

## Central Valley Regional Water Quality Control Board

**MEETING SUMMARY  
FOOD SAFETY  
EXPERT PANEL – PUBLIC MEETING  
29 August 2019  
10:00 a.m. to 1:00 p.m.**

### Attendees

The table below provides a list of Panel members that attended the Food Safety Meeting.

| Panel Member                    | Title & Affiliation  |
|---------------------------------|--|
| Dr. Gabriele Ludwig (remotely)  | Director of Sustainability and Environmental Affairs- Almond Board of California |
| Dr. Barbara Petersen (remotely) | Principal Scientist, Chemical Regulation and Food Safety- Exponent Incorporated  |
| Dr. Andrew Gordus               | Staff Toxicologist- California Department of Fish and Wildlife (CDFW)            |
| Dr. David Mazzera (remotely)    | Chief, Food and Drug Branch- California Department of Public Health              |
| Dr. Kenneth Kloc (remotely)     | Staff Toxicologist- Office of Environmental Health Hazard Assessment (OEHHA)     |
| Dr. Bruce Macler (remotely)     | Staff Toxicologist- United States Environmental Protection Agency (EPA)          |
| Dr. Stephen Beam (remotely)     | Branch Chief- California Department of Food and Agriculture (CDFA)               |

**Note:** Food Safety Expert Panel members Mr. Mark Jones and Dr. Seth Shonkoff were unable to attend.

The table below provides a list of non-panel members that attended the Food Safety Meeting.

| Affiliated Parties | Title & Affiliation   |
|--------------------|---|
| Dr. Karl Longley   | Chair of the Board- Central Valley Regional Water Quality Control Board (Central Valley Water Board or Board) |
| Mr. Clay Rodgers   | Assistant Executive Officer- Central Valley Water Board   |
| Mr. W. Dale Harvey | Supervising Engineer- Central Valley Water Board  |

|                       |  |
|-----------------------|--|
| Mr. Josh Mahoney      | Water Resource Control Engineer- Central Valley Water Board      |
| Mr. Ralph Saucedo     | Associate Government Program Analyst- Central Valley Water Board |
| Dr. Robert Scofield   | Principal Toxicologist- GSI Environmental, Inc. (GSI)            |
| Dr. Bernard Beckerman | Senior ESG- GSI  |

On 29 August 2019, the Central Valley Water Board held a public meeting of the Food Safety Expert Panel (Panel). A summary of the meeting follows. This summary is not a dictation of the meeting's presentations, documents, or comments.

The meeting was webcast so that members of the public could participate remotely. Comments and questions could be emailed to Central Valley Water Board staff via email at: [waterboardfoodsafety@waterboards.ca.gov](mailto:waterboardfoodsafety@waterboards.ca.gov). A full video of the meeting can be found on the Central Valley Water Board's web page.

### **Introductions and Agenda Review**

Clay Rodgers conducted introductions and stated that this is a working meeting of the Food Safety Expert Panel (also referred to as the "Panel"). The meeting was to discuss issues associated with the application of oilfield produced water (produced water) on crops for human consumption. The meeting was open to the public.

Agenda Items follow:

- May 2019 public meeting
- Chemicals of interest presentation by GSI Environmental, Inc. (GSI)
- White Paper update
- Food Safety Project update
- General public comment
- Action items
- Adjourn

### **Materials List**

The following items will be posted on the Central Valley Water Board's web page. Hard copies were made available to Panel members and affiliated parties.

- Meeting Agenda
- May 2019 – Draft Meeting Summary

## 9 May 2019 Panel Meeting Review

The Panel held a public working meeting on 9 May 2019. The summary, which is in draft status, will be sent to the Panel for review, then finalized and made available to the public. A video of the meeting is available on the Food Safety web page.

### Presentation on Identifying Chemicals of Interest

Bernard Beckerman gave the Panel a presentation on GSI's work to identify chemicals of interest which may be found in oil field produced water (produced water). The chemicals considered are either naturally occurring or from information on additives provided to the Board by oil companies and chemical suppliers. Tasks to be completed by GSI are as follows:

- Task One: Conduct a hazard assessment on naturally occurring and added constituents that could be found in produced water being used for irrigation. Identify chemicals of interest based on known toxicological data.
- Task Two: Conduct a literature review focused on the chemicals of interest, specifically in the context of produced water in an agricultural system.
- Task Three: Assist in the sampling and analysis of crops that have been irrigated with produced water in California's Central Valley.

