DRAFT
MINUTES OF MEETING NO. 7
State Water Resources Control Board Division of Drinking Water
Advisory Group for Expert Panel on Direct Potable Reuse
October 22, 2015

Chair Garry Brown called to order the sixth 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 October 22, 2015, at the San Francisco Estuary Institute (SFEI) in Richmond, California. The meeting was facilitated by the National Water Research Institute (NWRI).

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
- Traci Minamide, City of Los Angeles, Bureau of Sanitation
- Keith Solar, San Diego County Taxpayers Association
- Ray Tremblay, Los Angeles County Sanitation Districts
- Andria Ventura, Clean Water Action

Others Present:

- Mark Bartson, California State Water Resources Control Board
- Brian Bernados, California State Water Resources Control Board
- Jing Chao, California State Water Resources Control Board
- Suzanne Faubl, National Water Research Institute
- Robert Hultquist, California Department of Public Health (retired)
- Amanda Kupp, CH2M
- Zoe Lake, Delta Diablo
- Karen Larsen, California State Water Resources Control Board
- Rich Mills, California DWR
- Jeff Mosher, National Water Research Institute
- Brian Olney, Helix Water Distrct
- Toni Pezzetti, California DWR
- Sherly Rosilela, California State Water Resources Control Board
- Melanie Tan, Kennedy/Jenks Consultants

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

- Lisa Bernard
- James Bolton
- Cathleen Brennan
- Abigayle Carevic
- Heather Collins
- James Common
- Denise Conners
- Rachel Davenport
- Ufuk Erdal
- Tom Hall
- Jennifer Jacobus

- Alexandra Lichtenberg
- Jessica Midbust
- Kris Olof
- Michael Priest
- Kim Rosmaier
- Sarah Rhodes
- Tom Richardson
- Kurt Souza
- Nicolle Steiner
- Christopher Stevens
- Peter von Langen
- Jennifer West

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1. WELCOME AND INTRODUCTIONS

Garry Brown, Chair of the Advisory Group, called the meeting to order and acknowledged members of the public participating via teleconference and webinar.

2. REVIEW AND APPROVAL OF AGENDA

Garry Brown, Chair of the Advisory Group, asked for comments on the agenda. No comments.

3. REVIEW AND APPROVAL OF MINUTES FROM PREVIOUS MEETING

The minutes of Advisory Group Meeting #6, held on July 29, 2015, was presented to the Advisory Group. A motion was made to approve the minutes. The motion was seconded and approved unanimously.

4. PUBLIC COMMENTS, INCLUDING PUBLIC COMMENTS ON MATTERS NOT ON THE AGENDA

Jim Fiedler mentioned that Santa Clara Valley Water District will hold an informational open house on Saturday, October 24, 2015, from 9:30 a.m. to 3 p.m. at the SVAWPC Open House. Visitors can learn more about the advanced purification center, which produces 8 million gallons a day of highly purified water that meets California drinking water quality standards.

5. STATE WATER RESOURCES CONTROL BOARD UPDATE

Mark Bartson, Supervising Sanitary Engineer, State Water Resources Control Board's Division of Drinking Water, delivered an update on deadlines and deliverables for the DDW Expert Panel (EP) and discussed the role of the Advisory Group (AG). Key points from his presentation are provided below.

- Briefing Papers
    - Topics, schedule/assignments, and preparation guidelines are completed and have been distributed to the authors
- AG Participation and Deliverables
    - Advise DDW on practical considerations
        - Operator certification and training
        - Terminology

