MINUTES
of the
WATER QUALITY COMMITTEE
Virtual Fall Meeting
(due to COVID-19)
October 13, 2020

Table of Contents

MINUTES
of the
WATER QUALITY COMMITTEE
Virtual Fall Meeting
(due to COVID-19)
October 13, 2020

MEMBERS AND ALTERNATES PRESENT

ALASKA	--
ARIZONA	Trevor Baggiore Ayesha Vohra Kyle Miller
CALIFORNIA	Jeanine Jones
COLORADO	
IDAHO	Jerry Rigby John Simpson
KANSAS	Tom Stiles Kenneth Titus
MONTANA	Tim Davis
NEBRASKA	
NEVADA	Jennifer Carr Micheline Fairbank
NEW MEXICO	Greg Ridgley Rebecca Roose John D'Antonio
NORTH DAKOTA	Jennifer Verleger
OKLAHOMA	Sarah Gibson Julie Cunningham
OREGON	
SOUTH DAKOTA	Kent Woodmansey

TEXAS	Jon Niermann Jim Rizk
UTAH	Erica Gaddis
WASHINGTON	Buck Smith Mary Verner
WYOMING	Chris Brown Kevin Frederick Steve Wolff

GUESTS

Keith Shaw, Utah
Mark McCluskey, CDM Smith
Mark Davidson, NASA WWAO
Amber McCullum, BAERI/NASA
Elizabeth Ossowski, NOAA/NIDIS
Mike Mathis, Continental Resources
Mike Gremillion, University of Alabama
Ward Scott, Western Governors' Association
Susan Smith, Willamette University - LAW
Cherilyn Plaxco, U.S. Army Corps of Engineers
Christopher Estes, Chalk Board Enterprises, LLC
Indrani Graczyk, NASA Jet Propulsion Laboratory
Jack Bowles, U.S. Environmental Protection Agency
Jamie Piziali, U.S. Environmental Protection Agency
Earl Lott, Texas Commission on Environmental Quality
Leanna Littler, Utah Department of Environmental Quality
Jill Csekitz, Texas Commission on Environmental Quality
Kelly Mills, Texas Commission on Environmental Quality
Paul Brochi, Texas Commission on Environmental Quality
Kim Nygren, Texas Commission on Environmental Quality
Sarah Eagle, Texas Commission on Environmental Quality
Joel Klumpp, Texas Commission on Environmental Quality
Mark Palmie, Texas Commission on Environmental Quality
Patricia Wise, Texas Commission on Environmental Quality
Gregg Easley, Texas Commission on Environmental Quality
Robin Cypher, Texas Commission on Environmental Quality
Lori Hamilton, Texas Commission on Environmental Quality
David Galindo, Texas Commission on Environmental Quality
Peter Schaefer, Texas Commission on Environmental Quality

Kathy Alexander, Texas Commission on Environmental Quality
Amy Settemeyer, Texas Commission on Environmental Quality
Brooke McGregor, Texas Commission on Environmental Quality
David Waterstreet, Wyoming Department of Environmental Quality
Cari-Michel La Caille, Texas Commission on Environnemental Quality
Aimee Konowal, Colorado Department of Public Health & Environment
Brad Crowell, Nevada Department of Conservation and Natural Resources
Nakaila Steen, South Dakota Department of Environment and Natural Resources

WESTFAST

Mike Eberle, USDA Forest Service
Mindi Dalton, U.S. Geological Survey
Roger Gorke, U.S. EPA-Office of Water
Patrick Lambert, U.S. Geological Survey
Lauren Dempsey, United States Air Force
Robert Boyd, Bureau of Land Management
Christopher Carlson, USDA Forest Service
Deborah Lawler, WestFAST Federal Liaison
Forrest Melton, NASA Western Water Applications Office
Heather Hofman, USDA Natural Resources Conservation Service

STAFF

Tony Willardson
Michelle Bushman
Cheryl Redding
Jessica Reimer
Adel Abdallah
James Ryan

WELCOME AND INTRODUCTIONS

Due to COVID-19, this meeting was held virtually. Kent Woodmansey called the meeting to order. He mentioned that both he and Erica Gaddis (Utah) will be Co-Chairs for this committee meeting. Kent led the first five items on the agenda and Erica led the next five.

APPROVAL OF MINUTES

Kent made a motion to approve the minutes of the virtual meeting held on July 22, 2020. A second was made by Erica. The minutes were approved with no objections.

SUNSETTING POSTIONS FOR FALL 2020 MEETING

Position No. 414 - Asserting State Primacy on Protecting Ground Water Quality. Kent mentioned that this position was originally adopted in March 1997. He recommended the position be moved forward to the Full Council with no changes.

EPA UPDATE

Roger Gorke, U.S. Environmental Protection Agency, noted that the Office of Mountains, Deserts and Plains was announced by Deputy Administrator Doug Benevento in early September. It is part of the Office of Land and Emergency Management (OLEM), which used to be Solid Waste and Emergency Response. They are the office that does emergency response such as Superfund cleanups. The idea is to work with EPA Regions 6, 7, 8, 9 and 10, which includes all members of the Council, through a headquarters office to consolidate oversight, responsibilities, coordination and support for hardrock mining clean-up sites west of the Mississippi. It is predominantly looked at for cleanup of Superfund and non-Superfund sites, which fall into the Good Samaritan category, and which the Council has had a position on for decades now. From my perspective, I have personally worked with Shahid Mahmud, who will be running it, for 15 or 20 years and I think it is a good thing. He has been leading our Good Samaritan Abandoned Mine Internal Working Group and his focus is predominantly on clean-ups, how to remove barriers, and get more clean-ups of abandoned hardrock mines. There are 63 National Priority List (NPL) sites in the West. Those are our Superfund sites. Another big piece to look at is the technology aspects of it - what technologies could be used for clean-ups as well. The office will also be working with tribes and NGOs.

There might be some money associated with the office to jumpstart some other clean-ups that are outside of potentially responsible parties or Superfund clean-ups, but that is to be determined. Depending on how this year's budget looks, even with a continuing resolution we do not know what the final numbers will be.

Erica Gaddis: Do you know to what extent this office may help with NPDES permitting? We have a number of mines that may not be abandoned, but are legacy mines that are on private property or Forest Service land. There is a memo from EPA that is 20 or 30 years old now on the appropriate permitting approach to those, but I am wondering if that is something this office is going to take on to try and update. Do you have any more information on that?