GSI submitted a draft report on Task One to the Board and Panel. This document is on the Central Valley Water Board's Food Safety web page. Task One is an initial assessment of chemicals that could potentially be in produced water. A summary of the assessment follows:

- Identify agency derived published chronic toxicity values, when available.
- For those remaining, identify those chemicals which are essentially non-toxic.
- Find peer reviewed literature and reports to identify information that may help characterize the remaining chemicals.
- Identify a sub list of chemicals for which there are no relevant data regarding toxicity
- Create additional sub lists that represent chemicals with incomplete data, chemicals not chronically toxic, and those with quantifiable chronic toxicity.
- For chemicals with no agency derived toxicity factors, but some toxicity data, develop ad hoc surrogate toxicity values. Developing ad hoc values essentially required GSI to develop a database where adverse outcomes are identifiable, identify the effects of exposures to the chemical in the databases, and develop exposure levels based on effects and exposure levels.
- For chemicals with published toxicity values and ad hoc surrogate values, screen based on biodegradation in water.
- Compile a list of chemicals for the literature review (Task Two). The list will include chemicals with no relevant toxicity data, chemicals with unclear chronic toxicity, and chemicals that are poorly biodegradable.

The literature review will include the following:

- A review of water quality data
- A review of chemicals of interest
- Research on ambient levels
- A discussion on chemical toxicity
- A discussion on chemicals with incomplete information
- Research on breakdown products
- Research on source, fate, and transport of the chemicals of interest
- A discussion of the knowledge gaps

To complete Task Three, crops that have been irrigated with produced water and crops that have been irrigated with conventional water were sampled and analyzed as a part of the Food Safety Project. Sampling has been completed on almonds, apples, carrots, cherries, garlic, grapes, citrus, pistachios, and tomatoes. Treated samples were irrigated with some portion of produced water, control samples were not. Analytical results show detections observed in treated and control samples for metal constituents and organic constituents. A summary of the sampling results follows:

- 22 of 35 comparisons show higher metals in treated samples
- 11 of 28 comparisons show higher organics in treated samples

### General Discussion on GSI's Presentation

**Dale Harvey:** The GSI progress report is not posted on the Central Valley Water Board's web page due to compliance issues with the American Disabilities Act (ADA). This document was sent out on the Lyris list. Members of the public can receive a PDF copy by emailing [waterboardfoodsafety@waterboards.ca.gov](mailto:waterboardfoodsafety@waterboards.ca.gov).

**David Ansolabehere (Cawelo Water District):** On slide eight of the presentation, those chemicals are not used as additives, and therefore they're naturally occurring?

**Bernie Beckerman:** That means they are potentially naturally occurring but not necessarily observed in the water. The literature states that they are naturally occurring or found in produced water.

**Clay Rodgers:** We were asked to post this document. Unfortunately, we cannot post it on the website because it does not meet the criteria for the ADA.

**Karl Longley:** Can we put a short statement on the website that describes the document with directions to contact us if one would like a copy?

**Clay Rodgers:** Yes. We are working on documents on our website to make sure they will be ADA compliant. There is not as much information on the web site as there was a few weeks ago.

**Karl Longley:** This is a temporary situation. It has taken a tremendous number of personnel hours to be able to convert documents for the website.

**Joshua Mahoney:** An email received with no name states, "Oil and gas industry is the only industry in America that is allowed by EPA (Environmental Protection Agency) to inject known hazardous material which are unchecked directly into or adjacent to underground drinking water supplies. Under step one, 399 chemicals were evaluated. What about so-called proprietary chemicals that are exempted from reporting? For example, fracking fluids otherwise exempted from the Safe Drinking Water Act. How can you manage what can't be measured?"

**Clay Rodgers:** This question goes beyond the Food Safety Project. Hydraulic fracturing issues and underground injection control program are associated with other discharges. This is associated with the recycling of water that is unique within Kern County. It is very good water from a general mineral standpoint. The irrigation water is used in a very small water restricted area in Kern County. A primary part of this project is to look at all chemicals that are added through operation activities by the oil companies, that is then used for irrigation water. We want to identify the data gaps and take a very conservative approach. The Central Valley Water Board decided a few years ago to undertake this effort. Task One and Task Two is an assessment of the chemicals, and a literature review (which is Task Two). The sampling is Task Three. We are not delving into all the chemicals in well stimulation because that is not an activity where this water originates. We will also not delve into underground injection control, because that's a separate program which is largely overseen by California Division of Oil Gas and Geothermal Resources (DOGGR). This project is limited to water being recycled for irrigation.

**Justin Bass (via email):** Did Chevron and other oil companies disclose the full list of chemicals they use in their oil drilling processes? Can the Central Valley Water Board and the Food Safety Panel disclose to the public the full list?

**Clay Rodgers:** We do have the full list not only from Chevron, but also the suppliers. Some of this information previously was not available because it is considered a trade secret. We have a complete list of chemicals that are used by the oil companies that are recycling this water. The list is currently up on the website. My staff are available for questions.

**Dale Harvey:** The list of chemicals is for those used in the fields that are supplying water for irrigation. It is not a complete list of all chemicals for all oil fields.

