April 2, 2012

Via Electronic Mail

Draft Report to the Legislature: Communities That Rely on Contaminated Groundwater
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Re: Comment re: Communities That Rely on Contaminated Groundwater

Chairperson Hoppin and Members of the Board:

These comments are submitted on behalf of Community Water Center Clean Water Action , California Rural Legal Assistance Foundation, and California Rural Legal Assistance, Inc. We are a group of nonprofit organizations concerned about the impacts of groundwater contamination on Central Valley communities and the environment.

As you know, today many thousands of people in the Central Valley cannot use the tap water in their homes for drinking or cooking due to contaminated groundwater. In some areas in the Valley, more than 20% of small public water systems are already unable to supply safe drinking water, including many of our Valley's schools, which must use their shrinking educational budgets just to supply safe water to

students and teachers. Many more communities are on the edge, forced to pay for expensive treatment or close wells, limiting local drinking water supplies and creating additional barriers to local economic development.

The Board's Draft Report to the Legislature on Communities that Rely on Contaminated Groundwater (Chapter 670, Statutes of 2008, AB 2222 Caballero) generates critically important information that is necessary for state, regional, and local governments, as well as members of the public, to develop solutions to ensure that in future, *all* California residents will have access to a safe source of drinking water, regardless of where they live, how much they earn, or whether they draw their water from surface or groundwater supplies. It provides an important understanding of groundwater contamination problems at a statewide level, a scope which has generally been lacking.

We are supportive of the draft report and provide the following comments that we believe will make this report even stronger and more useful as a resource for policymakers going forward.

In the following sections, we highlight specific comments pertaining to a given section of the document (PART 1), and also general comments on recurring topics we noted in our review (PART 2).

PART 1: Comments by specific section

COMMENTS ON Executive Summary

- Because communities relying solely on groundwater (GW) are particularly vulnerable to contamination since they have no surface water source to blend with, it would be useful to highlight the fraction of these 682 communities that rely on GW alone in the executive summary. This point is highlighted later in the text, but the Executive Summary would benefit from making that point earlier on.

- While it is important to qualify the fact that the findings do not reflect private domestic well users or small water systems, the implication of this qualification is important to clarify for policy makers. The implication is that in all likelihood, the findings presented in the report are a “best case” scenario of impacted communities and people, and that in fact the number is likely higher. Certainly additional research would need to be done to verify this, but the general statement is still important to note.

COMMENTS ON BACKGROUND SECTION

- In paragraph 2, of this section, the phrase "The vast majority (over 95 percent)…" receives safe water should be qualified and cited. If this percentage is based on whether the system received an MCL violation, that is important to clarify, as that is often how California Department of Public Health (CDPH) cites this statistic. However, as the recent UC Davis Nitrate Report estimated, the number of impacted people may be larger, depending on what drinking water quality measure is used (e.g. MCL violations, averages across all wells, two points etc). While each approach has its strengths and weaknesses, the main point is that the 95% statistic is based on DPH's review of MCL violations. This measure does not always adequately characterize the state of the public drinking water supply and associated public health. At the very least, we recommend citing the source of this statistic and explaining what this statistic misses. If possible, citing additional estimates of impacted populations would be important (e.g. using UC Davis Nitrate Report), to give the reader the full sense of the problem.

COMMENTS ON SUMMARY OF FINDINGS

Main Points

- Throughout the summary of the findings, the use of percentages would be useful to provide the reader a quick sense of relative comparisons. And yet at the same time, in other cases the use of percentages alone should be carefully considered.
    - For example, Paragraph 2, page 10, 508 out of 682 communities is ~74%. This would be very useful for reading and interpretation ease.
    - Similarly for Figures 4 & 5, since the reader already knows n=608, the y-axis should be a percentage, so the reader can have a clearer sense of the relative importance of each principal contaminant.
    - On the contrary, there are places in the report where the use of percentages instead of total population under-emphasizes the extent of the problem. For example, in the statement: " there are 89 communities in Los Angeles County that rely on contaminated groundwater, serving approximately 8.4 million people, of which only 11 percent of the population is solely reliant on groundwater. This is in contrast to Tulare County where there are 41 communities that rely on contaminated groundwater, serving approximately 205,000 people, of which 99 percent are solely reliant on groundwater" While we agree that Tulare has a problem, the fact that 920,000 residents of LA county rely solely on contaminated groundwater is a significant number that should not be minimized.

