

**MINUTES OF MEETING NO. 9**  
**State Water Resources Control Board Division of Drinking Water**  
**Advisory Group for Expert Panel on Direct Potable Reuse**  
**March 3, 2016**

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Chair Garry Brown called to order the eighth meeting of the Advisory Group for the Expert Panel on Direct Potable Reuse (DPR), held on behalf of the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW), at 10:30 a.m. on March 3, 2016, at San Francisco Estuary Institute (SFEI) in Richmond, California. The meeting was facilitated by the National Water Research Institute (NWRI).

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**Advisory Group Members Present:**

- Garry Brown, Chair, Orange County Coastkeeper
- Randy Barnard, California State Water Resources Control Board
- Amy Dorman, City of San Diego
- Conner Everts, Environmental Justice Coalition for Water
- Jim Fiedler, Santa Clara Valley Water District
- Julie Labonte, San Diego Regional Chamber of Commerce
- Al Lau, Padre Dam Municipal Water District
- Bruce Macler, U.S. EPA
- Traci Minamide, City of Los Angeles, Bureau of Sanitation
- Edward Moreno, California Conference of Local Health Officers
- Ray Tremblay, Los Angeles County Sanitation Districts

**Advisory Group Members Absent:**

- Keith Solar, San Diego County Taxpayers Association
- Francis Spivy-Weber, California State Water Resources Control Board
- Andria Ventura, Clean Water Action
- Michael Wehner, Orange County Water District

**Others Present:**

- Stephanie Abromaitis, California Department of Public Health
- Mark Bartson, California State Water Resources Control Board
- Annette Caraway, California State Water Resources Control Board
- Katherine Chandler, Cel-Analytical Inc.
- Jing Chao, California State Water Resources Control Board
- Rick Danielson, IEH BioVir
- Yeggie Dearborn, Cel-Analytical Inc.
- Suzanne Faubl, National Water Research Institute
- Emma Freeman, Ecology and Environment, Inc.
- Steven Garner, AWWA Cal-Nev Section
- Robert Hultquist, California Department of Public Health (retired)
- Richard Mills, Department of Water Resources
- Jeff Mosher, National Water Research Institute
- Toni Pezzetti, Department of Water Resources
- Raimund Roehl, CDPH
- Toby Roy, SDCWA
- Sherly Rosilela, California State Water Resources Control Board
- Sandeep Sathyamorthy, B & V
- Melanie Tan, Kennedy/Jenks

**Remote Participants (via GoToMeeting webinar and/or teleconference):**

- Faraz Asad, SWRCB
  - Takashi Asano
  - Mickey Chaudhuri
  - Heather Collins, MWD
  - Denise Conners
  - Gina Dorrington
  - William Draper, CDPH-SWRLB
  - Audry Durfor, GQH Lobby
  - Melissa Estrada-Maravilla
  - Christopher Gabelich, MWD
  - James Hawkins, Heal the Ocean
  - Erin Guerrero, CBIA
  - Tom Hall, EOA Inc.
  - Eric Hansen, SVCW
  - David Hung, SWRCB
  - Cindy Hunt, East Bay MUD
  - Robin Kloepfer
  - Chris Lundeen, CWEA
  - Matthew Rodrigues
  - Andy Salveson, Carollo
  - Carolyn Schaffer
  - Sal Segura, Zone 7 Water
  - Theresa Slifko, MWD
  - Kurt Souza, SWRCB
  - Peter von Langen, SWRCB
  - Erica Wolski, SWRCB
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**1. WELCOME, INTRODUCTIONS, AND REVIEW OF AGENDA**

Garry Brown, Chair of the Advisory Group, called the meeting to order and acknowledged members of the public participating via teleconference and webinar. He reviewed the agenda and asked the Advisory Group for comments on the agenda. No comments were offered.

**2. REVIEW AND APPROVAL OF MINUTES FROM PREVIOUS MEETING**

The minutes of Advisory Group Meeting #8, held on January 19, 2016, were presented to the Advisory Group. A motion was made to approve the minutes. The motion was seconded and approved unanimously.

**3. PUBLIC COMMENTS, INCLUDING PUBLIC COMMENTS ON MATTERS NOT ON THE AGENDA**

No comments were made.

#### 4. UPDATE ON DDW PROGRESS AND DEADLINES

Mark Bartson, Supervising Sanitary Engineer with the SWRCB Division of Drinking Water, presented an update on the activities of DDW related to the Expert Panel on DPR. A summary of his presentation is provided below.

##### DDW Legislative Mandates

- By December 31, 2016, DDW must investigate and report to the legislature on the feasibility of developing uniform water recycling criteria for DPR with recycled water [(Water Code section 13563(a)(a)].
- Draft DPR criteria feasibility report is due September 1, 2016, for public review.
- Final DPR criteria feasibility report is due December 31, 2016, to the legislature and to the public.

##### Advisory Group Role

- Advise DDW Expert Panel on DPR regarding an investigation of the feasibility of developing uniform water recycling criteria for DPR.
- Make recommendations to DDW on the feasibility of developing regulations for DPR.
- Make recommendations to DDW on other relevant topics such as:
  - Practical considerations for regulations that are protective of public health and achievable by project proponents.

##### Advisory Group Recommendations to DDW

- DDW has requested that the AG provide written recommendations regarding the feasibility of developing regulations that are protective of public health to DDW before June 30, 2016.
- Prioritize issues that are most relevant to the feasibility of developing criteria for DPR.
- Focus on the feasibility of developing criteria for DPR that is protective of public health
- Provide rationale for each recommendation.
  - Explain how recommendation is relevant to the feasibility of developing criteria (for DPR) that is protective of public health.

##### Meeting the DDW Legislative Mandate

- DDW will consider and incorporate the recommendations provided by the AG in the DDW Feasibility Report (the AG's report to DDW will be included as an attachment).
- Recommendations not relevant to the feasibility of developing criteria protective of public health will not be given equal weight in the Feasibility Report.
- DDW's report will focus on the technical feasibility. Issues not tied to the technical issues may not be addressed.

##### Wrap Up

- AG and the EP are integral to the process of developing the feasibility report.
- DDW's report will include as attachments:
  - Final Advisory Group report
  - Final Expert Panel report

- No EP or AG meetings are scheduled for after the final reports are submitted to DDW.
- Review of the draft DDW Feasibility Report is outside the charge of the Expert Panel and the Advisory Group.

#### Plans for Public Workshops

- Culmination of DDW, Expert Panel, and Advisory Group collaboration.
- Goal is to inform the public on our process and anticipate the scope of comments received.
- To be held in September or October 2016.

**QUESTIONS from Jeff Mosher, Bruce Macler, and Garry Brown:** It may be difficult to generalize which topics commented on by the AG will be addressed by DDW in their report. As an example, public outreach. This is an important issue but is not related to the technical questions. The legislature may want to deal with public acceptance. When you talk about technical aspects, do you mean these criteria are from the technical questions associated with topics such as reverse osmosis and advanced oxidation?

**RESPONSE from Randy Barnard:** Whatever report the AG puts together, it will be an attachment to DDW's report. DDW can choose to reiterate points from the AG report in the DDW report.

**QUESTION from Jim Fiedler:** Could the spectrum run from technical issues to best management practices? You would need to consider a range of recommendations. For example, BMPs versus strict regulatory requirements.

**RESPONSE from Randy Barnard:** DDW will be focusing on the feasibility of writing the regulations. Anything ancillary to that problem will be an attachment.

**QUESTION from Julie Labonte:** When are the SWA draft regulations going to be released?

**RESPONSE from Jing Chao:** Around the same time period, possibly a bit earlier.

**QUESTION from Garry Brown:** How will the report be released? Will you send it to each member (of the State Board)? Will you hold a press conference?

**RESPONSE from Mark Bartson:** The drinking water program has not sent reports to the legislature before, but SWRCB has. We can tell you more about it in the upcoming months.

This concluded the discussion on the update from DDW on their progress and deadlines.

## 5. EXPERT PANEL'S PROGRESS ON DPR BRIEFING PAPERS

Adam Olivieri, Co-Chair of the Expert Panel, attended the meeting to provide an update on the Expert Panel's progress on the DPR Briefing Papers

- Overview of DPR Project Configurations
  - DPR project illustrating:
    - Limit to the size of the reservoir for SWA projects:
      - 1) Smaller reservoir (reduced environmental buffer)

- 2) DPR – advanced treated water as approved water supply
  - 3) DPR – advanced treated water as approved finished drinking water
  - Note that in SWA projects purveyor can control detention time by changing the flow out of the reservoir.
- Evaluating DPR Criteria Feasibility - Overarching Question
    - Definition of DPR (continuum) including absence of an environmental barrier
    - The availability and reliability of recycled water treatment technologies
  - Multiple barriers and sequential treatment processes that may be appropriate at wastewater and water treatment facilities
    - On the health side, we are looking at the production of a raw water supply for a surface water treatment plant.
    - We will use the National Research Council (NRC) risk exemplar approach.
  - Mechanisms to protect public health from off-spec water will be reviewed.
  - Monitoring needed to ensure the protection of public health will be reviewed.
  - Other scientific or technical issues:
    - We will touch on the work on Operator Training that you are doing with CUWA.
    - We will also touch on operational maintenance.

#### DPR Briefing Paper Topics and Status

- Expert Panel Feasibility Report Outline
- Briefing paper topics and Team Lead Authors
  - Bioassays (Bioanalytical Tools) – Dick Bull (also Crofton and Dennison) nearing completion
  - Quantifying Treatment Facility Reliability – (Charles Haas, Jorg Drewes, Kara Nelson, Perry McCarty, and Michael Anderson) underway
  - Analytical Methods/Tools – (David Sedlak, Jorg Drewes) underway
  - Molecular and other pathogen monitoring methods – (Joan Rose, Kara Nelson) outline
  - ARB and ARG in water – (Walt Jakubowski) nearing completion
  - Comparative health risks – outline
  - Public health surveillance – outline (relies on WRRF project 14-14)

#### ARB Briefing Paper – Preliminary Findings

- Based on a comprehensive review (100+ references)
- ARB is a valid and serious worldwide public health concern
- Risk levels associated with ARB/ARG in water have not been determined
- Currently it is unclear whether water is a significant disseminator of ARB and ARG relative to other sources
- Considering all the available information, concentrations of ARB/ARG from waters subjected to both secondary and advanced DPR treatment would likely be equal or lower than those from current water sources entering drinking water treatment plants
- ARB and ARG are found in other environments such as soils and other source waters (aside from wastewater)
- No standardized tests for ARB/ARG in environmental samples

- Determination of ARB/ARG concentrations in water can be helpful in assessing performance of treatment processes for the removal of AR determinants
- The EP believes it is important to continue to characterize the role of PR in disseminating ARB/ARG
- Ongoing research in US, Europe, and Asia looking at other sources (hospitals, agriculture) besides wastewater of ARB/ARG and their removal by different treatment processes

**QUESTION from Bruce Macler:** Will the ARB paper be published in the peer review literature? It will be extremely valuable to the academic community and to the public at large as well.