Roger: We issued a memo in 2012 on whose responsibility it is to hold the NPDES permit that said we would generally not usually look to the Good Samaritan to do so. The best way to answer this is to say the Office will possibly look to update that. NPDES permitting has to go through the Office of Water and/or the Region 8 water program to determine what permitting on an individual project looks like. If there is a 1990s memo, I would love to see that. You could also share the memo with the Office of Water and they can share it with our internal working group that discusses these issues.

Erica: I will send you the memo.

Tom Stiles: Is the niche of the new office pretty narrow, or will they find themselves getting drawn into things like a small town compliance of safe drinking water regulations, etc?

Roger: At this point, it is purely focused on mining. One of the priorities is looking at how to advance some of the NPL clean-ups in the West. I would say they should not get into issues such as small town compliance. They are not a water office; they are just a mining clean-up office. So they would be quite a bit out of their lane if they were to do that with minimal staff.

Rebecca Roose: Does the head of the new office report up through OLEM?

Roger: Yes, he will report to the Assistant Administrator for OLEM. One of the reasons the office exists is to get a direct line to senior leadership. This may be obvious, but the office will also be working with the federal land agencies (BLM, USFS, USGS) that have technical expertise on mining. If anything else comes up, I will forward it on to Tony and Deb to pass along to the WSWC.

Roger introduced Jamie Piziali, EPA's new Municipal Ombudsman. She has been in the Office of Water for years and in the Office of Wastewater Management and did a significant amount on green infrastructure and NPDES permitting. I think she is a great choice for this.

Jamie Piziali: Thanks Roger. The Municipal Ombudsman is a brand new role that was created by the Water Infrastructure Improvement Act of 2019. I am bringing close to 15 years of experience at EPA - mostly in our Municipal and Industrial Wastewater Permit Group and our NPDES Program in our Office of Wastewater Management. Most recently, I was leading EPA's National Green Infrastructure Program. The good part about the Green Infrastructure Program is it is so broad. I had the opportunity to forge strong relationships with municipal leaders, trade groups, state governments, private sector, non-profits, pretty much all the offices across EPA and many other federal agencies. I am excited that I will be able to put together all these networks to use for the communities. The Water Infrastructure Improvement Act (WIIA), defined green infrastructure in the Clean Water Act (CWA) and formalized EPA's national program on green infrastructure. It also defined integrated planning in the CWA as EPA's 2012 integrated planning framework. Finally, it created the Municipal Ombudsman role in the Office of the Administrator. Essentially, an ombudsman can provide an alternate informal way to resolve concerns. The Municipal Ombudsman that we established is intended to be an impartial and neutral resource for municipalities in navigating EPA's CWA programs broadly. It covers groups generally like cities, towns, boroughs, counties, parishes, tribes, associations, and more. Those groups will be the major focus for the Ombudsman. My role will be coordinating with EPA to assist communities with EPA's many resources and connect them with the offices who can provide technical assistance on things like integrated planning, green infrastructure, or other CWA issues. Also, ensuring that agency policies are implemented consistently by all parts of EPA, including all 10 regional offices. I am setting up a website to share information on all the items I just mentioned, as well as to share copies of permits and consent orders that incorporate integrated plans. Many of your groups have resources that I may not be aware of, so please let me know. I

want folks to know that municipalities do have someone now at EPA who is specifically focused on their CWA concerns and who happens to also speak permits and enforcement, who can help them navigate our many offices. I am hoping if we have time to hear from you all about what kind of issues you think the municipal ombudsman might be most helpful with, or how I might best add value, or tell me about meetings or associations that you think I should also be joining or reaching out to.

Roger: I had a question, but I think you answered it. I would encourage folks to reach out to Jamie. In chat, Michelle Bushman asked, "There is a federal coalition of ombudsman? Do we have one on water infrastructure?"

Jamie: I do not know if we have a coalition on water infrastructure. I know there is a lot of water infrastructure groups that work together across the federal agencies, but it is good idea.

Erica Gaddis: We have had robust conversations with our local home builders, etc. Is this something we could involve you in, or is this not appropriate?

Jamie: I can make sure we have our ducks in a row at EPA to make it easier for you to work with them.

Rebecca Roose: Congratulations. I used to work with Jamie in the Office of Wastewater Management. I will be in touch with some thoughts on a meeting you could attend.

Jamie: Thank you. That would be helpful. There are a lot of folks who do not know where to start.

WATER REUSE

Jessica Reimer discussed progress on the State Water Reuse Report, and shared preliminary results. Interesting themes include how states are addressing water rights issues that arise with water reuse projects; how states perceive water reuse as a beneficial use; how development of potable reuse is progressing; how water reuse programs are implemented; and how these programs and projects are being funded. Thanks to the states who have turned in their information. With all of the work going on at EPA, and the state summit on water reuse, there is a lot of momentum right now. Jessica will be finalizing the report in the next month or so and will send out for review by the beginning of the new year. Michelle Bushman emphasized that this is a preliminary report, so there could be some changes to these graphs as we prepare the report.

Michelle provided a brief summary on the State Summit on Water Reuse, hosted by ACWA, ASDWA, ASTHO, EPA and WateReuse. She referred to the summary under Tab I in the briefing materials. A key highlight included a discussion of how water rights and prior appropriation regimes can have a significant impact on the success of water reuse projects. EPA asked if there was a way they could help address these issues, to which a few of the WSWC member states mentioned the Council is a good forum to have those discussions. States did

mention the need for more data and information, particularly about contaminants, baseline standards, and that they lacked the necessary resources, staff time, funding, and access to lab tests and scientific studies available to inform their actions on reuse, particularly when it comes to emerging contaminants and produced water. They also talked a lot about breaking down silos, which involves communicating across state agencies that have jurisdiction, whether it's clean water, drinking water, water rights, or energy, and also across watersheds, which in some cases can require interstate coordination where watersheds cross state lines. They also talked about crossing sewer sheds, referring to cases where there's water treated in one sewer basin and then transferred out of that sewer basin into another. That is not necessarily an easy thing to do, in part because of water rights, but also because of other issues. Being able to communicate across those political boundaries is important. Funding challenges were discussed as well. Other topics touched on included moving away from just incidental reuse, land application or mixing reuse water with the natural waterway, to taking reuse to the next level with direct potable use, stormwater capture and produced water. Those were some of the key things that came out of the State Summit.