- In the aforementioned paragraph, the statement “Communities that rely on contaminated groundwater typically treat their well water…” is not completely accurate. As noted previously, most groundwater-reliant systems in the San Joaquin Valley, for example, do not treat their water. They may chlorinate at best, but not treat for key contaminants. This point is very important to underscore as it will be misleading. This is relevant in the sense that, especially in small systems, with <=2 wells, where AR and AU sources were used to estimate contaminated groundwater, that water actually may be served to the public. It’s not true that it would be treated before being provided. Greater engagement with this topic is highly recommended.

- Additionally, the draft report indicates in both the Background section (page 6, second par.) and in the Summary of Findings (page 10, last par.), that "[i]n some cases, when a community cannot afford treatment and alternative sources of water are not available, water may be served to the public until a solution is implemented." This should be revised to state more accurately, "contaminated water is served to the public until a solution is implemented." Many disadvantaged communities in the Central Valley, the Coachella Valley, and the Central Coast regions have been receiving contaminated water for decades because they have been unable to afford or access sufficient funding to pay for expensive treatment solutions. This is not a hypothetical situation -- many California residents are exposed to contaminated drinking water in their homes and schools in these regions today and have been for decades. This report should not downplay the extent of the groundwater contamination problem and the impact it is having, and in particular the disproportionate public health burden placed on disadvantaged communities. For related citations, see (Balazs et al. 2011. *Social Disparities in Nitrate-Contaminated Drinking Water in the San Joaquin Valley.* Environmental Health Perspectives)

More Specific Editing Comments

- Page 10, paragraph 1: can you provide the reader with the total number of counties in California is (58 total counties). This will help put the “Top 15 Counties” in perspective

- Page 10, paragraph 3, second to last line. Where the “water may be served” should be clarified. Readers unfamiliar with alternative sources of water/interim solutions may not know.

- Page 11, paragraph 2, line 2, “may be more able to mix water sources”…Mixing can also happen when a system has multiple groundwater wells. The key point to emphasize is that the more sources a system has,

whether surface water or wells, the greater the ability to apply mixing techniques.

- Page 11, paragraph 3. It is important to explain why the noted communities are the focus of environmental justice concerns. A statement reading something, to the effect of, "Small communities, and especially those that are low-income and/or communities of color experience a greater difficulty in funding solutions, tend to have more physically vulnerable infrastructure, and often experience a persistent contamination problem because of these factors." Again, you can cite Balazs et al (see above) for further documentation.

- Figures 2 & 3. The use of green for the full universe of systems is somewhat misleading when compared to Figure 3 where contaminated wells are shown in red. Is it possible to change the color (from green to another color), and/or to make the link that Figure 3 is a subset of Figure 2?

- In the "Principal Contaminants" section, it is unclear at first glance what the parentheses following each contaminant refers to. In some cases the source of the contaminant is noted, in others additional notes are made, in others, no notes are made. We recommend a table for this list that clearly delineates the full set of sources of contaminants, what type of contaminant the contaminant is (e.g. pesticide, etc).

- While we realize that the appendix has a section on co-occurring contaminants, is there a reason Figure 5 doesn't show the co-occurrence of contaminants? As presented, it appears there was no co-occurrence, and yet the total number of systems counted exceeds the study's n, which leads us to believe there is co-occurrence.

COMMENTS ON CONCLUSIONS

- The first bullet of this section notes the "financial burdens" that communities face from contaminated groundwater, but, as noted in the Funding Section, we do not feel the report adequately determines what these burdens are. As written, the funding section makes it sound as though the vast majority of systems have received funding and that the remaining systems are not in need of it. We recommend either re-framing the funding section with points recommended above, clarifying what is meant by this, or adding additional information that allows such a conclusion to be made.

