RECOMMENDATIONS ADDRESSING NITRATE IN GROUNDWATER

STATE WATER RESOURCES CONTROL BOARD

REPORT TO THE LEGISLATURE

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CALIFORNIA
Water Boards
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REGIONAL WATER QUALITY CONTROL BOARDS

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Executive Summary

This report is being submitted in compliance with Chapter 1 of the Second Extraordinary Session of 2008 (SBX2 1, Perata), which requires the State Water Resources Control Board (State Water Board) to develop pilot projects focusing on nitrate in groundwater in the Tulare Lake Basin and Salinas Valley and to submit a report to the Legislature on the scope and findings of the pilot projects, including recommendations, within two years of receiving funding.

Nitrate pollution in groundwater is a widespread water quality problem that can pose serious health risks to pregnant women and infants if consumed at concentrations above the Maximum Contaminant Level (MCL) of 45 milligrams per liter (mg/L) (as NO_3) set by the California Department of Public Health. Nitrate contaminated groundwater is a particularly significant problem in the Tulare Lake Basin and Salinas Valley areas, where about 2.6 million people, including many of the poorest communities in California, rely on groundwater for their drinking water. Many other areas of the State, however, also have nitrate contaminated groundwater making it the most frequently detected anthropogenic chemical above an MCL in drinking water sources.

SBX2 1 requires the State Water Board to develop the nitrate contamination pilot projects in the Tulare Lake Basin and Salinas Valley to "improve understanding of the causes of groundwater contamination, identify potential remediation solutions and funding sources to recover costs expended by the state for the purposes of this section to clean up or treat groundwater, and ensure the provision of safe drinking water to all communities." SBX2 1 specifically requires the State Water Board to:

- Identify sources, by category of discharger, of groundwater contamination due to nitrate.
- Estimate proportionate contributions to groundwater contamination [by nitrate] by source and category of discharger.
- Identify and analyze options within the State Water Board's current authority to reduce current nitrate levels and to prevent continuing nitrate contamination, and to estimate costs associated with exercising this authority.
- Identify methods and costs associated with the treatment of nitrate-contaminated groundwater for use as drinking water.
- Identify methods and costs to provide an alternative water supply to groundwater-reliant communities in the pilot project areas.
- Identify potential funding sources to provide resources for cleanup, treatment, and provision of an alternative drinking water supply.
- Develop recommendations for developing a groundwater cleanup program for the Central Valley Water Quality Control Board Region and Central Coast Water Quality Control Board Region based on the pilot project results.

<u>UC Davis Report</u>

As a first step in the development of the pilot projects, the State Water Board contracted with the University of California, Davis (UC Davis) in 2010 to conduct an independent study on the

nitrate pilot projects in the Tulare Lake Basin and the Salinas Valley. The UC Davis Nitrate Report was delivered to the State Water Board in March 2012 and is included in Appendix B. The associated technical reports are available online at http://www.waterboards.ca.gov/water_issues/programs/nitrate_project/index.shtml. In its report, UC Davis made eight major findings and identified numerous "promising actions" to address the identified problems. The major findings of the UC Davis report are:

1. Nitrate problems will likely worsen for decades. For more than half a century, nitrate from fertilizer and animal waste has infiltrated into Tulare Lake Basin and Salinas Valley aquifers. Most nitrate detected in drinking water wells today was originally applied to the surface decades ago.

2. Agricultural fertilizers and animal wastes applied to cropland are by far the largest regional sources of nitrate in groundwater. Other sources can be locally important.

3. Nitrate loading reductions are possible, some at modest cost. Large reductions of nitrate loads to groundwater can have substantial economic cost.

4. Traditional pump and treat remediation to remove nitrate from large groundwater basins is extremely costly and not technically feasible. Instead, "pump-and-fertilize" and improved groundwater recharge management are less costly long-term alternatives.

5. Drinking water supply actions such as blending, treatment, and alternative water supplies are most cost-effective. Blending will become less available in many cases as nitrate pollution continues to spread.

6. Many small communities cannot afford safe drinking water treatment and supply actions. High fixed costs affect small systems disproportionately.

7. The most promising revenue source is a fee on nitrogen fertilizer use in these basins. A nitrogen fertilizer fee could compensate affected small communities for mitigation expenses and effects of nitrate pollution.

8. Inconsistency and inaccessibility of data prevent effective and continuous assessment of California's groundwater quality. A statewide effort is needed to integrate diverse water-related data-collection activities by many state and local agencies.

State Water Board Report to Legislature

In this report, the State Water Board makes specific recommendations for addressing nitrate contaminated groundwater. In developing this report, the State Water Board relied on the UC Davis report as a foundation, and obtained significant input from the Interagency Task Force (ITF), which included representatives from the California Department of Public Health, the Department of Food and Agriculture, the Department of Pesticide Regulation, California Environmental Protection Agency, and local environmental health agencies. Recommendations were also informed by the findings of a task force convened by the Governor's office to address safe drinking water issues.

The State Water Board makes 15 recommendations to address the issues associated with nitrate contaminated groundwater. These recommendations are reflected in Table ES-1.

These recommendations reflect a comprehensive strategy focused on the following key areas:

- **Providing Safe Drinking Water**. Creating a reliable, stable funding source, integrated with institutional changes, to provide long-term safe drinking water infrastructure and interim solutions for the small disadvantaged communities impacted by nitrate contamination.

- **Monitoring, Assessment, and Notification.** Developing and managing the data necessary to identify and effectively manage nitrate contaminated groundwater, with particular attention focused on (1) defining nitrate high-risk areas in order to prioritize regulatory oversight and assistance efforts in these areas, (2) notifying groundwater users in nitrate high-risk areas, and (3) requiring property owners to sample their well as part of a property title transfer or purchase.

- **Nitrogen Tracking and Reporting.** Developing and implementing a nitrogen mass balance tracking and reporting system to manage the application of nitrogen fertilizing materials.

- **Protecting Groundwater.** Developing an effective system for minimizing discharges of nitrates to groundwater including (1) establishing a nitrogen management training and certification program which recognizes the importance of water quality protection, (2) continuing and improving agricultural nitrate education and research programs, (3) convening a panel of experts to recommend improvements in agricultural nitrate control programs and implementing the recommendations, and (4) evaluating the effectiveness of existing permits to address nitrate contamination in high-risk areas.

Funding to Implement Recommendations

Many recommendations in this report will require a source of funding. The regulatory, monitoring, education and research recommendations fall within existing programs with defined funding sources, but the increased level of effort to implement some of these recommendations will require augmentation of these funding sources. Expansion of existing funding sources will be proposed by the responsible state agencies and considered through the state budget process.

The provision of safe drinking water for disadvantaged communities, however, will require a new funding source. The funding sources presently available for these communities are the Safe Drinking Water State Revolving Fund (SRF), which is capitalized with federal grants, and state bond funds. Experience shows that these sources cannot meet the drinking water needs of disadvantaged communities. The first recommendation in this report addresses the need for a new funding source, which can be used in combination with existing funding sources, to design, build, operate and maintain safe drinking water systems for disadvantaged communities. This action is critical to meet the goals of Chapter 524, Statutes of 2012 (Assembly Bill 685, Eng) which specified the policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

Table ES-1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
Providing Safe Drinking Water *An impediment to providing safe drinking water to small Disadvantaged Communities (DACs) impacted by nitrate contamination is the lack of a stable, long-term funding source. A stable funding source integrated with institutional changes is critical in providing long-term safe drinking water infrastructure and interim solutions for the small DACs impacted by nitrate contamination.*		
1. The most critical recommendation in this report is that a new funding source be established to ensure that **all** Californians, including those in DACs, have access to safe drinking water, consistent with AB 685. The Legislature should provide a stable, long-term funding source for provision of safe drinking water for small DACs. Funding sources include a point-of-sale fee[1] on agricultural commodities, a fee on nitrogen fertilizing materials, or a water use fee. In addition, the Legislature also should authorize CDPH to assess a fee in lieu of interest on Safe Drinking Water State Revolving Fund loans, or to assess other fees associated with these loans, to generate funds for expanded assistance to water systems.	California Department of Public Health (CDPH), Water Boards, California Department of Food and Agriculture (CDFA), and Local Government Agencies	Yes
2. The State Water Board and Regional Water Quality Control Boards (collectively referred to as "the Water Boards") will use their authority under the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code, §13000 et seq.) to order parties responsible for nitrate contamination to provide replacement water to impacted communities, as appropriate.	Water Boards, CDPH	No
3. The Legislature should enact legislation to establish a framework of statutory authorities for CDPH, regional organizations, and county agencies to have the regulatory responsibility to assess alternatives for providing safe drinking water and to develop, design, implement, operate, and manage these systems for small DACs impacted by nitrate.[2]	CDPH, County Agencies	Yes
4. State funding agencies should continue to increase access to safe drinking water funding sources for small DACs by streamlining funding applications, providing planning grants, and providing technical assistance.	CDPH, Department of Water Resources (DWR)	No

Table ES-1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
5. DWR should give preference in the Proposition 84 Integrated Regional Water Management (IRWM) Grant Program to proposals with IRWM Plans that include an evaluation of nitrate impacts, including the access of safe drinking water to small DACs, for areas that have been identified as nitrate high-risk areas	DWR	No
Monitoring, Assessment, and Notification *A groundwater monitoring and assessment program is a critical element in effectively managing groundwater quality.*		
6. The Water Boards will define and identify nitrate high-risk areas in order to prioritize regulatory oversight and assistance efforts in these areas.[2]	Water Boards	No
7. The Legislature should enact legislation that establishes a framework of statutory authority for the Water Boards, in coordination with other state and local agencies, to improve the coordination and cost effectiveness of groundwater quality monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information.[2]	Water Boards, other State and local agencies	Yes
8. The Legislature should enact legislation that establishes a funding source for the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program.	Water Boards	Yes
9. The Legislature should require state and local agencies to notify groundwater users in nitrate high-risk areas and recommend that the well owners test their wells to evaluate drinking water quality. The Water Boards, CDPH, and local public health agencies will coordinate in identifying private domestic wells and small, unregulated water systems in nitrate high-risk areas.[2]	Water Boards, CDPH, local public health agencies	Yes

Table ES-1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
10. The Legislature should require property owners with private domestic wells or other unregulated groundwater systems (2 to 14 service connections) to sample their well as part of a point of sale inspection before property title transfer or purchase.	Water Boards, CDPH, local public health agencies	Yes
Nitrogen Tracking and Reporting *According to the UC Davis Nitrate Report, nitrogen fertilizing material application is the main source of nitrate in groundwater. A system to track the application of nitrogen fertilizing materials is a critical element in managing groundwater quality.*		
11. CDFA, in coordination with the Water Boards, should convene a Task Force to identify intended outcomes and expected benefits of a nitrogen mass balance tracking system in nitrate high-risk areas. The Task Force should identify appropriate nitrogen tracking and reporting systems, and potential alternatives, that would provide meaningful and high quality data to help better protect groundwater quality.	CDFA, Water Boards, county agriculture commissioners, local agencies	No
Protecting Groundwater *Contaminated groundwater results in treatment, well closures, or new well construction, which increases costs for consumers and the public. Regulating groundwater is essential in maintaining a safe drinking water supply.*		
12. The Water Boards should continue to provide technical assistance for CDFA's ongoing work with University of California Cooperative Extension (UCCE) and other experts in establishing a nitrogen management training and certification program that recognizes the importance of water quality protection.[2]	CDFA	No
13. CDFA should maintain the mill fee on fertilizing materials at its fully authorized amount to support and develop crop-specific nutrient application rates, Best Management Practices (BMPs), and nutrient management programs via the Fertilizer Research and Education Program (FREP). The information should continue to be made available on-line.	CDFA	No

Table ES-1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
14. The Water Boards will convene a panel of experts to assess existing agricultural nitrate control programs and develop recommendations, as needed, to ensure that ongoing efforts are protective of groundwater quality. The Water Boards and CDFA will use the findings to inform ongoing regulatory and non-regulatory efforts.[2]	Water Boards, CDFA	No
15. The Water Boards will evaluate all existing Waste Discharge Requirements to determine whether existing regulatory permitting is sufficiently protective of groundwater quality at these sites. The Water Boards will use the findings to improve permitting activities related to nitrate. [2]	Water Boards	No

[1] Although the term fee is used throughout this report, it is beyond the scope of this report to assess whether the fee is a fee or tax under Proposition 26. The term is simply used for convenience and consistency.

[2] Additional funding will be required to adequately implement these strategies.

1.0 Introduction

Nitrate is one of California's most prevalent groundwater contaminants, and can pose significant health risks at concentrations above the public health drinking water standard Maximum Contaminant Level (MCL) of 45 mg/L (as NO_3). High concentrations of nitrate in groundwater are primarily caused by human activities, including fertilizer application (synthetic and manure), animal operations, industrial sources (wastewater treatment and food processing facilities), and septic systems. Agricultural fertilizers and animal wastes applied to cropland are by far the largest regional sources of nitrate in groundwater, although other sources can be locally important. Nitrate in groundwater affects public water systems and groundwater users, requiring treatment or alternative supplies, often at great cost. Small water systems, disadvantaged communities, and private domestic well owners may not be able to afford treatment or development of alternative water supplies.

Due to California's reliance on groundwater, and because many communities are entirely reliant on groundwater for their drinking water supply, nitrate contamination has far-reaching consequences. Solutions to nitrate-contaminated drinking water are achievable, but require additional funding and resources that are currently not available. Access to safe drinking water for every Californian will not take place without additional funding.

Groundwater is an essential part of California's water supply. More than 85 percent of community public water systems, serving roughly 30 million people, rely on groundwater for at least part of their drinking water supply. While nearly all of these water systems provide safe drinking water that meets health standards, a certain number of groundwater supplies have contaminants that are not treated before delivery. In addition, approximately two million residents rely on groundwater from either a private domestic well or a small water system not regulated by the state. For these residents, there is little or no information on the quality of their drinking water.

Groundwater also plays a vital role in supplying water for agricultural and industrial needs. Reduction in surface water availability due to drought, global climate change, and increasing demands from population growth may further increase the state's reliance on groundwater.

Nitrate is one of California's most prevalent groundwater contaminants. While nitrate can form through natural processes, it is primarily present at concentrations above the MCL due to anthropogenic (man-made) activities. A recent report to Legislature[1] by the State Water Board showed that between 2002 and 2010, over 200 community water systems in California had two or more detections of nitrate above the drinking water standard in their groundwater supply. Many of these community water systems serve smaller disadvantaged communities (DAC)[2] that often do not have the resources and financial means to treat their drinking water and provide continuing operation and maintenance (O&M) for a groundwater treatment system. Some small, unregulated groundwater systems and private domestic well owners may also have nitrate-contaminated groundwater; however, the extent of this risk is unknown due to the lack of readily available water quality information for these groundwater users.