Roger Gorke: Jessica, in your presentation, you talked about direct potable and indirect potable reuse. I think this is more of an inside "water geek" issue and is lost on the general public, so with the Water Reuse Action Plan we tried to just frame it as "potable reuse." Another thing that has come up is institutional barriers to reuse at either the state level with water quality versus drinking water versus water quantity, or at the local level with drinking water and wastewater utilities. This gets to Michelle's point on crossing water sewer sheds – can water that crosses those boundaries actually be used by outside the original political or infrastructure boundaries? How does the Council frame these in their positions on reuse?

Michelle: So we actually do not have a specific position on reuse, but maybe we should! So we don't actually distinguish between direct and indirect reuse. It would be up to our members to determine if they would like us to draft a position.

CLEAN WATER ACT SECTION 401 CERTIFICATION MOUs

Jessica provided an update on the Memorandum of Understanding (MOU) development process. At the WSWC summer meeting, Chris Carlson and Roger Gorke brought this up as there are concerns with how the new CWA Section 401 rule will be implemented. The WSWC hosted two meetings to address how to best collaborate on the implementation of the new rule. One was at the beginning of September with a few states and federal agencies to scope what an MOU might look like. The outcome was that we needed a better sense of what the concerns were to determine if an MOU could be drafted. We also determined that a subgroup willing to dive into the details of the MOU would be helpful. We requested bullet points from states and federal agencies, and compiled these into a list that was reviewed with the smaller subgroup at a second meeting in early October. Colorado, separately, is in the process of working with the Corps to create a programmatic agreement specifically addressing issues regarding the timeline of certification, which is one of the main concerns of the states. Other concerns included communication between states and agencies from the pre filing request to what the enforcement

of those certification conditions looks like, what a rejection of permit conditions would look like and how these will be decided, activities that trigger a 401 certification, and how the Corps' new nationwide permit rulemaking may affect the implementation of the 401 rule. What happens with projects that are permitted with a general permit, as well as those that cross jurisdictional boundaries for states and tribes? And who is responsible for then certifying on different jurisdictional lands? Projects that have multiple federal permits? Will it be required that each individual federal agency get a 401? Or can one 401 permit be issued for the project? And then what happens with projects that change over time? Will the states be able to come back and look at what those changes are and how they could affect the water quality on the ground? I would like to open this up to a larger discussion, especially for those states or federal agencies that have not been involved, or have not been as much of a part of the process. Is this looking like it is on the right track? What are other ideas or concerns out there?

Aimee Konowal (CDPHE): I can talk a little bit about the efforts that we have made recently with the Corps. We are developing a programmatic agreement that addresses certification timing. We have been working with the Corps to determine if that 60 day timeframe would work for us. We typically do a public notice on a 30 day calendar cycle. One of our concerns was if we received an application for a 401 permit just after the deadline for the next upcoming public notice period, we would have to wait another 30 days to issue that notice, which would mean we would only have a few days to issue the certification after the public notice period. So we have been working with our three Corps districts in Colorado on changing that default time of 60 days to 100 days to allow us to have adequate time to do our public notice process as it is stated in our state regulations. The other piece that is noteworthy is that we have been certifying some larger water supply projects, some of them trans-mountain water supply projects that require an individual [CWA] 404 permit and therefore 401 certification by the state. We have been using our entire year for those certifications. We wanted the programmatic agreement to consider what would happen when we get these large applications. I think the rule already allows for states to submit in writing a request to the court to consider additional time. And just an update for those I talked to during the smaller group meeting, we did get legal review on the agreement from our attorney. I am in the process of getting it back to the court and hopefully sign it in the next couple weeks. I think we are free to share it with whoever wants to see that document, knowing that there may be a few additional changes moving forward. I think we are pretty close to where we want to be.

Erica: One question for Amy - we have the same problem in Utah with respect to the 60 days. Our presumption is that we would have to deny those certifications. Is that what would have to happen for you as well? I think it is important for federal agencies to understand that if we can't get timelines that are reasonable, we're going to be in a position where we have to issue denials.

Aimee: I agree, and it is unfortunate because Colorado has never had to deny a certification. We have had concerns with a project and have considered denying the certification, but have always been able to work with the Corps and the applicant to address those concerns, or the applicant would withdraw the application to do so. Typically the actual work to certify a project does not take that much time, but to accommodate the current Corps timeline we would have to change the whole state process. It would take a lot to do that.

Chris Carlson: Can you tell us what the state politics would be if you had to go through the process in place and had to issue denials?

Erica: It is complicated. We would like to try to avoid it, if possible.

Aimee: I agree. It is very complicated. We have the Colorado Water Plan that supports water development projects. And we have other state agencies that work to promote these projects. And so our work with the 401 certification is just one part of these big projects. If we were ever in a position where we felt we had to deny we would have to work with other state agencies that have been promoting these projects. It is a challenge.

Chris: We would like to avoid that, and I am not surprised about those dynamics. To be honest, we are finding the Forest Service has probably not appropriately implemented 401 since 1972. With the renewed focus on 401 this rulemaking has brought, the Forest Service is figuring out how this permitting process should work internally, and the timelines are part of that. We often deal with mining projects, and often when they come in they are hardly thought through. If an applicant were to try to get a 401 certification at this early stage, it would almost be essential they are denied because the projects will look almost nothing like what the Forest Service would ultimately be asked to approve. So if can figure out a way that allows us to collaborate, rather than running into each other during this process, I think it is really important even though we are small potatoes compared to the Corps.

Erica: I agree. And I think that is why there is another aspect that the MOU could address, which is that the states need to have some ability to define what we need to evaluate an application. Even though the law doesn't allow states to define a complete application, if we can work that out with federal agencies it could resolve some potentially complicated situations.

Jennifer Carr: Chris, you have my full attention now. FERC and the Corps have been on my radar regarding 401, but the Forest Service has not been. I am interested in more discussion on how this will impact Nevada, where we have the confluence of the Forest Service and mining activity. I look forward to talking to you more about that.

