

Spring Runoff Preparedness Plan Animas and San Juan Watersheds February 23, 2016, Version 1

Introduction

On August 5, 2015, a U.S. Environmental Protection Agency (EPA) work crew digging into the Gold King Mine (GKM) Level 7 adit triggered a blowout and ongoing discharge of impounded mine water. The EPA reported that more than 3 million gallons of acidic mine water containing sediment, heavy metals, and other chemicals discharged into Cement Creek, which flows into the Animas River, and into New Mexico where the Animas River joins the San Juan River before flowing into the Navajo Nation and Utah. EPA also estimates that more than 400,000 Kg of metals entered the Animas River as a result of the GKM discharge.

Metals are accumulated and stored in streambed sediments during low flow, and these metals can be released into the water column in both dissolved and suspended phases during periods of high flow. EPA monitoring data collected since August 5, 2015 show that concentrations of dissolved and total metals in the Animas and San Juan Rivers increase to levels of concern during high streamflow caused by monsoonal storm events. Monitoring by the City of Farmington has correlated increases in turbidity with increases in total lead in the Animas River. These increases of total metal concentrations in river water are not a violation of EPA National Primary Drinking Water Regulations, but are of concern to the public water systems that use rivers as a water source. These public water systems must ensure that their treatment infrastructure produces drinking water in compliance with the National Primary Drinking Water Regulations, and there is concern about the potential accumulation of metals in treatment infrastructure. The increase of metals in river water also is of concern to irrigators and others who use the river as a source of water supply. In addition to public drinking-water systems, the Animas and San Juan Rivers are used for private domestic water supply and for irrigation.

The San Juan Mountains presently have above-average snow pack, and 2016 will be the first spring runoff in the Animas and San Juan watersheds after the GKM spill. In addition to public health and safety hazards that typically occur in flood events, there is the additional concern about heavy metal contamination in the watershed.

Preparedness Plan

The N.M. Environment Department (NMED), San Juan County, N.M. (SJC), the City of Farmington (CoF), the City of Aztec (CoA), the N.M. Department of Health (NM DOH), the N.M. Department of Agriculture (NMDA), the San Juan Soil and Water Conservation District (SJSWCD), N.M. State University, the N.M. Bureau of Geology (NMBG), the U.S. Geological Survey (USGS), the N.M. Department of Emergency Management and Homeland Security (DEMHS), the Navajo Nation Environmental Protection Agency (NNEPA), La Plata County,

CO (LPC) and the Utah Department of Environmental Quality (DEQ) are working together to put the following actions and contingencies into place.

On September 7, 2015, the EPA issued a GKM Stakeholders Alert and Notification Plan (attached). The collaborating agencies will work with EPA and other stakeholders to update and modify this notification plan.

Emergency Operations and Incident Command – State, Tribal, county and municipal agencies will activate their emergency operations and command structures as they deem necessary. If SJC activates their Emergency Operations Center in Aztec, N.M., executive agencies under New Mexico state jurisdiction will work within the incident command structure established by SJC. To the greatest extent possible, regulatory and scientific agencies will provide technical expertise and resources to the emergency response agencies.

Reverse 911 Triggers and Messages – The collaborating emergency response agencies have drafted reverse 911 messages for various situations that may arise, including closure of river areas due to dangerously high water, and flooding of residential areas. The agencies will discuss what specific observations or events might be used to trigger the issuance of a reverse 911 notification, and will discuss the need to develop additional messages for situations that may arise. NM DOH and NMED have existing fact sheets on potential hazards from flooding that will be made available to the collaborating agencies, to emergency responders and to the public as needed.

First Responders – State, Tribal, county and municipal law enforcement, fire, EMT, river rescue teams, and personnel who may be called upon to protect public safety during flooding situations, will be provided with a copy of this preparedness plan along with the opportunity to ask questions.

River Monitoring – The CoF has already deployed sondes at each of the two CoF pump stations that divert river water for treatment and drinking-water supply. La Plata County, CO has developed a work plan to install 8 gages on the Animas River to provide early warning to stakeholders in their jurisdiction, but needs funding to implement the plan. NMED and the Utah DEQ are proposing to fund the USGS to deploy multi-parameter sondes at 6 USGS gaging stations in the Animas and San Juan Rivers. USGS will make provisional data from the sondes, along with stream flow data from those locations, available on the USGS WaterWatch website <http://waterwatch.usgs.gov/index.php>. The WaterWatch website allows users to access real-time USGS monitoring data and to create graphs. The WaterWatch website also allows users to self-subscribe for email and/or text alerts when monitoring parameters exceed values specified by the subscriber.

