

Lori Savage

From: webmaster@juneau.lib.ak.us
 Sent: Monday, April 18, 2011 10:30 AM
 To: Lori Savage
 Subject: AJMAC Public Comment
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Name: Roman Motyka	E-mail: Telephone Number:
<p>Comments: AJMAC & CBJ Must Protect Our Water Supply Dear AJMAC committee members: Thank you for all of your work on this issue. I am submitting written comments to you because I will be out of town and unable to attend the one and only AJMAC meeting where oral public testimony can be presented. Personal background: I am presently employed as a Professor of Geology and Geophysics by the Geophysical Institute, University of Alaska, and am based in Juneau. However, my views are my own. My professional career in Alaska spans almost 40 years of research and study of the state's geology and geophysics, and includes 16 years when I was employed by the Department of Natural Resources, Alaska Division of Geological & Geophysical Surveys (DNR-DGGS; 1979 - 1995). Twenty years ago, during my tenure as Senior Geologist with DNR-ADGGS, I participated in a joint study investigating the potential impacts that reopening the AJ mine could have on the city's water supply in Last Chance Basin (LCB). My contributions involved developing a better understanding of the geology and hydrology of the basin in support of state and CBJ hydrologists. Last Chance Basin geologic history: An accident of nature created the aquifer system in Last Chance Basin, which is the primary source of water for CBJ. After glaciers retreated following the Last Glacial Maximum (12,000 to 16,000 yr ago), stream sediments began flooring the basin at first with relatively impermeable glacial mud and silt, and later with layers of sand and gravel. A landslide off Mount Juneau then dammed Last Chance Basin (at the road bridge) and created a temporary lake. Silt and mud precipitated from the lake, covering the sands and gravels. The lake eventually filled with sediment and Gold Creek re-established itself, producing the modern day basin we now see. Aquifer system: The sand and gravel sandwiched between the two mud layers constitute a semi-confined aquifer system from which CBJ draws our main water supply via five pumps. Infiltration into the aquifer occurs at the head of the basin in the river section from the Mine-Museum footbridge to Snow Slide Gulch. Stream flow from Silver Bow and Granite Basins (Gold Creek) are the principal sources of water infiltrating into this aquifer but drainage from mine adits also provides a significant fraction of water flow into Gold Creek, especially during cold spells. These adits drain water that enter through the Glory Holes in Silver Bow Basin and then course through the old mine workings. The LCB aquifer itself is not very large, being only 30 to 40 m in thickness, 0.5 km in width, and 2 km or so in length. (The CBJ LCB water supply therefore depends strongly on adequate water volume entering the aquifer at the head of the basin. Concerns: In my opinion, the results of studies done 20 years ago make it quite evident that the CBJ-LCB water supply would be seriously vulnerable to contamination and diminished water flow should the mine be reopened. The nature of the aquifer system, with its open infiltration at the head of the basin, is such that any contaminated water entering the streams up-valley or from the adits could infiltrate and contaminate the aquifer. Closing the adits altogether may prevent mine contamination entering the aquifer system but it would also significantly diminish water flow. Juneau's alternate water supply, Salmon Creek Reservoir, is subject to turbidly events that periodically shut down water supply from this source and thus cannot be depended on. Ironically, there are no economically and environmentally viable alternative water sources, in rain-country Juneau. This is because of the prohibitive cost that filtration of other water sources would entail, as noted by the CBJ city engineer. Conclusions: The April 10, 2011 Juneau Empire featured an article about AJMAC deliberations. From this article, I am heartened that the committee is acutely aware of the threats that reopening of the AJ mine would pose to our city's water supply. It is therefore incumbent on this committee, the mayor, and the CBJ assembly to ensure that all precautions be taken to prevent any endangerment to our water supply. We as citizens of CBJ have a vested interest in maintaining clean and adequate water supplies for ourselves and future generations. We must ask ourselves where our true wealth lies: is it the gold in "them dar hills" or is it the life sustaining water that we are fortunate to have in our own back yard. Sincerely, Roman J Motyka, Ph.D. Professor of Geology and Geophysics</p>	

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