**RESPONSE from Adam Olivieri:** Kellogg Schwab is already looking at it. And the federal government has a panel focused on ARB, but it's focused on hospitals. The goal here is to publish so I expect we will have papers out on these chapters after the DDW report is complete.

**QUESTION from Garry Brown:** Since the purpose of the Expert Panel is to give guidance to DDW to develop criteria, will they end with specific recommendations from all of these briefing papers on what DDW should do?

**RESPONSE from Adam Olivieri:** The final report will include conclusions on various topics, and will be written in a way that explains we've looked at this question and this is what we think.

**COMMENT from Jeff Mosher:** It would be helpful for the Advisory Group to have some background information on ARB/ARG.

**QUESTION from Rick Danielson:** Whether the genes are being expressed is a different issue from finding the genes in the soil. The important thing is, what's the background concentration?

**COMMENT from Bruce Macler:** If you want to focus on the issue of antibiotic resistance, that's just a tiny bit of the genetic material that remains.

**COMMENT from Rick Danielson:** There are genes for pathogenicity. Genes themselves have no public health significance.

**COMMENT from Andy Salvesson:** There is a tremendous amount of rigor in this panel. In our Water Research Foundation project, Virginia Tech is doing some monitoring on ARG. We're starting to get numbers back and we will share it as soon as we can.

**QUESTION from Toby Roy:** As this work is being done, will the information be shared with the Advisory Group?

**RESPONSE from Adam Olivieri:** The Expert Panel just reached these conclusions last week, so you're getting it real time. As far as the papers go, we don't have time to distribute those. You will get the information when DDW releases it.

This concluded the discussion on the Expert Panel's progress on the DPR Briefing Papers.

## 6. Public Attitudes toward Potable Use of Recycled Water

David Metz, a consultant with Fairbank, Maslin, Maudlin, Metz and Associates (FM3), attended the meeting at the invitation of the Advisory Group to present the results of work on public attitudes toward potable use of recycled water.

### Survey Methodology

- Conducted a telephone survey during June 4-11, 2014, of 1,200 randomly selected voters
  - 600 in City of San Diego
  - 600 in Santa Clara Valley Water District
- Mix of landlines and cellphones
- Interviews in English and Spanish

### Focus Group Methodology

- Held four focus groups with different groups of residents of the San Diego County Water Authority Service Area (Latinos, Republicans, Seniors, Chaldean-Americans)
- Participants were recruited to reflect the demographic diversity of their community
- Excluded those who agreed with any of the following:
  - Already support recycling water for household use
  - “Very familiar” with recycled water
  - Have family working in market research, advertising, or water-related fields

### Context for the Issue

- Low public understanding on water supply issues
- Nationally only 25 percent of voters know where their water comes from
- 54% said they had no idea, 23% gave an incorrect answer
- Most voters do not drink water straight from the tap
  - 45% filter water in the home at the sink, refrigerator, or through a pitcher
  - 31% drink bottled water
  - Bottled water drinkers have a number of misperceptions of its quality
    - Many agree that bottled water is sealed and protected
    - 73% believe that bottled water is safer than the tap water
- Voters are more concerned about the drought than about government waste, health care costs, or education
  - However, few focus group participants were able to cite how the drought was affecting their lives in any major way
    - Participants understand the importance of conservation
    - Few seemed concerned about running out of water
    - When pressed for solutions, ocean desalination came up often
    - Recycled water was not cited
- Californians understand it will cost money to ensure a reliable supply of water, and are willing to pay 13% more on each water bill to secure a reliable supply

### Public Attitudes toward Recycled Water

- Most voters are at least somewhat familiar with recycled water

- Among those familiar with recycled water, most support its use in general
- Focus group participants were aware of recycled water being used for non-potable purposes, and generally did not object
- Voters are confident that it is possible to treat recycled water to drinking water standards (experience with space travel, submarines, etc.)
  - People are comfortable with these applications, but are not sure the technology can be brought to scale
- Though initially opposed, voters quickly become more comfortable with direct potable reuse after information about safety
  - After messaging, those that totally oppose recycled water increased their support
  - Safety concerns drive reservations about using DPR
    - Water may include contaminants or may not meet safety standards
    - Less issues with people worried about taste/odor or psychological discomfort

### Messaging

- How can we communicate with people to help build public acceptance?
  - Participants drew clear distinctions between the messages tested
  - The strongest argument focused on safety
    - Purification is a concept that resonates with the public
    - Photos of the treatment trains also provoke a higher degree of comfort
    - It is NOT helpful to show pictures of works wearing protective gear
- Most respondents believe that the wastewater is treated by adding chemicals, not by advanced treatment processes that remove constituents of concern
- Messaging about use of recycled water in other communities stood out
  - Knowing that this is not an experimental technology gives comfort
  - Ex: Disneyland uses recycled water and many people have drunk water there
- Generational message also held appeal
  - Long-term residents know that California has undergone tremendous growth
  - Need to ensure water supplies for future generations was considered important
- Environmental message was attractive, but at a more intellectual level
- Regarding cost: people do not want to pay more, and don't believe that costs would decrease
  - We will all end up paying more for water in the future no matter what we do
  - If we invest in potable reuse now, we can avoid importing more expensive water in the future
  - The argument for future costs was not as well received
- Top messengers are generally those with scientific expertise
  - Most trusted are Department of Public Health, Medical Researchers, Medical Doctors, Scientists, Nutritionists, EPA, and Residents of communities that already have a potable reuse water supply

### Communications Recommendations

- Understand that voters who are uncomfortable with potable reuse may not be highly concerned about the drought.
- Understand that the public may not be willing to pay more for recycled water; they may actually expect rate reductions.

- Leverage substantial public acceptance of non-potable reuse. The public believes it has been implemented effectively.
- Consider using the term “purified water...” And DO NOT use terms that include the word “wastewater.”
- Emphasize the three-stage process for making recycled water safe to drink, using both text and visuals
- Highlight successful potable reuse projects (ex. OCWD)
- Emphasize provisions in place to monitor water quality—continually.
- Underscore the need to act now in order to ensure an adequate supply of water for future generations.
- Use comparisons to bottled water—many think it has a high standard of purity.
- Position water agencies as key messengers on this issue—voters trust them.
- Err on the side of presenting the public with more information rather than less. Detailed, well-sourced, credible information is capable of moving the public, even given strong initial opposition.
- DO NOT rely on messaging about the broad principle of recycling.
- DO NOT talk about potable reuse providing ten percent of our water supply. It strikes many as too low.

**COMMENT from Bruce Macler:** This seems peculiar that the results indicate 20% of the respondents are totally suspicious for all of these messengers.

**RESPONSE from David Metz:** This is part of a larger trend. The public has a complete loss of faith of every organization and institution. We’ve also found that those with political or economic perspectives are less credible than other messengers.

**QUESTION from Audience Member:** Have you done any work on public perception since the water crisis in Flint, Michigan?

**RESPONSE from Dave Metz:** The awareness around Flint creates distrust in the system and also highlights our vulnerability.

**QUESTION from Adam Olivieri:** Your slide said 5% of people did not know what they drank. Did they just refuse to answer? And the 20% that were totally suspicious. Do you know anything about them?

**RESPONSE from David Metz:** We often see people who think something is being put over on them, and they cannot trust what they are being told. We did a focus group in San Diego with younger female residents. This was the one time I thought I wouldn’t make it out. This group was utterly convinced that this was revolting and there was bound to be a public health threat that would cause them harm. Then a group of men walked in and they said if the science was there, then they were OK with it. But there are very few issues where you don’t have some polarization.

**QUESTION from Jim Fiedler:** At SCVWD, we have gotten a few comments about Flint. On our website we explain what happened so that those in our service area have that information. But is it possible that people are drinking bottled water anyway so they don’t care?

**QUESTION from Bruce Macler:** Are the results based on those demographic groups you listed? Latinos, republicans, etc.

**RESPONSE from David Metz:** For some respondents it was more of a discomfort rather than a rational objection. But for some groups, like the Chaldeans (i.e., immigrants from Iraq), they felt that the water here was much better than what they had in Iraq, so there wasn't much of an issue.

**QUESTION from Bruce Macler:** We've found Latinos are very skeptical of drinking water in general.

**RESPONSE from David Metz:** There is a gender gap on this issue as well. Women are not comfortable with it.

**QUESTION from Audience Member:** Is this a health concern based on the water treatment process?

**RESPONSE from David Metz:** We remind people that our water comes from surface and groundwater sources, and all kinds of things pollute the water. But people put human sewage in a different category.

This concluded the discussion on public attitudes toward potable use of recycled water.

## **LUNCH BREAK**

Mark Bartson of DDW announced that Karen Larsen, who had served as Assistant Deputy Director of DDW for the past year, has accepted a job in the Division of Water Quality and will therefore no longer attend Advisory Group meetings. The Division Director, Cindy Forbes, is working to fill the position that Karen vacated.

## **7. UPDATE FROM THE AD HOC COMMITTEE ON OPERATOR CERTIFICATION AND TRAINING**

Traci Minamide, Committee Chair, provided the following update:

- The Operator Training and Certification Ad Hoc Committee met this week to discuss recommendations to present here today. We identified the following items for discussion:
  1. Is certification needed?
    - a. We have discussed this. Do we think that potable reuse operators need something beyond what is currently done for DW or WW operators? The committee thinks so.
  2. Voluntary Program or Permit Requirement?
    - a. Do we think that becoming certified should be required by an agency? Or should it be a permit requirement that the utilities receive from the state board?
    - b. We talked about what is currently specified in in the Water Code. The WC says that operators must be certified. With that as an existing basis, the question is, should it be in the water code or can the state specify this in the permits they issue?
      - i. Recommendation: Include in the permit. The state will specify the levels of certification, the number of operators, etc. based on the size of the facility.