        - Other topics?
    - Advise the EP on development of criteria
        - AG representative at EP meeting
        - EP representative at AG meeting
        - Submit input on findings and recommendations on briefing papers
- DDW Deliverables to the Public and Legislature
    - Draft report (by DDW) on EP Recommendations focusing on research needs
        - Due June 30, 2016
- Milestones and Statutory Deadlines
    - EP: conducts meetings to address key topics (Dec-Apr 2016)
    - EP: holds additional calls/meetings as needed to finalize the Briefing Papers and the Final Report (May–Jun 2016)
    - EP: submits briefing papers and recommendations and DDW and AG (Jan–Jun 2016)
    - DDW: Draft report on EP recommendation focusing on research needs (Jun 30, 2016)
    - DDW: Internal review of draft DPR feasibility report (mid-June, 2016)
    - DDW: Public review draft release of DPR feasibility report (Sep 1, 2016)
        - AG may wish to submit a formal response to the draft during public review
    - DDW: End of public review period (minimum 45 days) (Oct 15, 2016)
    - Final report to the legislature (Dec 31, 2016)

ACTION ITEM: Schedule a single agenda-item Advisory Group meeting during the Public Review period (Sept 1-Oct 15, 2016) to discuss the draft report and write a response.

DISCUSSION: What is the Advisory Group's role as the report moves forward?

- Need to decide how to conduct the meeting when the AG reviews the briefing papers.
    - Important to plan so that the AG can have a productive discussion.
    - Should discuss this issue with Adam Olivieri.
    - EP is concerned that if they must wait for the AG to weigh in, that might delay the schedule of the EP.
        - Best option may be for AG to review the final briefing papers and then submit recommendations directly to DDW.
        - Advantage is that they will not delay the EP but will still have an opportunity to provide feedback.
            - Would be beneficial for AG to provide input to EP on topics soon because they are currently determining the scope of these topics.
        - DDW will include a summary of the AG's comments in their feasibility report.
            - Consistent with the legislation: DDW is to consider both the EP's decision and the AG's input.
        - AG members are interested in seeing to what degree DPR is feasible.
            - Not all parts of the state are equal in their technical capabilities and economics. There is interest in making DPR as equitable a resource as possible throughout the state.
                - Noted that the EP is not including economic feasibility in their papers, and the idea of capacity would be a great topic for the AG to weigh in on.
                    - It's written in the regulations that the system has to have the capacity, but this would be taking it to the next level to evaluate which communities can do this. But DDW

does not have a direct way to measure TMF. The agency has to show us what they are going to do.

ACTION ITEM: Identify representative from DDW to present at the next AG meeting on how to evaluate a water agency's capacity to implement advanced treatment. What information do they need, etc. Add this presentation as an Agenda Item for Meeting #8.

- The AG needs this information to come up with a more informed opinion on this topic. Also, the economic question (TMF) applies to all projects, not just DPR.

COMMENT from Julie Labonte: The AG has a narrow focus, terminology and operator training. The eight topics that the EP will address are very technical. The panel members will get into the scientific details, but it is important to get input from those of us who will be implementing these projects. I'm not sure how we will go about putting a process together to build that chapter of the report. We are not the people to question the experts on these issues, but we can provide a different point of view. We can come up with some amazing plans but if no one can implement these regulations, then what is the point? DDW needs to tell us how they would like us to help.

ACTION ITEM: Create an outline that lists the topics that the AG would weigh in on.

COMMENT from Randy Barnard: We do have the ability to form subcommittees. I remember when we brainstormed at the beginning that we came up with terminology and operator training and certification. All of our feedback will be incorporated into the report.

COMMENT from Conner Everts: I'd like to reiterate the opportunity that we have here with the drought. We need to take advantage of having people here who do outreach.

- Presentation to State Water Board on December 15
    - SWRCB gets many questions on the status of the EP
    - Good opportunity to speak with the Board in a public setting
        - Overall status of the project
        - Next steps/meeting deadlines
        - Presentations by project participants
            - DDW staff (Karen Larsen, Mark Bartson)
            - Expert Panel chair (Adam Olivieri)
            - Advisory Group representative
                - Suggested that someone in the industry represent the Advisory Group (Jim Fiedler from SCVWD)
                    - AG members agreed that Jim should be the representative
                    - Andria Ventura and Conner Everts offered to attend as audience members to support Jim

COMMENT from Karen Larsen: With the safe drinking water plan we had a number of recommendations and we had to decide what to implement. Also, we anticipate that during the public comment period we will have another information item in front of our board.