PART 2: Specific Comments by Topic

Differentiation or Clarification of Key Terms:

- On page 9, use of "contaminated groundwater" would be better phrased as "contaminated well water". It is not altogether accurate that because a well has contaminated water the entire extent of the groundwater on which it draws is contaminated. We understand why the use of the existing term was chosen, but wanted to flag this for consideration.

- There are several key terms and phrases that appear to get used in slightly different ways, and create some confusion for the reader. These are as follows:
    - Page 6, bullet 1: "Communities that rely on groundwater as a *primary source of drinking water" (emphasis added) vs*. line 2 in the first paragraph of the Background section reads: "communities that rely on groundwater for at least part of their drinking water supply". Throughout the document there are several instances where these two concepts are inter-changed. We do not believe that this is the intention of the Board, and the distinction is important to make. Relying on groundwater for "at least part" of your drinking supply is different from saying "primary source". We recommend that this terminology be clarified in appropriate places. For similar issues, please see also page 9, defintion of a "Groundwater Reliant Community" (i.e. not consistent with "primary). Or, see page 24 "A groundwater-reliant community" is defined as…."

- In some places of the report, references were given to MCL Violations, however no mention was made of using the PICME database. This should probably be clarified in the "Data Included in this Report" section.
    - On a related note, Page 29 (Appendix) makes note of lack of bacteriological data, and why the PICME data was not used for this measure. We understand that the MCL reflects distribution-level problems for the Total Coliform Rule (TCR), but given that groundwater-reliant systems are frequent violators of this MCL, would it be possible to highlight the extent of the problem?
    - Page 92, Table 6.1 notes "MCL Violation", but again, no mention was made of use of this data.

Treatment of Alternative Solutions/Potential Solutions

- On Pages 15 and 17, the study should more clearly distinguish between *interim* solutions such as providing bottled water and in-home treatment systems (POU/POE), on the one hand, and more *sustainable, long-term*

solutions such as regional consolidation and system-wide treatment facilities on the other. As such, long-term solutions such as regionalization is subsumed in the "Provide Safe drinking water through treatment or alternative supplies". This is not all together appropriate, as regionalization would not merely be a "alternative supply", but would result in the development of a systemic change, and a long-term solution.

- Table 1, Pollution Prevention makes note of "continue regulatory efforts". Current regulatory efforts for sources of groundwater contamination need to be strengthened and further developed to ensure adequate groundwater protections are in place. For example, the Central Valley Regional Water Quality Control Board's dairies general order grandfathered in approximately 3200 wastewater lagoons and permits these lagoons to continue operating without a sufficiently protective lining to prevent nitrate and other dairy waste contaminants from leaching into the groundwater. The UC Davis Nitrate Report demonstrates that these lagoons are a source of nitrate contamination in surrounding groundwater. We recommend therefore that this Table revise the bullet from "Continue regulatory efforts" to "Continue to develop and strengthen existing regulatory efforts".

Differentiating between systems that rely on SW versus those that rely on GW or a combination:

There are several places in the report that should emphasize what the implications are of having different primary sources of water. For example:

- In paragraph 2, "Identification of communities that rely on contaminated groundwater may help focus available efforts and resources to ensure…". This statement is fine as stated. However, part of what needs to be addressed is that by law (i.e. SDWA) surface water systems have to comply with stringent surface water treatment rules. Groundwater systems are not required to implement such treatment. In fact, throughout the San Joaquin Valley, most groundwater systems do not treat their groundwater (Haberman, R, personal communication). This differentiation is critical to make, in order to understand why focusing our attention on groundwater systems is critical.

- Figures 1.3 and 1.4 (Appendix) are confusing and could be further clarified. For example, presumably the points on the map are wells that have had at least 2 or more detections above the MCL. But the legend doesn't clearly state this (only the title does). In conjunction with Figure 1.5, the combination of these 3 figures tells an important story that could be further highlighted in the primary Findings section. The story is that those 100% groundwater-reliant communities appear to represent a greater share of contaminated

groundwater. While this point is made in the text, we believe it's worth highlighting more explicitly and noting the implication of this.

