



Via Email
GKMmonitoring@epa.gov

Re: La Plata County's Comment Letter to Proposed Post-Gold King Mine
Release Incident: Conceptual Monitoring Plan for Surface Water,
Sediments and Biology

To Whom It May Concern:

On September 17, 2015, the Environmental Protection Agency (EPA) submitted a draft "Post-Gold King Mine Release Incident: Conceptual Monitoring Plan for Surface Water, Sediments and Biology" (Watershed Monitoring Plan) for comment. La Plata County, with the assistance of our consultant Wright Water Engineers, has convened a Technical Subcommittee of experts to assist in developing comments to proposals by the EPA. The attached comments are submitted on behalf of La Plata County, Colorado.

As indicated in the comment letter, we would like to thank the EPA for soliciting public comments to its draft Watershed Monitoring Plan. Your efforts to include the communities affected by the August 5, 2015 Gold King Mine release are appreciated, and we believe this Watershed Monitoring Plan will form an important basis for on-going watershed evaluation. As such, our interest is to ensure that the Watershed Monitoring Plan and resultant data is as representative as possible of the varied habitats and climatic conditions found within the Animas River watershed over time.

The Gold King Mine Release was a significant event for our community on many different levels. La Plata County takes seriously its obligation to protect the health, safety and welfare of our citizens as well as our natural environment. As such, we intend to fully participate with the EPA, the Colorado Department of Public Health and our tribal and local partners to find a viable, comprehensive solution to a complex historical challenge. That process begins with a full and complete understanding of the impact of the release on the entirety of the watershed. As such, we urge the Environmental Protection Agency to give serious consideration to and adopt the comments set forth in the attached letter.

Sincerely,



Joseph M. Kerby
County Manager



Submitted via email to: GKMmonitoring@epa.gov

October 8, 2015

RE: Proposed Post-Gold King Mine Release Incident: Conceptual Monitoring Plan for Surface Water, Sediments and Biology

On September 17, 2015, the Environmental Protection Agency (EPA) submitted a draft “Post-Gold King Mine Release Incident: Conceptual Monitoring Plan for Surface Water, Sediments and Biology” (Watershed Monitoring Plan) for comment. La Plata County has convened a Technical Subcommittee of experts to assist in developing comments to proposals by the EPA. We are providing comments on behalf of La Plata County, Colorado.

We would like to thank the EPA for soliciting public comments to its draft Watershed Monitoring Plan. Your efforts to include the communities affected by the August 5, 2015 Gold King Mine release are appreciated, and we believe this Watershed Monitoring Plan will form an important basis for on-going watershed evaluation. As such, our interest is to ensure that the Watershed Monitoring Plan and resultant data is as representative as possible of the varied habitats and climatic conditions found within the Animas River watershed over time.

La Plata County strongly recommends that the Watershed Monitoring Plan should be designed to assess the physical, chemical, and biological impacts to the Animas River and associated environs located within the Animas River Watershed in Colorado in the wake of the recent spill from the Gold King Mine. Specific areas of interest include impacts to surface water, groundwater, sediments, and soils in relation to the uses for irrigated agriculture, domestic and municipal water uses, industrial and commercial uses including recreation, wildlife uses, and the aquatic environment including impacts to benthic organisms and fish.

Below, we list several comments and questions regarding potential limitations inherent in the draft Watershed Monitoring Plan, and propose several recommendations for the EPA’s consideration for incorporation into its final Watershed Monitoring Plan. These comments and recommendations are organized in accordance with the structure of the draft Watershed Monitoring Plan.