1.1 Background on SBX2 1

In 2008, the Governor signed Chapter 1 of the Second Extraordinary Session, Statutes of 2008 (SBX2 1, Perata) into law, requiring the State Water Resources Control Board (State Water Board), in consultation with other agencies, to develop pilot projects in the Tulare Lake Basin and the Salinas Valley (pilot project study areas) that focus on nitrate in groundwater. A copy of the statute is included in Appendix A. SBX2 1 requires the State Water Board to:

- Identify sources, by category of discharger, of groundwater contamination due to nitrate.
- Estimate proportionate contributions to groundwater contamination [by nitrate] by source and category of discharger.
- Identify and analyze options within the State Water Board's current authority to reduce current nitrate levels and to prevent continuing nitrate contamination, and to estimate costs associated with exercising this authority.
- Identify methods and costs associated with the treatment of nitrate-contaminated groundwater that is used for drinking water.
- Identify methods and costs to provide an alternative water supply to groundwater-reliant communities in the pilot project areas.
- Identify potential funding sources to provide resources for cleanup, treatment, and provision of an alternative drinking water supply.
- Develop recommendations for developing a groundwater cleanup program for the Central Valley Water Quality Control Board Region and Central Coast Water Quality Control Board Region based on pilot project results.

[1] "Communities that Rely on a Contaminated Groundwater Source for Drinking Water," Report to the Legislature by the State Water Resources Control Board, February, 2013.
[2] According to the California Health and Safety Code, a DAC is a community where the median household income is less than 80 percent of the statewide average. The definition used in this report includes community water systems and communities that rely on smaller (2-14 connections) unregulated water systems that meet these criteria.

The State Water Board contracted with the University of California, Davis (UC Davis) to conduct an independent study on the nitrate pilot projects in the Tulare Lake Basin and the Salinas Valley (Figure 1). The UC Davis report was delivered to the State Water Board in March 2012 (UC Davis Nitrate Report). The UC Davis report and eight associated technical reports are available online at http://groundwaternitrate.ucdavis.edu/.

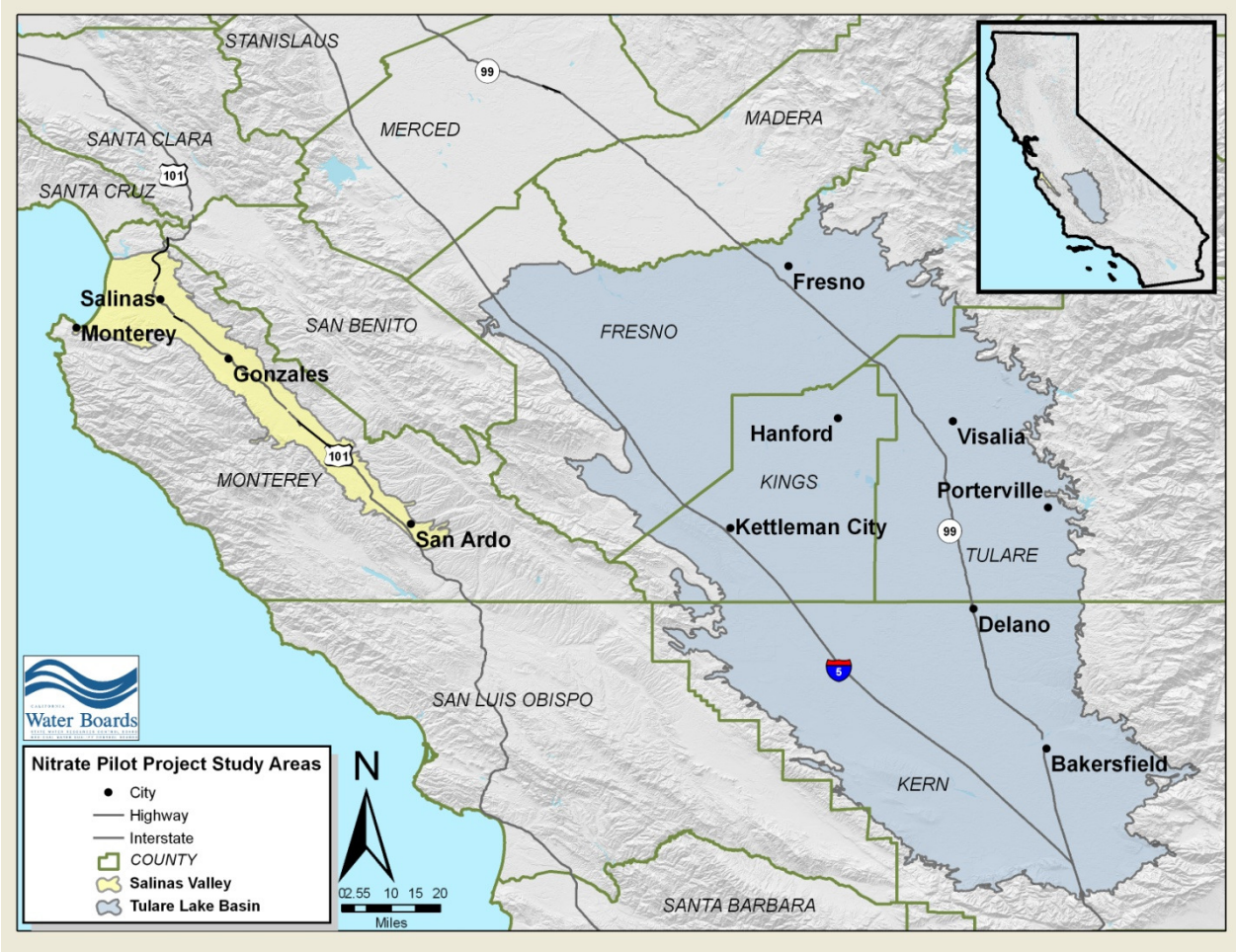

Figure 1: Salinas Valley and Tulare Lake Basin Pilot Project Study Areas (source: *UC Davis Nitrate Report).*

1.2 Key Findings of the Tulare Lake Basin and the Salinas Valley Pilot Projects

Nitrate loading to groundwater in gigagrams nitrate per year (Gg NO_3/yr) is shown in Figure 2. The UC Davis Nitrate Report identified irrigated agriculture (cropland) as the single largest source of nitrate to groundwater, accounting for 96 percent of the 207 Gg of nitrate delivered to groundwater in the pilot project study areas each year. The 207 Gg is equivalent to approximately 440 million pounds, or 220,000 tons, of nitrate per year. Nitrogen is applied to cropland in the form of synthetic fertilizers or as animal manure. The nitrogen in these fertilizers transforms to nitrate and is carried to groundwater by the percolation of water through the soil column (vadose zone), anytime water from irrigation or rainfall percolates below the root zone. According to the UC Davis Nitrate Report, nitrate loading from irrigated agriculture has occurred at a large scale throughout the pilot project study areas for several decades. It should be noted that from 1990 to 2005 manure use as a fertilizer has increased, the use of synthetic fertilizer has been leveling off and the amount of food produced on the same land has increased.

Other sources of nitrate loading to groundwater include municipal wastewater treatment facilities and food processors (WWTP-FP; 3.2 Gg NO_3/yr), lagoons and ponds associated with confined animal operations (lagoons 0.2 and corrals 0.5 Gg NO_3/yr, respectively), septic tanks (2.3 Gg NO_3/yr), and urban sources (0.9 Gg NO_3/yr).

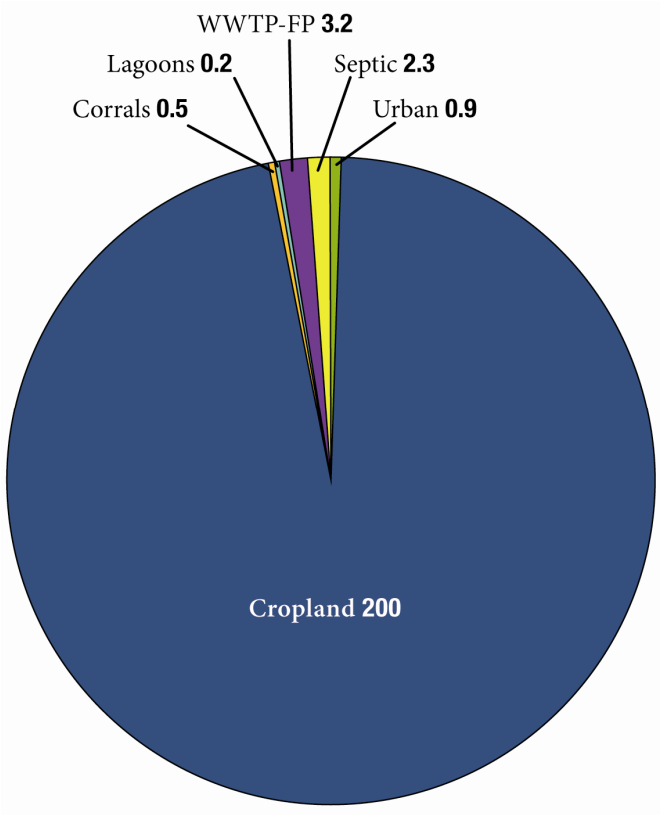

Figure 2: Estimated Nitrate Loading to Groundwater from Major Sources within the Tulare Lake Basin and Salinas Valley (Gg NO_3/yr). 1 gigagram = 1,100 tons or 2.2 million pounds.
Source: UC Davis Nitrate Report

Summary of key findings in the UC Davis Nitrate Report:

1. Nitrate problems will likely worsen for decades. For more than half a century, nitrate from fertilizer and animal waste has infiltrated into Tulare Lake Basin and Salinas Valley aquifers. Most nitrate detected in drinking water wells today was originally applied to the surface decades ago.

2. Agricultural fertilizers and animal wastes applied to cropland are by far the largest regional sources of nitrate in groundwater. Other sources can be locally important.

3. Nitrate loading reductions are possible, some at modest cost. Large reductions of nitrate loads to groundwater can have substantial economic cost.

4. Traditional pump and treat remediation to remove nitrate from large groundwater basins is extremely costly and not technically feasible. Instead, "pump-and-fertilize" and improved groundwater recharge management are less costly long-term alternatives.

5. Drinking water supply actions such as blending, treatment, and alternative water supplies are most cost-effective. Blending will become less available in many cases as nitrate pollution continues to spread.

6. Many small communities cannot afford safe drinking water treatment and supply actions. High fixed costs affect small systems disproportionately.

7. The most promising revenue source is a fee on nitrogen fertilizer use in these basins. A nitrogen fertilizer fee could compensate affected small communities for mitigation expenses and effects of nitrate pollution.

8. Inconsistency and inaccessibility of data prevent effective and continuous assessment of California's groundwater quality. A statewide effort is needed to integrate diverse water-related data-collection activities by many state and local agencies.

2.0 Recommendations Addressing Nitrate in Groundwater

SBX2 1 requires that the State Water Board submit recommendations to the Legislature for developing a groundwater cleanup program for the Central Valley and Central Coast Regional Water Boards. However, the UC Davis Nitrate Report states that traditional pump and treat groundwater cleanup in these pilot study areas is not technically feasible and would cost billions of dollars over many decades.

The recommendations included here focus on addressing the impacts of existing groundwater nitrate contamination, and highlight options that will be effective in preventing future contamination. Additional recommendations are included to address monitoring groundwater quality and tracking nitrogen application.

The State Water Board considered input and findings from various sources in the development of this report's recommendations. Sources include input from the Interagency Task Force or ITF (as required by SBX2 1), findings of the UC Davis Nitrate Report, public input from a State Water Board workshop held in May 2012, findings of a special drinking water taskforce convened by the Governor's office, and existing efforts by the Regional Water Quality Control Boards (Regional Water Boards).

The ITF consisted of representatives from the California Department of Public Health (CDPH), Department of Pesticide Regulation (DPR), Department of Water Resources (DWR), Department of Toxic Substances Control (DTSC), California Department of Food and Agriculture (CDFA), California Environmental Protection Agency (Cal/EPA), and county environmental health departments.

The UC Davis Nitrate Report (Appendix B) lists eighteen "Promising Actions" that could be implemented to address nitrate contamination within the study areas.

The Governor's Drinking Water Stakeholder Group (Governor's Stakeholder Group) is comprised environmental justice advocates, agricultural representatives, and other stakeholders, with technical support from state agencies. They addressed: 1) developing a shared understanding of the O&M and other challenges encountered to access agency programs; 2) identifying promising solutions (which may focus on the Tulare and Salinas regions); 3) developing a plan to address identified challenges and promising solutions with a

high likelihood of success; and 4) making a recommendation to the Governor's Office. The Governor's Stakeholder Group submitted a final report to the Governor's Office on August 20, 2012, which summarized findings and legislative recommendations. A copy of this report is included as Appendix C.

The State Water Board and Regional Water Boards (collectively, the Water Boards) are currently engaged in numerous efforts to address nitrate contamination in groundwater. The State Water Board is implementing the Recycled Water Policy (State Water Board Resolution 2009-0011), which requires local water agencies, wastewater facilities, and salt and nutrient contributing stakeholders to fund locally-driven collaborative processes to prepare salt and nutrient management plans for each groundwater basin/sub-basin in California. The State Water Board also adopted and is beginning implementation of its Water Quality Control Policy for Siting, Design, Operation, and Maintenance of Onsite Wastewater Treatment Systems (State Water Board Resolution 2012-0032), which addresses septic tank systems throughout the State. The Central Valley Water Board and State Water Board are actively participating in the stakeholder driven Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative to develop a Central Valley wide salt and nitrate management plan that contains both short and long-term implementation components to enhanced water quality and economic sustainability for the region. The program is investigating methods to address safe water access for communities currently utilizing nitrate contaminated groundwater. The Central Valley Water Board is also addressing groundwater nitrate contamination through an on-going Groundwater Quality Protection Strategy, which aims to develop a roadmap for future regulatory and control activities that will be implemented in the next five to 20 years. The Central Coast Regional Board's actions include efforts associated with their agricultural regulatory program, public outreach efforts, and issuance of waste discharge permits that are protective of groundwater quality. These programs (and others) are summarized in Appendix D.

State Water Board Recommendations

The State Water Board grouped its recommendations into four main categories:

- Providing Safe Drinking Water
- Monitoring, Assessment and Notification
- Nitrogen Tracking and Reporting
- Protecting Groundwater

The recommendations in this report address groundwater nitrate contamination within the Tulare Lake Basin and Salinas Valley pilot project study areas, but may also be appropriate for statewide implementation.

Many of the listed recommendations are outside the scope of the Water Boards' current authority, and other recommendations may require new legislation. A summary of the recommendations, highlighting lead agencies and need for legislation, is provided in Table 1.

Funding to Implement Recommendations

Many recommendations in this report will require a source of funding. The regulatory, monitoring, education and research recommendations fall within existing programs with defined funding sources, but the increased level of effort to implement some of these recommendations will require augmentation of these funding sources. Expansion of existing funding sources will be proposed by the responsible state agencies and considered through the state budget process.

