

Input Request #1 on OU 6: Mitigation and Capping Approaches

1. Some examples for historic preservation offsets suggested by Leadville citizens include stabilizing historic structures, enhancing the Mineral Belt Trail, possibly with potable water stations, solar lighting, or bathrooms; and helping the community to establish a bounded area or park where mining history could be preserved and or documented. What are your suggestions for historic preservation mitigation in OU 6?

| Answer Options | Response Count |
|--------------------------|----------------|
| | 20 |
| <i>answered question</i> | 20 |
| <i>skipped question</i> | 9 |

Responses

I would prefer stabilizing historic structures since the whole point is mitigation of the historical impacts.

The two areas that come to mind that really need stabilizing are:

- 1) The "Clear Grit" a wonderful and well preserved example of a mining building cluster, that is until someone burns it down.
- 2) The "Hoist House" and the other long building where the ore was stored and I believe loaded on the train, in the Ibex group (everything associated with this group, east up 5th.

Why are we talking about offsets now? Offsetting what? Is there knowledge the EPA is really going to destroy our mining district and is already planning some sort of appeasement?

The Mineral belt was built with an emphasis on little impact on the environment due to mining damage. Why would we need restrooms, its a bike trail that takes less than 3 hours to ride. The more luxury facilities the more front range snobs and more congestion. This impact will ruin the historical value and diminish the riding experience. There will be an onslaught of dog walkers, gapers and unattended children. If you have to have a park, build one in town where it can be used for festivities, picnics, keeping tourists in town for a few more hours and play! The south side of Harrison Ave? It's a vacant pile of slag at this time.

interpretive signs on mining history and cleanup

I think that more trails could be added to the Mineral Belt system. Perhaps, more than just the 12 mi loop, there could be paved trails through the area between 5th and 7th streets that would help stabilize the soils and prevent drainage run-off. The historical nature of the area is not nearly as important to me as preserving all of the historic piles.

Make accessible to the handicapped, elderly and disabled . ie limited motorized vehicles atv's

stabilize historic structures, solar lighting, bathrooms

I support all of the above noted suggestions.

All of the above would be fine with particular emphasis on preservation of historic structures.

I would love to see a little spur loop in the area of OU 6 off of the MBT. It doesn't have to be paved but could be. It could resemble a miners trail. Water stations would be difficult due to a well being needed, unless it was solar power. In that area of Leadville something that isn't prone to vandalism is a good idea. Having access onto the OU6 area only accessible from the Mineral Belt Trail might curb vandalism. A trail would be great!

having a water station with bathrooms would be desirable on the high point of the Mineral Belt Trail, with a phone available for emergency purposes. a park type preserve area would help enhance the trail and help add to its historic appeal, as well as give visitors other options for lunch stops, etc. Stabilization of any and all structures is big on my list, as many of them are falling down, or are ready to. They must be preserved, just as the cribbing and other remnants should be.

Leave the mine dumps alone and go to the real source of the problem. This is a mineralized area. Groundwater is contaminated not only because of the dumps. If mining never occurred in the area the groundwater that breaks through the surface is mineralized and would be classified as a contaminant. [Comment noted concern that future actions will damage] historical sites such as [the] predecessors did and the problem will still be there. Why not spend [the] time and money in pursuits such as building and maintaining water treatment plants instead of [taking actions which could result in] ruining our only claim to fame??

Prioritize stabilization/ historic preservation and remediation projects. Sites with important historic structures (greenback cribbing wall, Pyrenees headframe, etc.) should be maintained with minimal disturbance to their aesthetic character. Wedding cakes should be fully remediated to blend in with the pre-mining landscape; graded, topsoil, re-vegetated with native timber. MBT improvements and interpretive elements to explain the challenges and trade-offs of historic preservation versus mining reclamation should be pursued.

Less is more. Lighting, water & rest stations are not needed. A bounded park area with preservation of history, would be okay if done low-key.

I would love to see the historic diversion ditch system on the south side of Evans Gulch (Ibex Bypass ditch) restored to protect Leadville's drinking water supply from contamination out of OU 6.