**QUESTION from Julie Labonte:** DDW has specified some requirements for the existing projects like OCWD, correct?

**RESPONSE from Jeff Mosher:** The requirements are in the permit. Agencies do have a choice of wastewater certified operators or drinking water certified operators. What's important to the regulators is the access to senior level operators (i.e., Level 5 operators) at the facility.

**Response from Randy Barnard:** DDW does not specify the training levels in the Title 22 engineering report, but we specify the coverage, the callbacks, who has to be there, etc.

3. Operator Certification Structure
  - a. We felt that specialized certification beyond what is currently required for WW and DW. And we agreed to both WW and DW should be qualified to take this exam.
    - i. Recommend: Minimum base certification is required (WW or DW), and additional training would be needed
  - b. Do we need multiple levels of certification:
    - i. Recommend: State should consider having one level for an operator and one level for a supervisor/manager
4. General Areas of Certification to Be Covered
  - a. Should PR have specific training required in order to sit for the exam? Course work and/or on-the-job experience, etc. Some thought it was necessary to specify and require documentation of the length of experience.
    - i. Did not have a recommendation come out of the committee call. Asked the AG for feedback.

**QUESTION from Julie Labonte:** Did you discuss what level (DW or WW) certification would be required for entrance to the advanced treatment certification? For example, Level 3 for DW and WW? I would advocate for Level 3 plus a certain amount of job experience. And then to renew your certification, you would need to acquire a certain number of continuing education credits.

**RESPONSE from Traci Minamide:** We did discuss the level but we didn't make a recommendation. Operators would need experience either with potable reuse, drinking water, or wastewater.

**RESPONSE from Annette Caraway:** Drinking water Level 3 requires one year of experience. Wastewater requires two or three years.

**COMMENT from Jeff Mosher:** We need to emphasize that the certification is only one piece of the operators' credentials. Each agency is going to train their operators in their own protocols.

**COMMENT from Julie Labonte:** We need to be careful too. If we make this too restrictive, we could narrow the pool too much. There are already shortages of qualified operators.

**COMMENT from Bruce Macler:** It's appropriate to have someone certified to run these plants. The entry into it can come from either wastewater or drinking water. As Jeff said, once you have your certification, any utility is going to require site-specific training on the job.

**COMMENT from Traci Minamide:** Maybe the experience doesn't have to happen before you take the exam. It would seem that hands-on job experience would become a certain factor. People can get that

kind of training in many different ways. I'm not sure if we should specify what the training must be. How would the approving entity decide which coursework is acceptable?

**QUESTION from Al Lau:** We are suggesting different certifications at different grades?

**RESPONSE from Bruce Macler:** If you are coming in at Level 3, it might be appropriate to have two levels. The operator certification and the manager/supervisor. But I don't know if it's necessary to have two levels; it might depend on the sophistication of the system.

**COMMENT from Julie Labonte:** We don't want to make the certification process too complicated. It's a lot to ask an operator to take two sets of exams. And if an operator passes the Level 3 and the advanced water treatment test, would that person need to renew the advanced water treatment certification along with the DW or WW certifications?

**QUESTION from Al Lau:** If your facility is only advanced water treatment, would that be the only certification you would ever need?

**QUESTION from Julie Labonte:** But what if the operator wants to work somewhere else that is not an advanced treatment facility? Operators will not want to give up their WW or DW certificate.

**COMMENT from Garry Brown:** The point is, once we get to potable reuse we cannot make a mistake. The operators that run these plants must be the best personnel. Wouldn't we approach this as a higher level of qualification? One that would pay more and would provide an incentive for people to pursue these certification. And there's an issue with public confidence.

**COMMENT from Julie Labonte:** That's assuming that public utilities that are already losing revenue can spend more and more money on operating costs.

**COMMENT from Annette Caraway:** I agree with Traci Minamide. Your DW or WW certificate is the base that allowed you to attain this advanced certification. In my opinion you should maintain that DW or WW certificate. But it's not up to me.

**COMMENT from Traci Minamide:** We also talked about what happens upstream and downstream of the water treatment plant.

**COMMENT from Ed Moreno:** We've had difficulty creating industry-based standards for other public health topics. And industry can often come up with a better solution than government.

**COMMENT from Jim Fiedler:** The industry knows they must rewrite the requirements for operators. We want operators to get to the next level to take on new duties as time goes by. We want to encourage operators to take on these endorsements and be the operators of the future.

**COMMENT from Traci Minamide:** This issue of grandfathering came up. How do we handle those who are already working at these advanced treatment facilities?

- a. Automatic certification for those who have experience
- b. Qualifying to take the exam because you have experience, but not necessarily the formal coursework provided at a community college, etc.

**COMMENT from Jim Fielder:** It's not clear that we should grandfather people in. All operators need to demonstrate proficiency with the technology.

**COMMENT from Garry Brown:** The term “grandfather” implies a waiver of the requirements. If we allow that, we could undermine the public’s confidence in these operators.

**COMMENT from Traci Minamide:** The waiver could be to substitute work experience for a course at a community college or something like that. So those who are already working at a facility and have the required experience would be able to take the exam immediately.

**COMMENT from Randy Barnard:** As long as the certification does not require everyone to take formal coursework. If we are requiring them to sit through a class and get a diploma, and then take the exam and complete the period of experience, they would need to complete all those steps to attain the certification.

**QUESTION from Bruce Macler:** There are no rules in place, so how do you run a facility with no certified operators? We didn’t discuss how you can set up a certification program ahead of the DPR regulations.

**RESPONSE from Randy Barnard:** The state can still do that.

#### 5. Certification Program Administration

- a. In the past the state administers the certification and the trade organizations provide the training.
- b. The committee feels the state must be involved because they must agree with what the requirements are. And the state has been involved.
- c. Over time, we talked about if the state does not develop a program right away and the trade organizations develop it instead, would this be part of the certification developed for the DW and WW operators.
- d. **RECOMMENDATION:** The state should be involved with developing the requirements for certification.

#### 6. SWRCB Role in the Process

- a. Should the AG recommend legislation to provide funding for the certification program?
- b. Recommending legislation is not really helpful.
- c. **RECOMMENDATION:** Appropriate funding and resources need to be provided to the state to support this certification program.

**COMMENT from Bruce Macler:** Prior to SWA, did the permits for water utilities say that you had to have a certified operator? And that the operator needed to be equivalent to CA-NV, prior to the state taking on the program? The state took it on because there were incentives to have a certification. But they will not gain anything from the potable reuse certification.

This concluded the discussion on the recommendations of the Ad Hoc Committee on Operator Training and Certification.

### 7. ADVISORY GROUP DISCUSSION – RECOMMENDATIONS TO DDW

The Advisory Group members discussed 32 potential topics for inclusion in the AG’s recommendation report to DDW. The meeting administrators tried to capture the AG members’ comments and suggestions for how individual recommendations should be worded.

### Topic #1. Potable Reuse Terminology

- Recommendation (Amy Dorman): Utilize the terms presented in the terminology document (to the extent practical) in preparing reports and other documentation pertaining to potable reuse.
- Rationale: The terminology document is intended to reflect the multitude of terms associated with potable reuse. Definitions and alternative terms are provided to demonstrate the breadth of each term. Members of the public have been exposed to the terminology through individual agency potable reuse outreach efforts, and the State's use of consistent terms can help prevent confusion regarding their own public documents and communication.

**ACTION ITEM: Accept this recommendation. Amy Dorman will make any edits required.**

### Topic #2. Advanced Treatment Operator Training and Certification

**ACTION ITEM: The Ad Hoc Committee on Operator Training and Certification, chaired by Traci Minamide, will draft recommendations before the next meeting.**

### Topic #3. Need for Research/Briefing Papers to be Published in Peer-Reviewed Journals

- Bruce Macler will draft a recommendation before the next meeting.
- The AG members asked about the WRRF documents related to DPR that the Expert Panel is using to inform their decisions.
  - Those documents have not been published in peer-reviewed journals, but the authors have been encouraged to publish.
  - It was noted that DDW has to report to the Legislature by the end of the year and there is not time to get these peer reviewed before the report is due to the legislature.
  - All agreed that there is still value in having the papers published after DDW submits their report to the Legislature.
  - The goal is to have the citations available for the future.
  - Researchers do not look at gray literature.
  - Garry Brown commented that this action may have unintended consequences; it may be interpreted that the process should move even more slowly. If a decision maker sees something has been peer reviewed after the decision has already been made, s/he may think that in the future the decision should be put off until after an article is published in the peer-reviewed literature.

**ACTION ITEM: Ask Fran Spivy-Weber if she wants to pursue this with a recommendation. List her as a Support Author in the writing assignments.**

### Topic #4. Research on Emerging Contaminants

- Recommendation (Andria Ventura): Study if and to what degree emerging contaminants are more concentrated or at higher levels in wastewater than in other drinking water sources and what that will mean to reducing exposure.

- Rationale: Emerging contaminants can affect public safety, can be a proactive step in anticipation of future regulations, and can affect the cost of DPR.

Mark Bartson of DDW asked if Andria is making this comment to the Expert Panel or to DDW.

**ACTION ITEM: Conner Everts will follow up with Andria Ventura on this topic, and will act as a support author for the recommendation.**

## Topic #5. Communications - Public Outreach

- Recommendation (Garry Brown): Develop an outline for an educational public outreach campaign, including examples of existing material developed in the U.S. and elsewhere.
- Rationale: The public/ratepayers must believe DPR is the best option for future water supply and it is safe and reliable. DPR will not go forward unless there is funding to construct treatment facilities.
- Discussion regarding the intended audience for this outline.
  - WateReuse has a document on how to do a public outreach campaign; the AG could consider endorsing what WateReuse has written.
  - Helping people understand potable reuse through communications is a best practice.
  - Public outreach is part of establishing the recommendations for DPR.
  - DDW already has a public meeting requirement. Does it make sense to say there needs to be a public meeting and adequate outreach based on the facility?
  - The AG is supposed to provide recommendations to the state on issues that the EP is not handling. If the AG thinks stakeholder involvement is desirable, then they should make that recommendation. That's how it will be written into the regulations.
  - There is a nuance between permitting a project and developing regulations. If you're going to make this comment it will show up as an appendix.
  - The AG could organize the recommendations as technical topics and other things.
  - Those who do public advocacy feel that you cannot overlook the need to have the public and political will to get the project done. This is an excellent tool.
  - We just don't want to advocate to include a public outreach requirement in the regulations.
  - Regarding the DPR briefing paper topics: it would be interesting to find out what the public information component is for each one. How do we connect the dots?
    - Each briefing paper has five to eight recommendations and those are the takeaway messages. Those are the points for discussion with the public. And they have a list of items for future exploration.
  - Realistically, others (in addition to DDW and SWRCB) are going to look at this document. Just because you have a permit does not guarantee you will have a successful project. So the AG emphasizing this adds value, and maybe the legislature will recognize that regulations alone will not carry the ball for any project.
  - Some readers will look at this report for the component on public outreach and education. We can just say that we recognize that public outreach is important.
  - Consider the consumer confidence reports (CCR). Utilities have to report where their water comes from, what the violations are, etc. Each facility will need a CCR that

speaks to everything they do. The takeaway is that the utility has to communicate with the public.