USGS Gaging Stations Proposed for Sonde Installation and Water Quality Sampling

- Animas River near Cedar Hill, NM (09363500)
- Animas River below Aztec, NM (09364010)
- San Juan River at Farmington, NM (09365000)
- San Juan at Shiprock, NM (09368000)
- San Juan at Four Corners, CO (09371010)
- San Juan near Bluff, UT (09379500)

The USGS, CoF and LPC sondes will measure turbidity, specific conductance, pH and temperature. The collaborating parties will work to develop a communication system that will be capable of making monitoring data from the USGS, CoF and LPC sondes available to regulatory agencies, public water systems, irrigators, and other water users. The monitoring data can be used to inform any decisions on continued use and treatment of river water.

USGS will perform integrated sampling river water sampling at beginning, peak and recession of spring snowmelt at the 4 N.M. USGS sonde locations. Samples will be analyzed for dissolved and total metals, and for general chemistry. USGS and the Utah DEQ are designing a sampling program for the two sonde locations in Utah. USGS also will install an automated water sampling device at the Animas below Aztec that will collect samples for total metals and general chemistry. Samples will be analyzed by the USGS laboratory and made available to the public on the USGS website after quality assurance and control procedures are complete. The CoF also continues to collect river water samples for analysis of dissolved and total metals.

NMED and CoF will continue to evaluate the relationships between turbidity and dissolved and total metals. These relationships will be communicated to water users to help inform any decisions that they may make on continued use and treatment of river water. NM DOH and NMED are drafting a fact sheet for persons who haul water from the rivers or irrigation ditches for domestic supply. This fact sheet will be distributed to collaborating agencies and the public.

Aquifer and Water-Well Monitoring – NMBG has already performed water seasonal water-table mapping, and sampling of private domestic wells that may be influenced by surface water, in August 2015 and in January 2016. Water samples are analyzed by the NMBG laboratory for metals, general chemistry and stable isotopes. NMBG also has installed continuous water-level recorders at several locations in the Animas River alluvial aquifer. NMBG will repeat the water-table mapping and water-well testing during the period of snowmelt runoff. The monitoring data will be reviewed to identify any possible changes in hydraulic relationships between the aquifer and river and in well water chemistry. If any wells are suspected of having been influenced by surface water, NMED and NMBG will advise and counsel the well users.

Flooding of Residential Areas – In the event that residential areas are flooded, SJC, CoF, LPC and other first responders will follow standard procedures to protect public safety and property.

If private domestic wells in New Mexico become inundated by flood water or show evidence of surface-water contamination, NMED will advise the residents of emergency water well disinfection procedures. NMED also will provide free testing of inundated wells for both E coli (after disinfection is completed) and for total metals. NMED will arrange to have laboratory resources available if needed. NM DOH will notify well owners of any high test results for metals and will follow up with homeowners on options to resolve the issue.

Pre-Runoff Training for Partners and Stakeholders – The collaborating agencies will host one or more training sessions, as necessary to inform first responders, water users and other stakeholders of the provisions of this preparedness plan. Training on how to use the USGS WaterWatch website also will be offered. A NMED training presentation on Health and Safety during flood-response operations has been made available to the collaborating agencies.



GOLD KING MINE STAKEHOLDERS ALERT AND NOTIFICATION PLAN

**INCIDENT COMMAND GOLD KING (ICGK)
7 SEPTEMBER 2015**

U.S. ENVIRONMENTAL PROTECTION AGENCY

 _____ Incident Commander, Chris Ruhl (R6)	<u>9/7/15</u> Date
 _____ Deputy Incident Commander, David Ostrander (R8)	<u>9/7/15</u> Date
 _____ Deputy Incident Commander, Peter Guria (R9)	<u>9/7/15</u> Date





Incident: EPA Response to Gold King Mine Release Incident
Subject: Gold King Mine Stakeholders Alert and Notification Plan

Strategic Objectives:

1. Notify stakeholders throughout the entire watershed in Regions 8, 6 and 9 of any mine related activities that could potentially impact the watershed.
2. Intended to address the first level of notification and information sharing.

INTRODUCTION

The Gold King Mine Stakeholders Alert and Notification Plan will notify stakeholders throughout the entire watershed in Regions 8, 6 and 9 of any mine related activities that could potentially impact the watershed. The Plan also includes a “notification only” alert for non-mine related activities such as a rainfall event. The Plan in its current form will remain in effect as long as work is ongoing at the GKM site. The Plan is intended to address the first level of notification and information sharing. Beyond this initial notification, all parties are responsible for assessing the incident and determining additional needs for response and notification.

