

## **ARSG MEETING SUMMARY**

### **For 9/23/14**

ATTENDEES: Peter Butler, Steve Fearn, Chuck Wanner, Cynthia Peterson, Dan Wall, Paula Schmittiel, Tom Schillaci, William Tookey, Bob Boeder, Brent Lewis, Rob Runkel, Lisa Richardson, Kirstin Brown, Kay Zillich, Larry Perino, Kevin Roach, Devon Horntvedt, Chris Peltz, Gene Larson, Doug Jamison, Warren Smith, Ray Ferguson, John Ferguson, Dan Randolph, Steve Way, Pam Starr, Brad Dodd, Mary Blanchard, Martin Hestmark, Steve Wharton, David Brown, Darlene Marcus, Megan Dorman

#### **ANNOUNCEMENTS:**

- EPA is sponsoring an Availability Session the evening after the ARSG afternoon meeting. It is an opportunity to talk informally with EPA, BLM, USGS, and ARSG. Update: Attendance was good, and there was a lot of discussion.
- EPA is meeting with the La Plata County Commissioners the next evening in Durango. Update: About 30 to 40 people attended. Most were familiar with ARSG's work and had attended at least some meetings.
- Bagley (aka Frisco) Tunnel – Last meeting we discussed a blowout of the Bagley that appears to have occurred last spring. There was discussion that with the recent blowout, it might be safer to explore. ARSG asked DRMS if they would be interested. DRMS decided they didn't have time, and they were still concerned about safety issues because we know the Bagley has blown out before (1990's).
- Tom Schillaci noted that there are some water conferences on the west slope this fall where he will be showing the Good Samaritan video – the Sustaining Colorado Watersheds Conference in Avon, Oct. 7-9; and the Upper Colorado River Water Basin Water Forum in Grand Junction, Nov. 5-6.

#### **Updates:**

1. Activities Regarding Bullion King – Kirstin finally received a signed environmental covenant from the property owner so we can move forward. We are planning to take up a mini-excavator to dig holes and better characterize the pile this fall. Kirstin was also hoping to have a pre-bid meeting at the site for potential contractors in early Oct. Update: Since the ARSG meeting, the high country received a sizeable early snowfall, so bringing in a mini-excavator cannot be done. However, the pre-bid meeting is still planned. Participants will have to walk part way in on snow.
2. Characterization of Arrastra – Peter, Lisa, Kirstin and David Heinze took samples at the Royal Tiger and the Silver Lake outlet. The preliminary results show the concentrations from the Royal Tiger are very similar to those taken in 1998 and 1999. We will be drafting a document characterizing Arrastra Gulch this winter.
3. Activities Regarding Red & Bonita and Gold King. – EPA tested the hydraulic conductivity of rock in the Red & Bonita over 200 feet back in the workings at a potential site for a bulkhead. They found that the rock was solid, with low conductivity and

suitable for a bulkhead. BLM has been monitoring quality and depth of shallow groundwater in the vicinity of the mine, and in late September, EPA collected more flow and quality data at other mine drainages and various stream locations in the area. These data will be used to identify changes in the mountain hydrology that might result because of the bulkhead.

EPA contractors also began to open up the Gold King, but it is collapsed farther back than anticipated. Also, there is a blockage near the entrance and a previously unidentified small mine pool that needs to be drained. Entering the mine is proving to be more difficult than hoped. Rather than pressing on with winter coming, EPA has stopped work and will re-evaluate its approach for next summer.

Because of recent heavy rains, EPA and its partners had to postpone sampling throughout the upper Animas Basin planned in late September. However, the postponement only lasted a couple of days, and most of the planned sampling was completed

4. EPA Conference on Treating Mining-Influenced Waters (MIW) – Several people from ARSG attended EPA’s national conference in Albuquerque. Those who attended all thought it was quite useful. The conference helped reinforce the idea of how difficult it is to manage and/or treat mine drainage.
5. InnoCentive Awardees Contacts. – We have met with two of the four InnoCentive Awardees; Bob Gadbury in Albuquerque and Bob Hadin in Silverton (He’s from Pennsylvania.) Gadbury said he will build us a small prototype of his ionization filter. Hadin has been using drainable limestone beds to minimize scaling while raising pH to drop out iron and aluminum at several coal mines in the East. We may want to pursue some pilot testing of his technology in the future. The other two awardees are in India and Peru, and we will be contacting them soon.
6. Timeline of Activities in the Upper Animas Basin. – Peter presented another draft timeline of activities. There weren’t many comments, but people thought it a useful tool, especially for the general public. It will undoubtedly be updated over time.

### **Topics:**

7. USGS Modelling of effects of Remediation in Upper Cement Creek – Rob Runkel with USGS presented a model of the effects that metal reductions in upper Cement Creek would have on water quality downstream at the mouth of Cement Creek and in the Animas below Silverton. Rob has been working on the model the past couple of years and specifically targeted conditions seen in October 2012.

The first part of the presentation demonstrated that the largest identifiable metal loading sources in the basin depend on the metal examined. For example, little of the aluminum in the Animas below Silverton comes from upper Cement Creek above Gladstone, but much of the zinc does.

As a starting point, Rob modeled two low-flow scenarios: a bulkhead in the Red & Bonita that was 100% successful in stopping all the drainage, and treatment of all of Cement Creek at Gladstone like Sunnyside Gold did in 1996. Not surprisingly, treatment of all of Cement Creek would result in much greater metal reductions. However, those reductions would still result in the metal concentrations in the Animas below Silverton that would be higher than what is needed to protect most aquatic life.

Another important result of Rob's work is that zinc does not appear to precipitate or sorb to iron at the pH's seen in the Animas all the way down to Bakers Bridge. It remains in the dissolved state which is more toxic to aquatic life.

There is a lot of information to digest in Rob's presentation. Instead of trying to summarize it all here, we suggest if you are interested in learning more that you contact Peter Butler for an electronic version of the presentation or email Rob with any questions. [runkel@usgs.gov](mailto:runkel@usgs.gov)