I. Objectives and Study Questions – Questions, Comments and Recommendations

- Given the draft Watershed Monitoring Plan as presented, will the EPA be able to gather the breadth of information necessary to assess the impacts of the release? In other words, are the objectives obtainable given the sampling plan proposed?
 - Our recommendation: Use additional approaches to evaluate the impact of the release in addition to comparing pre-release and post-release datasets. Additional approaches include but are not limited to: fingerprinting using isotopic data to help quantify impacts and the source of impacts, using coring of sediment depositional areas to evaluate post-Gold King Release impacts versus deeper coring that would provide pre-Gold King Release impacts.
- There is a lack of quantification and benchmarks in regard to the comparison of pre-release datasets and post-release data sets. How will the changes caused by the release be quantified? In other words, what constitutes a statistically significant difference between pre-release and post-release data and what test will be used to measure the statistical significance? Will the proposed sampling program produce sufficient data to conduct the statistical test?
- Will only EPA data be used to determine the background data set from which comparisons will be made?
 - Our recommendation: The EPA should use other available historical and pre-release data from the US Geological Survey (USGS), Colorado Department of Public Health and Environment (CDPHE), Southern Ute Indian Tribe (SUIT), City of Durango, Animas River Stakeholders Group, Riverwatch, Colorado Parks and Wildlife (CPW), and others. Table 1 provides a summary of existing historical data sets.
- While water quality is important in the subject reach of the Animas River, there is an abundance of pre-release data for water quality. It is our opinion that future sampling of the water column may not be as important as evaluating the groundwater, sediments, benthos and fish tissue to evaluate impacts from the release.
 - Our recommendation: Include representative sampling for sediments, benthos and fish tissue as detailed below in sections II and III. Representative sampling may require sampling at locations different from and for a longer duration than those sites targeted for water quality sampling.
- Potential impacts to sediments, soils, groundwater, and surface water and the associated uses for agriculture, drinking water supplies, industrial, commercial including recreational use, and the aquatic environment have been a public concern throughout the duration of this incident.
 - Our recommendation: The Watershed Monitoring Plan should more fully investigate Objectives A and B as they relate to sediments, soils, groundwater and surface water and the associated uses for agriculture, drinking water, industrial, commercial including recreational use, and the aquatic environment. For example, water quality should be compared to agricultural water quality standards and guidance to provide information on if the water quality is suitable for agricultural use. A similar approach could be used for comparing water quality and sediment against exposure limits for recreational uses.

II. Monitoring Frequency and Analytes of Interest - Comments and Recommendations

Sample Analytes

A brief listing of sampling constituents used in the EPA's Gold King Mine Spill Response, CDPHE's proposed annual monitoring program, the USGS Open-File Report 00-244, and additional recommended analytes are provided in Table 2.

Our recommendations:

- For complete water quality general parameters, recommend adding total suspended solids, total dissolved solids and alkalinity.
- Recommend adding nutrients including: total phosphorus, total nitrogen, nitrite, nitrate and ammonia to water column sampling (see comment in next bullet regarding nutrients).
- Recommend adding total phosphorus and total nitrogen to sediment sampling. (Note: Although the Gold King Mine is not known to be a source of nitrogen or phosphorus, the presence of these nutrients in sediments influences the chemistry of water, which can affect the mobility of metals; understanding nutrient concentrations in sediment will benefit the understanding of mechanisms that may affect the concentrations of metals concentrations in water and sediment).
- Recommend adding Chlorophyll-a (algae) and periphyton biomass for water column sampling.
- Recommend oxidation-reduction potential of sediment sampling since the oxidation-reduction potential is a measure of oxidizing or reducing conditions which affect the mobilization of metals bound to sediments.
- Recommend adding total organic carbon (TOC) for sediments. (Note: TOC affects chemical and biological processes that occur in sediments. The amount of organic carbon influences the redox potential in sediment which controls the behavior of other chemical species such as metals.)
- In order to compare to listed standards, recommend speciation of chromium and radionuclides in both water column and sediments and thallium speciation for sediments. Please review reference standards for specific analytes.
- Recommend adding multi-habitat benthic macroinvertebrate sample collection.
- Recognize that results from full screening sampling were not available and if additional constituents from the mine site are found they may need to be incorporated into the sampling plan. Develop a procedure for adding constituents and monitoring sites to the Watershed Monitoring Plan, if needed, as more information is developed.