Planning Scenario: This Plan is not intended to take the place of emergency action plans, spill plans, normal reporting requirements or action necessary for life safety events.

The framework of this Plan is based on the assumption that existing flows in the Animas River will affect timing and dilution. At a measured flow of 1000cfs at the USGS gauging station on the Animas River below Silverton, a spill or runoff event will likely take approximately the times listed below for each reach of river.

1. 30 minutes: Mine Operations to Silverton City limits
2. 30 minutes: Silverton to entrance of Animas River canyon
3. 10 hours: Animas River Canyon to Bakers Bridge
4. 10 hours: Baker’s Bridge to Northern Durango city limits
5. 6 hours: Northern Durango City Limits to Southern Ute Reservation Boundary
6. 12 hours: Southern Ute Reservation Boundary to NM State Line

ALERT LEVELS

Notification Only

- An identified non mine-site related event affecting Cement Creek or the Animas River that will not pose a physical or safety concern for downstream users, but may be perceived as a negative event by stakeholders, public, or the media.
- This could include a precipitation event causing discoloration of Cement Creek unrelated to mine operations, a storm event that may cause identifiable disturbance of sediment, or any other event that could cause limited discoloration of the Animas River.



Alert I

- An identified event at the mine site that is unlikely to cause any physical or safety concern, but may be negatively perceived by the public for impacts beyond Cement Creek.
- This could include a limited or temporary release of treated or untreated mine wastewater that may be identifiable through operator knowledge or observation or direct measurements of turbidity, or pH in mine waste discharge, that could occur anywhere above the USGS Gauging Stations before Silverton.
- This could also include identification of a storm event affecting mine site operations or causing significant runoff leading to discoloration through two or more reaches of the Animas River identified above.

Alert II

- An identified event that may have limited negative public perception for downstream users for physical and environmental effects.
- This could include a failure of treatment systems or storm event causing a shutdown of operations.
- This could include a surge of mine waste that overcomes current capabilities for a short period.
- This could include a major storm event that would mobilize sediment from several drainages and large amounts of mine waste sediment from the Animas River causing widespread identifiable turbidity and discoloration.

Alert III

- This will include all events that are or will likely cause large-scale environmental or physical safety effects.
- This will include events such as terrorism or an extreme vandalism event shutting down operations.
- This will include additional or imminent mine dump failures, catastrophic slope failure or similar event.

NOTIFICATION PROTOCOL

Notification Only

- On-site OSC to notify EPA ICP in Durango within 1 hour of identified event.
- EPA IC to determine need to log in daily Situation Report (SITREP).
- EPA ICP to E-mail stakeholder list (attached) by end of day.



Alert I

- On-site OSC to notify EPA ICP within 1 hour of identified event. Durango IC and Command Staff to be notified within 1 hour of EPA ICP notification.
- This event will be logged in daily SITREP.
- EPA ICP to E-mail to stakeholder list within one hour of EPA ICP notification.
- Stakeholder agencies should be notified by end of day or following morning if event occurs after 6PM.
- EPA ICP to hold strategy meeting and determine need for downstream monitoring or sampling.

Alert II

- On-site OSC to notify EPA ICP as soon as practical. Durango IC and Command Staff should be notified within 1 hour of EPA ICP notification.
- On-site OSC should attempt immediate phone contact with SJC EM or Sheriff. If unable, contact should be requested through radio link to CSP Montrose Dispatch Center.
- This event will be logged in daily SITREP.
- EPA IC to send E-mail to stakeholder list immediately upon EPA ICP notification.
- Stakeholder agencies should be verbally noticed within one hour of event. Only one contact per agency is necessary.
- EPA ICP to hold strategy meeting to determine downstream monitoring and/or sampling needs and activation of the JIC.

Alert III

- On-site OSC to notify EPA ICP as soon as practical. Durango IC and Command Staff should be notified immediately upon ICP notification.
- On-site OSC should attempt immediate phone contact with SJC EM or Sheriff. If unable, contact should be requested through radio link to CSP Montrose Dispatch Center.
- EPA IC should make notification to the National Response Center (800) 424-8802
- On-site OSC and EPA ICP should establish real-time communication.
- This event will be logged in daily SITREP.
- EPA IC to E-mail stakeholder list immediately upon EPA ICP notification.
- Stakeholder agencies should be verbally notified by EPA ICP as soon as practical. Only one contact per agency is necessary.
- EPA ICP to hold strategy meeting to determine downstream monitoring and/or sampling needs and activation of the JIC.
- EPA IC to schedule stakeholder briefing as soon as practical.