**ACTION ITEM: Garry Brown will rewrite this recommendation to incorporate the suggestions put forth by the Advisory Group.**

#### **Topic #6. Communications - White Paper**

Combine with Topic #5.

#### **Topic #7. Determining Feasibility of a Project (Triple Bottom Line)**

**ACTION ITEM: Ask Keith Solar to be lead author. He has brought up related topics on cost.**

#### **Topic #8. Distinction Between Potable Reuse Projects that Include a Surface Water Treatment Plant and those that Do Not**

Combine with Topics #19 and #26.

**ACTION ITEM: Julie Labonte will combine Topics #8, 19 and 26 into one recommendation.**

#### **Topic #9. Items for New Legislation**

Place this topic on hold.

- The EP has to address a range of projects in a continuum.
- Is it better to have a regulation that covers everything?
- The Legislature defined SWA and DPR.
- The EP is looking at whether it is feasible to develop regulations.
- Once the report is submitted in December, what will be the next steps for DDW? What will they do with the document?
- Need to see what happens with the feasibility study.
- With the current lack of regulations, DDW can still move forward with permitting projects.

#### **Topic #10. Building Capacity (TMF)**

- Recommendation (Ray Tremblay): DDW regulations should consider capacity of all system operators to practice DPR.
- Rationale: Small communities may not have the resources and expertise necessary to ensure public health.
- DDW staff already has a process and looks at this. The AG could just endorse their process.
- We could say that the TMF evaluation should be applied to potable reuse.

- The Health Department looks at the wastewater side too.
- There are many fewer wastewater treatment plants, and they are large, so they don't fall through the cracks easily. But small water systems that don't have baseline capabilities cannot do an advanced treatment process.
- A review of this kind is necessary even for a large community, like the city of Napa. Only the biggest so far have been able to do this. You can go down just one order of magnitude and find systems that cannot meet these requirements.

**ACTION ITEM: Ray Tremblay will rewrite the recommendation to incorporate the suggestion of the Advisory Group.**

## 11. Environmental Justice

AG members have expressed interest in if/how DDW can provide guidance to disadvantaged communities in California that have no safe drinking water. For example, is there a way to ensure equitable use of technology? Rural water agencies that could benefit from IPR/DPR projects are unlikely to have the financial resources available to develop and maintain these projects. This is related to the issue of building capacity (TMF).

- There are communities with no access to no drinking water and no sewage.
- But there are other programs set up to address that. Regardless of your lack of resources, Andria thinks there should be a program that would allow you to get to the point where you could do it.
- A community on septic isn't going to be doing reuse. There are only 700 POTWs in the state.
- A community with a groundwater contamination program may opt to do a recharge project.

**ACTION ITEM: Follow up with Andria Ventura. Conner Everts will get in touch with her.**

## 12. Differences Between the Applications of DPR and Other Source Waters including Ocean Desalination

- Recommendation (Garry Brown): Develop a brief summary of the material differences, benefits, and liabilities for both ocean desalination and DPR. Both are considered new sources of water but have major differences in application and benefit.
- Rationale: This issue is in the forefront of the public's conception of new water sources, especially since there are major desalination proposals being advanced throughout the State. DPR offers significant advantages over ocean desalination. At some point, there might be legislation proposed that stipulates an entity should not establish ocean desalination treatment facilities unless they already have an advanced treatment facility in place and operating. This dialogue is an integral part of public education. At the DPR Workshop for the Environmental Community, Sean Bothwell of the California Coastkeeper Alliance made this precise comparison in a presentation. We could ask that he summarize his presentation for our review.
  - This cannot be in the regulation, but there are two competing sources of water. The legislature is hearing that we should do desalination, we should do potable reuse, we should do both. It would be beneficial to provide a list of comparisons of the two.

- Sean Bothwell of CCA has made this presentation at other venues. He outlines the differences in cost and energy.
- Projects are site-specific and to do a comparison is treading on weak ground. We should be requiring an alternatives analysis and looking to meet our water supply needs.
- The State requires an integrated water management plan to apply for funding. So there is a mechanism to encourage agencies to do these plans, which are regional.
- If the AG produces a document on other source waters, it could be an addendum to the recommendation report to DDW.
- Attaching this analysis as addendum would allow the AG to provide more descriptive information than just a comparison of desalination and DPR.
  - There is another aspect to the desalination question. Without benefit of an expert panel, DDW has been able to permit a desalination plant. This is your lowest quality water. Is there something in the permitting process that would be useful in considering the feasibility of DPR?
  - If ocean desalination had to go through what we're going through, there wouldn't be an ocean desalination plant running yet.
  - Environmentalists are big advocates of DPR and do not want anyone to take away opportunities to do more recycled water. If treated wastewater is being dumped in the ocean, the environmentalists would like to see that taken care of that first before implementing an ocean desalination project.

**ACTION ITEM: Reframe this topic include other alternative water sources such as stormwater capture and conservation in addition to ocean desalination. Garry will work with Sean Bothwell.**

### 13. Stakeholder participation in DPR Regulatory Development

- Recommendation (Ray Tremblay): If the expert panel determines DPR is feasible and DDW begins to develop regulations, a group of stakeholders similar to what was done for the IPR/Groundwater recharge regulations should be formed.
- Rationale: Groundwater recharge regulations had a stakeholder group advising throughout the process. I am not aware there was a similar group for SWA. Mostly centered on the interests of San Diego. Now we have a set of controversial regulations that San Diego believes greatly reduce the feasibility of implementing a project under them.
- There was an issue regarding lack of knowledge of the project in San Diego. There should be stakeholder input as the regulations are being developed.
- Questions regarding the role of any future advisory group.
- Some of the AG's recommendations to DDW will not necessarily go into the report.

**ACTION ITEM: Ray Tremblay will rewrite this recommendation to incorporate input from the Advisory Group.**

### 14. Change Legislation Adopted in SB918

Combine with Topic #8.

## 15. Increasing public acceptance and/or building support for DPR projects

- Recommendation (Ray Tremblay): With the development of regulations, the state should lead a state-wide effort to obtain public support for DPR.
- Rationale: Without a broad coalition of support led by leading health officials, public acceptance of DPR may not be possible.
- Is there a role for NGOs? Will there be backlash from Sierra club?
- The recommendation could be to AWWA or CUWA or others to build some broad-based coalition so that we are not fighting these battles.

**ACTION ITEM: Ray Tremblay will rewrite this recommendation to incorporate input from the Advisory Group.**

## 16. Monitoring and outreach related to public health and safety of DPR

- Recommendation (Garry Brown): Develop a strong statement recommending a robust and constant monitoring regimen will be a vital component of any DPR process. This will include a constant search for CEC's and other potentially harmful constituents.
- Rationale: The public wants to know monitoring is robust and constant. Emphasizing the importance of this is as much a part of the public outreach campaign as it is a necessary part of the treatment process.
- We have seen that the public is most interested in monitoring and in the laboratory practices.
- The AG can develop a statement on the importance of a monitoring program. Recommend that there are appropriate monitoring and reporting requirements. We don't know if the Expert Panel is going to address this.
- Concern that once a facility begins monitoring they won't be permitting to drop any tests.
- Note that GWRS has been able to drop tests for which the water was consistently non-detect, but not for regulated constituents (MCLs).
- Monitoring should encompass source water quality, wastewater quality, and the conventional treatment plant. So the whole system has to be functioning optimally.

**ACTION ITEM: Garry Brown will rewrite this recommendation with support from Bruce Macler.**

## 17. Use of Bioassays

- Look at the findings of the Expert Panel's briefing paper. They have found that bioassays are not needed for DPR to move forward.
- Does DDW want the AG to comment on this during the public process in September? For us to comment formally on the public report from the EP
- Randy Barnard does not think a recommendation on this topic will be useful.

**ACTION ITEM: Follow up with Randy Barnard on whether it would be useful for Advisory Group to comment on the EP's Briefing Paper on Bioassays.**

## 18. Regulatory Framework for DPR

- Remove topic from consideration.

## 19. Replacing the Environmental Buffer in DPR Projects

- Recommendation (Julie Labonte): Try to be incremental in how we address DPR projects. Allow those with a small environmental buffer be dealt with differently than pipe-to-pipe projects.

**ACTION ITEM: Julie Labonte will write a draft recommendation and will combine with #26, Phasing of the DPR Regulations.**

## 20. Changes to the CCR (Consumer Confidence Report)

- Recommendation (Bruce Macler) The operational and water quality information that we are collecting, both from the WW side and at the end of treatment, be included in the CCR. The CCR has to include the appropriate elements from a DPR facility.

**ACTION ITEM: Bruce Macler will refine the draft recommendation before the next meeting.**

## 21. Role of the Advisory Group and the Expert Panel in developing criteria

**ACTION ITEM: Jim Fiedler will write this recommendation.**

## 22. Recommendations on Policy Issues

Remove topic from consideration.

## 23. DPR Implementation for Small Drinking Water Systems

Change to include ALL drinking water systems and combine with Topic #10.

## 24. Applicability of the DPR Framework to California

Remove topic from consideration.

**ACTION ITEM: List as a reference in the Recommendation Report.**

## 25. Optimization of Wastewater Treatment for DPR

- WW treatment plants are designed to meet NPDES standards.

- When we look at adding AWT we have to see what makes sense.
- Do we need to redesign the WW treatment plant? Let's figure out whose side of the fence the work is on.
- The EP is touching on source control and the reliability of the wastewater plant in their report.
- If anything is happening nationally at EPA, it's this part of the issue.

**ACTION ITEM: Ray Tremblay will write this recommendation with support from Bruce Macler and Traci Minamide.**

## 26. Phasing of the DPR Regulations

Combine with Topic #19.