COMMENT from Jim Fiedler: We're in a drought and will be in dire water conditions a year from now. There's a lot of public and political momentum surrounding this, and the agencies are going to keep moving forward.

COMMENT from Andria Ventura: I would suggest that we have a frank discussion amongst ourselves on what we would like to see a legislature pick up and move with, because some of us has the capacity to that at the agency and NGO level. If we identify priorities, that might be a good way to move forward.

REPONSE from Randy Barnard: We have to be very careful how we word any proposal. That could tie our hands if it is implemented.

6. REPORT FROM THE AD HOC COMMITTEE ON OPERATOR TRAINING

Traci Minamide, chair, provided an update on the committee's activities.

- Earlier this week we attended a workshop organized by CUWA
- Water and wastewater treatment operators – do they have the training and the validation through SWRCB that is necessary to operate advanced treatment systems?
    - CUWA has been discussing this along with AWWA and CEWA
    - Suggested that a white paper be developed to address the topic
- Workshop was based on CUWA's survey of operators and agencies
    - Workshop attended by many water agencies and SWRCB staff
    - Overarching goal is to ensure public health and safety
        - Need to make sure there is public acceptance of potable reuse
            - Technology of AWT is reliable
            - Equipment provides adequate treatment
            - Although these systems are highly automated, operators must be trained to respond appropriately
        - Program should cover both IPR and DPR
            - Some agencies already have IPR in place
            - No regulations for DPR yet
            - Need to make sure that a certification program will cover the entire range of treatment technologies
        - CUWA White paper
            - Suggested four alternative scenarios
                - Best approach is a certification that supplements current certification for drinking water or wastewater operators
                - One certification for both career paths
                    - Need to work out details of how much experience is required, content of exams, etc.
                - Focus on the operator's role and accountability
            - Implementation
                - Takes time and money to create a new certification
                - We see this as a SWRCB program
                    - In the interim, our trade organizations (AWWA, CEWA) can serve this purpose, with the state's endorsement
                    - Need to get something in line for the facilities that are already doing AWT
                    - Funding- how can we help the state?
            - AWT versus DPR – operator requirements
                - RO being used to treat brackish water to augment the drinking water supply
                - Remediation of groundwater with non-traditional treatment

    - Would the operators need to have this certification?
        - Participants were leaning toward requiring the certification for potable reuse only
        - If specific to potable reuse, we can focus in on source control, response time, and other issues that may not be as critical in the other facilities
- Workshop participants asked each other: who would need to have the certification? Just the chief operator, or others in the organization?
    - Certification requirements could depend on how the facility is rated (level 5 versus 3.)
    - Current ratings are based on capacity
        - The levels in place now are widely spaced and all DPR facilities would be Level 1 (i.e., the smallest capacity water treatment plants)
        - Do we need to determine more useful categories for the levels?

QUESTION from Andria Ventura: If a utility is already using advanced treatment to deal with a difficult contaminant, will they need to have this certification?

RESPONSE from Jeff Mosher: Those operators are already being trained by the vendors and the consultants who are installing their treatment systems, so we don't see a need for them to receive additional training.

RESPONSE from Traci Minamide: If they wanted to convert their system to direct potable resuse (DPR) then they would need to acquire the certification.

RESPONSE from Brian Bernados: Also remember the distinction between training and certification. This is a work in progress. And a recycled tertiary plant would not fit into the training and certification program that is being developed.

COMMENT from Jim Fiedler: It may make sense for the certification to depend on the quality of the source water.

COMMENT from Jeff Mosher: The unit processes are different depending on the treatment plant. For example, the reverse osmosis (RO) process in a desalination plant is there to removal salts, but the RO in a DPR facility is also designed to remove pathogens and trace organics. So unit processes will have different pretreatments, operations, and monitoring, depending on the purpose of the treatment.

