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(b) (6) [redacted]

1574046

From: (b) (6) [redacted]
Sent: Sunday, August 16, 2015 9:00 PM
To: (b) (6) [redacted]
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Subject: Gold King Mine Incident Chronology

(b) [redacted] I am going to go through the chronology using (b) [redacted] photos...easiest for me and conveys my thinking at the time as well...

In photo 1 taken on the 4th of August we are clearing away the ruble in front of the plug area. There was a lot of unconsolidated material to be cleared away to even approach the plug area.
The visible pipes were put in previously by the state to direct flow from the adit. The adit has historically been flowing from underneath for a number of years from 70 gpm to 200 gpm. Over the years a number of pipes (one in the background right of the excavator) have been shoved into the bottom in attempts to keep the mine draining so that it would not form a mine pool. Because all this was unconsolidated material it was considered safe to remove it was not buttressing the plug. In the background you can see the unconsolidated material (loose dirt) that was overhead and how much of it filled what I call the slot the adit portal is in.

Photo 2 just shows unconsolidated dirt, pipe, culvert with pipe and water flowing from underneath and dirt overhead sluffing in....just removing dirt.

Photo 3 still dirt and water flowing from beneath pile.

Photo 4 close up of dirt.

Photo 5 (b) (6) [redacted] (DRMS) taking a close look at where we are in the excavation of the dirt and where anything that might be considered an integral part of the plug might be showing up.
We were constantly and carefully watching for and closely inspecting the digging for indications of the plug. The sluffing dirt is evident in the picture.

Photo 6 is of the gulch below the mine dump.

Photo 7 is of hay bales we put in to catch sedimentation as we excavated.

Photo 8 shows the extent of the dirt filling the slot and gives a good understanding of why it was a puzzle just how far back the hard rock face was up this slope. To even see the plug this material had to be removed.

Photo 9 shows more pipe, water from underneath and sluffing dirt, water is ponded because flow is impeded by the sluffing dirt below down out of the picture. The excavator is working from a pad that is higher than this hole in the bottom of the slot which can be seen in the previous picture.

Photo 10 is of the gulch below the mine.

Photo 11 same.

Photo 12 here we are getting a first glimpse of the plug. The materials are a mix of the dirt sluffing material, water from the flow underneath, and timbers that were on the sides of the slot and not buttressing or holding back anything but the sites. The plug is evident by the lighter material (the caved rock) and the jumble of ruble and timbers from the sides. There were no intact timber sets at this point only what remained of the sides. An older pipe installed sometime in the past to drain the adit can be seen. At this point we were carefully inspecting the face for any sign of damp soil, change

in flow of the underneath water, change in flow of the water from the nearby old adit which was flowing steady and clear. But not getting to close because of the sluffing dirt. We cleaned out the ruble and decided to leave it like this until the next day when the entire technical team (the addition of (b) (6) from DRMS) came to advise and determine what to do next if anything.

Photo 13 this is the next day the 5th of August the technical team is gathered on site and evaluating the situation. Here we see the outer face of the plug. It is dry and appears solid and compacted. There has definitely been a cave in. We could not inspect it closely because of dirt sluffing in from overhead. Again no change in flow of the water underneath. The sluffing dirt can be seen over the plug. Evident in this photo is the exposed timber set. The posts and cap with lagging is clearly seen. The timber set is clearly skewed down to the left from failure. What is also evident is the timber blocking on top of the cap and lagging where it was installed to try and catch up to caving and running ground in the hopes of ultimately supporting the back (roof) and stop the run of caving. With this exposed we had some indication of where the back had been and where it might be and how far to safely stay away from it. Keeping in mind that the mine should be assumed to be full of water - that is backed up to the top of the plug or higher - we did not want to get anywhere close to the top of the plug. We estimated a safe distance above the caved timber set that was not to be touched. We agreed this was as far as we were going to go in the approach to the plug. However, we needed to determine where the bedrock (hard rock surface overhead was to plan a safe approach to the plug. The lose dirt can be seen essentially draped on top of and over the plug. So we set about looking for bedrock.

Photo 14 shows the excavator doing that. We built a ramp up about 4 feet for the excavator to work from and reach higher up the face by first filling in the front of the slot with course rock for the underneath water to flow through then dump material on that to support the excavator. We brought down the dirt in carefully determined increments and dragged it forward away from the plug face for the front end loader to pick up and remove. The photo clearly illustrates the excavator doing that, the ramp that was built up for that purpose, and the large amount of dirt hanging above the face some of which was sluffing and some of which required a nudge to bring down. Again there was no change in flow of the water underneath.

Photo 15 illustrates the continuation of this process with pile of material awaiting the loader to pick it up and remove it. The face of the plug is well below these excavations.

Photo 16 shows the face a bit cleaner with the excavator out and a pile of material waiting to be picked up by the front end loader. The ramp for the excavator is clearly shown. At this point we had clearly found the bedrock and there was very little material left hanging above.

Photo 17 is the same shot as the previous only zoomed in because we had spotted a small stream of clear water that at first looked like a spring coming from the rock face below the white spot on the face. I think it is visible in this photo but not positive. At this point I had the loader back out as I think he was about to pick up the load in the foreground and I went in as far as I safely could to see if in fact it was a spring. On as close inspection as I dared I could see that the clear water was spurting up not down. A couple of minutes later red water began to flow out from near that spot. We cleared the area. At first it did not appear as if it would be very much flow but it steadily increased and in a couple of minutes it became obvious there was a lot of water coming. We ensured that we had cleared the area of ourselves and equipment and began to find a way to make the necessary notifications. There is no cell phone service at the site and satellite service is unreliable so no satellite phone was at the local but we did have two way radios that had proven to be reliable so we contacted workers down the mountain working on another site and told them to keep anyone away from the gulch and creek where the flow was headed. Then sent one of them to get the Colorado State DRMS people who had left the site a short time before (that was when we all decided we could see enough of the plug and decided to just look for the bedrock above) to look at anther mine. They got to the State guys who knew the notification system and did all the necessary notifications. I defer to their description and chronology at this point.

Someone did come up to get the RM and myself so that we could go down and ensure all notifications had been made and see what needed to be done.

The rest is our rebuilding the roads to get out, diverting the water from the adit back into the flume (half culvert), and planning the recovery as per the National Contingency Plan (NCP).

This is a long discussion so please extract out the content you need for brevity but it helped me to step through the sequence of events.

(b) (6)

This discussion is subject to attorney/client privileges.

Sent from my iPad