Monitoring Frequency, Duration and Methodology

It is difficult to assess trends from sampling over the course of only one year. For example, variability in climate and stream runoff from year to year may make it difficult to assess outliers and trends in order to develop opinions and attain objectives within such a short sampling period. Changes in water quality of the water column, sediments, benthic organisms and fish tissue likely require different lengths of time to collect the necessary data to develop opinions on potential impacts. For example, changes in fish tissue may take longer than one year to develop.

To meet the objectives as presented, study periods of up to five years or more may be required. In addition, the proposed program involves the use of grab samples, which may not be representative of conditions in the water column.

Our recommendations:

- Collection of flow-paced composite samples, using standard automated sampling units (i.e., “sippers”), should be considered to collect samples which are more representative of water quality over the duration of the sampling period than grab samples, particularly when flow rates vary over time as a result of runoff from rainfall or snow melt.
- Recommend criteria to extend sampling program based on each media tested, i.e. different duration for water column sampling, sediment sampling, groundwater sampling, benthic organism sampling and fish tissue sampling. Our recommendation is based on no further significant untreated release events in the Upper Animas River Watershed and that normal low flows and high flows are realized during the sampling period.
 - Fish tissue and benthic organisms – 3 to 5 years to allow for different life cycles and movement through species, account for abnormal or variable conditions
 - Groundwater – 3 to 5 years depending upon aquifer characteristics
 - Sediment – 2 to 3 years to account for variable conditions and mobilization of sediments
 - Water column – 1 to 2 years

III. Site Selection and Potential Sampling Locations - Comments and Recommendations

The sites identified in the draft Watershed Monitoring Plan for the water column testing may not be the best sites to assess sediment deposition or impacts to benthos and macro-invertebrates. For example, in the draft Watershed Monitoring Plan, there are no fish tissue sites identified in Durango. In addition, there may be more representative water quality sampling sites. Table 1 provides a summary of sampling locations for which historical datasets exist.

Our recommendations:

- See Table 3 attached to this letter for recommended sites for water column, sediment, and benthic organism and fish tissue sampling. Our rationale is based on the availability of historical or pre-release data and other factors not considered in the draft Watershed Monitoring Plan for these media. Our recommended sampling sites are also attached to this letter as Figure 1.
- A background site on Mineral Creek, M34 at the USGS stream gage, is recommended in addition to site A68 on the Animas River upstream of the Cement Creek confluence.
- Develop locations on fish tissue and fish population collection in coordination with CPW.

IV. Methods, Data Assessment, and Other General Comments, Questions and Recommendations

A. General Recommendations

- Data Assessment hyperlinks to standards are not working - please provide reference standards. Consider adding to the Watershed Monitoring Plan as a set of Appendices, which may need to be updated as reference standards change.
- In addition to regulations, recommend comparing results to protocols, methodologies and guidance to fully contextualize potential impacts and conclusions (i.e., Colorado 303(d) listing methodology (MMI index), the report *Baseline Ecological Risk Assessment, Upper Animas Mining District, San Juan County, Colorado* (biocriteria for metals), basis for water quality standards development, etc.). Provide health based standards or guidance for fish tissue criteria.
- Need to include reference standards for Sediments.
- Please provide exposure limits for water column and sediments as developed as part of the Gold King Release (see Recommendation IV.(A)3 above).
- Need to include reference standards for other uses including agricultural and industrial uses.

