To: Jenkins, Laura Flynn[Jenkins.Laura@epa.gov]
From: Grantham, Nancy
Sent: Wed 10/28/2015 1:24:06 AM
Subject: Re: GKM

Thx

Sent from my iPhone

On Oct 27, 2015, at 8:37 PM, Jenkins, Laura Flynn <Jenkins.Laura@epa.gov> wrote:

Nancy:

Noticed you weren't cc'ed and wanted to be sure you saw this.

Laura Jenkins

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Begin forwarded message:

From: "Griswold, Hays" <Griswold.Hays@epa.gov>
Date: October 27, 2015 at 6:24:58 PM MDT
To: "Ostrander, David" <Ostrander.David@epa.gov>, "Williams, Laura" <williams.laura@epa.gov>, "Way, Steven" <way.steven@epa.gov>, "Smith, Paula" <Smith.Paula@epa.gov>, "Jenkins, Laura Flynn" <Jenkins.Laura@epa.gov>, "Hestmark, Martin" <Hestmark.Martin@epa.gov>
Cc: Matt Francis <m.francis@erllc.com>, Allen Sorrenson - DNR <allen.sorenson@state.co.us>, Elliott Petri <Elliott.Petri@WestonSolutions.com>

Subject: GKM

Perhaps I can clear up some confusion and questions of the events generated by the BOR report from my perspective.
Steve Way had scheduled me to come to the site the week of August 3rd at least two months prior. I was to be there while he was on a long planned vacation. The plan also included that I be there when DRMS personnel could be there. I am sure he would have liked to have Mike G. with BOR there as well but funding was probably not in place or could not be in place to allow that. However, I did know Mike was scheduled to come down on the 14th so what we were doing was in preparation for that gathering.
I understood the plan was for our group: Allen Sorrenson DRMS geological engineer with a lot of experience with abandoned mines, Bruce Stover DRMS geologist with experience with abandoned mines and mining, Matt Francis ER Response Manager with a broad range of experience with response operations especially excavations, Elliot Petri a PE in civil engineering, and myself a geological engineer with 12 years experience in the mining industry including developing and managing an underground mining operation and 28 years of EPA experience on mining site response work to investigate the nature of the blockage at the Gold King Mine.
Contrary to statements made in the BOR report there was never any discussion or decision made by the group or myself independently to actually open the mine adit in any way shape or form (from top down or directly in). I was in charge of all activities related to the investigation and had the last say whether to stop or proceed at any point. The rest of the group were in advisory roles only and provided extra sets of eyes to observe and record and report ongoing activities and anything unusual or unexpected as we progressed.
On August 4th we gathered at the mine, inspected and discussed our findings (Bruce Stover was not there). It was especially obvious to me and to the others as well that the rubble, debris, and loose dirt fallen and falling from above was not an integral part of the blockage. Any of this material if it came in contact with a significant amount of water would fail structurally and turn into a mud flow. So it was concluded something more substantial was behind this material and to reveal the true nature of the blockage this material needed to be removed.
At my direction and with careful observation of the group (I should note that Bruce Stover was not present at this point but expected the next day) we began removing the material a bit at a time all the while inspecting for the actual blockage we all knew to be behind this material. Eventually we arrived at what we knew to be the actual blockage. It was apparent to everyone. It was collapsed adit back (roof) material that had caved in and broken and collapsed wood mine timbers. It was composed of the altered bedrock - essentially a clay material that would compact tightly and be relatively impervious to water. The blockage was compacted tight and very solid in appearance. The material could be seen packed tightly around the collapsed and broken timbers. There was no water seeping through at these higher levels or any sign that there had been at any time. But that did not necessarily mean that there was no water backed up this high behind the blockage which is what the BOR report purported

