

EL DORADO
COUNTY



ENVIRONMENTAL
MANAGEMENT
DEPARTMENT

Jon A. Morgan
Director

Environmental
Health

Air Quality
Management
District

Solid Waste &
Hazardous
Materials

Water Quality
& Protection

Tahoe Office/
Vector Control



PLACERVILLE
OFFICE

2850 Fairlane Ct.,
Building 'C'
Placerville, CA 95667

Ph. 530.621.5300
Fax 530.642.1531
Fax 530.626.7130

SOUTH
LAKE TAHOE
OFFICE

3368 Lake Tahoe Blvd.
Ste. 303
South Lake Tahoe, CA
96150

Ph. 530.573.3450
Fax 530.542.3364

COUNTY OF EL DORADO

ENVIRONMENTAL MANAGEMENT DEPARTMENT

December 15, 2005

State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Re: AB 885 Workshop, December 9, 2005

Madam Chair and Honorable Board Members:

Per your request at the recent December 9, 2005 AB 885 workshop, the following comments are being submitted to you for your review in consideration of the proposed regulations pursuant to the passage and adoption of Assembly Bill 885.

El Dorado County Environmental Management has been and will continue to be committed to the protection of groundwater quality in El Dorado County. El Dorado County Environmental Management (EDCEM) supports the development and implementation of statewide standards for onsite wastewater treatment systems (OWTS). As such, I have serious concerns regarding the information and data contained within the Voluntary Domestic Well Assessment Project Report (Hereafter referred to as Voluntary Project Report), which was conducted by the State Water Resources Control Board's (SWRCB) Division of Water Quality (DWQ) staff in El Dorado County, and which is now being used to support the proposed burdensome and prescriptive OWTS regulations pursuant to the passage of Assembly Bill 885.

My concerns were initiated by a preliminary project summary presented by DWQ staff at an AB 885 workshop held in Sacramento in December of 2003. During this workshop participants were provided an "Issue Paper" on the proposed regulations. Two paragraphs of the issue paper were devoted to the Voluntary Domestic Well Assessment Project and read as follows:

SWRCB Voluntary Well Assessment Project

In response to concerns that OWTS might affect domestic drinking water wells, and as part of the Groundwater Ambient Monitoring and Assessment Program, DWQ staff initiated the "Voluntary Well Assessment Project." During 2002 and 2003, private well owners in targeted counties (El Dorado and Yuba) were surveyed and asked to allow DWQ to sample and analyze well water. A significant percentage of the wells tested had impaired water quality.

Of the 158 wells sampled in El Dorado County, 5 wells and 2 springs tested positive for E. Coliform, 56 wells tested positive for total coliform, and 44 wells have trace concentrations of MBAS (detergent surfactant). Additionally, four wells had total nitrogen concentrations above 4 mg/l.

Levels of total nitrogen in groundwater above 2 mg/l are considered anthropogenic in origin and may be the result of fertilizers, animal waste or wastewater. It is also noteworthy that most of the wells sampled in El Dorado County were in a fractured rock environment and most of the residences were about 5 years old, although ranging between 1 and 10 years. Because the area sampled has not had any significant agricultural or animal operations, the septic systems are the most probable source of nitrate, bacteria and MBAS in groundwater. (The last sentence, as opposed to the rest of the text, was printed in italics rather than in bold in the original document to place emphasis on this point.)

Based upon the last sentence above, the interpretation of the data contained within the draft Voluntary Project Report, and the presentation made to you today (Friday, December 9, 2005) by DWQ staff, I am very concerned that DWQ staff may have ignored facts and sound scientific inquiry in an attempt to further a preconceived notion that (OWTS) are negatively impacting groundwater quality. DWQ staff has maintained, prior to the full analysis of their own Voluntary Project data, that OWTS are contaminating our groundwater. Rather than start with a scientific hypothesis, proceed to data collection, and conclude with unbiased analysis to confirm or reject the original hypothesis, DWQ staff appear to have started with an agenda of potentially false assumptions and will not let facts or good science stand in the way of establishing burdensome regulations that may ultimately have little or no benefit on groundwater quality.

Here are some facts regarding the Voluntary Domestic Well Assessment Project (Hereafter referred to as Voluntary Project) conducted in El Dorado County. The fact is that the age range of wells tested was 1 to 70 years old, not 1 to 10 years old as originally reported. The fact is that the average age of the wells that tested positive for coliform bacteria was approximately 25 years old. The fact is that coliform bacteria is ubiquitous in the environment and is easily introduced into a well. The fact is that the majority of wells resampled by EDCEM staff had serious wellhead construction and maintenance issues, however no effort was made by DWQ staff to correlate wellhead conditions with results of contamination. The fact is that according to the El Dorado County 2004 Annual Crop Report, agriculture represented a \$444 million dollar economy in 2004; hardly insignificant as originally reported and certainly representative of significant potential sources of nitrates from fertilizers and animal waste. The fact is that DWQ staff did not resample any of the wells that were "contaminated" (Wells that exceeded the maximum contaminant level [MCL] for primary drinking water standards) to confirm original results, contrary to standard scientific practice. It should be noted that of the wells that EDCEM staff was allowed to resample, many of the results did not confirm DWQ staff results, including all three of the wells that were resampled for nitrates.