## 27. Permitting for DPR Projects Prior to SWRCB's Finalization of the DPR Regulations

- Recommendation: The Advisory Group supports the current process, which allows DDW to assign permits on a case-by-case basis, lacking any legislation that may come out.

**ACTION ITEM: Jim Fiedler will write this recommendation with support from Mike Wehner.**

## 28. Regulatory Approach to Environmental Impacts (i.e., concentrate disposal)

- This is a regulatory issue because it may take an NPDES permit.
- How do we get synchronicity among other state agencies so that we are aligned? California Fish and Wildlife, etc.
- It is important that disposal of waste and tangential impacts too are considered by the appropriate agencies. This has to include the situation for inland agencies as well.
- In southern California they have ocean discharges and don't need to worry about this matter.

**ACTION ITEM: Jim Fiedler will write this recommendation with support from Bruce Macler.**

## 29. Effects of DPR on Environmental Flows

SWRCB has a process for this, and it affects any recycled water projects.

**ACTION ITEM: Conner Everts will follow up with Andria Ventura on this issue. Expect that Andria will write this recommendation with support from Traci Minamide and Ray Tremblay.**

## 30. Impacts of Conservation on Wastewater Flows

Remove from consideration.

## 31. DPR Research Priorities for California

Is there a need for research based on the EP report? Does the EP plan to identify research that needs to be completed before DPR projects can go forward?

**ACTION ITEM: Mike Wehner will write this recommendation.**

### **32. Effects of DPR on Projects on Water Rates**

**ACTION ITEM: Keith Solar will write this recommendation.**

## **8. UPDATE ON THE STATUS OF THE REPORT FORMAT**

The report format is still being developed. Garry Brown and Andria Ventura have submitted their initial comments on the organization of the report. The entire Advisory Group will discuss the organization at the next meeting.

## **9. MEETING ADJOURNMENT**

The meeting adjourned at 3:20 pm. The next meeting of the Advisory Group will take place on Friday, April 8, 2016, at Orange County Water District in Fountain Valley, California.

SWRCB Advisory Group to DDW and Expert Panel on Direct Potable Reuse  
Potential Topics to Address in Recommendations to DDW

| Topic No. | Topic   | Issues/Discussion Points/Recommendation   | Assigned to:                          | Reference Meeting No. and Minutes Page No. | Status of Recommendation   |
|-----------|---|---|---------------------------------------|--|--|
| 1         | Potable reuse terminology   | <b>Recommendation:</b> Utilize terms presented in the terminology document (to the extent practical) in the preparing reports and other documentation pertaining to potable reuse. <b>Rationale:</b> The terminology document is intended to reflect the multitude of terms associated with potable reuse. Definitions and alternative terms are provided to demonstrate the breadth of each term. Members of the public have been exposed to the terminology through individual agency potable reuse outreach efforts, and the State's use of consistent terms can help prevent confusion regarding their own public documents and communication.  | Dorman                                | Recommendation submitted via e-mail        | Complete   |
| 2         | Advanced Treatment Operator Training and Certification  | <b>NEED RECOMMENDATION.</b>   | Minamide                              | Meeting 5 (p 7)<br>Meeting 5 (p 10)        | Ad hoc committee is working on a draft recommendation                          |
| 3         | Need for Research or Briefing Papers to be Published in Peer-Reviewed Journals                                | <b>NEED RECOMMENDATION. Notes:</b> Authors will develop a short statement regarding why this work needs to be recognized by the scientific community. Must also take into account that the DDW report has a tight deadline, and time is needed for papers to under go the peer review process.  | Macler (LEAD)<br>SUPPORT: Spivy-Weber |  | Bruce and Fran to collaborate on a draft recommendation                        |
| 4         | Research on emerging contaminants (including low-dose chemical exposure)                                      | <b>Recommendation:</b> Study if and to what degree emerging contaminants are more concentrated or at higher levels in wastewater than in other drinking water sources and what that will mean to reducing exposure. <b>Rationale:</b> Emerging contaminants can affect public safety, can be a proactive step in anticipation of future regulations, and can affect the cost of DPR.  | Ventura                               | Recommendation submitted via e-mail        | Andria to write a draft recommendation   |
| 5         | Communications, including Public Outreach   | <b>Recommendation:</b> Develop an outline for an educational public outreach campaign, including examples of existing material developed in the U.S. and elsewhere. <b>Rationale:</b> The public/ratepayers must believe DPR is the best option for future water supply and it is safe and reliable. DPR will not go forward unless there is funding to construct treatment facilities. In most cases, this requires increases in fees to the ratepayers. <b>Additional notes:</b> Refer to the WateReuse document. Does the AG want to recommend that DDW commission a white paper on this topic? Consider framing the request for public outreach as a BMP. Look to the public meeting requirements in the GWR regulations. Adequate stakeholder involvement is desirable and encouraged. What should be required for inclusion in the CCR? | Brown                                 | Recommendation submitted via e-mail        | Garry to edit the recommendation to include points raised at AG meeting on 3/3 |
| 6         | Communications, White Paper   | Combine with Topic #5.  |                                       |  | No action needed.  |
| 7         | Determining the Feasibility of a Project (Triple Bottom Line)   | <b>NEED RECOMMENDATION. Notes:</b> Somewhere we need to look at the environmental impact of not putting water back into the system. We should look at competing interest of water reuse demand and water no longer going back to the environment and supporting the ecosystem.  | Solar                                 | Meeting 8 (p 9)                            | Keith to write a draft recommendation  |
| 8         | Distinction between potable reuse projects that include a surface water treatment plant and those that do not | (See 19 and 26). Advise the Expert Panel to consider direct-direct (no Surface Water Treatment Plant) and indirect-direct separately for the purpose of determining feasibility of developing criteria. DPR approach that includes a SWTP could be implemented in faster timeframe.   |                                       | Meeting 5 (p 16)                           |  |
| 9         | Items for New Legislation   | <b>ON HOLD.</b> Notes: What is the definition of DPR? EP has to address range of projects in continuum. Will the AG and EP reports mention research needs and gaps in the literature?   |                                       |  | No action needed.  |

SWRCB Advisory Group to DDW and Expert Panel on Direct Potable Reuse  
Potential Topics to Address in Recommendations to DDW

| Topic No. | Topic   | Issues/Discussion Points/Recommendation   | Assigned to:                                  | Reference Meeting No. and Minutes Page No. | Status of Recommendation   |
|-----------|---|---|---|--|--|
| 10        | Building Capacity/TMF   | <b>Recommendation:</b> DDW regulations should consider capacity of all system operators to practice DPR. <b>Rationale:</b> Not all communities have the resources and expertise necessary to ensure public health. <b>Additional Notes:</b> Use of current process for potable reuse. Incorporation and /or assessment of underserved areas. Create a program to support agencies that need assistance in developing TMF. Recognize that this is a big lift for some agencies.  | Tremblay (LEAD)<br>SUPPORT:<br>Macler, Everts | Recommendation submitted via e-mail        | Garry to edit the recommendation to include points raised at AG meeting on 3/3   |
| 11        | Environmental Justice   | <b>NEED RECOMMENDATION. Additional Notes:</b> Ensuring equitable use of technology. Issues for communities with no safe drinking water - can we provide guidance on options? Changes to the water code? Systems with experience in IPR will be in a better position to implement DPR.   | Ventura                                       | Meeting 7 (p 12-13)                        |  |
| 12        | Differences between the applications of DPR and other water sources   | <b>Recommendation:</b> Develop a brief summary of the material differences, benefits, and liabilities for an array of new water sources (including DPR, ocean desalination, stormwater capture, conservation, etc.). These are considered new sources of water but have major differences in application and benefit. <b>Rationale:</b> This issue is in the forefront of the public's conception of new water sources, especially since there are major desalination proposals being advanced throughout the State. DPR offers significant advantages over ocean desalination. At some point, there might be legislation proposed that stipulates an entity should not establish ocean desalination treatment facilities unless they already have an advanced treatment facility in place and operating. This dialogue is an integral part of public education. At the DPR Workshop for the Environmental Community, Sean Bothwell of the California Coastkeeper Alliance made this precise comparison in a presentation. We could ask that he summarize his presentation for our review. <b>Additional Notes:</b> Compare DPR with desalination, storm water capture, conservation, and other water sources. Look at array of options. Reframe. What is "need"? Refer to the Australian article (Conner). | Brown   | Recommendation submitted via e-mail        | Garry to edit the recommendation to encompass other alternative sources of water (stormwater capture, etc.) in addition to ocean desalination. |
| 13        | Stakeholder Participation in DPR regulatory development               | <b>Recommendation:</b> If the expert panel determines DPR is feasible and DDW begins to develop regulations, a group of stakeholders similar to what was done for the IPR/Groundwater recharge regulations should be formed. <b>Rationale:</b> Groundwater recharge regulations had a stakeholder group advising throughout the process. I am not aware there was a similar group for SWA. Mostly centered on the interests of San Diego. Now we have a set of controversial regulations that San Diego believes greatly reduce the feasibility of implementing a project under them. <b>Additional Notes:</b> What would be the role of the Advisory Group in the future? Will they assist with developing the regulations?  | Tremblay                                      | Recommendation submitted via e-mail        | Ray to edit the recommendation to include points raised at AG meeting on 3/3   |
| 14        | Change Legislation adopted in SB918                                   | <b>Recommendation:</b> Definition of DPR is too broad to include "direct direct" potable reuse (from advanced treatment to the customers) to "indirect direct" (i.e., feeding recycled water into a drinking water treatment plant before serving households). <b>Rationale:</b> These two approaches require different regulations because "indirect direct" has additional factors of safety to overcome the lack of environmental barrier. Without the water treatment plant, the "direct direct" approach will need to be far more redundant and robust.  | Tremblay                                      | Recommendation submitted via e-mail        | Combine with #8, 19, and 26  |
| 15        | Increasing public acceptance and/or building support for DPR projects | <b>Recommendation:</b> With the development of regulations, the state should lead a state-wide effort to obtain public support for DPR. <b>Rationale:</b> Without a broad coalition of support led by leading health officials, public acceptance of DPR may not be possible.   | Tremblay                                      | Recommendation submitted via e-mail        | Combine with ???????   |
| 16        | Monitoring and outreach related to public health and safety of DPR    | <b>Recommendation:</b> Develop a strong statement recommending a robust and constant monitoring regimen will be a vital component of any DPR process. This will include a constant search for CEC's and other potentially harmful constituents. <b>Rationale:</b> The public wants to know monitoring is robust and constant. Emphasizing the importance of this is as much a part of the public outreach campaign as it is a necessary part of the treatment process. <b>Additional Notes:</b> Draft a statement on the importance of a monitoring program. Recommend that there are appropriate monitoring and reporting requirements for assuring water quality and treatment performance. And source water and wastewater. And the conventional drinking treatment plant.   | Brown   | Recommendation submitted via e-mail        | Garry to edit recommendation to include additional points raised at AG meeting on 3/3.   |
| 17        | Use of bioassays to evaluate CECs and unknowns in recycled water      | <b>Recommendation:</b> AG will support the recommendations put forth in the Expert Panel's briefing paper on bioassays.   | NWRI  | Meeting 8 (p 16),<br>Meeting 3 (p 15)      | NWRI will draft a recommendation for AG to review  |