The provision of safe drinking water for disadvantaged communities, however, will require a new funding source. The funding sources presently available for these communities are the Safe Drinking Water State Revolving Fund (SRF), which is capitalized with federal grants, and state bond funds. Experience shows that these sources cannot meet the drinking water needs of disadvantaged communities. The first recommendation in this report addresses the need for a new funding source, which can be used in combination with existing funding sources, to design, build, operate and maintain safe drinking water systems for disadvantaged communities. This action is critical to meet the goals of Chapter 524, Statutes of 2012 (Assembly Bill 685, Eng) which specified the policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

Potential funding sources are described in detail in the text of the recommendations below.

Table 1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
Providing Safe Drinking Water *An impediment to providing safe drinking water to small Disadvantaged Communities (DACs) impacted by nitrate contamination is the lack of a stable, long-term funding source. A stable funding source integrated with institutional changes is critical in providing long-term safe drinking water infrastructure and interim solutions for the small DACs impacted by nitrate contamination.*		
1. The most critical recommendation in this report is that a new funding source be established to ensure that **all** Californians, including those in DACs, have access to safe drinking water, consistent with AB 685. The Legislature should provide a stable, long-term funding source for provision of safe drinking water for small DACs. Funding sources include a point-of-sale fee[1] on agricultural commodities, a fee on nitrogen fertilizing materials, or a water use fee. In addition, the Legislature also should authorize CDPH to assess a fee in lieu of interest on Safe Drinking Water State Revolving Fund loans, or to assess other fees associated with these loans, to generate funds for expanded assistance to water systems.	California Department of Public Health (CDPH), Water Boards, California Department of Food and Agriculture (CDFA), and Local Government Agencies	Yes
2. The Water Boards will use their authority under the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code, §13000 et seq.) to order parties responsible for nitrate contamination to provide replacement water to impacted communities, as appropriate.	Water Boards, CDPH	No
3. The Legislature should enact legislation to establish a framework of statutory authorities for CDPH, regional organizations, and county agencies to have the regulatory responsibility to assess alternatives for providing safe drinking water and to develop, design, implement, operate, and manage these systems for small DACs impacted by nitrate.[2]	CDPH, County Agencies	Yes
4. State funding agencies should continue to increase access to safe drinking water funding sources for small DACs by streamlining funding applications, providing planning grants, and providing technical assistance.	CDPH, Department of Water Resources (DWR)	No

Table 1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
5. DWR should give preference in the Proposition 84 Integrated Regional Water Management (IRWM) Grant Program to proposals with IRWM Plans that include an evaluation of nitrate impacts, including the access of safe drinking water to small DACs, for areas that have been identified as nitrate high-risk areas	DWR	No
Monitoring, Assessment, and Notification *A groundwater monitoring and assessment program is a critical element in effectively managing groundwater quality.*		
6. The Water Boards will define and identify nitrate high-risk areas in order to prioritize regulatory oversight and assistance efforts in these areas.[2]	Water Boards	No
7. The Legislature should enact legislation that establishes a framework of statutory authority for the Water Boards, in coordination with other state and local agencies, to improve the coordination and cost effectiveness of groundwater quality monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information.[2]	Water Boards, other State and local agencies	Yes
8. The Legislature should enact legislation that establishes a funding source for the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program.	Water Boards	Yes
9. The Legislature should require state and local agencies to notify groundwater users in nitrate high-risk areas and recommend that the well owners test their wells to evaluate drinking water quality. The Water Boards, CDPH, and local public health agencies will coordinate in identifying private domestic wells and small, unregulated water systems in nitrate high-risk areas.[2]	Water Boards, CDPH, local public health agencies	Yes

Table 1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
10. The Legislature should require property owners with private domestic wells or other unregulated groundwater systems (2 to 14 service connections) to sample their well as part of a point of sale inspection before property title transfer or purchase.	Water Boards, CDPH, local public health agencies	Yes
Nitrogen Tracking and Reporting *According to the UC Davis Nitrate Report, fertilizing material application is the main source of nitrate in groundwater. A system to track the application of fertilizing materials is a critical element in managing groundwater quality.*		
11. CDFA, in coordination with the Water Boards, should convene a Task Force to identify intended outcomes and expected benefits of a nitrogen mass balance tracking system in nitrate high-risk areas. The Task Force should identify appropriate nitrogen tracking and reporting systems, and potential alternatives, that would provide meaningful and high quality data to help better protect groundwater quality.	CDFA, Water Boards, county agriculture commissioners, local agencies	No
Protecting Groundwater *Contaminated groundwater results in treatment, well closures, or new well construction, which increases costs for consumers and the public. Regulating groundwater is essential in maintaining a safe drinking water supply.*		
12. Water Boards should continue to provide technical assistance for CDFA's ongoing work with University of California Cooperative Extension (UCCE) and other experts in establishing a nitrogen management training and certification program that recognizes the importance of water quality protection.[2]	CDFA	No
13. CDFA should maintain the mill fee on fertilizing materials at its fully authorized amount to support and develop crop-specific nutrient application rates, Best Management Practices (BMPs), and nutrient management programs via the Fertilizer Research and Education Program (FREP). The information should continue to be made available on-line.	CDFA	No

Table 1: Water Board Recommendations to Address Nitrate in Groundwater

Water Board Recommendation	Lead Agencies/ Participants	Requires Legislation?
14. The Water Boards will convene a panel of experts to assess existing agricultural nitrate control programs and develop recommendations, as needed, to ensure that ongoing efforts are protective of groundwater quality. The Water Boards and CDFA will use the findings to inform ongoing regulatory and non-regulatory efforts.[2]	Water Boards, CDFA	No
15. The Water Boards will evaluate all existing Waste Discharge Requirements to determine whether existing regulatory permitting is sufficiently protective of groundwater quality at these sites. The Water Boards will use the findings to improve permitting activities related to nitrate.[2]	Water Boards	No

[1] Although the term fee is used throughout this report, it is beyond the scope of this report to assess whether the fee is a fee or tax under Proposition 26. The term is simply used for convenience and consistency.
[2] Additional funding will be required to adequately implement these strategies.

2.1 Providing Safe Drinking Water

Small DACs face specific challenges related to their drinking water systems. Due to their small customer base, DACs often cannot provide the economies of scale necessary to build and maintain adequate drinking water infrastructure. Small rural communities generally face higher per capita O&M costs and capital costs that result in higher water rates.

The challenges DACs face generally result from a lack of adequate financial resources and technical expertise. DACs are often unable to retain qualified water system operators. When their drinking water violates safe water quality standards, they often lack the resources to address the problem. Even if these communities obtain financial resources to improve their drinking water systems, often they lack sufficient technical expertise to determine the best project alternative, or to appropriately plan for long-term O&M.

Addressing the human health and water quality problems associated with nitrate, and in particular those that face DACs, is a major goal for California.

Providing Safe Drinking Water: Recommendation 1

Recommendation 1

*The most critical recommendation in this report is that a new funding source be established to help ensure that **all** Californians, including those in DACs, have access to safe drinking water, consistent with AB 685. The Legislature should provide a stable, long-term funding source for provision of safe drinking water for small DACs. Funding sources could include a point-of-sale fee on agricultural commodities, a fee on synthetic and organic nitrogen fertilizers and fertilizing materials, or a water use fee. In addition, the Legislature also should authorize CDPH to assess a fee in lieu of interest on Safe Drinking Water State Revolving Fund loans, or to assess other fees associated with these loans, to generate funds for expanded assistance to water systems.*

AB 685 defines access to safe drinking water as a fundamental human right. The single most important action that can be taken to help ensure safe drinking water for all Californians is to provide a stable, long-term source(s) of funding to assist those impacted by nitrate-contaminated groundwater. Solutions to nitrate-contaminated drinking water are achievable, but require significant additional funding and resources that are currently not available. Without additional funding, access to safe drinking water for all Californians will not be achieved.

Additional funding would augment the existing Safe Drinking Water SRF program to address the needs of small water systems and small DACs. Additional funding could be used to pay for long-term treatment of nitrate contaminated drinking water, O&M costs for small DACs that cannot afford the extra costs associated with nitrate treatment, development of alternative drinking water sources, and short-term interim safe drinking water measures (such as point-of-use systems) in small DACs. Funding could be prioritized to include both community water systems and groundwater users that do not qualify for traditional Safe Drinking Water SRF funding, such as private domestic well users. In order to meet the goals of AB 685, the Legislature should establish a new revenue source to address safe drinking water needs that are unmet by current funding sources.

The UC Davis Nitrate Report estimated that up to $36 million is needed annually to fund long-term safe drinking water solutions for nitrate in the pilot study areas; statewide costs will be significantly higher. Three funding sources could address the estimated need:

- point-of-sale fee[3] on agricultural commodities,
- fee on nitrogen fertilizers, or
- water use fee.

[3] Although the term fee is used throughout this report, it is beyond the scope of this report to assess whether the fee is a fee or tax under Proposition 26. The term is simply used for convenience and consistency.

A point-of-sale fee on agricultural commodities, similar to the timber fee passed by the Legislature and signed into law in 2012, would generate significant revenue to address agriculture-related water quality issues. The UC Davis report found that nitrogen from confined animal facilities is a major source of nitrogen to groundwater. As a result, products from these industries are likely candidates for initial point of point-of-sale assessments. The fee could apply not only to California produced goods, but also to imports and therefore would not place California-produced products at a competitive disadvantage. However, such fees can be burdensome on low-income residents. Additionally, this type of fee does not provide an economic incentive to reduce total nitrogen load to the environment.

A fee on nitrogen fertilizing materials of approximately $100 to $180 per ton of nitrogen would generate between $20 million and $36 million per year. The UC Davis Nitrate Report identified a fee on nitrogen fertilizer as the most promising source of additional revenue, in part because the economic disadvantage of paying for excess nitrogen fertilizer would function as an incentive to reduce total nitrogen loading to the environment. A fertilizer fee would require that the predominant source of nitrogen groundwater pollution in the study area pay to address the problem. However, the fee may increase costs for California's farmers and ranchers, and some of the costs could be passed on to consumers, including low-income residents. In addition, while the cost of this alternative will mostly fall on existing farming operations the present groundwater nitrate contamination is the result of past agricultural operations because of the lag time for nitrogen to reach groundwater.

A water use fee would generate funding for safe drinking water needs, would be distributed to all public water users, and would not disproportionately impact California farmers and ranchers. The fee could be tailored to include municipal users, agricultural users, or both. However, a water use fee may be viewed as a burden on low-income residents, and would not incentivize reductions in nitrogen loading to groundwater.

The Legislature should restrict the use of revenues generated from the point of sale fee or nitrogen fertilizing materials fee to address only drinking water issues related to agriculture. Sources of nitrate contamination related to non-agricultural activities (septic systems, point-source discharges) can be locally significant and should be addressed using other methods, including existing Water Board authority to require groundwater cleanup and alternative water supplies.

In addition, the Legislature also should authorize CDPH to assess a fee in lieu of interest on Safe Drinking Water State Revolving Fund loans, or to assess other fees associated with these loans, to generate funds for expanded assistance to water systems, to the extent allowed by federal law. This authority could be similar to the authority provided to the State Water Board by Chapter 609, Statutes of 2008 (AB 2356, Arambula) which allows the State Water Board to assess a fee, in lieu of interest on loans financed from the Clean Water SRF to provide grants to small DACs for wastewater collection, treatment or disposal projects. Similarly, Chapter 632, Statutes of 2007 (AB 1742, Committee on Environmental Safety and Toxic Materials) allows the State Water Board to assess a fee, in lieu of interest on loans from the Clean Water State Revolving Fund to pay for the costs of the administering the loan program. These types of fees can provide valuable funding for DACs with no increased costs to the borrowers.

In summary, a stable, long-term source(s) of funding is critical to assist those impacted by nitrate-contaminated groundwater, and to ensure safe drinking water. Without additional funding, this will not be achievable. The three funding sources described above: point of sale fee, nitrogen fertilizing materials fee, and/or water use fee, are all options to generate the

necessary funding. Each funding source has its advantages and disadvantages. Any of these funding sources, or a combination, should be used to generate the necessary long-term funds to address safe drinking water needs.

SUMMARY OF CURRENT FUNDING SOURCES AND NEEDS

There are many sources of funding for safe drinking water infrastructure repair and improvements, including state, federal, and non-profit organizations. However, many of these funding sources are limited and not available on a long-term basis. The Governor's Stakeholder Group report includes a summary of resources that are available to address safe drinking water issues (Appendix C).

Critical problems face California with respect to funding safe drinking water issues. The U.S. Environmental Protection Agency (USEPA) Infrastructure Needs Assessment in 2009 estimated that over the next 20 years California would need nearly $40 billion in drinking water infrastructure upgrades and improvements. However, California only receives a fraction of this overall need, approximately $2 billion annually. The largest source of continuous public funding is the Safe Drinking Water SRF, administered by CDPH. The Safe Drinking Water SRF provides low-interest loans to public water systems to address known drinking water issues. The Safe Drinking Water SRF loans between $100 million and $200 million annually statewide and is funded by the loan repayments, USEPA capitalization grants, state matching funds, and interest on loan repayments. Despite the significant level of Safe Drinking Water SRF funding, the amount needed to address statewide safe drinking water issues far exceeds what is available. In the pilot project study areas only, the UC Davis Nitrate Report has calculated that up to $36 million per year is needed for safe drinking water solutions to address nitrate contamination; statewide costs are estimated to be significantly higher. This illustrates the gap between the revenue needed to address groundwater nitrate contamination and the funding that is currently available. Under existing state and federal law the Safe Drinking Water SRF can only be used to pay for capital costs (construction, equipment, planning), and cannot be used to fund long-term O&M. Presently, a community water system can only receive Safe Drinking Water SRF money after showing that it can pay for long-term O&M. It is often difficult for small communities to pay for costly treatment systems and associated O&M. This can lead to situations where community water systems are unable to receive funding for a known water quality issue because they cannot afford to support the operation of the treatment system.

Private domestic wells and other small, unregulated water systems cannot use Safe Drinking Water SRF money. Safe Drinking Water SRF money is only available for public water systems (15 or more service connections or serving 25 or more permanent residents per year). The water quality of private domestic wells and other small, unregulated water systems (2 to 14 service connections) in California is largely unknown, because there are no state requirements to test the water quality in these types of systems. Regional groundwater quality information suggests that these wells are typically shallower which makes them more vulnerable to surface contamination. There are limited options for private domestic wells contaminated by nitrate, such as point-of-use or point-of-entry treatment, or drilling a new well. Helping private domestic well owners and other small, unregulated water systems address nitrate contamination by funding treatment or new well construction will require a clear funding source.