Perhaps the question that we should be asking is whether or not the current well and septic siting and construction standards are protecting groundwater quality? Based upon the Voluntary Project data and El Dorado County's current requirements, the answer is, "Yes." Only two wells that tested positive for fecal coliform were less than 17 years old.

The average age for all wells that tested positive for fecal coliform was 27.7 years old. El Dorado County's Well Ordinance was adopted in 1990. Therefore, 2 wells constructed since 1990 out of 398 wells tested, or 0.5 %, had fecal coliform contamination. Assuming that the septic system was the source of the contamination, which may very well be a false assumption, a 0.5 % contamination rate is hardly a compelling argument that all OWTS are contaminating the groundwater with fecal coliform. Even putting current construction and siting requirements aside, only 3.5 % of the 398 wells sampled tested positive for fecal coliform.

The data collected for the Voluntary Project does not indicate the global cause and affect between OWTS and groundwater contamination that is being asserted by DWQ staff. In fact, DWQ staff has ignored some of the Voluntary Project findings in pursuit of an agenda rather than conduct an open-minded analysis. I would like to propose to you that the results of the Voluntary Project potentially make an argument against the link between the degradation of groundwater quality and OWTS in El Dorado County.

In addition to the issues with drawing conclusions from the coliform data, the nitrate data is problematic as well. The draft Voluntary Project Report narrative states the following:

Of particular interest are the nitrate data from El Dorado County. In general, nitrate contaminated groundwater is in part caused by excessive use of fertilizer, animal waste from dairies and feedlots, explosives, and human waste (i.e. septic systems). Nitrate concentrations in natural groundwater are typically less than 2 mg/L nitrate as nitrogen, equivalent to approximately 9 mg/L nitrate as NO₃ (Mueller and others, 1995).

Based on water quality data collected from 398 domestic wells in El Dorado County, 256 domestic wells had detections of nitrate. Of those, 7 domestic wells exceeded the MCL of 45 mg/L (nitrate as NO₃) and 100 domestic wells had concentrations above 9 mg/L (nitrate as NO₃), indicating that the source of nitrate is likely due to human activities.

While the draft Voluntary Project Report states that there are several potential sources of the nitrate levels attributable to human activities, DWQ staff have focused on septic systems as the single most likely source and explanation for elevated nitrate levels (greater than 9 mg/L) in groundwater, and that such a high rate of contamination (approximately 25% of the wells sampled had results greater than 9 mg/L) justifies the cost prohibitive nitrate mitigation measures detailed in DWQ staff's recommended regulations. This conclusion is very problematic. First of all, as I mentioned previously, no confirmatory water well samples were taken by DWQ staff. EDCEM staff was able to resample 3 of the 7 wells that exceeded the MCL for nitrates. All 3 sample results were below the MCL, 2 out of 3 were below 9 mg/L.

Secondly, as stated previously, El Dorado County has a very significant agriculture economy, both historically and present day. A \$444 million dollar agriculture economy comes with the use of fertilizers as well as the generation of animal waste products, both

significant sources of nitrates. The draft Voluntary Project Report actually supports fertilizers as the source of nitrates, not OWTS. Included in the report is a table of, "Additional Chemicals of Concern." Fluoride is included in this table. 212 wells out of the 398 that were sampled contained varying levels of fluoride. The Chemicals of Concern table has a column labeled, "Common source of contaminant in drinking water." The following sources are listed for fluoride:

Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories.

I think it's obvious that 212 private well owners are not adding fluoride to their drinking water. There are no known natural fluoride deposits that I am aware of in El Dorado County, nor is there mention of such deposits in the Voluntary Project Report's Hydrogeologic Setting section. El Dorado County does not have aluminum factories either. Clearly, the use of fertilizers is the most likely source of the fluoride found in El Dorado County groundwater. I find it curious that over 50% of the wells sampled contained fluoride, whose likely source is fertilizer, yet DWQ staff maintain that OWTS are the source of nitrates in groundwater. This conclusion defies logic as well as good scientific inquiry.

What about data other than that provided by the Voluntary Project? Surely there must be ample existing data from monitoring wells and small public water system wells that DWQ staff could evaluate. The west slope of El Dorado County has over 100 small water systems, which are required to submit water test results to Environmental Management on a routine basis. These results are also submitted to CA Department of Health Services (DHS) and readily available to DWQ staff. Our initial analysis of our small water system data provides no correlation between OWTS and groundwater contamination.

There are also a number of groundwater monitoring wells in El Dorado County that may provide useful information to test a hypothesis, not drive a preconceived agenda. The Auburn Lake Trails (ALT) Estates subdivision is a good example. ALT is located in the northern section of the county in a community included in the Voluntary Project. The ALT subdivision contains over 1100 lots, including 120 lots that are connected to a community OWTS. This system has 11,600 linear feet of leach line and is designed to accept a maximum daily flow of 71,800 gallons of effluent. There are 4 shallow (25-40 feet deep) groundwater monitoring wells immediately down gradient from the leach field, the closest of which is 150 feet from the field. There are also 3 additional monitoring wells around the perimeter of the subdivision, with the closest leach field to one well located over 1000 feet away. All 7 monitoring wells were constructed in September of 2003. The wells are sampled quarterly by Georgetown Divide Public Utility District staff with the results prepared and reported to the Regional Water Quality Control Board by a consulting company, Holdrege & Kull.