- Grandfathering
    - Some agencies are already doing this work and the operators have the experience
- Career mobility
    - How do we get operators interested in attaining this certifications?
        - Incentives
- Operating costs
    - Premium salary for certified operators
    - We should be willing to pay for the value these operators provide
- AG should provide recommendations to the state
- White Paper will be wrapped up by December 2015
    - We can review and refine which points we want to make to SWRCB

COMMENT from Julie Labonte: Is a draft of the CUWA white paper being distributed? Do we want to comment on it?

RESPONSE from Jeff Mosher: The folks at the workshop did a great job covering many issues and they made a lot of progress. A good approach would be to let them finish their process. And then the full AG can review it and emphasize the points that you like and provide that as advice back to DDW. Or you could endorse the entire paper if you agree with it.

AUIDENCE QUESTION: Will the best practices be presented to the operators? That is a role that AWWA and CEWA will play, since they have direct access to these folks.

QUESTION from Garry Brown: To go to DPR does the curriculum exist or would this be totally new?

RESPONSE from Brian Bernados: Some curriculum needs to be further developed. That's part of what we are doing – looking at existing curriculum and identifying the gaps. There is industrial knowledge based on critical control points and WateReuse is creating some reports on this topic.

RESPONSE from Traci Minamide: Many utilities have their own formal in-house training. Everyone is relying on that right now.

7. REPORT FROM THE AD HOC COMMITTEE ON DPR TERMINOLOGY

Amy Dorman, chair, provided an update on this committee's activities.

- Terminology document proposed as a tool for the Expert Panel to use when preparing their work product
- Initial draft completed with help from WateReuse
    - Randy Barnard cross-referenced with Water Code
- Stakeholder Groups invited to provide feedback
- At July meeting the Advisory Group provided feedback
- Next Steps
    - NWRI is editing and reformatting the document
    - Distribute revised version to ad hoc committee (Nov 2015)
    - Send to AG and DDW for final review (Nov 2015)

QUESTION from Ray Tremblay: AWWA finished up a terminology document. How does this fit in?

RESPONSE from Jeff Mosher: Theirs is a national document and they want to standardize term for everyone. We don't want to do that. The document is specific to California and we are proposing working definitions for the DDW Expert Panel on DPR to use.

AUDIENCE QUESTION: Can you provide examples of discrepancies?

RESPONSE from Jeff Mosher: We use "Recycled Water" in California, and they use "Reclaimed Water" in Florida. As another example, the term "Tertiary Treatment" is used to refer to different treatments.

QUESTION from Garry Brown: There was a request to redefine potable reuse. What did that include?

RESPONSE from Jeff Mosher: That would be difficult to do because there are many distinctions based on regulatory definitions.

COMMENT from Jim Fiedler: We took this task on to provide terminology to the EP for use in reports and in communicating with the public, so the audience is the lay person, not the expert or regulator.

8. REVIEW OF SEPTEMBER 23, 2015 DPR SEMINAR AND
9. UPDATE AND REVIEW OF EXPERT PANEL ACTIVITIES

Jeff Mosher of NWRI provided a recap of the DPR Specialty Seminar held last month and a status update on the activities of the DDW Expert Panel on DPR. A summary of his presentation is provided below.