Providing Safe Drinking Water: Recommendation 2

Recommendation 2

The Water Boards will use their authority under the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code, §13000 et seq.) to order parties responsible for nitrate contamination to provide replacement water to impacted communities, as appropriate.

Other means of addressing nitrate contamination will need to be further pursued if a stable, long-term funding source addressing nitrate-related drinking water issues is not developed. Under Water Code Section 13304, the Water Boards have the authority to require the provision of, or payment for, uninterrupted replacement water service as part of a cleanup and abatement order. Replacement water may include both short and long-term solutions, such as providing bottled water or installing wellhead treatment and point-of-use systems.

The Water Boards will take enforcement actions against responsible agricultural parties and others who contribute to nitrate groundwater contamination, and require them to provide replacement water as an interim solution, if a stable, long-term funding source is not developed.

Providing Safe Drinking Water: Recommendation 3

Recommendation 3

The Legislature should enact legislation to establish a framework of statutory authorities for CDPH, regional organizations, and county agencies to have the regulatory responsibility to assess alternatives for providing safe drinking water and to develop, design, implement, operate, and manage these systems for small DACs impacted by nitrate.

Many small DACs lack the resources to fund, manage, and operate a water treatment system or alternative water supply. CDPH has a legislatively defined role in addressing drinking water quality; however, there are statutory limits on the types of water systems that are eligible to receive aid and CDPH's options for helping to address the needs of small DACs. The Legislature should update the existing institutional framework to expand the regulatory and oversight authority of CDPH, regional organizations, and county agencies, so that these agencies can use the funding identified in Recommendation 1 to address safe drinking water needs.

Under these updated statutory authorities, CDPH, regional organizations, and county agencies would be responsible for evaluating the needs of small DACs (including systems with 2 to 14 connections) and for ensuring the provision of safe drinking water in those communities. The responsible agencies should have broad authority in determining the best course of action to provide safe drinking water, including shared solutions (consolidation or regionalization), long-term treatment measures, and installation of point-of-use systems.

The legislation should mandate that the development, design, implementation, operation, and management of safe drinking water solutions in small DACs is the responsibility of either CDPH, a regional or non-governmental organization, or county agency when the small DAC cannot implement a safe drinking water solution on its own.

Providing Safe Drinking Water: Recommendation 4

Recommendation 4

State funding agencies should continue to increase access to safe drinking water funding sources for small DACs by streamlining funding applications, providing planning grants, and providing technical assistance.

The Governor's Stakeholder Group identified increasing access to existing funding sources for small DACs as critical for both long-term and interim safe drinking water solutions. In addition, the Governor's Stakeholder Group recommended making existing funding systems and requirements easier to navigate.

Existing state funding agencies, which include the State Water Board, CDPH, and DWR, should continue to evaluate their funding applications and determine whether the application process can be streamlined for small DACs. State agencies also should continue to evaluate whether small DACs need additional technical assistance to navigate the funding process.

State and Federal law prohibits small DACs with less than 15 service connections from receiving Safe Drinking Water SRF funds. However, the proposed funding source(s) in Recommendation 1 could be used for local planning and grants for small DACs, regardless of the system size. The funding agency could establish less restrictive criteria on who can apply for these funds. A fee in lieu of interest or an administrative fee set aside on financing agreements within the Safe Drinking Water SRF could also provide funding for planning grants.

Providing Safe Drinking Water: Recommendation 5

Recommendation 5

DWR should give preference in the Proposition 84 Integrated Regional Water Management (IRWM) Grant Program to proposals with IRWM Plans that include an evaluation of nitrate impacts, including the access of safe drinking water to small DACs, for areas that have been identified as nitrate high-risk areas.

IRWM is a collaborative effort to manage all aspects of water resources in a given region. IRWM crosses jurisdictional, watershed, and political boundaries; involves multiple agencies, stakeholders, individuals, and groups; and attempts to address the issues and differing perspectives of all the entities involved through mutually beneficial solutions.

DWR has a number of IRWM Grant Program funding opportunities, including grants for planning and implementation. DWR should give preference in the IRWM Grant program to proposals with IRWM Plans in nitrate high-risk areas that include an evaluation of nitrate impacts, including the access of safe drinking water to small DACs.

2.2 Monitoring, Assessment, and Notification

Monitoring and assessment are necessary elements of an effective program addressing nitrate in groundwater. Monitoring is required to evaluate the populations affected by nitrate groundwater contamination and to evaluate the effectiveness of groundwater protection measures.

Monitoring, Assessment, and Notification: Recommendation 6

Recommendation 6

The Water Boards will define and identify nitrate high-risk areas in order to prioritize regulatory oversight and assistance efforts in these areas.

Existing water quality, land-use, and geology can result in certain areas being more susceptible to nitrate groundwater contamination. Consequently, different management methods may be necessary in areas that are at greater risk for nitrate contamination. Identification of nitrate high-risk areas will help prioritize regulatory oversight and assistance efforts.

The Water Boards will develop a definition of a nitrate high-risk area, using both the hydrogeologically vulnerable areas identified by the State Water Board (http://www.waterboards.ca.gov/gama/docs/hva_map_table.pdf) as well as current DPR Groundwater Protection Areas (http://www.cdpr.ca.gov/docs/emon/grndwtr/gwpa_locations.htm), in addition to other available hydrogeologic data. The State Water Board will make maps of the nitrate high-risk areas publicly available, which allow them to also be used by other state and local agencies for regulatory and planning purposes. CDFA, in coordination with the Water Boards, will convene a Task Force to evaluate whether tracking nitrogen mass loading in the high-risk areas will better protect groundwater quality (Recommendation 11). Components of existing agricultural nitrate control programs for managing nitrate in groundwater also will be evaluated in identified nitrate high-risk areas (Recommendation 14).

The Water Boards will reassess the nitrate high-risk area boundaries as groundwater quality data are submitted and will re-evaluate the nitrate high-risk area boundaries every five years to coincide with publication of DWR's California Water Plan.

Monitoring, Assessment, and Notification: Recommendation 7

Recommendation 7

The Legislature should enact legislation that establishes a framework of statutory authority for the Water Boards, in coordination with other state and local agencies, to improve the coordination and cost effectiveness of groundwater quality monitoring and assessment, enhance the integration of monitoring data across departments and agencies, and increase public accessibility to monitoring data and assessment information.

Monitoring and assessment is an essential part of an effective program to address nitrate in groundwater, and to establish a baseline of ambient conditions. Currently, multiple state and local agencies collect groundwater quality data. A statewide effort to coordinate and establish general approaches and protocols for collecting, housing, and sharing groundwater quality data is critical in effectively managing California's groundwater.

The Legislature should establish a framework of statutory authority for the Water Boards to improve the coordination and cost effectiveness of groundwater quality monitoring and assessment throughout the state. The Water Boards should coordinate with other state and local agencies, similar to the successful effort undertaken by the California Water Quality Monitoring Council established by Chapter 750, Statutes of 2006 (SB 1070, Kehoe).

The legislation also should authorize the Water Boards to address data integration across departments and agencies, and make groundwater quality monitoring data publicly accessible, when possible, on the groundwater information system developed for the State Water Board's Groundwater Ambient Monitoring and Assessment (GAMA) Program called GeoTracker GAMA. To make data more easily accessible to regulators and the public, submission of all future groundwater data collected for any State or Regional Water Board permit, order, or action will be in a format compatible with GeoTracker GAMA.

Monitoring, Assessment, and Notification: Recommendation 8

Recommendation 8

The Legislature should enact legislation that establishes a funding source for the State Water Board's GAMA Program.

GeoTracker GAMA compiles groundwater quality data from multiple sources, and makes it available to the public. It is a potential repository for groundwater data collected by agencies and could be used to coordinate groundwater monitoring and assessments (Recommendation 7). The proposed funding sources described in Recommendation 1 could be used to fund the GAMA Program.

The GAMA Program implements the plan required by the Groundwater Quality Monitoring Act of 2001 (Water Code Section 10781, added by Statutes of 2001, Chapter 522 (AB 599)). The program currently has two funding sources: the Waste Discharge Permit Fund, which is funded from regulatory fees, and Proposition 50 bond funding.

Current funding supports four active GAMA projects: Priority Basin, Special Studies, Domestic Wells and the GeoTracker GAMA online groundwater information system. The majority of GAMA funding comes from Proposition 50 bond sales that will expire in 2017, leaving key projects unfunded.

The groundbreaking GAMA Priority Basin Project is a joint effort between the State Water Board, United States Geological Survey (USGS), and Lawrence Livermore National Laboratory (LLNL). The project analyzes groundwater quality in basins that supply over 95 percent of the groundwater used for drinking water, evaluates baseline water quality in those basins, and examines trends in groundwater quality to determine future threats to California's groundwater supply. It has recently added a shallow aquifer element to assess groundwater primarily used by private domestic well users and other small, unregulated water systems. If Proposition 50 funding cannot be replaced by 2014, the State Water Board will be required to discontinue sampling for the Priority Basin Project, and if no funding is provided by 2017, the Priority Basin Project will end. The Legislature should enact legislation that establishes a stable funding source for the GAMA Program by 2014.

Monitoring, Assessment, and Notification: Recommendation 9

Recommendation 9

The Legislature should require state and local agencies to notify groundwater users in nitrate high-risk areas and recommend that the well owners test their wells to evaluate drinking water quality. The Water Boards, CDPH, and local public health agencies will coordinate in identifying private domestic wells and small, unregulated water systems in nitrate high-risk areas.

Private domestic well users and small, unregulated groundwater systems (2 to 14 service connections) typically rely on shallow groundwater, which can be at greater risk of nitrate contamination. The State does not require water quality testing from private domestic wells and unregulated small groundwater systems. As a result, many of these groundwater users are unaware of their drinking water quality and potential health risks.

The State Water Board, CDPH, and local public health agencies should coordinate to help identify areas with private domestic wells and small, unregulated water systems, and develop public outreach programs to encourage water well testing in nitrate high-risk areas. The State Water Board should provide online support to assist these well owners in sampling their wells and interpreting the results.

Small DACs and private domestic well owners with nitrate test results above the public drinking water standard (MCL) would be eligible for financial and technical assistance, including funding as discussed in Recommendation 1.

Monitoring, Assessment, and Notification: Recommendation 10

Recommendation 10

The Legislature should require property owners with either a private domestic well or other unregulated groundwater system (2 to 14 service connections) to sample their well and disclose its water quality as part of a point of sale inspection before property title transfer or purchase.

Approximately two million Californians rely on groundwater from either a private domestic well or a smaller water system that is not regulated by the state. The quality of drinking water supplied by these wells is largely unknown. In addition, these water systems typically tap into shallow groundwater that is more susceptible to contamination.

The State Water Board's GAMA Domestic Well Project was developed in order to address the lack of domestic well water quality data. Since 2002, the Domestic Well Project has sampled over 1,100 private domestic wells in six county focus areas; however, this represents only a small percentage of the estimated 250,000 to 600,000 unregulated drinking water wells in the state. Results show that nitrate can be a significant water quality issue, such as in Tulare County where over 40 percent of the wells sampled detected nitrate above the MCL. Continued private domestic well sampling will help identify local and regional nitrate issues that may affect well owners.

The Legislature should require property owners with either a private domestic well or other unregulated groundwater system to sample their well as part of a point of sale inspection before a property title transfer or purchase to inform property owners and potential property owners, on the water quality of their well. The water quality results should be disclosed to property tenants through property owner notifications.

2.3 Nitrogen Tracking and Reporting

The UC Davis Nitrate Report found that approximately 440 million pounds of nitrate leach into groundwater each year within the pilot project study areas, and that a significant percent of this total comes from lands that are currently used for irrigated agriculture (including dairy cropland).

Nitrogen mass balance is an important part of a farmer's nitrogen management program. The outcomes and benefits of a nitrogen mass balance tracking system that provides meaningful and high quality data should be evaluated, and alternative methods of nitrogen tracking and reporting should also be evaluated. The recommendation below is aimed at helping regulators and growers track nitrogen use within the study area.

Nitrogen Tracking and Reporting: Recommendation 11

Recommendation 11

CDFA, in coordination with the Water Boards, should convene a Task Force to identify intended outcomes and expected benefits of a nitrogen mass balance tracking system in nitrate high-risk areas. The Task Force should identify appropriate nitrogen tracking and reporting systems, and potential alternatives, that would provide meaningful and high quality data to help better protect groundwater quality.

CDFA, in coordination with the Water Boards, should convene a Task Force to identify intended outcomes and expected benefits of a nitrogen mass balance tracking system in nitrate high-risk areas (Recommendation 6). The Task Force should identify appropriate nitrogen tracking and reporting systems, and potential alternatives, that will provide meaningful and high quality data to help CDFA and the Water Boards better protect groundwater quality. The Task Force should include appropriate state and local agencies as well as stakeholder groups. The Task Force should consider evaluating existing models such as the Central Coast and Central Valley Regional Water Board models.

Accounting for nutrient management at the farm scale is important for growers to control costs, ensure quality, maximize yield, and minimize the risk of excess nutrients in the environment. Accounting for nitrogen is also an important component of compliance with the Water Boards' agricultural regulatory program requirements. A system to track nitrogen in nitrate high risk areas may be essential to help assess whether nitrogen loading is a threat to water quality and whether additional regulatory actions are necessary (Recommendation 14).

The Task Force should report their findings and any appropriate nitrogen mass balance tracking methods and alternatives to CDFA and the State Water Board to use in the design of any nitrogen fertilizer tracking program that could be implemented in nitrate high-risk areas (Recommendation 6) through new regulatory approaches (Recommendation 14).

2.4 Protecting Groundwater

The UC Davis Nitrate Report has identified that traditional groundwater remediation of nitrate on a basin or study area-wide scale is not technically feasible since it would cost billions of dollars over many decades. Once nitrate contaminates groundwater it will remain contaminated until natural denitrification lowers concentrations, or until the source is removed and the aquifer is replenished. These are very slow processes. Preventing contamination is the best long-term option to manage groundwater quality.

Protecting Groundwater: Recommendation 12

Recommendation 12

The Water Boards should continue to provide technical assistance for CDFA's ongoing work with University of California Cooperative Extension (UCCE) and other experts in establishing a nitrogen management training and certification program that recognizes the importance of water quality protection.

The Water Boards and CDFA have responsibilities to protect water quality from the adverse effects of agricultural use of nitrogen fertilizing materials (synthetic fertilizers, manure, compost and other organic nitrogen supplements). The state will benefit from establishing a more formal, unified, and cooperative program between the Water Boards and CDFA to balance nitrogen use and agricultural productivity with water quality protection.