Tony Willardson: For some projects, the FS may issue a special use permit but it may be a different agency who has to get the 401 permit. So the question that should get raised is, will the state issue one 401 certification for the project or will one need to be issued for each agency involved?

Chris Carlson: We have asked EPA that question in different venues and we have gotten multiple answers that are almost exactly opposite. When asked one way, we were told that each federal agency will need a certification if there is a discharge. When we asked it another way, we were told that only one certification for the main permit is required (e.g. an NPDES permit). It is a question that we will need to collectively navigate.

Erica: Has the BLM been brought into the discussion?

Chris: The BLM has not seen it as a potential issue, even though it has been raised. Not sure if they do not pay attention to 401 or what.

Tony: Another concern that was raised was how 401 will be affected by the Corps nationwide permitting that is currently being reviewed.

Chris: The Corps is responsible for getting 401 certification from all of the states for their nationwide permits. Some states may blanket certify while others may not. There does not seem to be a clear mechanism for knowing which states have certified and which have not. If a state has partially certified it would require the proponent to go after a 401.

Erica: We rely on our partners at the Corps to tell us which activities are not blanket certified. If that responsibility is being delegated to other agencies, it could be difficult if those relationships do not exist at that agency.

Tony: Aimee, in your PA with the Corps, when does the time begin to toll on certification?

Aimee: At this point, we do not have that in our agreement with respect to how the clock starts. We have not gotten into those details, but that is a great suggestion.

Tony: We hope that more states will enter into this dialogue. The WSWC has been involved in this issue since the 1980s, especially with FERC. We have found that most states can certify within 80 days. Few have been denied, but there are very complex large projects that will take some time – and these are an anomaly and not the rule. The ones that have problems are the ones that are more conceptual at the time of certification without a good idea of true impact. We will continue to work to support the states and their prerogatives.

Erica: Is there a role for the WSWC to have a position on 401 regarding an MOU, or is that too detailed? Focused on how states can maintain their autonomy in the process?

Tony: It is worth discussion. We would have to look at which of our positions may support those kinds of actions. We can definitely write a letter or ask to start a dialogue with the agencies, which may help bring some consistency across the various agencies and their different regions. I will put Jessica, Michelle, and Deb right on that.

Erica: How would that work? Do you need direction from the Committee?

Tony: You can direct us to do that as a Co-Chair.

Erica: I would like to hear from the other states.

Rebecca Roose: It seems worth exploring. It makes sense to take a closer look to see if there is something within existing positions, but given the significance of the rule we should take a closer look at what a position could be based on.

Tim Davis: I would like to see more meat on the bones to see what you are thinking about proposing.

Michelle: It would help to have a subcommittee to help hammer out the language and then take it back to the Full Council.

Tom Stiles: The Water Quality Committee has always had more diversity in viewpoints based on how we all administer the CWA. My advice is that even if we are not all on the same page, I think it is totally worth it to draft a strawman proposal and see if we can get something close to consensus among the members. Focus on the process, which will gain a lot of consensus, rather than the policy which may be divergent. Ask for forgiveness, not permission, after you draft the statement. The devil will always be in the details.

Tony: There are some provisions we could put into a position that are not yet settled law. Even while it may be litigated, it will be worth it to work on something that is going to be mutually acceptable to meet the needs of the federal agencies and also the needs of the states.

Erica: I will work with Michelle and Jessica, Rebecca Roose, and Tim to get something drafted. I am thinking of focusing more along the lines of process rather than trying to make a strong policy statement.

Tony: The Western Governors' Association may have some points, so we should discuss with Ward Scott as well to make sure we are consistent with the Governors. Although this may be an issue the Governors do not want to touch. In fact, I spoke with Ward this week, and he noted that there is some litigation going on. And a question before the Supreme Court, not necessarily on 401, but related to projects and the question of permissible burdens on interstate commerce. He noted that depending on how the Supreme Court rules, it could become a very interesting question, not only for 401, but for all kinds of environmental and other regulatory actions taken by the state if they were perceived to be a burden on interstate commerce. So we will see how that plays out.

Erica: We will keep an eye on those cases. I think that the process and collaboration MOU concepts should be worthy, regardless of how some of those cases are decided.

WATER QUANTITY/QUALITY NEXUS

Erica Gaddis: As we start down this conversation, I will just note that I am also serving as the Co-Chair of the Water Resources Management Committee at ACWA, which also is aiming to look at some of these quantity-quality nexus ideas. So I would like to hear what you have going on in your states within this space and whether there is something we can do either at the WSWC or ACWA or both together to help facilitate some of those issues. I have a number of issues, but I am going to open it up first to other states to talk about any issues just around this nexus area of quantity and quality. Water reuse is obviously an important one as we have already talked about it

today. Let me open it up to some of our other state colleagues to see what you are encountering, and whether there is a place for this group to do any work.

Michelle: We had a water quality quantity Nexus workshop in Kansas back in 2015. One of the things that came out of that was we need to have more of an effort at the Council to address this issue, in part because of the silos that we create in our states. There is a difficult time coordinating water quality effort with the need for water supply. Some states are very good at breaking down those silos and other states are struggling to make that happen. There was some discussion during that workshop of how we keep this discussion going. Unfortunately, being one person dealing with both the Water Quality and the Legal Committees, I had a hard time staying on top of that. Now that we have Jessica, we are able to move forward with this. We had a subcommittee that came up with a list of things that were important that we could cover in a workshop, and then we tried to incorporate those into the Water Quality Meetings. Just so everyone is aware of that history of where we have been. We started talking about some things like harmful algal blooms, and other water quality quantity nexus issues on our Water Quality Committee agendas, but we can take that to the next level now that we have someone who can spearhead some of that work.

Erica: Michelle do you want to give us that brief list from that workshop to get us started? I have a list as well.

Michelle: I would love to, but I do not have it in front of me and so if you want to give your list first, I will go look up mine.

