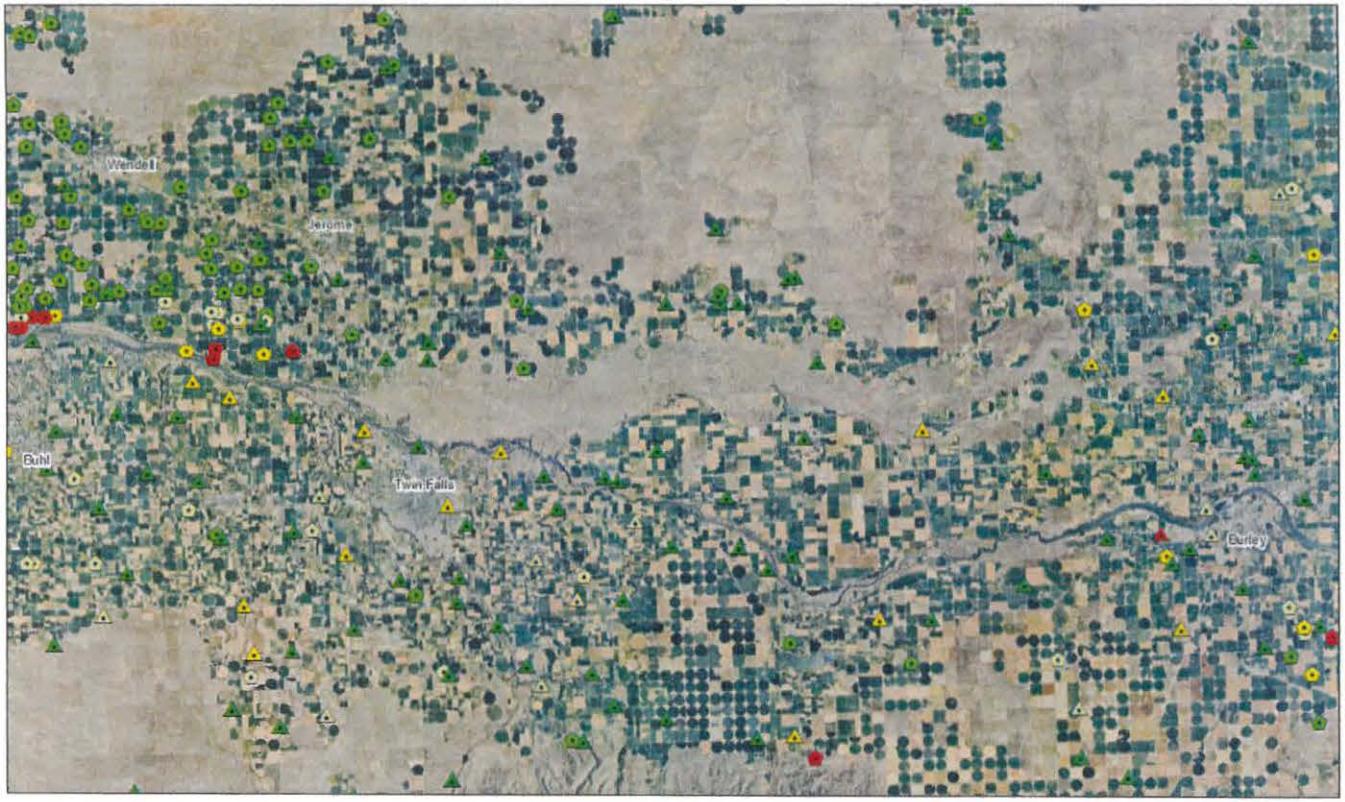
- Idaho Department of Water Resources

  (Annual Water Quality Sampling 2010)



GROUNDWATER NITRATE CONCENTRATIONS (Milligrams per Liter)
Southern Idaho

DATA COMPILATION



GROUNDWATER NITRATE CONCENTRATIONS (Milligrams per Liter)
Greater Magic Valley Area, Idaho

DATA COMPILATION

Legend

IDEQ 2010 Sampling
- Nitrate <3 mg/L
- Nitrate 3-5 mg/L
- Nitrate 5-10 mg/L
- Nitrate >10 mg/L

IDWR 2010 Sampling
- Nitrate <3 mg/L
- Nitrate 3-5 mg/L
- Nitrate 5-10 mg/L
- Nitrate >10 mg/L

ISDA 2010 Sampling
- Nitrate <3 mg/L
- Nitrate 3-5 mg/L
- Nitrate 5-10 mg/L
- Nitrate >10 mg/L

0 1 2 3 4 5 Miles

GROUNDWATER NITRATE CONCENTRATIONS (Milligrams per Liter)
Thousand Springs Area, Idaho

DATA COMPILATION

Identify Potential Nitrogen Sources

- USDA Agricultural Research Service Northwest Irrigation and Soils Research Laboratory - Kimberly, Idaho