SWRCB Advisory Group to DDW and Expert Panel on Direct Potable Reuse  
Potential Topics to Address in Recommendations to DDW

| Topic No. | Topic  | Issues/Discussion Points/Recommendation   | Assigned to:                                       | Reference Meeting No. and Minutes Page No. | Status of Recommendation   |
|-----------|--|---|--|--|--|
| 18        | Regulatory framework for DPR   | <b>REMOVE FROM CONSIDERATION</b>  |  |  | No action needed.  |
| 19        | Replacing the environmental buffer in DPR projects                               | <b>NEED RECOMMENDATION. Notes:</b> Try to be incremental in addressing DPR projects. Deal with those projects with small environmental buffer to be dealt with differently. Enhanced monitoring is critical in products that do not have an environmental buffer; the industry needs to improve its work on monitoring. | Labonte  | Meeting 8 (p 6)                            | Julie will draft a recommendation for AG to review.                    |
| 20        | Changes to the Consumer Confidence Report (CCR)                                  | <b>NEED RECOMMENDATION. Notes:</b> Information on water quality in DPR projects should be included in the CCR.  | Macler   | Meeting 6 (p 5)                            | Bruce will draft a recommendation for AG to review                     |
| 21        | Role of the Advisory Group and the Expert Panel in developing criteria           | <b>NEED RECOMMENDATION. Notes:</b> What is role of AG and EP after Dec 2016?  | Fiedler  | Meeting 6 (p 6)                            | Jim will work with NWRI to draft a recommendation for the AG to review |
| 22        | Recommendations on policy issues   | <b>REMOVE FROM CONSIDERATION</b>  |  | Meeting 6 (p 6)                            | No action needed.  |
| 23        | DPR implementation for small drinking water systems                              | Combine with Topic #10 (TMF)  |  | Meeting 6 (p 6)                            | No action needed.  |
| 24        | Applicability of the DPR Framework to California                                 | <b>REMOVE FROM CONSIDERATION.</b> Reference the DPR Framework in the report.  |  | Meeting 5 (p 2)                            | No action needed.  |
| 25        | Optimization of wastewater treatment for DPR                                     | <b>NEED RECOMMENDATION. Notes:</b> In general, the wastewater industry has not been innovative. Systems that will implement DPR projects will need their affiliated wastewater facility to make changes so that the treated water will be appropriate source water.   | LEAD: Tremblay<br>SUPPORT:<br>Macler,<br>Minamide  | Meeting 5 (p 6)                            | Bruce, Ray, and Traci will collaborate on a recommendation             |
| 26        | Phasing of the DPR regulations   | Combine with Topic #19 (Replacing the environmental buffer in DPR projects)   | Labonte  | Meeting 5 (p 7)                            |  |
| 27        | Permitting for DPR projects prior to SWRCB's finalization of the DPR regulations | <b>NEED RECOMMENDATION. Notes:</b> The Advisory Group understands the current process and supports it (i.e., DDW writes permits on a case-by-case basis).   | Wehner   | Meeting 5 (p 16-17)                        | Mike will draft a recommendation for the AG to review.                 |
| 28        | Regulatory approach to environmental impacts (e.g., concentrate disposal)        | <b>NEED RECOMMENDATION. Notes:</b> This is a regulatory issue for the NPDES permit. How does an agency get synchronized with other water programs and state and federal agencies. Need to consider the waste stream (i.e., concentrate produced by RO systems). This is both a coastal and inland issue.                | Fiedler  | Meeting 5 (p 18)                           | Jim will draft a recommendation for the AG to review.                  |
| 29        | Effects of DPR on environmental flows  | <b>NEED RECOMMENDATION. Notes:</b> Issues related to how native species will be affected by projects that remove surface water from river flows. See the EPA paper on hydrologic alternation; CWA to regulate.  | LEAD: Ventura<br>SUPPORT:<br>Minamide,<br>Tremblay | Meeting 4 (p 16)<br>Meeting 3 (p 16)       | Andria, Traci and Ray to collaborate on a recommendation               |

SWRCB Advisory Group to DDW and Expert Panel on Direct Potable Reuse  
Potential Topics to Address in Recommendations to DDW

| Topic No. | Topic                                       | Issues/Discussion Points/Recommendation   | Assigned to: | Reference Meeting No. and Minutes Page No. | Status of Recommendation                           |
|-----------|---|---|--------------|--|--|
| 30        | Impacts of conservation on wastewater flows | REMOVE FROM CONSIDERATION   |              | Meeting 4 (p 17)<br>Meeting 2 (p 7)        | No action needed.                                  |
| 31        | DPR research priorities for California      | NEED RECOMMENDATION. Notes: There is a need for research based on the Expert Panel's report.  | NWRI         | Meeting 3 (p 3)                            | NWRI will draft a recommendation for AG to review  |
| 32        | Effects of DPR projects on water rates      | NEED RECOMMENDATION. Notes: Taxpayer and citizen groups will have concerns regarding the increased costs they may incur when DPR projects are implemented in their communities. | Solar        |  | Keith will draft a recommendation for AG to review |

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 1. Potable Reuse Terminology

**LEAD AUTHOR: Amy Dorman**

### **Recommendation:**

Utilize terms presented in the terminology document (to the extent practical) in the preparing reports and other documentation pertaining to potable reuse.

### **Rationale:**

The terminology document is intended to reflect the multitude of terms associated with potable reuse. Definitions and alternative terms are provided to demonstrate the breadth of each term. Members of the public have been exposed to the terminology through individual agency potable reuse outreach efforts, and the State's use of consistent terms can help prevent confusion regarding their own public documents and communication.

### **Background:**

Marsi Steirer presented a draft terminology document prepared by staff at City of San Diego at the February 2015 AG meeting. The purpose of the document was to illustrate the diversity in the terms used to describe potable reuse and expose inconsistencies. The AG formed an ad-hoc committee (chaired initially by Marsi Steirer, and now by Amy Dorman) to review and comment on the draft document. Randy Barnard cross-referenced the terms with the CA Water Code early in the process. The document was also distributed to stakeholder groups (CUWA, CWEA, LACSD, WateReuse, and WRRF). The document has been provided to the Expert Panel for their use (NOT for their approval; that would be under DDW's purview). The document is being formatted by NWRI to make it more report-friendly. It will be redistributed to the ad hoc committee for a final review.

### **NOTES from 03/03/2016:**

Amy Dorman will make any final changes needed.

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **2. Advanced Treatment Operator Training and Certification**

**LEAD AUTHOR: Traci Minamide**

### **Recommendation:**

**Insert recommendation here**

### **Rationale:**

**Insert rationale here**

**Background:** The AG formed an ad hoc committee (chaired by Traci Minamide) to consider issues related to training and certification for operators of advanced water treatment technologies. At the same time, the California Urban Water Agencies (CUWA) created their own committee to develop a white paper to present a recommended approach for potable reuse operator certification to DDW. The intention of CUWA was to submit the paper to DDW consideration in developing a statewide program certification program that is protective of water supply and public health. The white paper was released in January 2016. AWWA CA-NV is now soliciting feedback from stakeholders on the content of the paper. The AG ad hoc committee will meet to review that feedback and to discuss what the AG recommendation to DDW should be.

### **NOTES from 03/03/2016:**

The Ad Hoc Committee will write recommendations before the next meeting.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 3. Need for Research/Briefing Papers to be Published in Peer-Reviewed Journals

**LEAD AUTHOR:** Bruce Macler  
**SUPPORT:** Fran Spivy-Weber

**Recommendation:**  
Insert recommendation here

**Rationale:**  
Insert rationale here

**Background:** This topic was discussed at Meeting #2, and also came up at several Expert Panel meetings. The issue is that the SWRCB is more likely to accept recommendations based on research published in a peer-reviewed journal than on research from the “gray” literature. The AG has not discussed this issue at recent meetings. DDW notes that recommendations given to the EP should be separated from this report and provided in writing as soon as possible to both DDW and the EP if this has not already been done in another format.

### NOTES from 03/03/2016:

- Goal is to have research recognized by the scientific community.
- Reminder that DDW has to make recommendations to the state by December 2016. There’s no time to get these peer reviewed before then.
- Papers do not need to be published before the DDW report. Goal is to have citation available in the future. Researchers do not look at gray literature.
- Ask Fran Spivy-Weber if she wants to pursue this with a recommendation.

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**4. Research on Emerging Contaminants, including Low-Dose Chemical Exposure to COCs and CECs**

**LEAD AUTHOR:**        **Andria Ventura**  
**SUPPORT:**            **Conner Everts**

**Recommendation:**

Study if and to what degree emerging contaminants are more concentrated or at higher levels in wastewater than in other drinking water sources and what that will mean to reducing exposure.

**Rationale:**

Emerging contaminants can affect public safety, can be a proactive step in anticipation of future regulations, and can affect the cost of DPR.

**Background:** This topic was mentioned at several AG meetings, beginning with Meeting #2 during a discussion on recommendations related to out-of-spec water. Little is known about how low-dose chemical exposures affect vulnerable populations (i.e., developing fetuses, young children, pregnant women, etc.) and the AG believes it is important to consider this issue when developing regulations for potable reuse.

**NOTES from 03/03/2016:**

Conner Everts will follow up with Andria on this issue.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 5. Communications - Public Outreach

**LEAD AUTHOR:** Garry Brown

### **Recommendation:**

Develop an outline for an educational public outreach campaign, including examples of existing material developed in the U.S. and elsewhere.