Erica: On the harmful algal bloom front, we are getting more and more questions about understanding the relative contribution of nutrients versus climate impacts. I think the more that we can start to quantify and answer that question, we know that there are multiple stressors, creating more frequent and larger magnitude algal blooms. The other one related to algal blooms that we are recently finding are benthic algal blooms, which I will talk about in my presentation. They are not really related to nutrients at all and appear to be related to climate, or watershed disturbance. Understanding that is important, especially as it is has been happening within our national parks. ACWA did a survey of states in 2015 on climate change, adaptation, and resilience around water quantity and quality. There was a thought of repeating that, or reviving the results of that survey to help states plan, from a water quality perspective, for changes that may be happening as a result of climate in the quantity realm. The last thing that I will mention is that in Utah we are looking at engaging in water quality trading, whereby we might allow for a credit for instream flows. So putting flow in the river and giving an entity a water quality credit for that as part of a stormwater permitting trade. That is related to some new water banking legislation that we have recently seen here in Utah that opens up the possibility for something along those lines. I will just throw those three things out for now to get people started. Jessica, do you want to go through your list?

Jessica: These are less issue specific and more approaches to potentially integrating quality-quantity into conversations. They include developing workshops, webinars or brown bags, compiling state laws that affect quality and quantity and ways that states have addressed gaps into

a type of toolbox that could reside on our website, directing funds to implement CWA Section 319 to WQ2 issues and maybe leverage some of those funds to develop a cooperative WQ2 program, and using MOUs or other types of cooperative agreements to make progress on WQ2 issues. Michelle, do you have others to add?

Michelle: I do – these are ones that we came up with during the WQ2 subcommittee call a while ago. Some of the issues were things like low flow and effluent dominated streams and low flow and agricultural dominated streams - things like wastewater and mixing zones, harmful algal blooms, fisheries temperatures, diversions and return flows. State-tribal conflicts - collaboration and coordination over the quality of shared resources across those boundaries especially where there is checkerboard jurisdiction. There's groundwater resources and water quality, things like injection wells, stressed aquifers, and brackish water intrusion. Then we talked about bringing in WestFAST to talk about some of their perspectives and issues, things like water quality standards, or approval of water quality standards and backlogs, and other routine things that affect the tension between federal and state requirements and jurisdictions. And then on Corps issues, there's the nationwide permit, delegation of 401 authority, jurisdictional determinations, mapping, and having a database of jurisdictional determinations for regulatory consistency and certainty. We're actually going to be talking about this tomorrow.

Rebecca Roose: In New Mexico, we have been having increased, or renewed interest on these issues at a policy level. We have a legislator where water issues are her passion. She comes more from a water quantity side, but she has convened a Water Policy Working Group, held listening sessions around the state to try to figure out how to modernize our approach to dealing with water issues in the state quantity and quality. Our next legislative session starts in January and I am expecting that she will be introducing some legislation along the lines of breaking down our silos - putting together some sort of structure for the state to embrace Integrated Water Resources Management (IWRM) principles and approaches in how we manage water quality and quantity. I would be interested in examples of other western states that have built any IWRM approaches into the way they are set up to address water issues. To me, it is still very theoretical. Imagining how it actually takes shape and what it looks like in practice, how it is different from what we are doing now, how it is better, is still very opaque for me. I think if there could be some other examples out there, it would be really helpful. My main interest would be if others have really made some strides to break down silos, not just in terms of pulling some quantity and quality principles or concepts into our day to day water quality actions, but beyond the structures around which we do our work - organizationally and operationally. How do we work together? This legislator is thinking about a cross agency panel, or a task force type group that would create opportunities. If there are models where that has worked, or lessons learned from where it has been tried and did not work that well, I think those types of things would help us out.

Tom Stiles: I think you will find among the states, we all have our relationship with our water rights partners. Since we approached this issue back in 2015, things have been pretty good. At least for Kansas, there is no question who comes second - it is always water quality because, just as EPA has a firewall that prevents them from getting too deep into water rights and appropriation issues, we have a state version of that as well. To a degree, we are dependent upon the good graces of our Division of Water Resources to consider some of that. That has happened.

Our state engineers have consulted with us on a number of things. A few meetings ago, you heard Kenny talk about the Quivira Refuge issue, which had a quality component to it. I think one thing has changed since 2015, and areas that will continue to be give and take among those water agencies and the quality agencies is first off, the navigable water protection rule excludes ephemerals. The interpretations I have heard is that if by a proliferation of groundwater withdrawals, a heretofore intermittent stream now is ephemeral. It just got taken off the WOTUS radar. So that is an interesting new wrinkle on what falls within our realms and what does not. Second, is what we just discussed on 401 on certain projects that involve a lot of water rights, water supply-type of appropriations, and to what degree our ability to influence and condition those may have been muted a little bit by the constraints of the new 401 rule in place for this. The last one, which is really where a lot of us cut our teeth on is water transfers.

EPA has come out and basically said water transfers are not a NPDES permit. No one can deny that to some degree water transfers exert some type of water quality influence both in the basin of origin, as well as where the water is ultimately delivered to and the receiving water. To what degree do state authorities exist for us to be able to condition those to mitigate that type of thing? The biggest thing for water quality agencies is that we wear bifocals. We have to look through two lenses to determine what we can do with our delegated federal authority, and what we are allowed to do with our legislatively given state authority as well. It even plays into things like regulating the discharge of pollutants into waters of the state. We try to influence and mitigate the occurrence of pollution, which is just that manmade alteration, which does play into things such as stream dewatering, etc. But we are playing that game with one hand behind our back. I think the issue will continue to be there, but I think the relationship between quality and quantity agencies has never been better. I think there has been enlightenment on both ends in terms of moving away from development into management, and that has brought the two groups of agencies together more and more. It has been five years since we had a sit down with everyone. We need to see what successes we have had and how we can continue to find some solutions.

Erica: It seems like a survey and/or a workshop would be timely. I like the idea of engaging both the quantity and quality side. So lets think about that for our next quarter.

Roger Gorke: I do not represent a state, but I am looking at 101(g) of the CWA that Tom alluded to. It says, "There is nothing in this policy of Congress that shall supersede or abrogate or otherwise impair this chapter, or that shall be construed to supersede or abrogate rights and quantities of water which have been established by state." But then there is the third sentence of 101(g) that says, "Federal agencies shall cooperate with state and local agencies to develop comprehensive solutions to prevent, reduce and eliminate pollution in concert with programs for managing water resources." I went through, and there are a lot of programs in the water quality realm that benefit supply - whether it is aquifer storage and recovery, stormwater capture, water reuse, conservation through WaterSense, or dealing with water loss control in drinking water systems, etc. There is the obvious nexus. But the question becomes what do you want to do about it? Is there a specific problem that needs to be raised like HABs and things like that? It is imperative to think of water quantity and water quality together, and the federal government should be supporting the states in running federal programs. The last thing would be is that there

is a big planning aspect to it, whether that's a statewide or done at a local level, for how you deal with these issues. I will volunteer WestFAST to help out as we can.