Groundwater Monitoring

A plan for sampling the alluvial groundwater was not included in the draft Watershed Monitoring Plan. It is La Plata County's opinion that this is a major omission in the draft Watershed Monitoring Plan and La Plata County is concerned that EPA has not provided the foundational aspects of monitoring alluvial groundwater. In La Plata County there are over 1,000 permitted water wells located within the alluvium of the Animas River. Based on groundwater sampling conducted during the Gold King Spill Response, elevated levels of Iron, Manganese, Copper, Lead and Arsenic were identified in groundwater samples. While La Plata County understands that private water treatment systems are removing a number of the listed constituents, without further information it is difficult to determine the following:

- Has the groundwater monitoring conducted to date within La Plata County fully characterized the water quality of the Animas River Alluvium in relation to the Gold King Mine Spill? Given the information known on well proximity, hydraulic conductivity, pumping rates, well drilling logs and ditches that continued to divert water during the release, what additional sampling is proposed for the spill response and why?
- Given the data collected to date, what information is available regarding pre-release alluvial groundwater quality and post-release groundwater quality? Groundwater data collected per Colorado Oil and Gas Conservation Commission rules and regulations. In addition, groundwater quality collected for New Source Approval for groundwater wells serving public water system could also be used for background data development. How does EPA propose to determine the impacts of the release to alluvial groundwater?
- What are the anticipated relationships between the Animas River and associated irrigation ditches' surface water and adjoining sediments and alluvial groundwater quality?

- What is EPA’s proposal for long term monitoring of the alluvial groundwater to assess long term impacts to alluvial groundwater from the Gold King Spill? We are concerned that point sampling could miss a plume signal if it is taken too early or too late.

Our recommendations:

- The sampling plan should include both “Sentinel Wells,” located between sites of identified contamination and ground water wells that serve public and private houses, and groundwater wells identified with high levels of Lead, Arsenic, Copper, Iron and Manganese.
- We recommend quarterly monitoring of the groundwater sources and post-treatment water quality.

Thank you for the opportunity to comment. If you have any questions or would like to discuss our recommendations, please let us know. We look forward to your response.

Attachments:

Table 1. Historical Data Locations

Table 2. Recommended Sample Analytes

Table 3. Recommended Monitoring Locations

Figure 1. Recommended Monitoring Locations

Table 1
Baseline Data Availability pre-Gold King Mine Release
Monitoring Plan for Surface Water, Sediments, and Biology

Site Name	EPA Proposed for Monitoring Plan	Historical EPA Sediment	Historical EPA Surface Water Column	Historical CDPHE Sediment	Proposed CDPHE Water Column	Historical Benthic Sampling*	Historical Southern Ute Indian Tribe	Historical City of Durango Water Column	Historical Riverwatch Water Column	Historical USGS Gage	USGS Open File Report 00-244 Sediment
CC48	X	X	X							X	
A68	X	X	X			X			X	X	X
USGS Gage Station 09359010 Mineral Creek at Silverton, CO										X	X
A72	X	X	X		X	X			X	X	X
A73 (Near Elk Creek)	X					X					
A75D (Near Cascade)	X					X					
Tacoma										X	
Bakers Bridge	X	X	X			X			X		X
James Ranch						X					
9426 (Trimble)	X			X					X		X
near Oxbow Park											X
32nd St	X	X	X	X		X			X		X
GKM04 Memorial Park	X	X	X	X							X
DHS Foot Bridge									X		X
Hatchery									X		
Rotary Park	X					X					
USGS Gage Station 09361500 Animas River at Durango, CO									X	X	
Hwy 160	X		X			X					X
Santa Rita Park								X			X
Gateway									X		
USGS Gage Station 09362520 Animas River below Durango Pump Plant near Durango, CO										X	
High Bridge									X		
Bodo									X		
Dalibetta Park	X		X	X							
Purple Cliffs						X					
AR 19-3	X			X		X					
AR 16-0				X		X					
Animas 1	X			X		X					X
Weaselskin						X			X		X
AR 7-2	X			X							
AR 2-7	X					X					
Animas 2											
NAR 6	X										
Animas 2 SL											