### **Rationale:**

The public/ratepayers must believe DPR is the best option for future water supply and it is safe and reliable. DPR will not go forward unless there is funding to construct treatment facilities. In most cases, this requires increases in fees to the ratepayers.

**Background:** The topic of public outreach related to potable reuse projects has been discussed at length at several AG meetings. In particular, Meeting #3 included a presentation by Mark Millan of Data Instincts on a study his firm conducted in San Diego and Santa Clara on public opinion on DPR. There is consensus among the AG members that public outreach is essential to the success of any potable reuse project. However, AG members have also acknowledged that it may be premature to require agencies to do public outreach as part of the regulation, as any regulation may be too restrictive. The AG has expressed interest in inviting David Metz of FM3 to the next AG meeting to speak about his research on public attitudes toward potable reuse. They expect that the information he presents will inform their recommendation to DDW. Also, AG members have mentioned several times that it would be beneficial to capitalize on the increased media coverage of water resources issues that has occurred in response to the drought.

### **NOTES FROM 3/3/2016:**

- WateReuse has a document on how to do a public outreach campaign; the AG could just endorse what WRA did.
- Frame as a best practice that is part of a project
- Look at public meeting requirement in the GWR regulation. Do we say there needs to be a public meeting and adequate outreach based on the facility?
- Stakeholder involvement is desirable and encouraged
- CCR? Require reporting to the public.

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**6. Communications - White Paper**

**Combine with Topic #5 (Communications/Public Outreach)**

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **7. Determining Feasibility of a Project (Triple Bottom Line)**

**LEAD AUTHOR: Keith Solar**

### **Recommendation:**

**Insert recommendation here**

### **Rationale:**

**Insert rational here**

**Background:** The AG discussed what their role should be in determining the feasibility of undertaking a project. They made the point that there is no reliable resource listing the costs of energy, conservation, and other components associated with a reuse project. A Triple Bottom Line study would also include an evaluation of competing interests of water users (i.e., proponents of PR projects versus those who propose that the same water is used to support the ecosystem).N.B.: Rob Raucher and George Tchobanoglous are co-authoring a paper on triple bottom line. WRRF also has a project in the pipeline.

### **NOTES FROM 3/3/2016:**

- How does this topic fit into the recommendations?
- Keith Solar has raised issues related to cost and may be interested in working on the draft.

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **8. Distinction Between Potable Reuse Projects that Include a Surface Water Treatment Plant and those that Do Not**

**Combine with Topics 19 and 26 (Julie Labonte)**

**Background:** At Meeting #5 in May 2015 there was an extended discussion regarding DPR terminology and the distinction between what was referred to as “indirect-direct” potable reuse, which includes passing the water through a surface water treatment plant before routing it to a drinking water distribution system, and “direct-direct” potable reuse, which does not include a surface water treatment plant as part of the process. At that meeting the AG agreed they should advise the EP to consider these treatment processes separately. In addition, it was noted that DPR projects that include a surface water treatment plant could be implemented in a faster timeframe. The AG members agreed that for the purpose of determining the feasibility of potable reuse criteria, the EP should distinguish between potable reuse projects that include a surface water treatment plant and those that do not. Julie Labonte made this recommendation to the EP on behalf of the AG at the June 2015 EP meeting.

### **NOTES from 3/3/2016:**

The AG has already presented this recommendation to the Expert Panel, so may not need to address in the recommendation report to DDW.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 9. Items for New Legislation

**Place this topic on hold for now.**

**Background:** The AG mentioned at several meetings that they should identify potential items for new legislation. Randy Barnard (of both the AG and DDW) noted that the Group should be careful in requesting new legislation, because if new mandates are put in place then the new rules may be more restrictive than the AG intended. No specific items were proposed for new legislation.

### NOTES from 3/3/2016:

- EP has to address a range of projects in a continuum.
  - Is it better to have a regulation that covers everything?
- The Legislature defined SWA and DPR.
- The EP is looking at whether it is feasible to develop regulations.
- Once the report is submitted in December, what will be the next steps for DDW?  
What will they do with the document?
  - DDW will see what happens with the feasibility. With the lack of regulations we can still move forward with permitting projects.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 10. Building Capacity (TMF)

**LEAD AUTHOR:** Ray Tremblay  
**SUPPORT:** Bruce Macler  
**SUPPORT:** Conner Everts

### Recommendation:

DDW regulations should consider capacity of system utilities / operators to practice DPR.

### Rationale:

Not all communities may have the resources and expertise necessary to ensure public health.

**Background:** The topic of Technical, Managerial, and Financial (TMF) Capacity was discussed at several meetings, mostly in the context of the need to provide support to underserved communities that may benefit from potable reuse projects but lack the resources to develop and maintain these systems. At the most recent AG meeting, SWRCB staff presented a talk on their TMF capacity development program, which is designed to ensure that utilities, especially small systems, are able to provide water that meets all regulatory requirements. In addition, Al Lau presented an overview of what Padre Dam has done to develop capacity for its PR program.

### Notes from 3/3/2016:

- DDW already has a process to evaluate TMF. The AG could endorse their process.
- Are we saying that the TMF evaluation should be applied to potable reuse?
- The Health Department looks at the wastewater side too.
- There are many fewer wastewater treatment plants, and they are large, so they don't fall through the cracks. But drinking small water systems that don't have baseline capabilities cannot do an advanced treatment process.
- A small system that can barely meet its baseline needs cannot jump to a sophisticated program.
- You would have to do this kind of review even for a large community, like the city of Napa. Only the biggest so far have been able to do this. You can go down just one order of magnitude and find systems that cannot meet these requirements.
- Everyone agrees that a TMF analysis should be done. On this topic, it should be part of the DPR process.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 11.Environmental Justice

**LEAD AUTHOR:**        **Andria Ventura**  
**SUPPORT:**            **Conner Everts**

### **Recommendation:**

**Insert recommendation here.**

### **Rationale:**

**Insert rationale here.**

**Background:** AG members have expressed interest in if/how DDW can provide guidance to disadvantaged communities in California that have no safe drinking water. For example, is there a way to ensure equitable use of technology? Rural water agencies that could benefit from IPR/DPR projects are unlikely to have the financial resources available to develop and maintain these projects. This is related to the issue of building capacity (TMF).

### **NOTES from 3/3/2016:**

- There are communities with no access to no drinking water and no sewage.
  - There are other programs set up to address those issues.
- Regardless of lack of resources, Andria thinks there should be a program that would allow you to get to the point where you could do it (i.e., DPR)
- A community on septic isn't going to be doing reuse. There are only 700 POTWs in the state.
- A community with a groundwater contamination program would want to do a recharge project.
- None of the water agencies that could do a recharge project are small.
- Conner Everts will follow up with Andria on this recommendation.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 12. Differences Between Applications of DPR and Ocean Desalination

**LEAD AUTHOR:** Garry Brown  
**SUPPORT:** Conner Everts

### Recommendation (Garry Brown):

Develop a brief summary of the material differences, benefits, and liabilities for both ocean desalination and DPR. Both are considered new sources of water but have major differences in application and benefit.

**Rationale:** This issue is in the forefront of the public's conception of new water sources, especially since there are major desalination proposals being advanced throughout the State. DPR offers significant advantages over ocean desalination. At some point, there might be legislation proposed that stipulates an entity should not establish ocean desalination treatment facilities unless they already have an advanced treatment facility in place and operating. This dialogue is an integral part of public education. At the DPR Workshop for the Environmental Community, Sean Bothwell of the California Coastkeeper Alliance made this precise comparison in a presentation. We could ask that he summarize his presentation for our review.

**Background:** Garry Brown is developing a one-paragraph position statement for the entire AG to review and comment on. Garry suggests inviting Sean Bothwell, from the California Coastkeeper Alliance and who presented at the DPR Environmental Workshop, to draft objectively written text for the Advisory Group us on this issue.

### NOTES from 3/3/2016:

- Expand this topic to look at an array of options to include comparisons with other new water supplies in addition to ocean desalination (e.g., storm water capture, conservation)
- What is a "need"? Refer to the Australian article (Conner Everts)
- This recommendation could be an addendum; it could be more descriptive than just desal vs. DPR.
- On the question of desalination: without benefit of an expert panel, DDW has been able to permit a desalination plant. This is your lowest quality water. Is there anything useful in the desalination permitting process that would inform the AG on the DPR issue?
- Garry will ask Sean Bothwell to help draft this item.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 13. Stakeholder Participation in DPR Regulatory Development

**LEAD AUTHOR:** Ray Tremblay  
**SUPPORT:** Jim Fiedler

### Recommendation (Ray Tremblay):

If the expert panel determines DPR is feasible and DDW begins to develop regulations, a group of stakeholders similar to those for the IPR/Groundwater recharge regulations should be formed.

### Rationale:

Groundwater recharge regulations had a stakeholder group advising throughout the process. I am not aware there was a similar group for SWA. Mostly centered on the interests of San Diego. Now we have a set of controversial regulations that San Diego believes greatly reduce the feasibility of implementing a project under them.

### NOTES from 3/3/2016:

- No one knew what was going on in San Diego. There should be stakeholder input as the regulations are being developed.
- What could be a role for this or any future advisory group? Could we assist in this way (i.e., with the development of the regulations?)
- The AG can provide recommendations to DDW that will not necessarily need to go into the report.

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **14. Change Legislation adopted in SB918**

**Do we want to combine with topics related to the DPR continuum (Topics #8 and #19, on which Julie Labonte is the lead author)**

**LEAD AUTHOR: Ray Tremblay**

### **Recommendation:**

Definition of DPR is too broad to include "direct direct" potable reuse (from advanced treatment to the customers) to "indirect direct" (i.e., feeding recycled water into a drinking water treatment plant before serving households).

### **Rationale:**

These two approaches require different regulations because "indirect direct" has additional factors of safety to overcome the lack of environmental barrier. Without the water treatment plant, the "direct direct" approach will need to be far more redundant and robust.

### **NOTES from 3/3/2016:**

- This is related to the issue on the DPR continuum (Topics #8 and 19). May want to combine with those when writing the recommendation.

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**15. Increasing Public Acceptance and/or Building Support for DPR Projects**

**LEAD AUTHOR: Ray Tremblay**

**Recommendation:**

With the development of regulations, the state should lead a state-wide effort to obtain public support for DPR.

**Rationale:**

Without a broad coalition of support led by leading health officials, public acceptance of DPR may not be possible.