Regional Differences Should be Explained and Highlighted

- While the report does a good job of offering a state-wide picture of contamination, we believe that critical regional findings are missing, and are warranted. In many of the maps, there appear to be regional trends, whether by contaminant or not. Some mention of this would be important, for policy makers to understand not only the potential scope of the problem, but what different regions and types of water systems face. For example, given the recent release of the UCD Nitrate Report, some mention of regional nature of nitrate-contamination could be relevant. In addition, for another example, see our comment below on Figure 2.6

- Figure 2.6 seems to tell a very interesting story—primary detections of anthropogenic contaminants are in the Central Valley, the Salinas Valley and the LA region. Such a regional story is important to note, and perhaps the authors can further explicate the primary reason for this trend. For example, Figure 2.8 seems to indicate that the trend in Figure 2.7 may be because nitrate is the main contributor, as these regions are highly agricultural. Can further regional analysis be noted or explained? This would be important to help shape future policy recommendations of how to target different drinking water solutions, one of the objectives of the report.

Attention to system-size should be emphasized

- The variations by size is mainly discussed in the appendix but should warrant more attention in the primary Findings Section of the document. Given how important it is to consider the overall vulnerability of a system (e.g. if it serves <500 people, fewer economies of scale, likely to have fewer wells, etc). For example, Figure 1.6 tells a very interesting story in terms of smaller systems bearing a greater share of the problem. But little interpretation is given to this Figure in the Main Findings.

- Page 45 of the appendix offers an excellent discussion of Private Domestic Wells. The Table 2.2. that follows is equally compelling and makes some important points. Though we understand that the GAMA study has not covered all domestic wells, and only provides a sample snapshot, we believe the report could highlight some of the key percentages noted in the Table. For example, the fact that 40% of the wells in Tulare County had a nitrate detection is very important to highlight. Certainly these findings may not be final or definitive, but they are the best estimates on the topic, and these statistics still tell an important story, albeit a preliminary one. To this end,

we recommend bringing some of that information into the text on page 45. In addition, can the Board add a footnote to Table 2.2 that explains how the data in this table should be interpreted? It is not completely clear as currently displayed, and requires too much technical understanding, which policy makers may miss unless further prompted.

Attention to co-occurrence of contaminants is critical and should be further emphasized

- The concept of co-occurrence of contaminants and the impacts of this receives very little attention in the report. This topic is important for several reasons. First, it adds additional treatment costs when there is more than one contaminant. But more importantly, the public health burden increases, as exposure threats increase. The U.S. EPA has made it a priority to consider how drinking water regulations can better address this issue, and this would be a unique moment to help highlight the potential extent of this problem. This topic is important to highlight, and there are a few places where this should be fairly straightforward, given tables & figures that are in the report. For example, Figure 2.1 could be further emphasized in the main findings.

Issues of Missing Data and Under-Reporting Are an Important Part of the Story, but go unmentioned

- The general idea that there is a lack of monitoring data goes unmentioned in the report. Having worked with the WQM data, we are well aware that many water systems are missing water-sampling data. The extent to which there is under-reporting (at least in the database) would be important to mention in terms of potential biases/or aspects that this study cannot capture. As an example, on page 52, Figure 2.12, the limited number of TCE exceedances could be driven by lack of data, not necessarily lack of presence of this contaminant in groundwater.

- Given the problem of missing data, can you clarify whether all contaminants analyzed have been regulated since 2002? If that is not the case, this would lead to some level of monitoring-based bias in the assessment of principal contaminants detected.

Vulnerability Faced by Schools Goes Unmentioned and Requires Attention in the Report

- While the report focused on community water systems, the topic of schools gets no mention, and is a critical point to consider and at least acknowledge. In some community water systems, especially small and disadvantaged communities, schools are relying on the same source of contaminated

drinking water. This creates additional public health burdens for school-aged children. We recommend that the Board acknowledge this critical sub-population that is served by groundwater-reliant communities (see for example, media reports on Alpaugh).

- In other cases, schools are on their own water supply (in this case not a "community water system"). While we understand this is not the type of water system considered in the study, we feel it is critical to make note of this topic. In doing so, the Board would help bring attention to this generally under-emphasized topic.