Tony Willardson: Regarding silos, I'm not sure how much of it is structural or just how things operate. We have a couple of examples of member states where the water quantity and water quality are integrated, such as the Department of Ecology in Washington, as well as in the Texas Commission on Environmental Quality (TCEQ). Roger also raises the planning aspect – in Texas, it is a separate Water Resources Development Board, but in Washington I think it is all part of Ecology. There are a number of different examples of how states have structurally attempted to integrate some of these different interests, though I do not know if it is any easier or not.

Mary Verner: I would say for our agency, which incorporates water quality, water rights management, water supply, development, riparian restoration, it is all rolled into one agency in Ecology. I think that it is easier for us in Washington to collaborate across the topic areas associated with water.

Jon Niermann: At TCEQ we do water quality planning, water supply, drinking water, water rights. The one piece that we do not do, is the infrastructure financing, that is at the Texas Water Development Board (TWDB). I am not thinking of any issues off the top of my head where we have had to coordinate a response to that, but probably the best people to handle that would be people in our Office of Water. Earl Lott leads that agency.

Erica: I will talk with Jessica and Michelle off-line to come up with a survey. Roger, to your point, I think there are a couple of areas where we could use some help from either federal agencies or a Council like this. One is on the technical questions, for example, obtaining information about how climate is affecting algal blooms or how you go about analyzing that kind of information so that we are not having to recreate it ourselves at the state level. This also goes for water quality practices and understanding how they affect supply, such as infiltrative practices or switching from flooding to sprinklers. Second, having examples so that we don't have to reinvent the wheel.

HARMFUL ALGAL BLOOMS

Erica Gaddis provided an update on Utah's harmful algal blooms (HAB). The interest in this topic originated from some articles that were published on Utah Lake this summer. Erica reviewed a PowerPoint presentation.

As you know, HAB affect all of the various recreational drinking water, aquatic life and agricultural uses. The public health impacts that we have recorded, related to [HABs] over the years are anywhere from two to almost seven hundred cases per year, which are reported to the Utah Poison Control. About a third of those are symptomatic of either gastrointestinal, skin irritation, or have some neurological symptoms. This is a real public health issue. The contributing factors to algal blooms are increasing nutrients, temperature and water clarity. There

are three places in which we think about harmful algal blooms: prevention; mitigation; and treatment. On the prevention side, we talk about nutrient reductions and trying to understand root causes - understanding the climate and water management elements of the root causes, which is something we need to probably pay more attention to. We could use some help with mitigation - health advisories, monitoring. Then treatment - using algaecides, and potentially algae harvesting, as a short-term way to manage algal blooms while we try to understand and resolve some of the root causes.

We have a really robust HAB advisory process in Utah where we monitor, prioritize lakes on a monthly basis, and collect both toxin data and taxonomy of the HAB. We provide that information to our local health departments and then they make advisory decisions. We do not have the authority to make those decisions. Then we follow-up with more frequent monitoring once we have an advisory in place. Our program really got going in 2016, when Utah Lake was closed as a result of a very large HAB that went on for much of the summer. There were relatively high levels of toxins and concentrations of cyanobacteria in the 40 to 50 million cells per milliliter across the lake. That bloom went down into the Jordan River, which is the primary watercourse in Salt Lake County and really affected many irrigation canals and diversions throughout Salt Lake. This really got people's attention. That same year, we also had a big bloom at Scofield Reservoir that resulted in a fish kill. The Fish and Wildlife Service found microcystin concentrations in some of the dead bats that were in the thousands of micrograms per milliliter, which is really high. This was a concern because it threatened the Price City drinking water intake. This is when we really got our start. We put together a Water Quality Health Advisory Panel, which is a group of agencies and stakeholders that work on any water quality issues that have a health nexus. In addition to HAB, they work on Mercury, E. coli, waterborne pathogen program, and starting to look at PFAS.

There has been a lot of controversy about the advisory thresholds that our local health departments make. As part of this advisory panel, we put together this guidance for local health departments. We updated it to align with EPA's relaxed standards for microcystin and cylindrospermopsin. We also changed our recommendations for when to issue a warning related to cyanobacteria cell counts or cell density. This is important because the fact that that value is still in is largely the reason that our program was defunded during the legislative session. So we changed it from 20,000 to 100,000 cells per milliliter, which is the highest level that was identified in a range of potentially protective numbers in EPA's guidance, and we limited it to toxigenic species only. There are a lot of program elements. Many of those rely on multiple agencies. The Utah DEQ is the coordinator and convener of the program, but we rely on the Poison Control, local Health Department, Department of Agriculture, the State Department of Health, and the Division of Drinking Water as well.

In 2017, we implemented real time funds in Utah Lake and in three other reservoirs around the state to help provide some early warning and help guide some of our monitoring efforts with satellite imagery. I will not bore you too much with our funding history, but it relates to a treatment story that I am going to spend a little bit of time on. We really got our program started in FY17, using some redirected federal funds. From our normal programmatic funds, we scaled back on other monitoring, and we got a one-time federal grant from EPA. In

2018, we were successful in getting state general funds to support this program, but those were eliminated during the FY2020 general session, largely because of concerns about the advisory guidance that I showed earlier. Those funds that previously funded our algal bloom monitoring program were redirected to fund harmful algal bloom treatment at Utah Lake instead. We were able to fill the gap with a very generous multi-purpose grant from EPA this year, although we have had to scale back the scope of our program. From 2017 through 2019, we were monitoring about 65 water bodies. In 2020, we were monitoring just 18.

The funding that was redirected from our monitoring program towards treatment was deployed at Utah Lake this summer. It got a fair bit of press. It has largely been sponsored by the Utah Lake Commission. They tested out two different types of treatment at three different marinas over multiple weeks in the summer of 2020. We did not permit for these activities because they were so small. The general pesticide permit gets kicked in at 80 acres and we were well under that. We will be analyzing the data in collaboration with the Utah Lake Commission this winter. We did collect some independent data in the marinas where this was deployed. You can see in photographs, in some of the preliminary data, that this is effective at short-term reduction of cyanobacteria in marinas. What the longevity of that effectiveness will be certainly is challenged by the fact that these marinas have a lot of interaction with the open water in Utah Lake - the wind blows the bloom back in right after treatment so how long can you really rely on the treatment? Over the next couple of months, we will be analyzing that data.