Water Boards should continue to provide technical assistance for CDFA's ongoing work with University of California Cooperative Extension (UCCE) and other experts in establishing a nitrogen management training and certification program as a tool to manage nitrogen application rates that are appropriate for the crop being grown. The training and certification program, should recognize the complexity of nitrogen management in California and the importance of water quality protection. A major goal of a professionalized nitrogen management training and certification program, overseen by CDFA, is to assist farmers in managing agricultural uses of nitrogen and ultimately reduce nitrate loading to groundwater. Development of a nitrogen management training and certification program will help reduce the need to propose new control measures to address nitrate in groundwater (Recommendation 14).

Protecting Groundwater: Recommendation 13

Recommendation 13

CDFA should maintain the mill fee on fertilizing materials at its fully authorized amount to support and develop crop-specific nutrient application rates, best management practices (BMPs), and nutrient management programs via the Fertilizer Research and Education Program (FREP). The information should continue to be made available online.

Food and Agriculture Code Section 14611 authorizes CDFA to assess a fee of up to one mill ($0.001) per dollar of sales assessment on fertilizing materials to fund fertilizer research and related work. Assembly Bill 2174 (Alejo, Chapter 198, Statutes of 2012) clarified that funds from the FREP can be used to pursue research and provide technical assistance to farmers on nitrate and greenhouse gas emission management related to the application of fertilizers. CDFA should maintain their assessment of one mill, which, depending on fertilizing materials sales, generates approximately $2 million annually, to help fund studies and provide technical and professional assistance to growers to maintain and improve soil health and crop needs, while minimizing the risk of nutrient emissions to the environment.

In addition, CDFA should continue compiling FREP research and reports into an easily accessible online system, where growers can access available information on nutrient BMPs and technology. Using this type of system will help to mitigate excess nitrogen in groundwater. The Water Boards recommend continued development of this system, and additional outreach to help growers access and understand this resource. Implementation of BMPs will lead to better groundwater protection and nutrient management, and limit the need for the Water Boards to further regulate fertilizer application.

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CURRENT ADVANCEMENTS IN THE MANAGEMENT OF NITROGEN

According to the UC Davis Nitrate Report, since the 1970s the gap between synthetic nitrogen applied and harvested nitrogen has decreased more than 60 percent. Since the 1980s, synthetic fertilizer inputs have been leveling off while cropland has slightly decreased. During this time period, the use of manure and other organic nitrogen sources has increased. Many voluntary activities have led to the leveling-off of synthetic fertilizer use in California due to many contributing efforts.

CDFA's FREP, UC Cooperative Extension, USDA, commodity groups, individual farmers and collaborative efforts have all contributed valuable research and implementation funds, training and technical assistance into high priority areas. This has led to a better understanding and adoption of nitrogen management practices. Certified Crop Advisor training includes nitrogen management in nearly all sessions. Both the International Plant Nutrition Institute and the fertilizer industry provide education on the "4Rs" of nutrient management – the right source of nutrient, at the right rate, at the right time, in the right place.

Agronomic improvements have also lead to greater nitrogen use efficiency. Crop genetics have continued to improve to allow greater yields without additional nitrogen fertilizer. Advances in pest management and weed control also allow more of the nitrogen fertilizer to be recovered in the harvested portion of the plant. Water use efficiency, irrigation and storage improvements, drip irrigation, and laser leveling have reduced the amount of water applied, thus reducing nutrient runoff and leaching. Global positioning systems have aided in planning, planting, and mapping, enabling more targeted application of nitrogen. Soil, water, and foliage testing have increased, as have the use of cover crops and buffer strips. Plant breeding, irrigation methods, fertilizer management, crop protection, and a general improved understanding of the crops needs has led to increased productivity.

There is a continuing shift in the nitrogen fertilizer products sold in California. Liquid nitrogen fertilizers are increasingly replacing solid nitrogen fertilizers, allowing farmers to apply them in irrigation water. The fertilizer industry is continually developing new and innovative products that deliver nutrients more efficiently. Since 2002, there have been important developments in controlled-release nitrogen technology and nitrogen fertilizer additives. These materials were once considered "specialty products", but their use is continuing to expand.

Protecting Groundwater: Recommendation 14

Recommendation 14

The Water Boards will convene a panel of experts to assess existing agricultural nitrate control programs and develop recommendations, as needed, to ensure that ongoing efforts are protective of groundwater quality. The Water Boards and CDFA will use the findings to inform ongoing regulatory and non-regulatory efforts.

The Regional Water Boards have made progress in addressing nitrate contamination by implementing several regulatory programs (detailed in Appendix D). These programs approach nitrate contamination in groundwater differently, applying different regulatory requirements and management tools. A regulatory approach that capitalizes on the lessons learned from these programs will allow the Water Boards to address agricultural nitrate in groundwater in a more effective manner.

The Water Boards will convene a panel of experts to assess existing agricultural nitrate control programs and develop recommendations, as needed, to ensure that ongoing efforts are protective of groundwater quality. The panel will evaluate ongoing agricultural control measures that address nitrate in groundwater, and will propose new measures, if necessary. In their assessment of existing agricultural nitrate control programs and development of recommendations for possible improvements in the regulatory approaches being used, the panel will consider methods used as part of the European Union's Nitrate Directive (see summary in Appendix E), as well as groundwater monitoring, mandatory adoption of BMPs, tracking and reporting of nitrogen fertilizer application, estimates of nitrogen use efficiency or a similar metric, and farm-specific nutrient management plans as source control measures and regulatory tools. The panel's findings and recommendations will be evaluated by the Water Boards and the CDFA and, where appropriate, implemented in the Water Boards' agricultural nitrate control programs to the extent funding is available.

The Water Boards will periodically evaluate their programs to avoid duplication with new programs and to avoid unnecessary costs.

Protecting Groundwater: Recommendation 15

Recommendation 15
The Water Boards will evaluate all existing Waste Discharge Requirements to groundwater, to determine whether existing regulatory permitting is sufficiently protective of groundwater quality at these sites. The Water Boards will use the findings to improve permitting activities related to nitrate.

The Water Boards require point source dischargers to obtain a Waste Discharge Requirements (WDR) permit, or a conditional waiver of WDRs, before discharging to land and groundwater. Although the UC Davis Nitrate Report shows that point source dischargers contribute less than five percent of the total nitrogen load to groundwater within the study areas, point source discharges can be significant local nitrate sources, especially when the discharge occurs near a drinking water well.

The Water Boards will evaluate all the existing WDR permits to determine whether existing regulatory requirements at these sites is protective of nitrate groundwater quality. Specifically, the Water Boards will examine whether the point source discharge is likely to be a source of nitrogen, whether the facility monitors nitrogen in the waste stream, whether the facility monitors groundwater near percolation ponds or agricultural fields, and the age of the permit. Water Boards staff will prepare a report summarizing the findings that will be used to improve permitting activities related to nitrate.

3.0 Conclusions

The primary recommendation of this report centers on the fundamental right for Californians to have access to safe drinking water as identified in Assembly Bill 685 (Eng, Chapter 524, Statutes of 2012). Nitrate in groundwater is a serious concern in the state, especially to the residents of the Tulare Lake Basin and Salinas Valley that rely on water exceeding the health standard. Nitrate contamination is also an issue in other parts of the state including the Inland Empire, the Delta, and in shallow groundwater aquifers.

Legacy and ongoing nitrate groundwater contamination will not be solved overnight, or by a single state or federal agency. Cooperation between regulators and the regulated communities will be vital in managing the state's groundwater, and will require coordinated efforts between stakeholders, state agencies, and local agencies.

The UC Davis Nitrate Report concluded that traditional groundwater remediation for nitrate was not feasible in the pilot project areas. As a result, the State Water Board recommendations in this report focus on the provision of safe drinking water and prevention of further nitrate groundwater contamination.

The recommendations in this report are contingent upon a secure and stable source of funding. Potential funding sources include those covered through existing state budgeting processes, and those that require a new revenue source. Addressing safe drinking water needs requires an additional long-term revenue source. The three long-term funding sources for safe drinking water described in this report: point of sale fee, nitrogen fertilizing materials fee, and/or water use fee, are all potential options to generate additional long-term funding. Consideration should be given to any one or combination of these three potential funding sources to help generate the needed long-term safe drinking water funds. Without an additional funding source(s), ensuring safe drinking water for all Californians as defined in AB 685 will not be achievable.

Appendix A: Excerpted Text of Chapter 1, Statutes of 2007-2008 Second Extraordinary Session (SBX2 1, Perata)

BILL NUMBER: SBX2 1 CHAPTERED
BILL TEXT

CHAPTER 1
FILED WITH SECRETARY OF STATE SEPTEMBER 30, 2008
APPROVED BY GOVERNOR SEPTEMBER 30, 2008
PASSED THE SENATE AUGUST 31, 2008
PASSED THE ASSEMBLY AUGUST 28, 2008
AMENDED IN ASSEMBLY AUGUST 28, 2008
AMENDED IN ASSEMBLY AUGUST 28, 2008
AMENDED IN ASSEMBLY AUGUST 4, 2008

INTRODUCED BY Senators Perata, Machado, and Steinberg
(Principal coauthor: Assembly Member Bass)
(Coauthors: Assembly Members Arambula, Eng, Feuer, Huffman, Jones, Krekorian, Laird, Salas, and Wolk)

SEPTEMBER 14, 2007

An act to add and repeal Section 65595.5 of the Government Code, and to add Sections 127.5 and 134.5 to, to add Division 33 (commencing with Section 83000) to, and to repeal and add Part 2.2 (commencing with Section 10530) of Division 6 of, the Water Code, relating to water, and making an appropriation therefor.

83002.5. To improve understanding of the causes of groundwater contamination, identify potential remediation solutions and funding sources to recover costs expended by the state for the purposes of this section to clean up or treat groundwater, and ensure the provision of safe drinking water to all communities, the State Water Resources Control Board, in consultation with other agencies as specified in this section, shall develop pilot projects in the Tulare Lake Basin and the Salinas Valley that focus on nitrate contamination and do all of the following:
(a) (1) In collaboration with relevant agencies and utilizing

existing data, including groundwater ambient monitoring and assessment results along with the collection of new information as needed, do all of the following:

(A) Identify sources, by category of discharger, of groundwater contamination due to nitrates in the pilot project basins.

(B) Estimate proportionate contributions to groundwater contamination by source and category of discharger.

(C) Identify and analyze options within the board's current authority to reduce current nitrate levels and prevent continuing nitrate contamination of these basins and estimate the costs associated with exercising existing authority.

(2) In collaboration with the State Department of Public Health, do all of the following:

(A) Identify methods and costs associated with the treatment of nitrate contaminated groundwater for use as drinking water.

(B) Identify methods and costs to provide an alternative water supply to groundwater reliant communities in each pilot project basin.

(3) Identify all potential funding sources to provide resources for the cleanup of nitrates, groundwater treatment for nitrates, and the provision of alternative drinking water supply, including, but not limited to, state bond funding, federal funds, water rates, and fees or fines on polluters.

(4) Develop recommendations for developing a groundwater cleanup program for the Central Valley Water Quality Control Region and the Central Coast Water Quality Control Region based upon pilot project results.

(b) Create an interagency task force, as needed, to oversee the pilot projects and develop recommendations for the Legislature. The interagency task force may include the board, the State Department of Public Health, the Department of Toxic Substances Control, the California Environmental Protection Agency, the Department of Water Resources, local public health officials, the Department of Food and Agriculture, and the Department of Pesticide Regulation.

(c) Submit a report to the Legislature on the scope and findings of the pilot projects, including recommendations, within two years of receiving funding.

(d) Implement recommendations in the Central Coast Water Quality Control Region and the Central Valley Water Quality Control Region pursuant to paragraph (4) of subdivision (a) within two years of submitting the report described in subdivision (c) to the Legislature.

(e) For the Salinas Valley Pilot Project, the State Water Resources Control Board shall consult with the Monterey County Water Resources Agency.

Appendix B: Main UC Davis Nitrate Report - March 2012

The full report can be found at the following link:
http://groundwaternitrate.ucdavis.edu/

Appendix C: Governor's Drinking Water Stakeholder Group Report - August 2012

GOVERNOR'S DRINKING WATER STAKEHOLDER GROUP

August 20, 2012

To: Martha Guzman- Aceves
Cliff Rechtschaffen

Cc: Drinking Water Stakeholder Group members
Tom Howard, Executive Officer, SWRCB

Subject: Report of the Drinking Water Stakeholder Group

On behalf of the Drinking Water Stakeholder Group, we are pleased to provide this *Report of Agreements and Recommendations* that will advance efforts to provide safe drinking water to disadvantaged communities in unincorporated areas impacted by nitrates in groundwater.

The Group reached consensus on six key agreements in principle and put forward for your consideration a number of recommended actions. In addition, the group developed three urgent legislative concepts for this legislative session, which we have already provided to your office in advance of this report and are attached here in the form that they were approved by the Group on August 1st.[1] Since that time, however, a number of significant revisions have been recommended on these concepts through continued review by state agencies and stakeholders. Several issues pertaining to these concepts

[1] Because the legislative concept language attached here has been and continues to be significantly revised, please do not include this attachment in any final report. We are providing that attachment merely to document generally the three urgent legislative concepts that were unanimously agreed upon by the Stakeholder group.

continue to be refined and clarified through continued work with the stakeholder group, state agencies, and others through the legislative process.

It is our understanding that the CDPH has recommended that a number of pieces of these urgent legislative concepts would be best implemented administratively, outside of the legislative process, or need additional time to develop. Based on that agency's recommendations, we understand that two pieces of these legislative concepts, 1) the renewed source of funding for emergency projects through a fee in lieu of interest, and 2) the concepts to clarify and provide additional flexibility around disadvantaged community applicant and project eligibility, will be pursued separately from this year's legislative actions. It is our understanding that the first will be developed further for proposed legislative consideration this coming January, and that the second will be implemented administratively through the Intended Use Plan beginning in January 2013. We appreciate the Governor's commitment to the urgent nature of these actions and look forward to supporting the implementation of all of these Recommended Actions both administratively and through the legislative process.

Considerable time was spent developing a shared understanding of existing funding sources and the challenges to accessing those sources for disadvantaged communities in unincorporated areas. The participating state agencies were extremely helpful and supportive throughout this process and we would not have been able to accomplish as much as we did without their considerable efforts. However, there were many more detailed ideas and concepts that were brainstormed through this process that we did not have time to fully develop and reach consensus due to the accelerated timeframe and diversity of the group. Therefore, we believe that the Group has the potential to contribute more than what is contained in this report.

Based on the significant success we had in developing consensus recommendations in the short-term, we believe there are considerable opportunities to further advance the development and implementation of these concepts through continued discussion. We would request that some resources be made available for a professional facilitator to support any continued process going forward, as that was absolutely essential to the success we were able to achieve thus far.

We both thank you for the opportunity to lead this diverse group of interests to the successes and opportunities described in this Report. We stand ready to assist you further in whatever capacity you deem appropriate to develop and implement safe drinking water solutions for these communities.