Citations and/or minor clarifications of phrasing

- There are several places where citations would be helpful for readers to have the full information on where the data are coming from, or for the reader to be able to look further. In other cases, it would be useful to cite existing reports that have documented some of the statistics or problems mentioned. Examples are as follows:
    - Paragraph 2, page 7—"approximately 2 million Californians…"—this needs a citation.
    - Paragraph 3, page 7, "…cannot afford treatment"— Moore, E., E. Matalon, et al. (2011). The Human Costs of Nitrate-contaminated Drinking Water in the San Joaquin Valley. Oakland, CA, Pacific Institute.
    - Can you please provide citation for page 17, paragraph 1, EPA's infrastructure estimates?

- Is it possible to have a footnote on Figure 2.2 (Appendix) reminding the reader what type of contaminants are being considered anthropogenic, naturally occurring and combination of both?

- Figure 2.3 in the Appendix is the first time that "Active wells" gets mentioned. Can that point be clarified earlier on, or is there a reason it's specifically highlighted in this diagram? It is unclear to the reader.

- We recommend citing Balazs et al. 2011, to highlight the concept of social disparities. As noted above, there was only brief mention of environmental justice, and a citation/engagement with the implications for potential disparities is important to consider.

Additional Recommendations the Report Should Make:

- There is a need to expand reporting and data collection efforts for State Small Systems (5-14 connections) and private wells so that appropriate tracking of

water quality can take place. There is an opportunity for state policy leadership on this, since it is not required by the federal Safe Drinking Water Act.

- There is a need to improve data reporting by small CWS (particularly 15-200 connections). It is unclear whether the under-reporting of monitoring data for these small CWSs are due to failing to monitor or failure to submit electronic monitoring data into the state database. It is important that efforts be made to determine the cause fill in electronic data gaps wherever possible.

- State Funding databases should be more detailed, and include a full tracking and reporting process that is publicly available. Data that gets reported should be consistent across funding agencies, so that detailed analyses of funding processes can be assessed and improved.

CONSTITUENTS OF CONCERN SHOULD BE FURTHER CLARIFIED

- Appendix 3 should indicate the monitoring regime for these constituents from 2002-2010, and the current regulatory status of each. For instance, manganese is currently regulated as a secondary contaminant, so monitoring information is relatively plentiful, while 1,2,3 Trichloropropane was monitored as part of the Unregulated Contaminant Monitoring Program and required testing and reporting ended in 2003. Additionally, a special analytic method was developed for 1,2,3 TCP that had a much smaller level of detection. Testing under the Unregulated Contaminant Monitoring Program is generally not required for systems under 200 connections, and this new method of detection was often not used by systems that tested earlier than when the method was released. Therefore, the extent of contamination from 123 TCP is likely greatly understated by this data.

- The discussion of constituents of concern (Pages 14-15) should indicate that both 1,2,3 Trichloropropane and hexavalent chromium have been reviewed by the Office of Environmental Health and Hazard Assessment and assigned Public Health Goals, and that CDPH is currently developing MCLs for both contaminants.

- The discussion of hexavalent chromium in Appendix 3 should indicate that an MCL is under development for Cr-6.

- Like hexavalent chromium, 1,2,3 Trichloropropane has an established Public Health Goal, and an MCL is under development. We recommend that greater detail be included about the source of the contaminant, the variance in monitoring data due to changing test methods, and the lack of recent data.

Additionally, maps for 1,2,3 TCP, similar to those available for hexavalent chromium should be included in the report as well.

Weaknesses of the Funding Process Should be Highlighted and Data Presented on Funding Needs to be Further Analyzed.

- In general, we believe the sections and statements on funding could be further expanded upon to emphasize the real limitations that exist under the current funding climate. As an example, the executive summary says that "Public funding is…limited…", but it does not clarify in what way it's limited. It is important to be more specific, so that the reader gets a full picture of the limitations.