We are also really interested in thinking about the long-term applicability and potential long-term impacts of some of these treatments. Utah Lake is a 95,000 acre lake, and some of the [press] were starting to go down the path of "this is a solution to algal blooms in this large lake." We are a little bit concerned about the amount of algaecides that would have to be used to manage algal blooms on a lake of that scale and so we will be looking at that in trying to help policymakers optimize the treatments - are we going to use alcohol treatment and where should we use it? Maybe the high use areas at the beaches on Labor Day, or on July 4, and the marinas really trying to target that use to maximize the public benefit. Our monitoring and permitting team is looking at how broadly this is promoted into the future and whether we can we cover this under a general pesticide permit. Or do we need to go down an individual pesticide permit path? If we are looking at a really large scale application over a long period of time, we think that is probably the right approach to ensure that there are not long-term water quality impacts associated with that delivery. So that is where we are on the algal treatments.

The other thing that was quite a surprise to us this year, was the detection of these benthic algal blooms in the Virgin River and most recently in the Fremont River. This is in Zion National Park, and the other was in Capitol Reef National Park. This really came about after we heard about a six month old puppy that had been playing in the river and snapping at some of the algae on the bottom died within an hour after leaving the site. We did not think it was likely to be an algal bloom. This is one of the most pristine rivers in Utah's Zion National Park, but they were able to confirm very high concentrations of Anatoxin-a, which is a neurotoxin in those algal mats. That river is still under a health advisory. Zion National Park issued its own health advisory and then the local Southwest Health Department issued an advisory for the portion of the river outside of the park. There is a drinking water and secondary water use of this river downstream, but there

does not appear to be any indication of toxins in the water supply. These mats just grow on the bottom - the toxins accumulate within the mat, but do not really disperse up into the water column. The questions are: What happens when those maps get flushed during a monsoonal rain?; What happens to those toxins?; What happens to the algae and where does it land?; and Does that pose a potential threat? In talking with the State of California, they have been dealing with these benthic blooms for longer than we have and so they have given us some advice on how to manage and message it. This is not something that is related to nutrients. It is not something that we are familiar with. Our understanding is there is a lot to learn about what is causing these sorts of blooms. It could very well be changes in monsoonal storm patterns, watershed disturbance, or temperature patterns in the southwest. I think this will become an important issue for us to understand across the region. We were certainly caught by surprise this year. Other than that, we have our current lake advisories, our website, which is updated daily, and we will be looking during the 2021 legislative session to try and restore some of our funding for this program, but it is not the best year to ask for money.

Tom Stiles, Chief, Office of Watershed Planning, Kansas Department of Health and Environment discussed HABs in Kansas.

The Kansas story is really just a variation on the basic theme Erica described for Utah. Our program began in 2010 with 9 lakes sampled. We looked at 32 lakes of all sizes ranging from city lakes to federal reservoirs. It is all complaint based. The complaint usually comes from the public, or lake manager to our HAB hotline. We ask whoever is out on the scene to do a jar test to try to assess whether it is actually blue green algae. A jar test is basically a mason jar of water sitting in the fridge overnight. In the morning, if there a green ring up at the top it is blue green algae. If it all settled down, it is green algae and it is not a not a bloom. With that, typically we will schedule with our district staff to go out and sample like on a Monday, get that into our labs, where we do both cell counts and toxin analysis. The analysis is usually done by Wednesday and on Thursday, we can be in a public conference call, where we make pronouncements as to the status of the given lakes for the next week. Almost without fail, predominantly its been microcystin, which has dominated our blooms on our Kansas lakes.

Just like Utah, we set our criteria and advisories based on both toxin levels and cell counts. The current nomenclature we stole from the Weather Bureau, framed as either "watches" or "warnings." Originally, we just relied on the World Health Organization guidance to set the two level advisory levels, with "watches" set for over two micrograms per liter for microcystin or 20,000 cells per milliliter (counts); a "warning" will escalate up to 20 micrograms per liter and 100,000 cells per milliliter. For a typical Kansas reservoir, almost all our population of blue greens tends to run 40,000 cells per milliliter without fail. Our reservoirs tend to go to varying degrees of eutrophic status. It is not unusual for us to easily bust blue green warning level based on the cell counts. I would say that over 90% of our advisories have been based on cell count more so than on toxins. So over time we have revised and morph the criteria and the thresholds to reflect what is probably more accurate for a typical Kansas reservoir. Now the watch is anything for microcystin over 4 parts per billion at 80,000 counts. To get a warning status, the state follows the EPA advisory value of 8 parts per billion per toxin, and 250,000 counts of a blue green algae. We also included a hazard status, which was as much about aerosol exposure as it

was to being immersed within it. And that is 2000 parts per billion per toxin or 10 million cells. We originally called a closure, but that was a bit of hubris because we have no authority to close anything. We have changed it to just reflect "hazard," which is analogous to Utah's "danger" zone.

For some our lakes or reservoirs, we zoned them to isolate the impacted areas with a test. There was a lot of outrage in the minds of the marine operators and vendors whose economy and financial wellbeing depends on people recreating at our lakes. Milford Lake, which is our largest reservoir, is probably 50,000 acres. So we looked at a few of our reservoirs that have a very distinctive or arbitrary choke points, we zoned them, and each zone could be treated independently. It was as if Milford Lake was actually three concurrent lakes coming down towards the dam. The intent was to signal to the public what areas of the lake to avoid. They could enjoy other parts of the lake - continue recreating. The response from marine operators and the vendors was "Meh! Maybe a good first effort, but the public does not hear you. They dismiss those distinctions and once they hear they name of the lake, they go pack off to a different reservoir that has no affiliation with any type of HAB at that time." It is still a work in progress in terms of our messaging, and getting the word out to the public.