More organized driving/walking tour of mining district

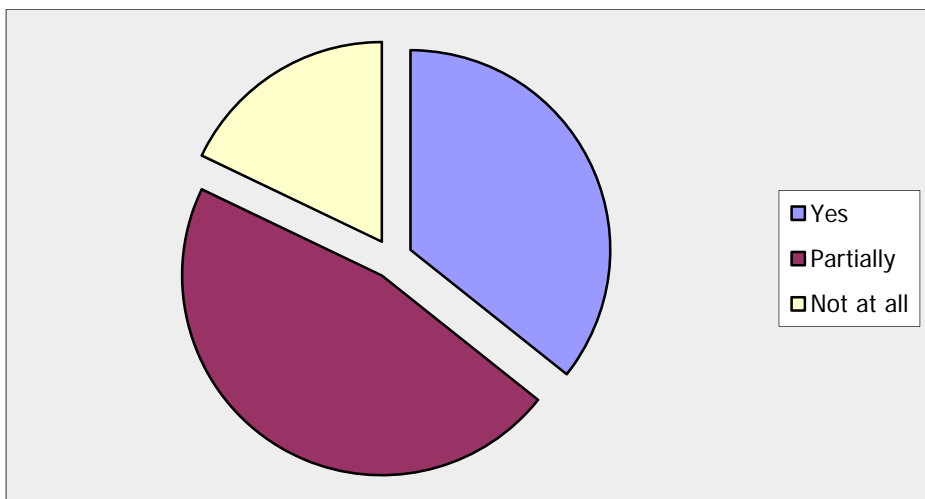
Stabilizing the mining structures and buildings

better maps of the mineral belt trail that show the elevation at that mile marker on the trail and the point on the 13 mile loop - a contextual map of where you are on the loop. Also, the historic maps are good, but a few personal stories along the way with signs would be great too. (In 1897 John Doe did X here) type of thing...

In light of the historic legacy of mining as an economic generator in Leadville, I propose that any mitigation plan include a space for future economic development within the mining district itself. This aligns with current ideas of creating a “bounded space” or park, where mining history could be preserved and documented, but allows an additional economic use for the community to help create a more sustainable economic base. The needs of such space are not beyond the scope of this project: a flat, graded area with utility hook-ups would suffice; the community could decide what would most appropriately fill the space in the future. Some ideas I have already heard are a green house, a community center with a skate park or teen center, a business park to serve as a small business incubator, or even an experimental alternative energy research laboratory. These future uses would be funded similarly to the Lake County Community Park Complex, through local resources, various grants, and fundraising. The only role of the EPA would be to create the space, connect the utilities, and provide the mitigation work on surrounding tailings piles. Whatever the community decides to use the space for will respect the past by embedding a present need in the mining landscape. This is a sustainable approach in that will not encroach on undeveloped land, can work multiple objectives into a small area, and provides an opportunity for a new economic generator for the town. I urge the EPA to include discussion of this proposal in the new plan.

2. Generally speaking, do you think the capping approaches identified in the Pilot Study will help preserve the historic character of Stray Horse Gulch?

| Answer Options | Response Percent | Response Count |
|---------------------------------|------------------|----------------|
| Yes | 35.7% | 10 |
| Partially | 46.4% | 13 |
| Not at all | 17.9% | 5 |
| Comments: | | 15 |
| <i>answered question</i> | | 28 |
| <i>skipped question</i> | | 1 |



Comments:

It would be preferable to redirect the water away from the piles like what was supposed to happen in the first place and did not I am not in favor of capping. All ready too much of our mining heritage has been lost.

Has ONE alternative to capping been offered?

I think that Alternative 3 is the best approach - capped piles w/ inert rock over them. This approach seems to need the least maintenance and looks fairly similar to the previous state of the piles. I think that taking care of the contamination is the biggest concern. The cleanup of California Gulch has been a long process and its time to finish it.