- More broadly, however, is it possible to provide additional analysis of what types of systems received funding versus the ~170 that did not? In our experience, smaller, more disadvantaged communities are less likely to receive funding given a series of funding barriers they experience on the ground. If the aim of this section is to discuss potential funding sources and the implications of current funding mechanisms, this information would be very helpful to highlight. We do understand, of course, that current data on funding is in fact quite hard to track and aggregate. If it is not possible to provide further analysis, perhaps the Board can make a recommendation that this funding information be better tracked by CDPH and/or that it be better reported in publicly available formats. Improving funding mechanisms and pathways for communities with contaminated water is a critical piece to ensuring protection of the public's health, and it is a critical environmental justice issue when those least likely to get funding are small, disadvantaged communities.

- The final paragraph of page 17 makes it sound as though those communities that did not receive funding are "okay". It would be useful to understand what metrics were used to come up with this statement. At the very least, could the Tables in Appendix 6 be further analyzed by type of water system, size, and type of water source?

- Table 2, Funding Sources, lists $795million in Prop 84 IRWMP money available to address drinking water issues. This figure is misleading because a) the money is assigned to those water issues that are a regional priority, not just and not necessarily addressing communities with contaminated groundwater; b) the money is allocated on a regional basis, with the greatest funding going towards regions that don't contain one of the 42 communities identified; and c) only 10% of IRWMP funding is set aside to address the water-related needs of disadvantaged communities. For instance, this report identifies Kern and, Tulare as two of the 3 most impacted counties, yet this

IRWMP region has only $33.4 million total in remaining funds, only 10% of which are required to be spent for disadvantaged community water needs.

- The report notes on page 17 that "Of the 682 communities that are identified…516 have been successful in applying for *or* receiving funding to address their water quality concerns" (Emphasis added).
    - The report does not provide details as to whether every one of those 516 communities that has applied for funding has actually received funding, nor does it indicate whether the funding that was received was for the contaminant problems identified in the Board's analysis, and this omission grossly understates the significance of the problem -- which is that many communities, even though they have applied for funding to develop solutions to their drinking water challenges, have not actually received sufficient funding to move forward and implement projects, and those communities continue in the meantime (for many years) to receive unsafe drinking water in their homes, schools, and businesses.
    - The report should clarify what constitutes a "successful" application. The mere placement of a project on the Project Priority List (PPL) for CDPH funding is clearly insufficient to consider the problem addressed, as many projects have been on the list for a decade or more. For instance, the contaminants listed in this report would be funded under Category F or G of the (PPL). The draft PPL being considered for adoption contains 429 projects in these two categories, with total estimated project costs of $482 million. These projects are virtually all in conceptual form, meaning no design, review or analysis has been completed, making them ineligible for funding under the requirements of the program.
    - The report suggests that of the remaining 166 communities, 124 communities "are not seeking funding" because they "are addressing their water quality issues independently, without public assistance, and have not had drinking water quality violations." The report notes that the final 42 communities *have* had drinking water quality violations but are "not known to be currently seeking or receiving funding", and the report surmises this may be because those communities "lack the institutional knowledge and guidance required to apply for and receive funding, and may require additional assistance..." This greatly understates the challenges that many of the communities with contaminated groundwater in California face as a result of bureaucratic restrictions on the timing and identity of applicants and the development of extremely restrictive funding criteria by administering agencies.

- We recommend that the Board recommend that more data be released by CDPH or the appropriate funding agency. Table 2, page 19 is a good example.

What does it mean that the funding is "Fully Allocated"? In our own research efforts, we have had difficulty determining what type of project and/or contaminant was specifically funded. In order for the public at large, and related research efforts to adequately assess the state of current funding mechanisms/options, having clear, consistent and publicly-available data on funding projects is important as a "Right to Know" issue.

- Table 6.2 is a good example of a piece of data that needs further elaboration in the report. 26 systems had arsenic violations but had not received funding. These systems present public health risks to their customers. Furthermore, given that the current MCL violation is not completely health protective (i.e. the standard was lowered to 10, but given carcinogenicity we have epidemiologic evidence that the standard should be much lower to be precautionary), the fact that these systems haven't received funding is further problematic.

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We urge the Board to incorporate our recommendations into the final report to the legislature.

Sincerely,

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