



State of Utah

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Department of  
Environmental Quality

Alan Matheson  
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DIVISION OF WATER QUALITY  
Walter L. Baker, P.E.  
Director

OCT 06 2015

Sandra Spence  
Chief, Water Quality Unit  
Ecosystems Protection Program  
US EPA Region 8  
1595 Wynkoop, Denver, CO

Dear Ms. Spence,

The Utah Department of Environmental Quality, Division of Water Quality (DWQ) appreciates the opportunity to provide input on EPA's *Post-Gold King Mine Release Incident: Conceptual Monitoring Plan for Surface Water, Sediments, and Biology*. DWQ has reviewed the plan and shared it with the Division of Drinking Water (DDW), the Utah Department of Natural Resources (UDNR), and the Utah Department of Health (UDOH). In general, we found the plan to be comprehensive and well developed. We offer the following comments in an effort to enhance the ability to compare future samples to pre-release samples and to better understand the long-term effects of legacy pollution from the Silverton area on Utah's waters.

#### Overview

The comments we provide below recognize two important issues that have not been directly acknowledged or addressed in the current plan:

- 1) The load of mining waste from the Silverton area since 2005 likely masks any effects that the August 5, 2015 release may have had on Utah waters. DWQ is interested in understanding the cumulative effect of releases, including the August 5, 2015 release, on Utah's waters.
- 2) Most of the metals released from mines in the Silverton area have likely come to rest in depositional areas of the San Juan River and Lake Powell. Understanding the mobility and availability of these metals is of great interest to DWQ and our partners.

We suggest that EPA include the following as an overarching study question:

Has the legacy influence of ongoing releases on water quality and sediment quality had a chronic effect on the chemical or biological integrity of the San Juan River system and/or the San Juan arm of Lake Powell?

#### Sampling Locations

DWQ recommends that EPA consider selecting sites within Utah that overlap with sites that were sampled by DWQ and its partners during the response to the Gold King Mine release. DWQ's sites overlap with the following EPA Region 9 sites: SJ4C, SJMC, SJBB, and SJMH. Specifically, we recommend that EPA select site SJMC instead of SJME to build on the dataset that DWQ has been developing. DWQ also collected samples at Clay Hills which is near the proposed site SJIN. DWQ has the following data

collected during the response for these sites, in addition to historical data for some sites:

- Pre-plume sampling: 1 sediment sample per site; 2 water quality samples per site on 8/8/2015
- Post-plume sampling: 5 sediment samples per site; daily water quality samples per site from 8/8/15 – 8/28/15 and weekly samples since then; weekly macroinvertebrate samples since 8/28/2015.

DWQ partners also collected macroinvertebrate samples and fish from the San Juan River on 8/8/2015. The samples are currently frozen and would be available for EPA to analyze.

DWQ recommends that EPA select sediment collection sites within Lake Powell that are comparable to the sites used in USGS Open-File Report 2014-1096, *Sediment and Water Chemistry of the San Juan River and Escalante River Deltas of Lake Powell, Utah, 2010 – 2011*.

DWQ also recommends adding sites in the San Juan River system that are not influenced by the Gold King Mine releases, such as the San Juan River above the confluence with the Animas and major tributaries to the San Juan River in Utah and New Mexico. These sites would provide valuable insight into the pre-release conditions present within the watershed, even with limited historical data.

### **Storm Influence**

DWQ is pleased to see plans to sample snowmelt runoff and storm events. However, we believe that the analysis of storm influence will be stronger if samples are also collected at sites in the San Juan River system that are not influenced by the Gold King Mine releases, such as Montezuma Creek and the San Juan River above the Animas. Although historical data may be limited for these sites, sampling at these locations would help differentiate between metal concentrations observed during the release due to stormflow runoff from tributaries and those associated with the release and/or remobilization of legacy contamination in the system.

### **Sediment Monitoring**

DWQ strongly encourages EPA to include sediment and benthic tissue samples at the Utah sites considering that the San Juan River in Utah and especially the San Juan delta in Lake Powell are depositional areas that likely accumulate metals released from the Silverton area, including the August 5 Gold King Mine release. DWQ has pre-release and post-release sediment data that could be used for comparative purposes at the four DWQ monitoring sites.