Our first complaint for this year came in around the end of April on Lake Shawnee, which also happens to be a mile away from my house. Due to COVID, I was teleworking and so I hopped in the car and drove over and was stunned at the extent of this Aphanizomenon bloom. Because of COVID, people were there enjoying the park, there were dogs out, and people were kayaking through it. I freaked! I called up our public information people and said "put a warning on this thing right now! I do not want a dogs death on my conscience." That is the earliest we have ever had to issue any type of advisory. COVID really complicated our sampling in our analytics. Our lab services were more preoccupied with cracking down on the COVID virus and trying to develop positive reports on those cases. So we went to an emergency plan. We have 10 years of knowledge of what blooms look like and could rely on photographic evidence and then had weekly conversations with lake managers. It was a very inclusive process that we have never done before, but it actually has been one of our successes. Occasionally, we will take some samples for new cell counts and toxin analysis, which has tended to corroborate our calls on the lakes based on the photographic evidence and the on scene conversations we have had with managers. This year we have had 43 lakes on an advisory, which may be the new agency record. I will say within the emergency plan, it's probably a little more conservative in that we do not rely on quantitative information, we just make a judgment call based on what we see. We probably put some on an advisory that may have not met up to the thresholds in the past if we had done it the old way. Thirty-five of those reservoirs have now been lifted or cleared. The last eight continue to be on some type of advisory – one is in warning, and seven are at watches. Because we are having a warm, dry fall, we are seeing a few creep back, including our front runner, Lake Shawnee, which looks to have a revisit of a microcystin bloom.

The other thing we did this year, is that our lab relied on microcystin as our go-to toxin to make judgment calls. The evidence that we kept seeing crosses that. There are so many other toxins out there that might be influencing it so we set a rule initially to look at what four main toxins that are out there: microcystin; cylindrospermopsin, which EPA has made advisories on;

anatoxin; and saxitoxin. Surprisingly, we saw a lot of microcystin, which is par for the course, but we also got quite a bit of hits on anatoxin, but never to the degree like Erica expressed in Utah. Saxitoxin and cylindrospermopsin, we just do not get those types of hits. Whether we monitor for recreation purposes or for public water supply. Anatoxin is a new wrinkle. Unfortunately, it is one we do not know a lot about in terms of the health impacts other than its bad for you in high concentrations. We do not know how it manifests very well yet. We have also used imagery. Colors begin to go from yellow to orange to red. Typically we begin to see this and generally gives us maybe a one week lead before actual reports come into us. It gives us a sense of what is lurking out there. Just like with COVID, some public recreation people and managers tend to say nothing, no news here, and downplay it, but with our eyes in the sky, we kind of have some suspicions that some of our reservoirs are farther along in terms of a bloom than what we are getting verbally.

In regard to treatment, the legislature gave us a lot of money to go out and attack these HABs. Our long-term game has always been nutrient reduction in watersheds leading into these reservoirs. We have a number of public water supplies and one surface water that developed a voluntary monitoring program to check for microcystin and we have had a lot of multiple detections. Sometimes without the presence of a bloom, but they have never exceeded the Health Advisory number and we have never gotten a detection of any toxin. In finished water it has never broken through. When they see it detected in our raw water, they throw their activated carbon into their system and it is removed from the finished water supply that goes to the citizens.

For recreation, which is where a lot of the emphasis has been, we have tried all sorts of things. This summer, the end of July we did a peroxide treatment at Milford Lake. We have tried ultrasound in a couple of spots, done rough fish harvest to take out the fish that run around in the sediments and reintroduce nutrients that might be contained within sediment beds, as well as eating the macrophytes that provide some competition for those nutrients to the blue green algae. We initiated a barley straw initiative this year on a number of small lakes and farm ponds with some fairly surprising results. Our next up will be ozone nanobubblers – creating very, very tiny bubbles of ozone to essentially oxidize the blooms. We try to avoid copper sulfate at all costs. To that end, we have kind of gone into the treatment game with the three rules: (1) do not buy snake oil; (2) do not go bankrupt. We spent $138,000 on the proxy treatment on Milford Lake and it was like shooting a rhino with a BB gun. It did not do anything. Just as what Erica found with the marina's and their interaction with open water lake, we had the same thing. The treatment got overwhelmed overnight as the bloom came in with the wind. What we found to be, surprisingly, the most effective means of mitigating blooms is our lake level management - holding down the lake levels going into the springtime to act as a little bit of a buffer to contain the spring inflows. Then when inflows do come in, either in spring or in summer, open up the gates and release it. If there is a bloom, the release has a tendency to stretch the bloom out so it does not accumulate into a critical mass and really create problems. That may be one of our long-term solutions. Lake level management has proven somewhat effective in beating back the impact of it. It is one of those classic approaches where you cannot stop them, but you can help to contain them. Lake level management gives us that opportunity.

Our challenges. First, of course, are nutrients. Again, these are reservoirs not lakes and so they were designed to retain everything that came into the water - sediment; nutrients, etc. Regarding sediments, we have internal loading that we are trying to figure out how to combat - it touched on the Milford treatment issue. We are going to get out of the game of trying to treat whole large lakes and just look for isolated coves, beaches and marinas. One of our biggest issues is wind. You can see from these slides, it is here today, gone tomorrow, and it will be back the following day. It makes it hard to set advisories when the blooms are moving back and forth, and up and down like that. Finally, a challenge is messaging. The presence of toxin does not make a lake toxic, but that is how people are hearing it. We are stuck in this balancing act of trying to protect the public and pets and keep it safe for recreating. We try to inform and not dictate.

SUNSETTING POSTIONS FOR THE SPRING 2021 MEETINGS

Erica Gaddis noted the Water Quality Committee does not have any positions pending before it for consideration for the upcoming meetings in Spring 2021.

OTHER MATTERS

Michelle gave a quick update on hydraulic fracturing. Kevin Frederick and I were able to have a call with Mike, Mike and Mark from the Groundwater Protection Council. We were looking at the oil and gas regulations designed to protect water resources. They did a report in 2014 and then updated it in 2017. They aggregated all of their information about state regulations and they are willing to share that with us. But we need to get permission from the oil and gas agencies, so I will be reaching out to them to make sure we get that permission. I may copy you on some of that. That helps fulfill a part of our workplan on hydraulic fracturing.

Related to that, but under a different workplan for a different committee, we are also working with the Groundwater Protection Council on groundwater recharge projects to do an update of our 1998 and 1990 reports.

There being no other matters, the Water Quality Committee was adjourned.