- Meeting #6 of the Expert Panel was held Sept 23-23, 2015, in Berkeley
- September 23 (Day 1) was "DPR in California Specialty Seminar"
- Morning presentations focused on how to implement DPR
    - California Water Supply Plan: Where Does Recycling Fit In? by Frances Spivy-Weber, SWRCB
    - Regulating Potable Reuse in California, by Robert Hultquist, California Department of Public Health
    - OCWD: Groundwater Replenishment System, by Jason Dadakis, OCWD
    - The Future of Potable Reuse, by George Tchobanoglous, UC Davis
    - Update on the WateReuse Research Initiative, by Julie Minton, WateReuse
        - WateReuse published the DPR Framework document
        - Purpose is to provide an overview of the key elements that make up a DPR program and a framework for assessing the specific topics and issues that need to be addressed
        - List of Independent Advisory Panel that wrote the framework
        - Organization of the Framework document
        - Venn diagram showing Barriers to DPR
            - Regulatory concerns
            - Utility concerns
            - Community concerns
        - WRRF Project 15-01
            - Synthesis of findings across all WRRF reports
            - Will be presented to the DDW Expert Panel
            - Also useful to other regions interested in implementing potable reuse
            - Nine papers will be written in parallel
            - Topics are meant to be general
            - George Tchobanoglous is technical lead and lead editor
            - Schedule
                - Will submit draft reports to Expert Panel by January so that EP can incorporate findings into their recommendations
                - Final reports will be produced later in 2016
- DPR Seminar afternoon presentations addressed challenges associated with implementing DPR
    - Design of High-Throughput Screens and their Applications in the Biomedical Sciences, by Michael Denison, UC Davis
    - Translating HTP Bioassay Results to Risk Estimates, by Kevin Crofton, US EPA Computational Toxicology Program
    - Issues Related to Application of Bioassays to Wastewater and Drinking Water, by Richard Bull, Washington State University (retired)
    - Shane Trussell, Trussell Technologies
- September 24 (Day 2) morning meeting with DDW staff and afternoon closed session
    - SWA Criteria – discussed revisions and conceptual draft letter
        - Panel reviewed DDW's draft SWA criteria in June

        - Panel will provide an "Expert Panel finding of proposed criteria for regulating IPR of AWT by SWA in California AFTER:
            - DDW completes additional internal State Board review
            - Panel reviews DDW's proposed revisions to the criteria
    - Briefing Paper Topics
        - 1. Bioanalytical Tools: Issues related to Use in Advanced Treated Wastewater (ATW) and Drinking Water
        - 2. Quantifying Treatment Facility Reliability
        - 3. Analytical Methods/Tools for Measuring Chemical Water Quality in ATW and Drinking Water
        - 4. Molecular and Other Methods
        - 5. Antibiotic Resistant Bacteria and Antibiotic Resistant Genes
        - 6. Potential Health Risk Assessments Associated with Existing Potable water supplies subject to discharge from municipal wastewater, storm water, and agricultural runoff
        - 7. Public health surveillance

QUESTION from Mark Bartson: Isn't there a project that focuses on Colorado River water?

RESPONSE from Jeff Mosher: WEF is initiating with WERF to expand on this for DPR. For public health surveillance, can the community have some sort of oversight to make sure they are not experiencing any health affects as a result of the DPR project? This might be based on what is already done in hospitals. A public health agency might be doing this instead of the water agency. In New York City they did a surveillance program looking at antidiarrheal medications purchased. Outbreaks are tracked, whether from food or waterbourne illness, and those are reported to CDC.

- Timeline for Future Expert Panel Meetings
    - Meeting #7: December 1-2, 2015, in Orange County
        - Topics 1, 2, 3
    - Meeting #8: February 23-24, 2016, in San Jose
        - Topic 5: Antibiotic resistant bacteria (ARB) and antibiotic resistant genes (ARG)
    - Meeting #9: June 2016
        - Might schedule an additional meeting before June to deal with the molecular methods issue because Joan Rose cannot attend the February dates

Andria Ventura asked if she could attend meeting #8. She is interested in antibiotic resistant bacteria.

COMMENT from Jennifer West (on telephone): I know you are focused on DPR but this issue also deals with SWA. This is linked with what is defined as DPR. As we look at what is defined in the SWA, the draft criteria will be mainly applicable to large drinking water reservoirs at this time. We want this to be applied to as many projects as possible. As we were looking at this, we were under the impression that if you didn't mean the strict criteria there would be an alternative permitting process similar to the IPR regulations. What projects become DPR will be very important. There's less comfort with the use of the term DPR than with the term Surface Water Augmentation project. We are looking at this being a much broader class of project than we were thinking before. We want a provision in the regulation for permitting projects that don't meet the retention time criteria. We understand that DDW has permitting authority over DPR. The issue is having the project called DPR.