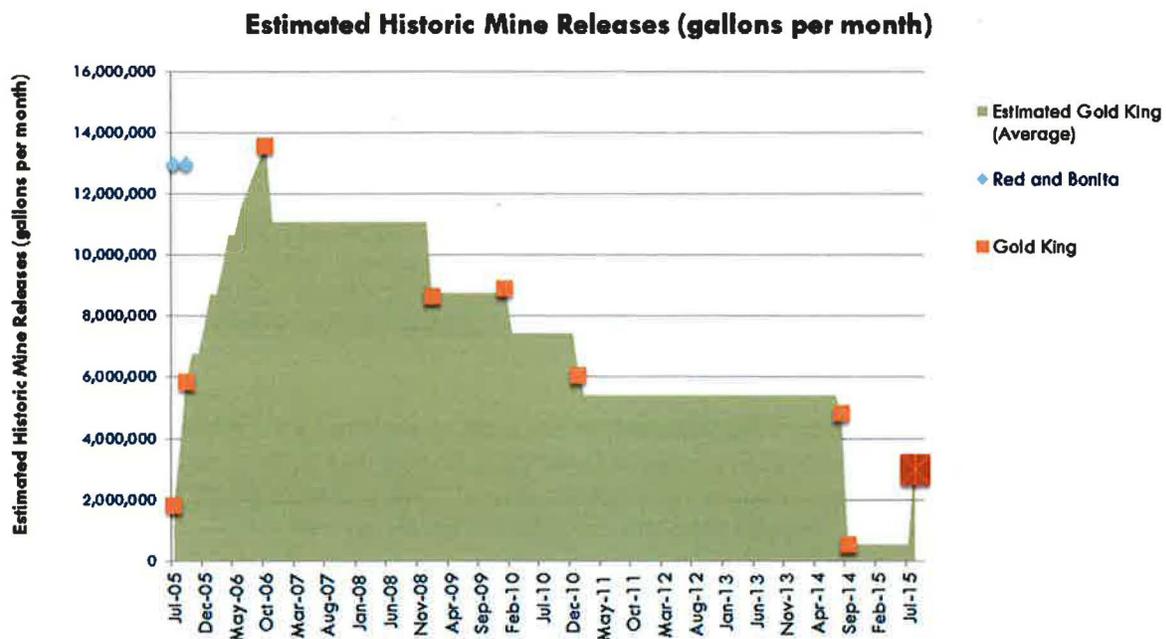
### **Biological Monitoring**

The current monitoring plan somewhat minimizes the potential importance of biological data. Although biological impacts may be more difficult to interpret than water chemistry data, the biota represent the only comprehensive, time-integrated measure of both pre- and post- release conditions within the Animas and San Juan watersheds. DWQ recommends that additional emphasis be placed on biological monitoring including collation and analysis of historic biological data. DWQ encourages EPA to conduct a full inventory of historic biological data for the San Juan system including data available from DWQ, the Utah Division of Wildlife Resources, National Park Service, BLM, USFWS, and the USGS. DWQ also recommends that “biological community” be added to the list of primary media described on page 3 of the plan.

The monitoring plan would benefit from biological samples on unaffected tributaries and increased frequency and duration. Especially if pre-release samples were collected from multiple seasons, additional biological samples in different seasons would increase comparability with historical data and help rule out spurious differences associated with seasonality. DWQ also recommends that biological monitoring be conducted for at least 3 years to fully capture any chronic effects of the long-term releases of metals from Gold King and other mines in the Silverton area. Finally, in addition to the use of biological assessment indices to identify changes in condition, relatively simple biological dissimilarities between pre- and post-incident communities could provide important insight into general changes in biota.

