SP CURE Monitoring Committee Meeting – Minutes

Thursday February 10, 2022 – 10:00 a.m.

Meeting Location: Virtual
Link: Join Microsoft Teams Meeting

Call-In: (888) 404-2493; Conference ID 774 845 259#

High Level Take-Aways

- The group heard about the research interests of Dr. Annika Mosier, a professor at the environmental science department at CU Denver, who focuses on microbial biology in freshwater systems. The group discussed the potential to work together in the future.
- The group discussed the arsenic data issues raised at the January joint meeting and agreed to put together a description of the data used in the analysis.
    - Once a little more about the data, perhaps there is a period of time where we have data above the MDL where we can draw some conclusions.
    - The group agreed it would be helpful to gather information about J-data and MDL/RL values for arsenic, and also see if geologic information could be obtained.
- The group discussed additional concerns and questions regarding chl-a implementation that could be discussed at the May 10-Year Roadmap meeting.

Action Items

- Jordan to draft data description for the arsenic analysis.
- Erin to send survey out to folks to determine J-data reporting procedures and MDL/RL for arsenic and see if there is geologic data available.

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1. **Introductions**
2. **Discuss/Approve January meeting minutes**

   Approved
3. **Guest speaker Dr. Annika Mosier (CU Denver) to share her research**

   The group introduced the SP CURE Monitoring Committee, and our recent effort to build partnerships in the metro area. The group explained the near-term focus on outreach and education with other agencies and individuals that are conducting water quality-related work.

   Dr. Annika Mosier is a professor at CU Denver whose primary interests are in microbial biology. Her work is under the environmental science department. Most of her work is focused on freshwater, but she does work within the soil matrix as well. Community and structure in freshwater systems: what microbes are present and what they are doing? How do they respond to environmental change(s)? Where is the tipping point as far as functionality –

when do activity levels change and where do we have a breakdown in biogeochemical cycling? Nitrogen cycling processes is a big focus. Nitrification (conversion of ammonia into nitrates) is a really important process where they are turning forms of nitrogen into forms that can be lost (as far as plant uptake, gas, etc). Her collects microbial samples in the field and grows them in a laboratory environment. Can these organisms still perform critical processes in the presence of certain stressors? Nitrogen cycling work: they have found some novel organisms that were not predicted to be in the South Platte River. Why is it important which organisms are carrying out nitrogen cycling?

She is also involved in research that sequences the genome of different types of microbes. For example, if one is interested in metals, you could look at the metals resistance within the genome. They have been really interested in the response to persistent antibiotic exposure. How prevalent is antibiotic resistance? Widespread metals resistance in the urban South Platte. How do metals concentrations impact microbes?

Q&A

- What are some examples of river health indicators using microbes? Annika responded that she would examine distribution, type, and/or functionality. She considers the diversity of the community, is there a decline in diversity over time, and is that correlated with a stressor. She's also interested in whether a microbial community has the capacity to adapt to certain pollutants. For example, they've been surprised by their antibiotic work – microbes are still carrying out their nutrient cycling in the presence of antibiotics.
- Jordan asked about temporal changes in the microbial community. For example Metro has noticed immediate changes in the aquatic community after treatment upgrades. Annika responded that she started her work in 2015/2016 so they don't yet have long-term results. She added that samples could always be frozen for later analysis (for example, *e*. coli).
- Ben asked about the impacts of temperature on microbes. Annika responded that in nitrite oxidation for example, warmer temperatures in the river generally increase activity.

The group thanks Dr. Mosier for her time and both sides agreed that working together in the future could be very beneficial.

4. **Water quality workgroup updates**

- Water Quality Forum – Nathan Moore is the new Clean Water lead
- 10-Year Roadmap – meeting coming up February 16th
- Permits Webinar: PFAS grants applications available through April 1st
- Chemical approval: proprietary information sharing with the Division.
- Temperature – next meeting Feb 22nd
- Antidegradation NILs – out for public notice, due Monday the 14th. Most members will be supporting the Colorado Wastewater Utility comments
- Antidegradation AA guidance – the Division is working on an outline. Next meeting **March 2nd**

5. **Discuss next steps for arsenic analysis**

Non-detect/overlapping data. The group discussed potential next steps to address the non-detect data, or data where two different entities were sampling the same site. How did we look at the data? Jordan agreed to pull together a results description. Once we know a little

more about the data, perhaps there is a period of time where we have data above the MDL where we can draw some conclusions.

What are other folks doing to report j-data, and what MDL and RL value are different labs using? Perhaps gathering this data would be helpful for the discussion. The MC was tasked with creating a consistent dataset for use in the arsenic analysis, so we will need to figure out how to standardize it.

Continued work on source characterization including geologic sources and tributary loading. The group discussed potential locations where arsenic loading could be calculated (e.g. locations where there are gages and water quality): Bear Creek, S29, potentially another site near Englewood and at the outfall at Chatfield. Also there is a gage on the South Platte at Denver. A lot of tributaries have gages: Sand Creek, Clear Creek, and Big Dry Creek.

Reach out to USGS for geology info? Or state geological survey. Erin to track that down.

6. **Discuss next steps for chlorophyll-a**

Following the January Board meeting, Erin reached out to the Division with a proposal to include chlorophyll-a implementation as a 10-year roadmap topic. The Division thought the topic could be a good fit for the May meeting and asked for additional questions. The group brainstormed the following, and agreed to follow up with additional questions as they come up:

- Is there a plan for the TMDL or are we just going to 303d list a bunch of segments around the state. Large fear is that they will use the chl-a number to ratchet down the nutrient numbers after 2027.
- What will permits implementation look like?

Ben added that SP Renew is building a nutrient model for Segment 14 and will be running chl-a. He will chat with the project modeler to determine which additional parameters are being included.

Erin added that she is working with the CMF Nutrient Task Force to tease out the factors that really drive chl-a levels such as flow and temperature.

7. **Check-Ins**

No updates

8. **New Business**

- Observation: Chloride becoming more concentrated in influent as a result of reuse issues
- There will be a Heat Recovery Seminar: national western redevelopment (Metro) on February 24th

9. **Next Meeting Dates**

Monitoring Committee Meeting – April 14, 2022 – Virtual
Monitoring Committee Meeting – June 9, 2022 – Virtual

Meeting Attendees		
Present	Name	Organization
X	Juliana Archuleta	Adams County
	Zach Trabold	City of Aurora
	Nick Tino	Centennial Water and Sanitation District

Meeting Attendees		
	Jon Novick	Denver Environmental Health
	Al Polonsky	Denver Environmental Health
	Curt Bauers	FRICO
X	Jim Dorsch	Metro District
X	Jordan Parman	Metro District
	Shay Shih	City of Thornton
	Caleb Owen	City of Thornton
	Christine Johnston	Xcel Energy
	Eric Marler	Suncor Energy
X	Ben Wise	South Platte Water Renewal Partners
	Jake Kunugi	Coordinator - Brown and Caldwell
X	Erin Donnelly	Coordinator - Brown and Caldwell

Minutes prepared by Erin Donnelly