### **Update on the White Paper**

A draft of the White Paper was made available to Panel members and the Lyris list. The Draft White Paper summarizes the tasks and reports in progress. The public may send a request to the Food Safety Project email ([waterboardfoodsafety@waterboards.ca.gov](mailto:waterboardfoodsafety@waterboards.ca.gov)) for a PDF copy.

Board staff put together a list of questions to be addressed regarding the Draft White Paper. The questions follow:

- How should the White Paper be formatted? Currently it is a summary of the reports, and full reports will be attached as appendices. Another approach is to do a more detailed analysis which makes the White Paper a standalone document.
- How do we incorporate Panel member comments and recommendations into the White Paper?
- Should there be additional topics of discussion? For example, some of the potential sections are oilfield additives, treatment of produced wastewater, and quality of produced water.

### Discussion on the White Paper

**Gabriele Ludwig:** The White Paper should do a good job of summarizing the different reports and contain the reports as appendices.

**Dale Harvey:** That is the direction we are taking. We are also considering if a more detailed analysis might be appropriate.

**Andrew Gordus:** It would have been nice if you would have provided us with the list of questions a couple of weeks before the meeting. My understanding is that the consultants are preparing reports for the Tasks and the White Paper will serve as a summary. Then bring together the Panel recommendations.

**Dale Harvey:** Our intent was not to put you or the Panel on the spot. If we can get a response from the Panel on these questions in the next three weeks, that would be helpful.

**Ken Kloc:** The White Paper would summarize the most significant comments of the Panel. We could then review the drafts. If any of the Panel felt that significant comments were missed, that could be addressed.

**Dale Harvey:** The Panel comments can be sent in via email.

**Justin Bass (via email):** Is Chevron and the other oil companies using water for well stimulation and where does the water come from?

**Clay Rodgers:** There is a report coming out from DOGGR are related to AB 1281. This paper is being reviewed by the California Council of Science and Technology (CCST). Their report may talk about that particular item. This topic is outside the scope of the Food Safety Project, but there may be info on the DOGGR website.

## Crop Sampling Update

Board staff and GSI representatives gave an update on the sampling of crops. A summary of the 2019 crop sampling follows:

- In February citrus samples were collected and the results are being reviewed
- In May cherry samples were collected and the results are being reviewed
- In July carrots were sampled. Results have not been received from the lab
- Some crops analyzed at Agriculture and Priority Pollutant Laboratory (APPL)

**Bernard Beckerman:** Antimony, barium, cadmium, chromium, copper, nickel, strontium, zinc, 1,4 dioxane, acetone, acrolein, ethyl acetate, methanol, and p-isopropyl toluene are among the constituents detected in the sample sets. The results thus far do not suggest a significant difference between produced water and conventionally irrigated crops.

## Discussion on the Crop Sampling Results

**Andy Gordus:** Are these lab results available on the web? Is this year three of crop sampling?

**Dale Harvey:** Lab results presently are not available due to compliance with the ADA. But we can send the results to the Panel. This is year three for some crops.

**Bernie Beckerman:** Data we have include results from this year and previous years, depending on the crop.

**Justin Bass (via email):** Can we give the water to farmers directly instead of letting Chevron use it for well stimulation and then recycle it to farmers?

**Clay Rodgers:** That question is outside the scope of this project. No one has control of the produced water other than the oil companies and the irrigation districts. This water is produced a considerable distance from where they do fracking because of the nature of the geology. Rocks on the eastern side of the Valley are not suitable for fracking.

**Justin Bass (via email):** Can you clarify? Oil companies need fresh water for well stimulation, correct?

**Clay Rodgers:** I'm not an expert on the source of the water they use for well stimulation or what the quality of that water would be. Contact DOGGR or the oil companies themselves to talk about the quality or make-up water that they use.

## General Discussion

**Andy Gordus:** I would like to have a discussion regarding these public workshops. Are they worthwhile? Many of us drove from Fresno or Bakersfield. When we first held these, we had

a room full of people participating but now it's just a handful. I'm the only panelist that physically showed up today. I would like some feedback from the audience as to why you came. Do you think the workshops are worthwhile?

**Clay Rodgers:** I would also ask if the folks online would have that question. It is the desire of the of the Regional Board Members, the Regional Board Staff, and the Executive Officer that we conduct these meetings in an open and transparent way. Panel members have the option to participate by phone. Members of the public can participate by watching the web cast. We prefer not to do this outside of public view.

**Karl Longley:** I was one of two Board members designated to follow this study and to attend meetings when possible. I think what we might be seeing an artifact. School is starting, and August is a bad time to have meetings. I know that some Panel members are travelling. This must be a transparent process. If people don't show up, we still have the obligation to have this in front of the public. There are people online today, and we don't have a true count on how many folks are really participating.