RESPONSE from Jeff Mosher: I think Jennifer's point is that if projects can't meet the SWA criteria then they will be pushed over into DPR. Adam's slides address a continuum of scenarios,

including those that include an environmental buffer and those that do not. The Expert Panel reviewed a version of the criteria in June and provided feedback to DDW.

RESPONSE from Traci Minamide: There's a line drawn right now that says if you can't meet the retention time or the dilution, then your project is DPR.

RESPONSE from Randy Barnard: The question is, where is the line between IPR and DPR? Some people want to move that line. There's a permitting scheme for IPR and there's one for DPR. Right now we are permitting DPR on a case-by-case basis. If we are going to talk to this legislature about making rules, we need to be careful about what we are going to say.

COMMENT from Andria Ventura: Feasibility for DPR has to do with what makes the water safe to drink in the end. When you set a drinking water standard for a contaminant, you look at the public health goal and then you say what is feasible. This is backward, because we are saying is it feasible to get to a standard that is allowable for public health.

RESPONSE from Jeff Mosher: When this group talks about feasibility, we mean with respect to technology, operations, capacity.

RESPONSE from Randy Barnard: If a specific constituent is in the water and we have a public health concern with that constituent, then we will work backward to address that constituent.

COMMENT from Rich Mills (DWR): It is important to remember the legal pathway that is set forth in the water code has two objectives. One, by having the EP and the AG provide input and expertise to the State in developing regulations that will be protective of public health. The other goal is to build public acceptance, because the public will have confidence that the process was not driven by legislative mandates. So it may be important not to circumvent that by doing case-by-case approvals or adopting the surface water augmentation regulations. I think those approvals before the regulations are approved will be contrary to the development of public trust.

RESPONSE from Jeff Mosher: The EP understands this and will be prepared. They recognize that there is a continuum and the feasibility question will be based on that continuum.

QUESTION from Jim Fiedler: On SWA is the expectation that you need full advanced treatment before the water enters the reservoir? Won't that affect the criteria for DPR?

RESPONSE from Jeff Mosher: You'd probably have to account for both the treatment and the reservoir. When we talk about flange-to-flange, we know what it is. We also know what a reservoir is. Now that we are looking at a limited environmental buffer, we're not sure what to call it. And can we get credit for that small buffer? How small can it be?

RESPONSE from Randy Barnard: We don't know yet what kind of credit can we give them for a small buffer.

QUESTION from Jennifer West: How many reservoirs can meet this criteria? We want it to be as applicable as possible, but I don't want to give the impression that WRA wants to do something unsafe.

RESPONSE from Randy Barnard: We are looking at this question. What size reservoir can we go down to and still be protective of public health? That's the question.