### Characterizing Baseline and Background Conditions

DWQ recommends that EPA define the period of record considered to be representative of before and after the release. DWQ suggests three different time frames that represent changes in releases from the Silverton Area: pre-closure of the American Tunnel (before 2002); period of on-going releases from Silverton Area (2002 – July 2015); and post Gold King Mine Release (August 5). The figure below shows an estimate of the total historic releases, including the release on August 5, 2015 using flow estimates reported in the *Summary Report: EPA Internal Review of the August 5, 2015 Gold King Mine Blowout* dated 8/24/2015. Based on these flow estimates, the total cumulative load of releases from Gold King exceeds 750 million gallons since 2005 and does not account for releases from adjacent mines. DWQ strongly encourages EPA to better characterize the historic releases and make the total metal load release estimates available to the other agencies and the public. This is especially important for Utah’s waters which include the first downstream major depositional areas for the historic releases.



### Data Analysis

DWQ appreciates the need to finalize the monitoring plan quickly such that crews can begin sampling this fall. However, we also believe that additional work needs to be put into the analytical aspects of the overall plan. DWQ would like to be involved in developing the full analysis plan once monitoring has commenced. For example, additional detail is necessary to determine how pre-release data will be compared to post-release data given the complexity and variability of the San Juan River system. Specifically, DWQ recommends that EPA clearly identify which metrics and statistical methods will be used to determine whether there is a difference between pre- and post- conditions and how mixed results (e.g. water quality versus biological samples) and inferring factors (e.g. storm influence) will be handled.

With respect to comparing water quality and sediment samples to screening levels for human health, aquatic life and/or agricultural uses, DWQ asks that EPA use the same methods that the Utah Department of Health developed for screening water quality and sediment data in the response to the Gold King Mine release. This will ensure that the message to the public is clear and consistent across agencies. The screening methods and levels are available on DEQ’s Gold King Mine website and attached to this comment letter. Further, EPA should include the specific screening values to be used in the analysis as a table in the final monitoring plan.

Ms. Spence

Page 4

EPA indicates that the quality of historic data will be taken into account in determining which datasets are appropriate to include the analysis. DWQ recommends that EPA define what quality measures will be used to determine which datasets to incorporate into the analysis. DWQ would appreciate the opportunity to develop the quality standards in partnership with EPA and the other states and tribes.

DWQ also recommends that all data used in the analysis be compiled in a central location that is available for public access and provides clear public communication tools. DWQ strongly recommends that the proposed use of the SCRIBE database also include historic data made available from states, tribes, and other federal agencies.

### **Collaboration and Communication**

DWQ recommends that EPA add a new section to the plan that outlines the agency's plan to collaborate with partnering states, tribes, local health departments, and other federal agencies (e.g. BLM and National Park Service in Utah). Further, this section of the plan should describe how information will be shared with the public in a manner that is timely and easy to understand. This should include details about how quickly and frequently the agency plans to share information and through what means. DWQ recommends that EPA consider development of a more intuitive website for the public to access key updates and information.

### **Drinking Water Wells**

The Division of Drinking Water (DDW) believes that any impacts from the spill may not be evident in drinking water wells for some time. DDW recommends that if any of the water quality samples in the San Juan River are found to exceed any of Utah's water quality standards for domestic source water that EPA should monitoring drinking water wells that could be affected by shallow aquifers influenced by the river.

### **Summary**

DWQ appreciates the opportunity to provide comments on the draft monitoring plan. We look forward to partnering further with EPA over the next few years to ensure that the best data (historic and future) are collected and analyzed so that we can evaluate the long-term effects of mine discharges on Utah's waters and that the results are delivered to the public and stakeholders in a timely manner.

Sincerely,



Erica Brown Gaddis, Ph.D.  
Assistant Director

### **Attachments:**

1. *Preliminary Analysis of Immediate Effects of Gold King Mine Release on Water Quality in the San Juan River, Utah*
2. Utah's Screening Value Analysis of Water Quality Samples
3. Utah's Screening Value Analysis of Sediment Samples

cc: Alan Matheson, Director, Utah Department of Environmental Quality (UDEQ)  
Walter Baker, Director, Division of Water Quality, UDEQ  
Ken Bousfield, Director, Division of Drinking Water, UDEQ  
Craig Dietrich, Utah Department of Health  
Andrew Cushing, Division of Wildlife Resources, Department of Natural Resources