If the assertions by DWQ staff are true, and OWTS are introducing nitrates into groundwater at or below levels of concern to public health, then surely a community

OWTS that discharges up to 71,800 gallons of effluent per day into the ground should show a profound affect on groundwater quality just 150 feet away. The ALT quarterly groundwater testing results for the past three years do not support the assertions of DWQ staff. In fact, every sample taken, except one (10.3 mg/L on 3/17/2004), resulted in total nitrogen levels below 9 mg/L, the level above which can be attributable to human activities according the DWQ's own Voluntary Project Report.

There is another potential source of nitrates in groundwater that has not been mentioned nor apparently considered by DWQ staff. In 1998 an article was published in the journal Nature entitled, "Contribution of bedrock nitrogen to high nitrate concentrations in stream water." The authors, J. M. Holloway, R. A. Dahlgren, et al., with the Department of Land, Air and Water Resources, University of California, Davis, monitored water quality throughout the central Sierra Nevada watershed for 2 ½ years in an effort to identify the primary source(s) of nitrate entering the downstream reservoirs. Due to the close relationship they observed between stream water nitrate concentrations and bedrock nitrogen concentrations, they specifically examined whether the bedrock could be a source of stream water nitrate. The following excerpt is taken from the opening paragraph:

Here we show that bedrock containing appreciable concentrations of fixed nitrogen contribute a surprisingly large amount of nitrate to surface waters in certain California watersheds, to an extent that even small areas of these rocks have a profound influence on water quality.

While this study did not address groundwater, it is reasonable to conclude that the authors have identified another possible source of nitrates in groundwater, since groundwater is recharged from surface water sources.

The Voluntary Project was initiated allegedly, "In response to concerns that OWTS might affect domestic drinking water wells" (AB 885 Issue Paper, December 2003), yet DWQ staff has stated on numerous occasions that all OWTS contaminate groundwater. Clearly DWQ staff set out not to test a hypothesis, but to find data that supports preconceived notions regarding the affect of OWTS on groundwater quality, and thereby support the necessity of staff's proposed regulations. Let me state clearly that I don't know for a fact that OWTS, in general, are not contaminating groundwater. What I do know is that the results of the Voluntary Domestic Well Assessment Project, as well as other available data, **does not** support the DWQ staff's claim that OWTS are contaminating the groundwater in El Dorado County. I think one definitive conclusion that can be drawn from the Voluntary Project, is that there is a need to educate property owners on proper care and maintenance of their OWTS and wells.

In recognizing this need, EDCEM published, "A Guide for the Private Well Owner" in March of 2004 (Available at www.co.el-dorado.ca.us/emd/pdf/WellGuide.pdf), which contains valuable information on the protection and care of both wells and OWTS. This guide was actually distributed by DWQ staff to all Phase II Voluntary Project participants. In February 2005 EDCEM sent postcards to every improved lot on the west

slope of El Dorado County, over 70,000 postcards in all, directing the public to our website or local office for well and septic information and other Environmental Health related topics. EDCEM staff has been working with the Realtor's Association on providing the well guide to homeowners at the time of sale of any new or existing home. EDCEM staff has also participated in realtor training classes to educate realtors in regard to wells and OWTS.

I encourage DWQ staff to take a thoughtful, reasoned, scientific approach to the analysis and interpretation of all available data and water quality studies when attempting to determine the potential impact of OWTS on groundwater quality. The Voluntary Project Report, and the interpretation of the report results by DWQ staff, leaves much to be desired in this regard. EDCEM supports the development of statewide standards for OWTS however, DWQ staff have failed to demonstrate conclusively that the current proposed regulations and standards for OWTS are even necessary. Any proposed standards should be based upon sound science, analyzed for cost versus benefit, flexible enough to accommodate California's diverse geology, and practical enough for local jurisdictions to implement in a cost effective manner. EDCEM supports the changes proposed by the California Conference of Director's of Environmental Health (CCDEH) to DWQ staff's recommended regulations and looks forward to regulations that will further protect groundwater quality.

In the meantime, El Dorado County Environmental Management will continue to protect groundwater quality through proper siting and construction of wells and OWTS in compliance with the Central Valley Regional Water Quality Control Board Basin Plan; through response to and correction of failing OWTS; and through the education of private domestic well and septic owners on proper care and maintenance of these systems.

Thank you for your time and consideration of El Dorado County's position on the AB 885 proposed regulations.

Respectfully,



Greg Stanton, REHS
Manager, Environmental Health Division
El Dorado County Environmental Management

Cc: El Dorado County Board of Supervisors
California Conference of Directors of Environmental Health (CCDEH)
Surveyors, Architects, Geologists, Engineers (SAGE) of El Dorado County
Georgetown Divide Public Utilities District