Sincerely,

David Orth & Laurel Firestone
Co-Chairs of the Drinking Water Stakeholder Group

GOVERNOR'S DRINKING WATER STAKEHOLDER GROUP

AGREEMENTS AND LEGISLATIVE RECOMMENDATIONS

DEFINING THE PROBLEM[1]:

Significant numbers of people lack access or are at risk of lacking access to safe drinking water because nitrates contaminate their groundwater in the Salinas Valley and the Tulare Lake Basin. State and Federal programs exist to attempt to solve the problem, but there are many barriers that prevent communities from making use of those programs, leaving those communities to pay for their unsafe water and the additional cost of purchasing bottled water. According to the UC Davis Nitrate Pilot Project Report, the majority of the nitrates contaminating drinking water are from the agricultural sector.

According to the communities and organizations that advocate on their behalf, and according to the State Water Plan Update, 2009 (page 15-15) two of the most pervasive problems are lack of funds to cover the cost of operations and maintenance and organizational challenges. Because the systems at the highest risk of being entirely without safe water tend to be small systems (serving between 15 and 3300 connections) they cannot achieve the economies of scale necessary to afford the operations and maintenance costs of currently available treatment technologies. If a community cannot demonstrate that they can afford operations and maintenance on their proposed system project they are not eligible to receive most of the available grant dollars from the State or Federal Governments.
Small systems face a number of organizational challenges. There are numerous efforts to address these challenges at the local level. Occasionally creative solutions are difficult to work through our state and federal funding programs, adding one more hurdle for these communities.

STAKEHOLDER GROUP CHARGE:

The Stakeholder Group was asked to:

Develop a shared understanding of the O&M challenges and the challenges encountered by creative solutions accessing state agency programs.

2. Identify promising solutions (which may focus on the Tulare and Salinas regions).
3. Develop a plan with a high likelihood of closing these two gaps.
4. Make a recommendation to the Governor's Office.

THE APPROACH[2]:

[1] As defined by the "Stakeholder Process on Drinking Water Contaminated by Nitrates" document prepared by the Governor's office and provided to the Drinking Water Group at the initial meeting on June 14.
[2] As defined by the Governor's Office in email dated May 29 inviting the Stakeholder group to the initial meeting of June 14.

SBX2 1 (Perata, 2008) directed the State Water Resources Control Board (Water Board) to study the relationship between nitrate contamination and access to safe drinking water in the Tulare Lake Basin and the Salinas Valley. SBX2 1 also directed the Water Board to provide a report and recommendations to the Legislature. The Water Board contracted with researchers at UC Davis to produce a scientific report that is being used to inform the Water Board's report to the Legislature.

The UC Davis report focused broadly on the nitrates issue and provided a range of promising actions. The Governor's Office convened this Drinking Water Stakeholder Group to identify specific, creative, viable solutions focused in two critical areas; covering the costs of operations and maintenance for small systems, while maintaining affordable water rates[3].; and state agency actions to make funding programs, regulations, and implementation more flexible and proactive in supporting creative solutions.
The Stakeholder Group was challenged with an aggressive timeline to coincide with the Water Board's development of their report and the remaining 2011-12 Legislative calendar. The Group was convened in mid-June and met regularly together and through workgroups on key issues (governance, navigation, legal/regulatory, legislation). With significant support from participating State agencies, the Group reviewed and discussed existing funding sources (summarized in Attachment A), the barriers from multiple perspectives to achieving sustainable drinking water solutions (Attachment B), as well as local and regional projects that are pursuing safe drinking water solutions for disadvantaged communities in unincorporated areas. Agreements in Principle, Recommended Actions and legislative concepts for this legislative session were discussed and agreed upon at the August 1, 2012 meeting of the full Stakeholder Group and are summarized in this Report.

DECISION-MAKING CRITERIA

From the June 27th meeting, the Stakeholders identified these criteria to help reach consensus:

1. Solutions should be replicable, sustainable, scalable
   a. "Both/and" solutions
   b. *Options* for communities to consider vs. a 'prescription' for what to do
2. Solutions should not harm other areas of the State

Solutions that might be used for more than one pollutant

Avoid creating 'winning' and 'losing communities.

3. Leverage existing, available resources
4. Creative solutions
5. Move closer to safe drinking water for all Californians
6. Accelerate what is working
7. Solution-oriented

Interim solutions must be sustainable.

[3] As defined by the US EPA (*not reviewed or discussed by the Stakeholder Group)*

O&M FUNDING

The Stakeholder Group discussed methods to address and develop sustainable O&M funding, both in terms of creating additional revenue sources and reducing costs through efficiencies and economies of scale. The Group believes that, in general, in the long-term, systems should have the ability to cover operations and maintenance costs while maintaining affordable rates. However, the Group did not rule out the need for additional outside funding sources in the short-term, particularly for disadvantaged communities in unincorporated areas impacted by increased costs due to source contamination. In order to address this challenge, the Group developed recommendations particularly aimed at fostering locally and regionally viable "shared solutions" that allow for increased economies of scale, as well as reducing unnecessary costs for small systems. The Group recognized, however, that the best solution for each community will differ among a variety of options that are not limited to "shared solutions." While the Group discussed possible revenue sources to support interim O&M funding challenges, each of the identified options present significant legal and political challenges, and thus require additional discussion and effort for any to become viable.

AGREEMENTS IN PRINCIPLE

The Stakeholder Group developed the following Agreements in Principle to guide development of recommendations contained in this Report:

- It is important to comprehensively and uniformly identify drinking water needs of disadvantaged communities and small systems between 2-14 connections to improve data collection and management.
- There is a need to incentivize and promote sustainable safe drinking water solutions within disadvantaged communities in unincorporated areas.
- It is essential to ensure that all disadvantaged communities in unincorporated areas have access to immediate, interim sources of safe drinking water.
- It is critical to increase access to existing funding sources for disadvantaged communities in unincorporated areas for both long-term and interim safe drinking water solutions and to make it easier for communities to 'navigate' the agency/funding systems and requirements.
- A key element in achieving sustainability is to reduce costs for disadvantaged communities in unincorporated areas to secure and sustain drinking water solutions.
- There is a need for continued engagement between a diverse stakeholder group and appropriate State agencies (CDPH, SWRCB, DWR, CalEPA) to develop programs to support sustainable solutions to the drinking water challenges in disadvantaged communities in unincorporated areas of California.

AGREEMENTS WITH ADDITIONAL DETAIL AND RECOMMENDATIONS FOR ACTION

- **It is important to comprehensively and uniformly identify drinking water needs of disadvantaged communities and small systems between 2-14 connections in unincorporated areas to improve data collection and management.**

  The scope and magnitude of the drinking water problems for disadvantaged communities and small systems in unincorporated areas is not fully understood, due to limits in or a lack of current and ongoing assessment of conditions. Additional efforts are necessary to collect and manage information to inform planning and implementation of solutions.

  Recommended Actions:

1. Continue to establish, maintain, integrate, and improve data collection tools to help inform planning, prioritization and implementation of interim and long-term solutions.

- **There is a need to incentivize and promote sustainable safe drinking water solutions within unincorporated disadvantaged communities.**

  Efforts are necessary to actively foster more sustainable, effective, and affordable drinking water solutions and decrease drinking water system vulnerability for very small disadvantaged communities in unincorporated areas lacking sufficient resources or scale to "stand alone," through a variety of locally-driven solutions, including (but not limited to) efficient, effective shared services and facilities, technical support and outreach and education. The exact model will be different for different communities, but may include a wide variety of technical and/or management/institutional options. (For the purposes of this Report, the term "shared services" is used to describe solutions/strategies between and across communities that facilitate increased economies of scale.)

  Recommended Actions:

  - Identify water supply needs and potential opportunities for promoting and incentivizing sustainable local drinking water solutions for disadvantaged communities in unincorporated areas
  - Directly target funding for IRWMs (or other entity where appropriate) to develop an inventory of need and a plan for local solutions (including shared solutions) for disadvantaged communities in unincorporated areas in each hydrologic region of the state as is being used in the Tulare Lake Basin Disadvantaged Community Water Study (SBX2 1 (Perata, 2008)).

1. Begin with the Salinas Valley.
2. Coordinate these efforts with local health departments, local NGOs, academic institutions and local agencies.

- Support and fund project planning to foster local, sustainable solutions (including, but not limited to, shared solutions, inter-community planning facilitation, engineering, legal, financial or managerial analysis, environmental documentation, and other project development activities).
  1. Directly augment funding to regional planning agencies (e.g. IRWMPs or other appropriate entity) to develop community-driven shared solutions where practical for unincorporated disadvantaged communities. (Model this after work begun in IRWM DAC pilots)
  2. Drinking water regulatory agencies at local and State levels should more actively identify and address technical, managerial, and financial (TMF) capacity issues.

- Improve accessibility of funding pathways for shared services/facilities projects in communities with highest public health priority as identified by regulatory agencies, including but not limited to:
  - Carve out a set-aside of existing drinking water funding.
  - Provide strong incentives for shared solutions among local systems and provide funding for NGOs/local agencies/universities for increased outreach and education.
  - Promote and incentivize more robust investigation of shared solutions as part of feasibility or planning studies.

- **It is essential to ensure that all disadvantaged communities in unincorporated areas have access to immediate, interim sources of safe drinking water.** *Currently many of California's poorest small disadvantaged communities in unincorporated areas are left without access to safe drinking water for years as they wait to secure financing to develop a long-term safe drinking water source. These communities are often left paying twice for water, as they continue to pay for unsafe water service and have to buy alternative water sources on top of those costs. It is vital that communities have an affordable option to access safe drinking water in their community through an interim source as they are developing a sustainable long-term solution.*

  Recommended Actions:

  - Direct rapid, easily accessible funding to support immediate, interim sources of safe drinking water for disadvantaged communities in unincorporated areas.

- Create a renewable funding source for immediate interim solution funding.
- Clarify types of solutions eligible for funding including (but not limited to): point of use treatment, point of entry treatment, central high-volume vending machine point, water hauling, etc. Once projects are deemed eligible, develop integrated permitting process to allow for expedited project permitting.

- **Increase access to existing funding sources for disadvantaged communities in unincorporated areas for both long-term and interim safe drinking water solutions.**

  CDPH, SWRCB and DWR each administer funds to support, develop, and/or implement drinking water solutions. Limits and restrictions, in state and federal law, regulation and guidelines, affect the availability and access to these funds. Processes to access these funds can be difficult and cumbersome, demanding resources and expertise lacking at the local disadvantaged community level. Simplified and expedited processes and additional technical support can increase access to safe drinking water solutions.

  Attention to disadvantaged communities in unincorporated areas without a public water system (less than 15 connections) to improve their access to safe drinking water is required. Many disadvantaged communities in unincorporated areas are not served by a public water system but rely on contaminated private wells or unregulated very small systems. In many cases, these communities lack sufficient information on drinking water quality, and wells are often more vulnerable to contamination due to shallow depth and/or construction. However, most existing funding sources are not available for improvements for private wells or infrastructure that is not part of a public water system.

  Recommended Actions:

  - Help small disadvantaged communities in unincorporated areas better navigate funding opportunities across agencies

    1. Create an interagency 'team' (or "one-stop shop") of existing staff from all State agencies with a role in the funding, regulation, and/or planning of safe drinking water systems in disadvantaged communities in unincorporated areas. This 'one stop' center for DACs will provide technical assistance, professional services, and general guidance to small communities trying to navigate the maze of State agencies and funding/application requirements.
    2. Create a single point of entry for communities needing assistance.

- Create expedited requirements for funding applications for small disadvantaged communities in unincorporated areas.

- Improve, support and add access to technical assistance programs, including but not limited to: an ombudsmen program housed in a state agency or the Governor's Office; technical assistance from UCs/ CSUs; local government assistance.

- Create fund specifically for project planning for disadvantaged communities in unincorporated areas that is easily accessible and less restricted in who must be actual legal applicant.
    1. Utilize local set aside in SRF for local planning and grant directly to IRWMPs to develop solutions for disadvantaged communities without safe drinking water within their boundaries.

- Utilize existing technical assistance and set-aside programs to fund non-profits or public agencies to do low-income assistance programs. (e.g. Self Help Enterprises well rehabilitation funding program)

- Expand eligibility for funding and assistance programs for disadvantaged communities in unincorporated areas without a public water system (less than 15 connections).

- Fund non-profit or county programs that support monitoring, planning, maintenance, and improvements for low-income private well owners or systems less than 15 connections in unincorporated areas.

- **Reduce costs for disadvantaged communities in unincorporated areas to secure and sustain affordable drinking water solutions.**

  The high cost of specific elements of operation and maintenance and other ongoing costs (e.g., financing costs, the cost of administrative requirements, financial audits, and certain regulatory requirements) impact the ability to achieve sustainable and affordable solutions in certain communities.

  Recommended Actions:

  1) Reduce high-cost regulatory and administrative requirements for small systems.

a. Ease burdens of data reporting and streamline application submission process.

b. Reduce level of audit requirements for small systems

2) Address cash flow problems for small systems (for example, advancing electronic reimbursements or advance payments).

3) Address reserve fund burden by creating or supporting a pooled reserve fund for small disadvantaged communities in unincorporated areas.

- **There is a need for continued engagement between a diverse stakeholder group and appropriate State agencies (CDPH, SWRCB, DWR, CalEPA) to develop programs to support sustainable solutions to the drinking water challenges in disadvantaged communities in unincorporated areas of California.**

  Development and implementation of solutions will require ongoing and coordinated effort between local stakeholders and appropriate state agencies. Additional discussion to expand concepts contained in this report is warranted.

  Recommended Actions:

1. Support the continuation of this Stakeholder Group as the forum to continue this work, resolve 'open' issues and work to advance the interests of all stakeholders.