**NOTES from 3/3/2016:**

- Is there a role for NGOs?
- Will there be backlash from Sierra Club?
- The recommendation could be to AWWA or CUWA or others to build some broad-based coalition so that we are not fighting these battles.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 16. Monitoring and Outreach Related to Public Health and Safety of DPR

**LEAD AUTHOR:** Garry Brown  
**SUPPORT:** Bruce Macler

### Recommendation:

Develop a strong statement recommending a robust and constant monitoring regimen will be a vital component of any DPR process. This will include a constant search for CEC's and other potentially harmful constituents.

### Rationale:

The public wants to know monitoring is robust and constant. Emphasizing the importance of this is as much a part of the public outreach campaign as it is a necessary part of the treatment process.

### Notes from 03/03/2016:

- Statement on the importance of a monitoring program.
- Recommend appropriate monitoring and reporting requirements for assuring water quality and treatment performance.
- Monitoring is necessary to ensure source water quality, wastewater quality, and the conventional treatment plant. So the whole system has to be functioning optimally.
- On the GWRS tour the public is most interested in monitoring and in the laboratory practices.
- Develop a statement on the importance of a monitoring program. Recommend that there are appropriate monitoring and reporting requirements. We don't know if the Expert Panel is going to address this.
- Comment that once a plant begins monitoring they won't be permitted to drop any of those tests.
  - Not true; they've been able to stop monitoring for some constituents in the GWRS. But not for MCLs; those will always be required.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 17. Use of Bioassays to Evaluate CECs and Unknowns in Recycled Water

**LEAD AUTHOR: Randy Barnard**

### Recommendation:

Insert recommendation here

### Rationale:

Insert rationale here.

### Background:

- CECs are not regulated - how would we use the bioassay info?
- Issues with interferences
- In vitro bioassays could be a valuable tool
- Can we use bioassays to set regulatory limits?
- Why would we want to pursue bioanalytical tools?
- After 9/11 there was a lot of interest in developing analytical devices to track what's in water, but not clear how bioassays would be part of an operational plan
- 

### Notes from 03/03/2016:

- Does DDW want the AG to comment on this during the public process in September?
- Another option would be for AG to say that they support the findings of the EP's Briefing Paper on Bioassays.
  - Should the AG comment formally on the public report from the Expert Panel?
  - Randy Barnard did not think it would be useful.

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **18. Regulatory Framework for DPR**

**REMOVE from consideration.**

### **NOTES:**

- Other than TMF review, what else is involved in permitting?
- Issues related to drinking water permits and wastewater permits.
- Regional Boards regulate for NPDES and source control
- Water Rights is also an issue
- Building relationship between recycling agencies and water agencies is big part of the process.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 19. Replacing the Environmental Buffer in DPR Projects

**LEAD AUTHOR: Julie Labonte**

### **Recommendation:**

Try to be incremental in how we address DPR projects. Allow those with a small environmental buffer be dealt with differently than pipe-to-pipe projects

### **Rationale:**

**Insert rationale here.**

### **NOTES from 03/03/2016:**

- A number of things will need to be done to replace the environmental buffer
- Enhanced monitoring is critical.
- The industry needs to improve monitoring.
- SWA or DPR
- Try to be incremental in addressing DPR projects.
- Projects with small environmental buffer to be dealt with differently.

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**20. Changes to the CCR (Consumer Confidence Report)**

**LEAD AUTHOR: Bruce Macler**

**Recommendation:**

The operational and water quality information that we are collecting, both from the wastewater side and at the end of treatment, should be included in the CCR. The CCR needs to include the appropriate elements from a DPR facility.

**Rationale:**

Insert rationale here.

**Background:**

- Should the AG comment on CCR and public notice?
- List source as "recycled"?
- The AG could offer thoughts on changes with CCR.
- We list the source as GW for IPR GRRPA

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **21. Role of the Advisory Group and the Expert Panel in Developing Criteria**

**LEAD AUTHOR: Jim Fiedler**

### **Recommendation:**

**Insert recommendation here.**

### **Rationale:**

**Insert rationale here.**

### **Notes from 03/03/2016:**

- The agreement with DDW called for both the AG and the EP to operator until December 2016, which is when DDW must submit their report to the legislature.
- What happens to both groups after the end of the year?
- Does the AG have a continuing role?

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**22. Recommendations on Policy Issues**

**REMOVE from consideration.**

**BACKGROUND:**

It was mentioned at a previous meeting that the Advisory Group should incorporate policy issues into the recommendations report. However, no specific policies were suggested.

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**23. DPR implementation for small drinking water systems**

**COMBINE with Building Capacity/TMF (Topic #10). Lead Author for #10 is Ray Tremblay.**

**Background:**

- Small water systems (less than 100,000 gallon per day) have different needs and would require a different approach in implementing a DPR project
- Need to consider TMF for these facilities

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **24. Applicability of the DPR Framework to California**

**REMOVE from consideration.**

**List the DPR Framework as a reference in the AG's report to DDW.**

### **Rationale:**

**The EP is already covering this topic and the AG does not need to comment.**

### **Background:**

- George Tchbanoglous presented the content of the DPR framework document to the Advisory Group at Meeting #5
- Do any of the AG members want to provide feedback on this report regarding how DDW might incorporate report content into their own recommendations to the legislature?

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**25. Optimization of wastewater treatment for DPR**

**LEAD AUTHOR:** Ray Tremblay  
**SUPPORT:** Bruce Macler  
**SUPPORT:** Traci Minamide

**Recommendation:**

**Insert recommendation here.**

**Rationale:**

**Insert rationale here.**

**Background:**

- In general, the wastewater industry **has not been innovative**, and continues to use practices that some would consider outdated.
- Current practices are not optimal to produce source water for DPR

**NOTES from 03/03/2016**

- WW treatment plants are designed to meet NPDES standards. When we look at adding AWT we have to see what makes sense. Do we need to redesign the WW treatment plant?
- Let's figure out whose side of the fence the work is on.
- Write a statement on how wastewater facilities should be considered.
- As WW treatment plants are modified, what changes need to be made to produce appropriate source water?
- The EP is touching on source control. And they are looking at the reliability of the wastewater plant too. They are not just focusing on the advanced treatment.
- If anything is happening nationally at EPA, it's this part.

# **State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **26. Phasing of the DPR Regulations**

**COMBINE with Replacing the Environmental Buffer in DPR Projects (Topic #19)  
Lead author for #19 is Julie Labonte.**

### **Background:**

- Agencies that are trying to move forward with potable reuse projects are impatient for the regulations to be approved
- A phased approach would be helpful so that agencies could have some certainty that their designs can be permitted and will comply with regulations

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## **27. Permitting for DPR Projects Prior to SWRCB's Finalization of the DPR Regulations**

**LEAD AUTHOR:**            **Jim Fiedler**  
**SUPPORT:**                **Mike Wehner**

**Recommendation:**  
**Insert recommendation here.**

**Rationale:**  
**Insert rationale here.**

### **Background:**

- Groundwater recharge projects have been approved without regulations in place
- AG questioned as to whether projects could still be permitted while the regulations are in development
- Bruce Macler commented that there is nothing in the federal regulations to prohibit DPR projects

### **NOTES from 03/03/2016:**

- DDW can issue permits on a case by case, lacking any new legislation that may prohibit them from continuing to do so.
- The AG supports the current process.

**State Water Resources Control Board Division of Drinking Water  
Advisory Group to DDW and Expert Panel on Direct Potable Reuse**

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

**28. Regulatory Approach to Environmental Impacts (i.e., concentrate disposal)**

**LEAD AUTHOR:** Jim Fiedler  
**SUPPORT:** Bruce Macler

**Recommendation:**  
Insert recommendation here.

**Rationale:**  
Insert rationale here.

**Background:**

- Agencies are trying to expedite potable reuse projects, and it would be helpful to have a better concept of how these projects affect the environment
- Most projects will use reverse osmosis, so concentrate disposal is an issue
- Important to minimize any hindrance to DPR

**NOTES from 03/03/2016:**

- This is a regulatory issue because it may take an NPDES permit.
- How do we get synchronicity among other state agencies so that we are aligned? California Fish and Wildlife, etc. We don't want to lose sight of this.
- Important that disposal of waste and tangential impacts too are considered by the appropriate agencies. This has to include the situation for inland agencies as well.
- In southern California they have ocean discharges and don't need to worry about this matter.
- Need to consider all waste streams.
- Inland and coastal locations have different issues.
- Combined or separate.

# State Water Resources Control Board Division of Drinking Water Advisory Group to DDW and Expert Panel on Direct Potable Reuse

Potential Topics to Address in Recommendations to DDW

Includes Notes from Discussion from Meeting #9, held March 3, 2016, at SFEI

## 29. Effects of DPR on Environmental Flows

**LEAD AUTHOR:** Andria Ventura  
**SUPPORT:** Traci Minamide  
**SUPPORT:** Ray Tremblay

### Recommendation:

Insert recommendation here.

### Rationale:

Insert rationale here.

### Background:

- Need to balance the need for the source of drinking water with environmental needs
- How do we balance the tensions between using wastewater for potable reuse with the need to return water to the environment to support ecosystems and environmental flows?

### NOTES from 03/03/2016:

- There are concerns with native species when pulling water out of surface water.
- SWRCB has a process for this, and it affects any recycled water projects.
- Would not expect DDW or this process to address this issue.
- See EPA paper on hydrologic alternation – CWA to regulate(?)

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**30. Impacts of Conservation on Wastewater Flows**

**REMOVE from consideration.**

**Background:**

- Water use efficiency is improving
- Less water is being delivered to individual homes and businesses
- How does conservation affect potable reuse?
- As less water is used, less wastewater flow is available, and the wastewater that is produced has different characteristics/is more concentrated

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## 31. DPR Research Priorities for California

**LEAD AUTHOR: Randy Barnard**

### **Recommendation:**

**Insert recommendation here.**

### **Rationale:**

**Insert rationale here.**

### **Background:**

- The State Board has held several Recycled Water Research Needs Workshops. Any major realizations?
- There has been discussion on research needs, operational needs, implementation needs, and regulations and treatments
- May need to look at human aspects like certification as well.
- NWRI will help AG identify the need for research based on the recommendations of the EP report.

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**32. Effects of DPR Projects on Water Rates**

**LEAD AUTHOR: Keith Solar**

**Recommendation:**

**Insert recommendation here.**

**Rationale:**

**Insert rationale here.**

**Background:**

- Taxpayer and citizen groups will have concerns regarding the increased costs they may incur when DPR projects are implemented in their communities.