**Barbara Peterson:** I have been online; I consider that participating. I appreciate the ability to that; it also gives time to rethink things and do things that may be a secondary function of the meeting.

**Andy Gordus:** This is a Kern County project and Bakersfield is the main city there. It's a long distance for people to travel. Maybe that's one reason why we're not getting public participation.

**Karl Longley:** You bring up a good point. We can get Kern County participation by being online. I think it is appropriate if we have a meeting in the Bakersfield area. Most of the Panel members are from this area. To get them to the Kern County may be a logistical issue.

**Clay Rodgers:** I'm not opposed to having Panel meetings in Bakersfield. If participation is primarily by phone, then the Panel member's location is less of an issue. Any place we have the meeting we probably should make sure of web access. The Central Valley Water Board will have a meeting next April that is scheduled to be held in the Bakersfield area. The exact date or location will be determined at the upcoming Board meeting. We anticipate having one or two more public meetings. Then we will present the White Paper as an informational item in front of the Board. Our anticipation is to have a Draft White Paper done at the end of the calendar year.

**Karl Longley:** We need facilities equivalent to what we have here so that we can webcast. If that's not available in the Bakersfield area then we might consider Fresno as an alternative.

**Clay Rodgers:** In Fresno our office does not have the capabilities to webcast.



**Justin Bass (via email):** Please have a workshop in Southern California where most of the population of California lives. Many of us cannot drive 400 miles to attend a meeting near Sacramento.

**Clay Rodgers:** Southern California is outside the jurisdictional area of the Central Valley Water Board.

**Karl Longley:** That is an argument for having a meeting in Bakersfield.

**Clay Rodgers:** Bakersfield will be significantly closer to Southern California than the current location. However, our intent is to provide web access so that people can participate.

**Justin Bass (via email):** We are in a fossil fuel caused climate crisis. Can we give the fresh water to the farmers and not oil companies? DOGGR and the other oil companies will not answer my questions. Can we have DOGGR and the oil companies at the Food Safety Meeting?

**Clay Rodgers:** Bob Gore who represents the California Independent Petroleum Association is here. We do have representatives from Cawelo Water District in the room. Chevron is typically a participant. Regarding the question about water to farmers: The Central Valley Water Board is not responsible for water supply, we do not have the legislative authority, it's more of a water rights issue. Regarding DOGGR and oil companies not answering your questions, I apologize for that as a State Employee. However, I have no control what other agencies do. Regarding fresh water used by Chevron and other oil companies that use well stimulation: The Board does not collect that information or have the legal authority to request that information. Once again that is outside of our jurisdiction. You can get some of the information you are looking for with the Division of Water Rights.

**Clay Rodgers:** Eric Ekdahl is the Deputy Director of Water Rights at the State Water Resources Control Board.

**Robert Gore:** To answer the Panelist's question directly, I've conducted public hearings from Chula Vista to Crescent City as a State Employee. I learned a long time ago not to temporize over how many people show up. Transparency is the purpose. If sparsely attended so be it, it's the journey that counts. The fact that this is taking place in a public forum speaks loudly to California virtues.

**Jane Sooby (via email):** California Certified Organic Farmers (CCOF) agrees that the meetings are worthwhile, and we appreciate the ability to weigh in remotely. We take this opportunity to advocate for the testing of soil to determine if irrigating with produced water impacts soil quality.

**Clay Rodgers:** Thank you for the comment. We anticipate that soil testing will be discussed in the White Paper.

**Brian Pellens (California Resources Corporation):** I would just like to say that these meetings are valuable so we should continue having them for transparency. Regarding Mr. Bass's questions - the water use data for all oil and gas companies is collected for SB 1281 and available on DOGGR's website. I have provided Mr. Bass the link to the data. CRC is proud to be a net freshwater producer. Projects like this produce agricultural water that is given to farmers.

### Action Items

- Board staff will complete a summary of the May 2019 Food Safety public meeting and make it available to the public.
- Board staff to make the GIS Report ADA compliant. If a member of the public wants a copy, they may email Board staff, or the Food Safety Project email.
- Board staff will make the current Draft White Paper ADA compliant, and have the document posted to the Board's web page.
- Central Valley Water Board staff will provide Panel members with lab reports.
- Board staff to investigate the possibility of having a Food Safety meeting in Bakersfield.
- Board staff to set the next Food Safety public meeting.
- Board staff to continue to work on the White Paper and collaborate with the Panel.
- Panel members to provide Board staff with comments on the Draft White Paper via email.

### Closing

**Clay Rodgers:** I anticipate having two or three more public meetings and having a discussion of the White Paper in front of a Board meeting, possibly in April.

Mr. Rodgers thanked the Food Safety Panel and adjourned the meeting.