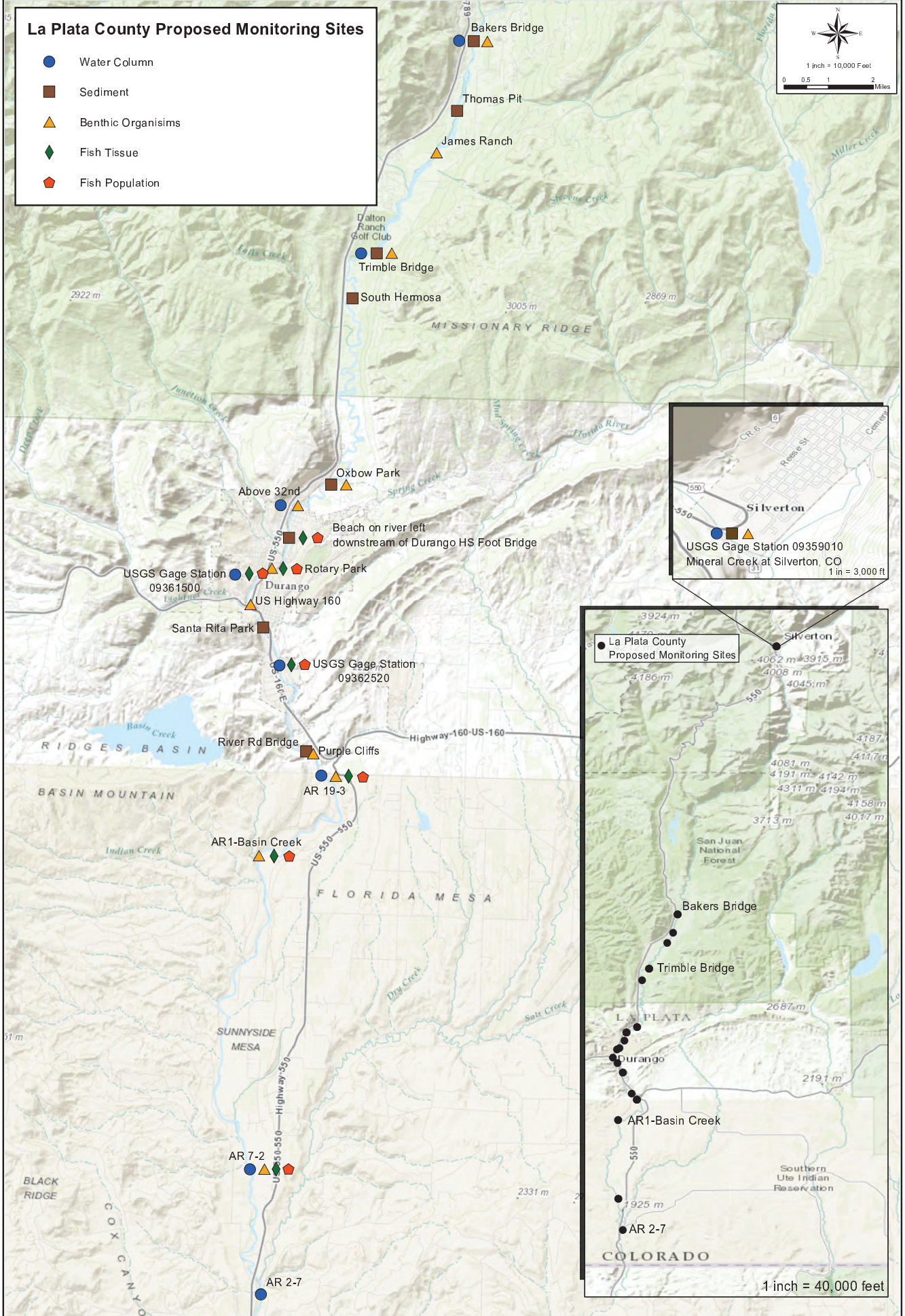
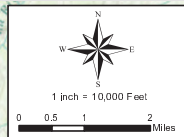
*Represents sampling events by Mountain Studies Institute, Trout Unlimited, Animas River Stakeholders Group, and others