10. OVERVIEW OF EXPERT PANEL BRIEFING PAPER TOPICS

Adam Olivieri, Co-Chair of the Expert Panel

- Topics Covered
- Indirect vs direct potable reuse
    - IPR: Augmentation of a drinking water source (surface water or groundwater) with reclaimed water followed by an environmental buffer that precedes normal drinking water treatment (working).
    - DPR: Introduction of reclaimed water directly into a potable water supply distribution system downstream of a water treatment plant or into the raw water supply immediately upstream of a water treatment plant
    - Flow diagrams for IPR showing options including (a) a groundwater aquifer as an environmental buffer and (b) a surface water reservoir as an environmental buffer
        - How much of a role do the buffers play in DPR?
        - San Diego Potable Reuse Plan – an idealized representation
    - How do you compensate for the loss of the gap (i.e., the buffer)
        - Means to compensate for loss of some or all of the environmental buffer could include:
            - More robust multiple treatment barriers
            - Enhanced monitoring for CECs or surrogates
            - Real-time or near real-time monitoring capacity
                - Dealing with the data is a challenge
            - Short-term storage of product water to provide time for monitoring results prior to use as a potable supply
                - Could include long-term storage
            - Alternative water supply source or means to quickly correct failure
- Panel charge for DPR
    - Advising DDW on public health issues and scientific and technical matters on the feasibility of developing uniform water recycling criteria for DPR
- Approach – briefing topics and feasibility report
    - Briefing paper scope
        - Issue and background
            - Summarize pertinent available research/technical information
            - Propose practical engineering/monitoring solutions and/or research
            - Provide conclusions and recommendations
        - Overarching questions
            - Definition of DPR (continuum) including inadequate environmental buffer
            - Availability and reliability of recycled water treatment technologies
            - Multiples barriers and sequential treatment processes that may be appropriate at wastewater and water treatment facilities
            - Available information on health effects
            - Mechanisms to protect public health from off-spec water and/or other failures
            - Monitoring needed to ensure the protection of public health
            - Other scientific or technical issues that may be necessary, including the need for additional research

    - Briefing paper topics
        - 1. Bio-analytical tools (bioassays) – issues related to their use in advanced treated wastewater and drinking water. (80% complete)
        - 2. Quantifying treatment facility reliability – description of multiple barriers (redundancy, inherent performance, and mechanical reliability); online monitoring tools (sensors, surrogates and indicators); and performance objectives (process and overall facility compliance)
        - 3. Analytical methods/tools – measurement of chemical water quality in ATW and drinking water (emphasis on indicators and surrogates)
        - 4. Molecular and other methods
        - 5. Antibiotic Resistant Bacteria (ARB) and Antibiotic Resistant Genes (ARG) in water – state of the science, relative sources, potential exposures pathways, relative significance of concern
        - 6. Comparative health risks – associated with existing potable water supplies subject to discharge from municipal wastewater, storm water, and agricultural runoff
        - 7. Public health surveillance – example programs, ongoing national and state programs, health endpoints, sensitivity and interpretation of data, non-health based data, and feasibility of DPR surveillance program
- DPR Briefing Paper Draft Schedule (see PDF)
    - 1. Bioanalytical tools. Led by Richard Bull. Panel review during Meeting #7 (Dec 1-2, 2015).
    - 2. Quantifying treatment facility reliability. Led by Charles Haas. Panel review during Meeting #7 (Dec 1-2, 2015) and Meeting #8 (Feb 23-24, 2016).
    - 3. Analytical methods. Led by David Sedlak. Panel review during Meeting #7 (Dec 1-2, 2015).
    - 4. Molecular methods. Led by Joan Rose. Panel review in March 2016.
    - 5. Antibiotic resistant genes and bacteria. Led by Walt Jakubowski. Panel review during Meeting #8 (Feb 23-24, 2016).
    - 6. Comparative health risks. Led by Brian Pecson, Panel review in April or May, 2016.
    - 7. Public health surveillance. Led by Tim Wade. Panel review in June 2016.

QUESTION from Andria Ventura: Andria: In areas of the state where water supply is low, and it is not feasible for communities to do this, for the sake of allowing the water board, is there any analysis or research being done as to how much of the state is not going to be able to do this?

> **RESPONSE from Adam Olivieri:** I'm not in that realm. We're looking at this from the public health protection side, and we are using a continuum partly because of what you are asking. We are providing enough information for DDW for them to evaluate projects that are outside of the guidelines and consider them on a case-by-case basis. You're asking how to judge whether or not a project can be protective of public health.

QUESTION from Andria Ventura: What Santa Clara can do, Tulare County cannot do. Are they (DDW) going to provide guidance for what options might be available for these communities? This is an environmental justice issue because these projects are happening in metropolitan areas where there is a population that can support it. Those who can should move forward, but how will we get to an equitable use of technology? There are communities in California right now with no safe drinking water.