incorrectly. It also meant this material was packed very tightly and impervious to water and could very effectively hold water back. I personally knew it could be holding back a lot of water and I believe the others in the group knew as well. This is why I was approaching this adit as if it were full, not to mention it is always advisable to approach a blinded off adit (meaning collapsed or caved all the way to the back - roof - with no opening at the top to see in). I also knew there was some pressure behind the blockage but not much because there had been a vertical one to one and one half foot spurt of clear water from one of the pipes that was down low. The BOR report indicates that we had no knowledge of this - it is incorrect. In fact I had pointed out this material and its clay content and characteristics to the BOR team at the time of their visit. They later returned and actually sampled the wrong material on which to run their tests. The actual material making up the blockage was even more competent than what they sampled. So we were more than well aware of the characteristics of the material making up the blockage and how it was competent enough to hold back considerable water and how it might effect flow rates from beneath the blockage. All of that said is why I was approaching the adit on the assumption that it was full. The BOR report incorrectly reports that we were not aware of the characteristics of the blockage material yet they were fully aware that I had pointed out these characteristics to them on site. I repeat that to point out that I was thoroughly familiar with the characteristics of the material having worked in the district a few years as an exploration geologist and geological engineer. The extent of hydrothermal alteration of the rock at the site and in the district is well documented and well known to all of us.

On August 4th we had exposed the blockage and cleaned up around it but not above. We decided to stop at that point and meet again the next day when Bruce could join us and plan the next steps.

On August 5th we all met at the mine site and inspected the blockage as exposed the previous day. This is the point at which the picture labeled Figure 46 in the BOR report was taken. BOR incorrectly states that we discussed the situation and decided to continue digging. This is patently false and a mischaracterization of the facts. The statement implies we proceeded to dig into the blockage. At no time did we discuss actually opening the adit or digging into it. The truth is we decided to avoid any contact with the blockage whatsoever and simply remove the loose dirt above the blockage for two reasons. First, to prevent it from falling down and covering what we had exposed and second, to reveal the bedrock above the blockage in order to better plan the next steps. Perhaps the author would have got these details correctly had he not slept through my interview and presentation.

The fatal flaw in the whole plan was that the brow of the adit turned out to be two to two and one half times the height above the floor of the adit, much more than anyone expected. We had been told the adit opening (the portal) was either eight feet by eight feet or ten feet by ten feet (it had been eight by eight). Given that there had been some blocking on top of the lagging of the timber sets (observed in the exposed blockage) indicating the back had been caving up (running up higher- the blocking placed trying to catch the caving ground). Given that evidence we knew that the brow would be somewhat higher than originally constructed, so we built a ramp of rock and soil up in front of and away from the blockage in order to work well above it to remove the dirt.

We and or I particularly thought we were four or maybe five feet above the brow. However, as it turned out we inadvertently got to probably within a foot or two of the brow. That proved to be too close when rock at the exposed face crumbled out providing an outlet for the water within the adit a pathway to escape up and over the top of the blockage which we now know to have been 19 feet high. Again the BOR incorrectly has us digging down to a brow they estimate at 10 feet high - which would leave us no margin for error and would have been foolhardy given what we knew, observed and deduced. In hindsight even twenty feet was not enough.
As it so happened this was also the point at which we were going to stop the clearing away of the dirt from above and leave the situation for the group to gather on the 14th of August to examine and work out a plan to access the mine pool.
BOR incorrectly asserts that we were going ahead with the plan to put in a stinger. This is patently untrue there was no definitive plan to insert a stinger. That was a tentative plan but depending on what the investigation found. If the situation would have remained stable (no release) once we exposed the blockage there would have been more and better informed discussions on ways to proceed after studying the conditions of the blockage as revealed.
The BOR implies we were in some kind of hurry to open the adit. This is incorrect there was no hurry or urgency involved. We were just proceeding with the investigation and preparing the site for further inspection and planning.

I have included in this email those who were on site that day. If any of you have a different perspective of what I have stated above please let me know.

Others use this unedited explanation as needed.

More will follow that will directly respond to specific items in the BOR report.

Thank you

Hays

Sent from my iPad