

Meeting Summary for ARSG Technology Workgroup April 19th, 2012

Attendees: Peter Butler, Steve Fearn, Craig Gander, Kirstin Brown, Marilyn Null, Kay Zillich, Chris Peltz, Martin Hessmark, Mike Holmes, Ty Churchwell, Ernie Kuhlman, Lisa Richardson, Todd Hennis, Larry Perino, Ray Ferguson, Buck Skillen, Ron Borrogo, Jennifer Lane, Tom Schillaci, John Ferguson, Dale Rodebaugh, Darlene Marcus, Brent Lewis, Steve Wharton, Bill Simon, Edward Epp, Paul Nazaryk.

1. Data Validation: It was agreed that Peter Butler, Bill Simon, and Larry Perino would continue to work on validating the data being used at the gages for analysis.
2. Update/comments on USGS transport model: Several people commented on the USGS proposed transport model. Probably the biggest issues were; would the time spent developing the model delay potential implementation of remedial actions in upper Cement Creek and will the model be multi-directional. In other words, could the model predict the reductions that were seen at the mouth of Cement Creek when Sunnyside was treating the residual flow from the American Tunnel and all of Cement Creek at Gladstone during low-flow. Another question was why start modeling Cement Creek above Gladstone when the impact of metal removal around Gladstone to the mouth of Cement Creek is the most important issue. The BLM pointed out that the modeling process would be part of the work necessary to justify their participation at an elevated level.
3. Review Blue Sky proposal: The group discussed proposals for short-term demonstration of treatment technologies from Blue Sky and Waste Water Management, Inc. Concerns were expressed that the proposals didn't address some of the treatment issues related to the process proposed. The group felt that ARSG needs to give clearer direction to the potential providers of demonstration technologies as to what would be useful to us. It was decided that Steve Fearn, Todd Hennis and Ron Borrogo would work with Kay Zillich to develop a draft Request for Proposal that would ask more specific questions and share that draft with the group. There were also concerns expressed about the cost of Blue Sky's proposal and that it exceeded BLM's budget for testing.
4. Discuss limestone sand: Craig Gander gave a nice presentation on an instream method of treatment which has been used in the East Coast for treating acid mine drainage from coal mines. The idea is to place limestone sand into a stream to raise pH and drop out dissolved metals. The sand granules need to be the right size so that they will tumble in the current, creating new surfaces that won't all be coated with precipitate. Craig did some calculations on the amount of limestone needed to raise the pH in Cement Creek about four miles upstream of Silverton to a pH of 7.9. About 6-7 tons of limestone would

be needed per day which would amount to a cost of several hundred thousand dollars per year. The pH in Cement Creek would need to be elevated all the way down to the confluence with the Animas River.

Metals currently drop out of solution as they move down the Animas River because of increases in pH from tributary sources. The idea behind the placement of limestone is to make this process occur sooner, upstream, thus improving aquatic conditions throughout the Animas below Silverton. A number of people thought it was an interesting concept, but there were concerns about the fate of the metals that would drop out in the bed of Cement Creek. There were concerns about the ecological impact of metal precipitate moving downstream, coating and armoring the substrate. It was suggested that this process was happening already anyway but that the coating would be more concentrated in Cement Creek and the upper Animas segment. Another issue was that if the addition of limestone were ever stopped, the metals could be re-mobilized. Still, people were interested in learning more about the idea.

5. Use of BLM's contractor: BLM has had a contractor on hold for a number of months, and there was discussion as to how to best utilize the firm. Initially, the contractor was to evaluate different treatment technologies, but the group wanted to wait until it had better defined what needed to be treated and what the water quality objectives should be. In the meantime, Sunnyside Gold has hired a contractor to look at different technologies, but we don't anticipate seeing a draft of their report until June. It is possible that BLM's contractor could be utilized to evaluate technologies that may be tested this summer, but so far neither the group nor BLM has settled on the best use of the contractor.
6. Ideas from EPA Hardrock conference: Several people had attended the EPA Hardrock Mining Conference in Denver the week before. Peter described a presentation about an automated micro sampler that has been tested. It's a small device that can take up to 240 5 ml water samples over the course of the winter while left alone, potentially under snow or in an adit. The device could be potentially very useful in testing the effects of in situ treatment of a mine such as the Mogul where winter access is very difficult.

Summary for the Evening ARSG Meeting in Town Hall

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Lori Armstrong, Pete McKay, Dan Scheppers, Doug Jamison, Cassandra Papp, Scott Fetchenhier, Mark Esper

Peter presented a Powerpoint summarizing some of the work the Upper Cement Creek workgroup has been doing including reviewing changes in water quality over the last 20 years at the four main gaging stations, describing the different proportions of metal loading from the four main adits in upper Cement Creek, and outlining a process for evaluating alternatives. Kirstin Brown presented a Powerpoint on the 3-D model of mine workings in upper Cement Creek that she has been diligently working on. It provides a nice visual picture where all the different mine workings are in reference to each other both horizontally and vertically.

After some questions on the presentations, the group took a break and moved the chairs into a circle to allow for more informal dialog among the participants. First, some of the major entities involved in the collaborative process spoke: EPA, CDPHE, BLM, and Sunnyside. Martin Hessmark, assistant director of Region 8 said that a potential National Priority Listing (Superfund) is currently off the table. They want to wait and see how the collaborative process works. Both EPA and BLM expressed that they have difficulty participating in major financial capacity unless efforts in upper Cement Creek are designated as a CERCLA remedial action (in EPA's case, that means Superfund). A CERCLA remedial action requires a potentially responsible party (PRP) search which is something that some other stakeholders would like to avoid. All four of the parties listed above appeared to be on the same page in terms of the collaborative process at this point.

After several comments, Todd Hennis expressed frustration that another important party, private property owners in upper Cement Creek, were being overlooked. He said he had spent a great deal of time investigating water quality problems on his mining properties and had almost lost his life when he went underground in the Mogul looking for the source of water. He also said that during dinner before the meeting he had overheard people saying that his land in Gladstone should be used for a treatment plant and felt it was disrespectful that others were talking behind his back about how his land should be used. After speaking forcefully, Todd immediately left the meeting.

The discussion continued with some questions as to if there might be ways to reduce regulations to entice a mining company to mine in upper Cement Creek and treat the mine discharges. There were no suggestions as to how that could be accomplished.

There was also some discussion commending Sunnyside for willing to be flexible in working towards a solution in upper Cement Creek.

Finally Mark Esper asked when might a treatment or some other solution be put into place. Several individuals and agencies responded that 3-5 years seemed like a reasonable time frame. Sunnyside responded that they would like to see something sooner and that it might make sense to put in a traditional high-density sludge (lime) treatment plant to handle at least some of the drainage and test other technologies. If the other technologies looked viable, they could replace the high-density sludge plant.