**Table 3
Recommended Monitoring Locations
Monitoring Plan for Surface Water, Sediments, and Biology**

Sample Site	Rationale	Sampling Medium				
		Water Column	Sediment	Benthic Organisms	Fish Tissue	Fish Population
USGS Gage Station 09359010 M34, Mineral Creek	Background control to differentiate Cement Creek contributions to the Animas River from Mineral Creek contributions.	X	X	X		
Bakers Bridge (KOA)	Historical sample results available. Same site as proposed in draft Watershed Monitoring Plan.	X	X	X		
Thomas Pit	High levels of lead and arsenic in EPA post-Gold King Mine samples.		X			
James Ranch	Historical sample results available.			X		
Trimble Bridge	Historical sample results available. Same site as proposed in draft Watershed Monitoring Plan.	X	X	X		
South Hermosa	High levels of lead and arsenic in EPA post-Gold King Mine sample results; river velocity slows to allow finer particulates to settle; evaluate mobilization of metals.		X			
Oxbow Park	High levels of lead and arsenic in EPA post-Gold King Mine sample results; river velocity slows to allow finer particulates to settle; good site for deposition; high use public access point.		X	X		
Above 32nd	Historical sample results available; high use public access point. Same site as proposed in draft Watershed Monitoring Plan.	X	ONLY IF NEEDED FOR ADDITIONAL INFORMATION	X		
Beach on river left, downstream of Durango HS Footbridge	River slows to a pool here, good site to evaluate sediment deposition and mobility; high use public access point.		X		X	X
Rotary Park	Historical sample results available for benthics. May be difficult to collect stream discharge, not a good site for sediment deposition.	RECOMMEND MOVING DOWNSTREAM	RECOMMEND MOVING DOWNSTREAM	X	X	X
USGS Gage Station 09361500 Animas River at Durango, CO (Swinging Bridge)	Historical water quality samples results available, easy to monitor stream discharge, not a good site for sediment deposition. No historical benthic information.	X			X	X
US Highway 160 (aka above Lightner Creek)	Historical benthic data available. Site used for Gold King Mine response sampling. Not a good site for deposition of sediment, may be difficult to collect stream discharge.	RECOMMEND MOVING DOWNSTREAM	RECOMMEND MOVING DOWNSTREAM	X		
Santa Rita Park Beach on river left, below whitewater park	Historical sample results available; good site for deposition of sediment; high use public access point; near intake for Lake Nighthorse.		X			
USGS Gage Station 09362520 Animas River at Durango, CO (near BMX Park)	Historical streamflow data exists; easy to monitor stream discharge.	X			X	X
River Rd Bridge (Dallabetta Park)	Just north of Southern Ute Indian Tribe exterior boundary; good site for deposition; public access point; EPA site for post-Gold King Mine release sampling.	RECOMMEND MOVING DOWNSTREAM	X	RECOMMEND MOVING DOWNSTREAM		
Purple Cliffs	Historical sample results available.			X		
AR 19-3	Release response site; at CO / Southern Ute Indian Reservation border.	X	TBD		X	X
AR 1 - Basin Creek	Fishing/rafting access. Historical macro data.		TBD		X	X
AR 7-2	Historical data available at this site and NAR 4.	X	TBD		X	X
AR 2-7	Southern edge of Reservation. Historical data available at this site, AR 2 and NAR 6.	X	TBD		TBD	TBD

La Plata County Proposed Monitoring Sites

- Water Column
- Sediment
- ▲ Benthic Organisms
- ◆ Fish Tissue
- ◆ Fish Population



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Wright Water Engineers, Inc.
1606 N. Main Ave., Ste C
Durango, CO 81301
(970) 259-7411 ph 259-8758 fx

LA PLATA COUNTY, COLORADO

PROPOSED MONITORING SITES

LA PLATA COUNTY

PROJECT NO.
121-023.050

FIGURE
1