ATTACHMENTS

1.Existing Funding Matrix
2.Legislative concept recommendations for current legislative session

Potential Funding Sources for Drinking Water Treatment

Agency	Program (year passed or created)	Funding Provided (in million $)	Funding Remaining/Available (in million $)	Limitations/Barriers on Use of Funds for Drinking Water Treatment (capital or O&M)
California Department of Public Health (CDPH)	Safe Drinking Water State Revolving Fund (SDWSRF) (1996) (grants and loans)	Generally $100–$150: Low-interest loans and some grants to support water systems with technical, managerial, and financial development and infrastructure improvements.	$130-$150 (revolving funds) (annually)	1. 20 to 30% of annual federal contribution can be used for grants. The remainder must be committed to loans. 2. Funds can be used only for capital costs. Cannot be used for O&M 3. Only loans (not grants) for privately owned water systems. 4. Some funds available for feasibility and planning studies for eligible projects/systems. 5. Can only be used for Public Water Systems (not domestic wells or State Small Systems)
	Proposition 84 (2006) (grants)	$180: Small community improvements. ---------- $60: Protection and reduction of contamination of groundwater sources. $50 Matching funds for federal DWSRF ---------- $10: Emergency and urgent projects.	$0 (Over subscribed) ---------- $0 (Fully allocated) Will be fully committed with the current year grant but not yet liquidated ---------- ~$7	1. Funds can be used only for capital costs. Cannot be used for O&M. 2. Some funding available for feasibility and planning studies for eligible projects/systems. 3. Can only be used for Public Water Systems not domestic wells or State Small Systems ---------- 4. Used to address sudden unanticipated emergency situation such as fires, earthquakes and mud slides that damage critical water infrastructure. May fund short term mitigations such as hauled water.
	Proposition 50 (2002) (grants) (fully allocated)	$50: Water security for drinking water systems. ---------- $69: Community treatment facilities and monitoring programs. ---------- $105: Matching funds for federal grants for public water system infrastructure improvements.	$0 (fully allocated) ---------- $0 (fully allocated) ---------- $0 fully allocated, mostly	1. Can only be used for capital costs. Cannot be used for O&M. 2. Can only be used for Public Water Systems not domestic wells or State Small Systems

Potential Funding Sources for Drinking Water Treatment

Agency	Program (year passed or created)	Funding Provided (in million $)	Funding Remaining/Available (in million $)	Limitations/Barriers on Use of Funds for Drinking Water Treatment (capital or O&M)
			liquidated	
State Water Resources Control Board (State Water Board)	Clean Water State Revolving Fund (Expanded Use Program) (CWSRF) (1987) (loans)	$200–$300 per year: Water quality protection projects, wastewater treatment, nonpoint source contamination control, and watershed management.	$50 per agency per year; can be waived	Eligible Uses: Stormwater treatment and diversion, sediment and erosion control, stream restoration, land acquisition. Drinking water treatment generally not eligible except under certain Expanded Use scenarios. Capital cost only. O&M not eligible.
	Small Community Groundwater Grants(Prop 40) (2004, amended 2007) (grants)	$9.5. Assist small disadvantaged communities (<20,000pp) with projects where the existing groundwater supply exceeds maximum contaminant levels, particularly for arsenic or nitrate	$1.4 remaining - $0.3 available to encumber; $1.1 available to appropriate	$ can go to local govt or NGO. Must demonstrate financial hardship. Can only provide alternate water supply. No O&M costs. Program not currently active due to staff resource limitations
	State Water Quality Control Fund: Cleanup and Abatement Account (2009)	$10 in 2012 (varies annually): Projects to (a) clean up waste or abate its effects on waters of the state, when there is no viable responsible party, or (b) address a significant unforeseen water pollution problem (regional water boards only). Funds can be allocated to: Public Agencies, specified tribal governments, and not-for profit organizations that serve disadvantaged communities	$10, but varies.	Eligible Uses: Emergency cleanup projects; projects to clean up waste or abate its effects on waters of the state; regional water board projects to address a significant unforeseen water pollution problem. Recipient must have authority to clean up waste. Under certain circumstances this fund has been used to provide drinking water O&M for limited durations.
	Integrated Regional Water Management (IRWM) (2002) (grants) (fully allocated)	$380 (Prop 50): Planning ($15) and implementation ($365) projects related to protecting and improving water quality.	$0, fully committed	
California Department of	Integrated Regional Water Management (IRWM) (2002) (grants)	$600 remaining (Prop 84): Regional water planning and implementation.	~$28 (central coast projects)	Must be consistent with an adopted IRWM Plan and other program requirements.

Potential Funding Sources for Drinking Water Treatment

Agency	Program (year passed or created)	Funding Provided (in million $)	Funding Remaining/Available (in million $)	Limitations/Barriers on Use of Funds for Drinking Water Treatment (capital or O&M)
Water Resources (DWR)			~ $33 (Tulare/Kern projects)	For capital investment only
	Contaminant treatment or removal technology pilot and demonstration studies (2002) (grants)	Up to $5 per grant	$15 million available	Eligible applicants are public water systems under the regulatory jurisdiction of CDPH and other public entities For capital investment only
	Safe Drinking Water Bond Law (Prop 81) (1988)	Up to $74 to be awarded to current priority list. $0.025 max per project	Remaining balance to be determined.	Provides funding for projects that investigate and identify alternatives for drinking water system improvements
	Drinking water disinfecting projects using UV technology and ozone treatment (2002) (grants)	$0.05 minimum, up to $5 m per grant	$19 m remaining	Eligible applicants are public water systems under the regulatory jurisdiction of CDPH For capital investment only
iBank (CA Infrastructure and Development Bank)	Infrastructure State Revolving Fund (ISRF) Program (2000) (loans)	$0.25 to $10 per project to finance water infrastructure that promotes job opportunities. Eligible projects include construction or repair of publicly owned water supply, treatment, and distribution systems.	$52.6 million approved to date for Water Supply,Water Treatment and Distribution Applications continually accepted	Finances system capital improvements only. Must show job creation. Special loan tier for DACs was discontinued.

GOVERNOR'S DRINKING WATER STAKEHOLDER GROUP

Recommended Legislative Concepts for Current Legislative Session
Aug 1, 2012

1. Salinas Valley Pilot Project

The department (DWR) shall allocate $2million to the Greater Monterey County IRWM group for development of an integrated water quality and wastewater treatment program plan to address the drinking water and wastewater needs of disadvantaged communities in the Salinas Valley. Funds allocated pursuant to this paragraph shall be available for assessment and feasibility studies necessary to develop the plan, and the plan shall include recommendations for planning, infrastructure, and other water management actions that achieve affordable and sustainable solutions for disadvantaged communities, including communities without public water systems. The Greater Monterey County IRWM group shall consult with appropriate stakeholders, including representatives of disadvantaged communities, when preparing the plan. The department, in consultation with the State Department of Public Health, shall submit the plan to the Legislature by January 2016.

2. Emergency Funding & Interim Solutions

Section 1. the Health & Safety Code Section 116475 shall be amended to read:

116475. (a) The Emergency Clean Water Grant Fund is hereby established in the General Fund and, notwithstanding Section 13340 of the Government Code, is continuously appropriated to the department, without regard to fiscal years, to provide financial assistance to public water systems and to fund emergency actions by the department to ensure that safe drinking water supplies are available to all Californians who are served by public water systems.
(b) The department may expend funds in the Emergency Clean Water Grant Fund for the purposes specified in subdivision (a), including, but not limited to, payment for all of the following actions:
(1) The provision of alternative water supplies and bottled water.
(2) Improvements of the existing water supply system.
(3) Hookups with adjacent water systems.
(4) Design, purchase, installation, and operation and maintenance of water treatment technologies.
(5) Providing interim water treatment or water supplies to disadvantaged communities that lack safe drinking water and that have applied for long-term solutions through the Safe Drinking Water State Revolving Fund or other state or federal funding sources. Interim shall be defined as the time period between the submittal of a pre-application for funding and the completion of a

construction project that will deliver safe drinking water. Nothing in this section shall obligate the Department to provide funding for any or all interim sources of safe drinking water, beyond what is provided through a funding agreement.
(c) The department shall develop and revise guidelines for the allocation and administration of moneys in the Emergency Clean Water Grant Fund. These guidelines shall include, but are not limited to, all of the following:
(1) A definition of what constitutes an emergency requiring an alternative or improved water supply.
(2) Priorities and procedures for allocating funds.
(3) Repayment provisions, as appropriate.
(4) Procedures for recovering funds from parties responsible for the contamination of public water supplies.
(5) The guidelines are not subject to Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code
(d) Grants and expenditures shall not exceed $250,000 per project, and $50,000 for interim solution projects.
(e) Direct expenditures for the purposes of this section shall be exempt from contracting and procurement requirements to the extent necessary to take immediate action to protect public health and safety.

Section 2. Section 116760.30 of the Health and Safety Code is amended to read:

116760.30. (a) There is hereby created in the State Treasury the Safe Drinking Water State Revolving Fund for the purpose of implementing this chapter, and, notwithstanding Section 13340 of the Government Code, the fund is hereby continuously appropriated, without regard to fiscal years, to the department to provide, from moneys available for this purpose, grants or revolving fund loans for the design and construction of projects for public water systems that will enable suppliers to meet safe drinking water standards. The department shall be responsible for administering the fund.
(b) Notwithstanding Section 10231.5 of the Government Code, the department shall report at least once every two years to the policy and budget committees of the Legislature on the implementation of this chapter and expenditures from the fund. The report shall describe the numbers and types of projects funded, the reduction in risks to public health from contaminants in drinking water provided through the funding of the projects, and the criteria used by the department to determine funding priorities. Commencing with reports submitted on or after January 1, 2013, the report shall include the results of the United States Environmental Protection Agency's most recent survey of the infrastructure needs of California's public water systems, the amount of money available through the fund to finance those needs, the total dollar amount of all funding agreements executed pursuant to this chapter since the date of the previous report, the fund utilization rate, the amount of unliquidated obligations, and the total dollar amount paid to funding recipients since the previous report. *Commencing January 1, 2013, the Department shall identify funding commitments made in the previous two years for systems of less than 200 connections, for disadvantaged and severely disadvantaged communities, and for projects that achieve coordination or consolidation of multiple water systems, and make that information publicly available through a public notice and on its website. The Department shall*

also identify projects in health-based funding categories that have been bypassed for at least two years and provide information on steps being taken to address the health threat posed to residents of those communities, and make that information publicly available through a public notice and on its website.

(c) Notwithstanding any other law, the Controller may use the moneys in the Safe Drinking Water State Revolving Fund for loans to the General Fund as provided in Sections 16310 and 16381 of the Government Code. However, interest shall be paid on all moneys loaned to the General Fund from the Safe Drinking Water State Revolving Fund. Interest payable shall be computed at a rate determined by the Pooled Money Investment Board to be the current earning rate of the fund from which loaned. This subdivision does not authorize any transfer that will interfere with the carrying out of the object for which the Safe Drinking Water State Revolving Fund was created.

Section 3. Section 116760.40 of the Health and Safety Code is amended to read:

116760.40. The department may undertake any of the following actions to implement the Safe Drinking Water State Revolving Fund:
(a) Enter into agreements with the federal government for federal contributions to the fund.
(b) Accept federal contributions to the fund.
(c) Use moneys in the fund for the purposes permitted by the federal act.
(d) Provide for the deposit of matching funds and other available and necessary moneys into the fund.
(e) Make requests, on behalf of the state, for deposit into the fund of available federal moneys under the federal act.
(f) Determine, on behalf of the state, that public water systems that receive financial assistance from the fund will meet the requirements of, and otherwise be treated as required by, the federal act.
(g) Provide for appropriate audit, accounting, and fiscal management services, plans, and reports relative to the fund.
(h) Take additional incidental action as may be appropriate for adequate administration and operation of the fund.
(i) Enter into an agreement with, and accept matching funds from, a public water system. A public water system that seeks to enter into an agreement with the department and provide matching funds pursuant to this subdivision shall provide to the department evidence of the availability of those funds in the form of a written resolution, or equivalent document, from the public water system before it requests a preliminary loan commitment.
(j) Charge public water systems that elect to provide matching funds a fee to cover the actual cost of obtaining the federal funds pursuant to Section 1452(e) of the federal act (42 U.S.C. Sec. 300j-12) and to process the loan application. The fee shall be waived by the department if sufficient funds to cover those costs are available from other sources.
(k) Use money returned to the fund under Section 116761.85 and any other source of matching funds, if not prohibited by statute, as matching funds for the federal administrative allowance under Section 1452(g) of the federal act (42 U.S.C. Sec. 300j-12).

(l) Establish separate accounts or subaccounts as required or allowed in the federal act and related guidance, for funds to be used for administration of the fund and other purposes. Within the fund the department shall establish the following accounts, including, but not limited to:
(1) A fund administration account for state expenses related to administration of the fund pursuant to Section 1452(g)(2) of the federal act.
(2) A water system reliability account for department expenses pursuant to Section 1452(g)(2)(A), (B), (C), or (D) of the federal act.
(3) A source protection account for state expenses pursuant to Section 1452(k) of the federal act.
(4) A small system technical assistance account for department expenses pursuant to Section 1452(g)(2) of the federal act.
(5) A state revolving loan account pursuant to Section 1452(a)(2) of the federal act.
(6) A wellhead protection account established pursuant to Section 1452(a)(2) of the federal act.
(m) Deposit federal funds for administration and other purposes into separate accounts or subaccounts as allowed by the federal act.
(n) Determine, on behalf of the state, whether sufficient progress is being made toward compliance with the enforceable deadlines, goals, and requirements of the federal act and the California Safe Drinking Water Act, Chapter 4 (commencing with Section 116270).
(o) To the extent permitted under federal law, including, but not limited to, Section 1452(a)(2) and (f)(4) of the federal Safe Drinking Water Act (42 U.S.C. Sec. 300j-12(a)(2) and (f)(4)), use any and all amounts deposited in the fund, including, but not limited to, loan repayments and interest earned on the loans, as a source of reserve and security for the payment of principal and interest on revenue bonds, the proceeds of which are deposited in the fund.
(p) Request the Infrastructure and Economic Development Bank (I-Bank), established under Chapter 2 (commencing with Section 63021) of Division 1 of Title 6.7 of the Government Code, to issue revenue bonds, enter into agreements with the I-Bank, and take all other actions necessary or convenient for the issuance and sale of revenue bonds pursuant to Article 6.3 (commencing with Section 63048.55) of Chapter 2 of Division 1 of Title 6.7 of the Government Code. The purpose of the bonds is to augment the fund.
(q) For any financing made pursuant to this chapter the department may assess an annual charge to be deposited in the Emergency Clean Water Grant Fund, established in Health and Safety Code Section 116475, in lieu of interest that would otherwise be charged. The charge authorized by this subdivision may be applied at any time during the term of the financing, and once applied, shall remain unchanged unless it is determined by the Department that the Emergency Fund is adequately funded, at which point it shall terminate and be replaced by an identical interest rate. The charge shall not increase the financing repayment amount as set forth in the terms and conditions imposed pursuant to this chapter.

3. Flexibility in DAC project and applicant requirements[8]

[8] *This concept is intended primarily to clarify that the applicant does not necessarily have to be the party with contaminated drinking water to achieve priority status and relaxing 'legal entity' requirements. These changes are designed to (1) encourage applicants to apply for projects that serve DACs through consolidation, service*

Section 116760.50 of the Health and Safety Code is amended to read:

116760.50.
The department shall establish criteria that shall be met for projects to be eligible for consideration for funding under this chapter. The criteria shall include all of the following:
(a) All preliminary design work for a defined project that will enable the applicant or another public water system to supply water that meets safe drinking water standards, including a cost estimate for the project, shall be completed.

(b) Only when the Department is considering eligibility for construction funding, a legal entity shall exist that has the authority to enter into contracts and incur debt on behalf of the community to be served and owns the public water system or has the right to operate the public water system under a lease with a term of at least 20 years, unless otherwise authorized by the department. The applicant need not be the legal entity. If the proposed project is funded by a loan under this chapter, the department may require the applicant or another legal entity to secure a lease for the full term of the loan if the loan exceeds 20 years.