RESPONSE from Adam Olivieri: The water code may be changed. As the staff reviews permits they will have the flexibility to do what you are talking about.

RESPONSE from Mark Bartson: Also, if a city like Fresno went to groundwater recharge and operated that for 15 years, they would then be in a better position to do IPR or DPR.

ACTION ITEM: POLL EXPERT PANEL FOR AVAILABILITY FOR MARCH-JUNE 2016.

QUESTION from Jim Fiedler: How does the Surface Water Augmentation (SWA) criteria inform with what you are doing here with DPR?

RESPONSE from Adam Olivieri: It is the gap we have been talking about. We were careful not to apply credit to the gap, but we need to be quantitative. You must know that you need dilution plus treatment and how to manage the flow out of that reservoir, for time to respond. We built that into the logic to get to the buffer. So, now as you start tearing the buffer apart, you need to figure out how to design for this and manage the supply.

QUESTION from Ray Tremblay: What is the timeline for the AG to see some of these drafts?

RESPONSE from Adam Olivieri: We can provide them as soon as the EP has reviewed them and feels comfortable with the content. I'm nervous about saying "you can have them as soon as we are done."

QUESTION from Keith Solar: Do you consider financial feasibility?

RESPONSE from Adam Olivieri: No. Technical feasibility only. We touched on cost in the DPR Framework document.

COMMENT from Garry Brown: We appreciate the briefing paper concept and we respect the EP's expertise. But in the final paper, there has to be a story woven in. That's something we look at from a different perspective. We're trying to figure out how the AG can help write that story. Ultimately this goes to many more lay people than scientists. So the report needs to include all the relevant science told as the story of the layman.

RESPONSE from Adam Olivieri: We need to write the Executive Summary and distill this down, and that's the piece we can work on with you. We also mentioned operations, and you are handling that. It's a key piece. And we've looked at your terminology alongside what we used in the DPR framework, so we're going to tweak some of that and use a uniform set of terminology.

COMMENT from Mark Bartson: My staff keeps telling me to stick to the homework that the legislature gave us. To some extent, it's our job to provide that overall context.

RESPONSE from Adam Olivieri: There are several major reports that we can pull from now for a broader perspective, but to write something that is specific to California, we have to identify all

11. **DISCUSSION AND COMMENTS FOR EXPERT PANEL**

- There will be opportunities for members of the AG to attend some of the EP meetings.
- EP can make a list of critical questions posed by AG and address those in the Executive Summary of the report to DDW.

12. AGENDA ITEMS AND POTENTIAL TOPICS FOR FUTURE MEETINGS OF THE ADVISORY GROUP

- Someone from DDW will present on how to evaluate a water agency's capacity to implement advanced treatment. What information do they need, etc. This information will help the AG determine how to advise DDW on issues related to TMF.
- December meeting of EP will include an open session, and the EP will provide a presentation on the briefing paper topics being covered at that meeting.
    - Ray Tremblay will represent the AG at the December meeting of the EP.

Discussion from audience as to whether someone from the AG or EP will attend the AWWA conference on Potable Reuse. Adam Olivieri responded that he has stayed away from such events because he does not want to discuss the ongoing panel activities publicly. Jeff Mosher will look at the agenda to see who is speaking and follow up with Adam and Jim to see if they think someone should be there. There is a lot of diversity in this panel.

ACTION ITEM: NWRI will distribute the agenda for the December EP meeting to the AG as soon as it is available.

ACTION ITEM: NWRI will track the progress of the briefing papers and report back to the AG.

ACTION ITEM: NWRI will poll the AG on potential meeting dates for late Jan/Early Feb 2016. The meeting will take place in Orange County.

13. FINAL DISCUSSION AND REVIEW

Adam Olivieri and Jim Crook, the EP co-chairs, will attend the SWRCB Board Meeting on December 15, 2015, in Sacramento, to provide an update on the EP's activities.

14. ADJOURN

The meeting was adjourned at 2:45 pm.