(c) The applicant shall hold all necessary water rights.

(d) The applicant shall have completed any review required pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) and the guidelines adopted pursuant thereto, and have included plans for compliance with that act in its preliminary plans for the project.

(e) The applicant has assembled sufficient financial data to establish its ability to complete the proposed project and to establish the amount of debt financing it can undertake.

Section 116760.70 of the Health and Safety Code is amended to read:

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extension or other types of shared services / facilities, (2) facilitate approval and funding of projects that serve DACs, and in particular communities that are not served by a public water system, through consolidation, service extension or other shared services /facilities.
Additionally, the Intended Use Plan should try to facilitate the following specific circumstances:

1. *Applicant A, even if it's in compliance with drinking water standards can be deemed to be in a priority category if its proposed project provides safe drinking water for a disadvantaged community that is in a priority category*

2. *Allow for any other public agency with an agreement from the community to receive funding for a feasibility study and planning purposes when a disadvantaged community is not served by a public water system.*

3.

116760.70.
(a) The department, after public notice and hearing, shall, from time to time, establish a priority list of proposed projects to be considered for funding under this chapter. In doing so, the department shall determine if improvement or rehabilitation of the public water system is necessary to provide pure, wholesome, and potable water in adequate quantity and at sufficient pressure for health, cleanliness, and other domestic purposes. The department shall establish criteria for placing public water systems on the priority list for funding that shall include criteria for priority list categories. Priority shall be given to projects that meet all of the following requirements:

(1) Address the most serious risk to human health.

(2) Are necessary to ensure compliance with requirements of Chapter 4 (commencing with Section 116270) including requirements for filtration.

(3) Assist systems most in need on a per household basis according to affordability criteria.

(b) The department may, in establishing a new priority list, merge those proposed projects from the existing priority list into the new priority list.

(c) In establishing the priority list, the department shall consider the system's implementation of an ongoing source water protection program or wellhead protection program.

(d) In establishing the priority list categories and the priority for funding projects, the department shall carry out the intent of the Legislature pursuant to subdivisions (e) to (h), inclusive, of Section 116760.10 and do all of the following:

(1) Give priority to upgrade an existing system to meet drinking water standards. <u>This includes an upgrade to an existing system to meet drinking water standards in a Disadvantaged Community distinct from the applicant agency.</u>

(2) After giving priority pursuant to paragraph (1), consider whether the applicant has sought other funds when providing funding for a project to upgrade an existing system and to accommodate a reasonable amount of growth.

(e) Consideration of an applicant's eligibility for funding shall initially be based on the priority list in effect at the time the application is received and the project's ability to proceed. If a new priority list is established during the time the application is under consideration, but before the applicant receives a letter of commitment, the department may consider the applicant's eligibility for funding based on either the old or new priority list.

(f) The department may change the ranking of a specific project on the priority lists at any time following the publication of the list if information, that was not available at the time of the publication of the list, is provided that justifies the change in the ranking of the project.

(g) The department shall provide one or more public hearings on the Intended Use Plan, the priority list, and the criteria for placing public water systems on the priority list. The department shall provide notice of the Intended Use Plan, criteria, and priority list not less than 30 days before the public hearing. The Intended Use Plan, criteria, and priority list shall not be subject to the requirements of Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of

Title 2 of the Government Code. The department shall conduct duly noticed public hearings and workshops around the state to encourage the involvement and active input of public and affected parties, including, but not limited to, water utilities, local government, public interest, environmental, and consumer groups, public health groups, land conservation interests, health care providers, groups representing vulnerable populations, groups representing business and agricultural interests, and members of the general public, in the development and periodic updating of the Intended Use Plan and the priority list.

(h) The requirements of this section do not constitute an adjudicatory proceeding as defined in Section 11405.20 of the Government Code and Section 11410.10 of the Government Code is not applicable.

Section 116760.90 of the Health and Safety Code is amended to read:

116760.90.

(a) The department shall not approve an application for funding unless the department determines that the proposed study or project is necessary to enable the applicant to meet safe drinking water standards, and is consistent with an adopted countywide plan, if any. The department may refuse to fund a study or project if it determines that the purposes of this chapter may more economically and efficiently be met by means other than the proposed study or project. The department shall not approve an application for funding a project with a primary purpose to supply or attract future growth. The department may limit funding to costs necessary to enable suppliers to meet primary drinking water standards, as defined in Chapter 4 (commencing with Section 116270).

(b) With respect to applications for funding of project design and construction, the department shall also determine all of the following:

(1) Upon completion of the project, the applicant <u>and other beneficiaries of the project</u> will be able to supply water that meets safe drinking water standards.

(2) The project is cost-effective.

(3) If the entire project is not to be funded under this chapter, the department shall specify which costs are eligible for funding.

(c) In considering an application for funding a project that meets all other requirements of this chapter and regulations, the department shall not be prejudiced by the applicant initiating the project prior to the department approving the application for funding. Preliminary project costs that are otherwise eligible for funding pursuant to the provisions of this chapter shall not be ineligible because the costs were incurred by the applicant prior to the department approving the application for funding. Construction costs that are otherwise eligible for funding pursuant to the provisions of this chapter shall not be ineligible because the costs were incurred after the approval of the application by the department but prior to the department entering into a contract with the applicant pursuant to Section 116761.50.

Appendix D: Water Boards' Regulatory and Permitting Programs Addressing Nitrate Summary

Appendix D: Existing Framework to Address Nitrate in Groundwater or Provide Safe Drinking Water

State Water Resources Control Board
Nonpoint Source (NPS) Pollution Control Program Developed to comply with Water Board WDRs, waivers of WDRs, or basin plan prohibitions. Implementation programs can be developed by the State Water Board or by a Regional Water Board, as well as for individual dischargers or coalitions of dischargers.
Recycled Water Policy (Resolution 2009-0011) Included in the Recycled Water Policy is the requirement for local water and wastewater entities, together with local salt and nutrient contributing stakeholders, to fund locally driven and controlled collaborative processes that will prepare salt and nutrient management plans (SNMP) for each groundwater basin/sub-basin in California, including compliance with CEQA and participation by Regional Water Board staff.
Anti-Degradation Policy (Resolution 68-16) Restricts degradation of surface and groundwater where existing quality is higher than what is necessary for the protection of beneficial uses. Any actions that can adversely affect water quality must: 1) Be consistent with the maximum benefit to the people of the State, 2) Not unreasonably affect present and anticipated beneficial use of the water, and, 3) Not result in water quality less than that prescribed in water quality plans and policies.
Sources of Drinking Water Policy (Resolution 88-63) Establishes that all groundwater should be considered suitable for municipal or domestic water supply, and should be so designated by the Regional Boards unless certain exceptions apply. The exceptions generally require that existing, natural groundwater quality exceed 3,000 mg/L total dissolved solids and is not reasonably expected to supply a public water system. The drinking water policy also exempts groundwater where contamination, either by natural processes or by human activity that is unrelated to a specific pollution incident) that cannot reasonably be treated for domestic use using either Best Management Practices or economically achievable treatment practices.
Groundwater Ambient Monitoring and Assessment (GAMA) Program California's comprehensive groundwater quality monitoring program. Includes Domestic Well Project (voluntary domestic well sampling for commonly detected chemicals), Priority Basin Project (assessment of state-wide basin groundwater quality), Special Studies Project (detailed studies including nitrate sources, fate, transport and management), and GeoTracker GAMA (online publically accessible groundwater quality database).
Enforcement Assists in protecting the beneficial uses of waters of the State. Enforcement ensures compliance with requirements in Water Board regulations, plans, policies, and orders. Enforcement actions can address violations of water quality objectives in groundwater, discharge of bio-solids to land, and WDRs.

Central Coast Regional Water Quality Control Board
Agricultural Regulatory Program Regulates discharges from irrigated agricultural lands in an effort to protect both surface water and groundwater, and is the cornerstone of the Central Coast Regional Board's nitrate pollution source control efforts. Requires groundwater monitoring in priority areas, and source reduction via improved nutrient application and irrigation efficiency. Nitrate impacts to groundwater that serves as a drinking water supply is the top priority of this program.
Permitting Waste Water Discharge Permits (WDRs) are issued to discharges that affect groundwater quality, and began including salt and nutrient management plans for wastewater discharges in 2004/2005. The Central Coast Water Board is also participating in development of regional salt and nutrient management plans as required by the State Water Board's Recycled Water Policy.

Appendix D: Existing Framework to Address Nitrate in Groundwater or Provide Safe Drinking Water (cont.)

Central Coast Regional Water Quality Control Board (cont.)
Funding Program Funding is key in the implementation of nutrient and irrigation efficiency projects. Since 2006, the board has funded millions of dollars for projects to test practices and techniques that help mitigate or treat discharges from irrigated lands, or to improve irrigation and nutrient management practices. Results are being used to educate other growers in the region.
Local Agency Outreach and Domestic Well Sampling Efforts include reaching out to local agencies (county health agencies, public health officials, boards of supervisors), urging the agencies to address populations that are most at-risk of unsafe levels of nitrate in their drinking water. The Board is also currently in the process of developing a domestic well outreach and sampling program, to help educate domestic well users. In three cases, the Board is developing enforcement cases which may require the provision of replacement water to individuals connected to nitrate-polluted wells or water systems.
Central Valley Regional Water Quality Control Board
Irrigated Lands Regulatory Program (ILRP) The goals of the this program are to restore and/or maintain the highest reasonable quality of state waters, considering all the demands placed on that water, to minimize waste discharge from irrigated agricultural lands that could degrade the quality of state waters, to maintain the economic viability of agriculture in the Central Valley, and to ensure that irrigated agricultural discharges do not impair access by Central Valley communities and residents to safe and reliable drinking water.
Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) CV-SALTS is a joint effort by stakeholders, the State Water Board, and the Central Valley Water Board to address salinity and nitrate problems in the Central Valley, with the ultimate goal of adopting long-term solutions that will lead to enhanced water quality and economic sustainability for the region. CV-SALTS is aimed at developing and implementing a comprehensive salinity and nitrate management program, the first phases of which are anticipated in 2014. In addition, CV-SALTS is developing a short-term nitrate action plan, which will use the collective expertise of stakeholders to assist economically disadvantaged communities with engineering assistance and/or grant writing projects with direct impacts on access to safe drinking water.

Groundwater Quality Protection Strategy The Central Valley Water Board began developing a groundwater quality protection strategy in 2008. The strategy, approved by the board in 2010, will provide a roadmap for future regulatory and control activities to be implemented within the next five to twenty years.
Dairy Program In 2007, the Central Valley Regional Board adopted a WDR General Order for Existing Milk Cow Dairies, with requirements that focus on control and abatement of nitrates in groundwater. Each dairy must implement a Waste management Plan by 2011, and must implement a Nutrient Management Plan by 2012. The Dairy General Order also included requirements for sampling of shallow groundwater wells (domestic, agricultural, and monitoring) located on dairy property.

Appendix E: European Union Nitrate Directorate Summary Fact Sheet

European Union Nitrates Directive Summary Sheet

In 1991, the European Union (EU) introduced the Nitrates Directive to help reduce water pollution by nitrates from agricultural sources. The Nitrate Directive classifies groundwater with nitrate concentrations above 50 milligrams per liter (mg/L) as polluted groundwater. There are currently 27 member nations. Member nations are required to develop and implement nitrate action programs that emphasize management of livestock manure and fertilizer application. Codes of good practice for farmers are implemented on a voluntary basis throughout a member nation's territory, and specific "action programs" are implemented on a mandatory basis by farmers located in nitrate-vulnerable zones. More information on the EU Nitrates Directive can be found at: http://ec.europa.eu/environment/pubs/pdf/factsheets/nitrates.pdf

Steps of implementation of the EU Nitrates Directive are summarized below.

1. Identification of polluted or threatened waters

- Groundwater concentrations above 50 mg/l (nitrate as NO_3).
- Surface water - elevated productivity (eutrophication) caused by excess nitrogen.

2. Designation of Nitrate Vulnerable Zones (NVZs)

- Areas of land which drain into polluted or threatened waters and which contribute to nitrate pollution.

3. Establishment of code(s) of good agricultural practice, implemented by farmers located outside of NVZs on a voluntary basis

- Measures limiting the time when fertilizers can be applied on land, in order to allow nitrate availability only when the crop needs nutrients.
- Measures limiting the conditions for fertilizer application (steeply sloping ground, frozen or snow covered ground, near water courses).
- Requirement for a minimum storage capacity for livestock manure.
- Crop rotations, soil winter cover, catch crops, in order to limit leaching during the wet seasons.
- Country-specific codes can also address irrigation efficiency.

4. Establishment Action Programs (mandatory agricultural practices), implemented by farmers within NVZs on a mandatory basis

- Measures included in the code(s) of good agricultural practice become mandatory.
- Other measures such as limitation of fertilizers taking into account crops needs, all nitrate inputs and soil supply.
- Maximum amount of animal manure to be applied corresponds to 170 kilograms of nitrogen (by weight) in manure per hectare per year – but can get an exemption if they can demonstrate that they can meet directive objectives by improving other measures and reducing nutrient loss in other ways.
- Some countries have developed standards for inorganic fertilizer application.

5. National monitoring and reporting every four years on:

- Nitrate concentrations in 31,000 groundwater monitoring locations.
- Eutrophication and nitrate concentrations in 27,000 surface water locations.
- Assessment of Action Programs impact .

Findings, as reported by the fact sheet referenced above, are summarized as follows:

Monitoring Results (as of 2011)

- All member states have submitted at least one action program.
- 66 percent of groundwater monitoring stations (well samples) remained stable or were improving (a reduction in nitrate concentration) between 2004 and 2007.
- 70 percent of surface water monitoring stations remained stable or were improving between 2004 and 2007.
- Nitrate loading has reduced from a high of over 15 million metric tons in 1990 to 12 million metric tons in 2011.

Enforcement

- Infringements (violations) are penalized with administrative orders and fines, in combination with legal procedures. There is a large variation in penalties between member states.
- Fines may be fixed amounts or may be related to an area, or a unit of nutrient above a threshold.
- In some cases, sanctions include a prohibition on the farming business, or a reimbursement of environmental damages caused.
- In 70% of cases, repeated fines are used until the measure is implemented correctly.

Challenges

- Nitrate Directive has been a challenge to implement properly.
- Implementation needs to be tailored to site specific conditions rather than regional models.

- The restriction of manure land application (170 kilograms of nitrogen (by weight) in manure per hectare per year) creates difficulties for member states with a high livestock density and not enough land for manure application.
- Since exemptions to the manure land application limit are tied to additional stringent requirements, many farmers do not use exemptions and instead dispose of their excessive manure offsite.