Alternative 3 would potentially work, but I think the best approach is to remove the piles now. I do not need to see acid leaking piles of waste rock to know that mining took place in Leadville. Some items are historic and worthy of preservation... old historic buildings/structures, but piles of mining waste should be removed before they do more damage to humans and the environment.

Much improved over the wedding cakes!!

I think the crib walls look great. Its too bad the shotcrete isn't more usable ie, biking, skateboards etc. Yes it will help preserve the historic character of the area.

Shotcrete has no place historically in stray horse gulch area. It looks pretty "CRAPPY" where I've seen it in California.

Any capping method adversely affects the historic character of Stray Horse Gulch. Saving mine waste piles should not be held mutually exclusive of other existing mining structures, equipment, etc. that tell of Leadville's mining past; historic preservation should be inclusive of all elements. Furthermore, if we are to prevent future toxic environmental contamination of areas like Leadville's east side, we shouldn't attempt to candy-coat or laud the benefits of mining without exposing the deleterious effects of unsustainable extractive practices. Attempting to "clean up" waste is an intellectual folly. Waste is waste. If it can be used to convey a message to a present or future society through visual means, then it is industrial detritus with a purpose; that's how this project should be viewed in my opinion.

Depends on which alternative used.

the tailings piles are only part of the mining process and may not need to be preserved to maintain the mining character...

Alternative 1 will help preserve the natural character the best. The other options outlined, especially the shotcrete, will not help preserve the historic character.

I like the idea of adding a crib wall

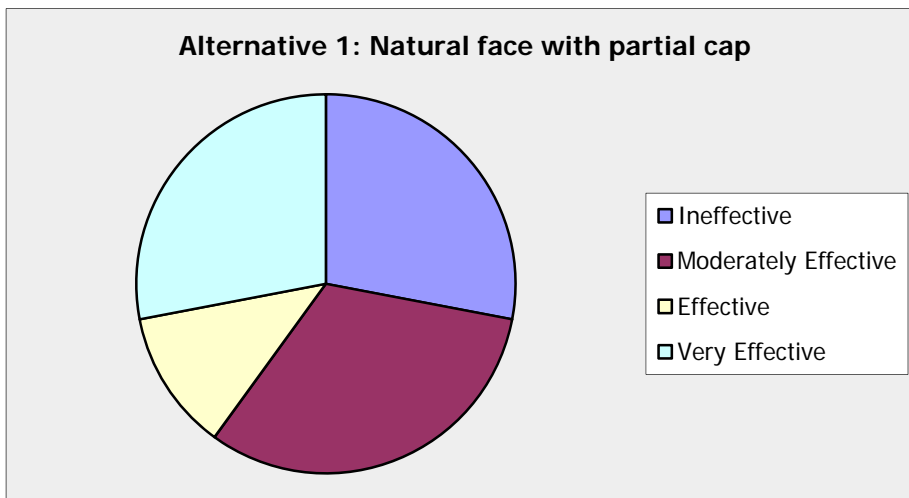
It sounds like capping is part of the mining process.

Alternative 4

I believe that the historic character of the area should not preclude environmental remediation, which is in fact the necessary outcome in mining history.

Alternative 1: Natural face with partial cap

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Ineffective | 28.0% | 7 |
| Moderately Effective | 32.0% | 8 |
| Effective | 12.0% | 3 |
| Very Effective | 28.0% | 7 |
| Comments: | | 9 |
| <i>answered question</i> | | 25 |
| <i>skipped question</i> | | 4 |



Comments:

All of the alternatives look better than the wedding cakes. However, time will tell how effective any of these alternatives will be. The brutal nature of our environment generally takes a toll. Anything that is done up here will be defined by how well the engineering of the "pilot" was implemented. It will be easier to make judgements of this nature following exposure over time to the elements.

Why is capping the only option provided?

Although "most historic" this alternative does not address the environmental issues and should be discarded

While this will preserve the historic nature of the piles, I don't believe it deals with the contamination problem.

I like the cribbing (log/lattice) but none of the shotcrete alternatives.

will only be effect on one face and not effective for steeper slopes

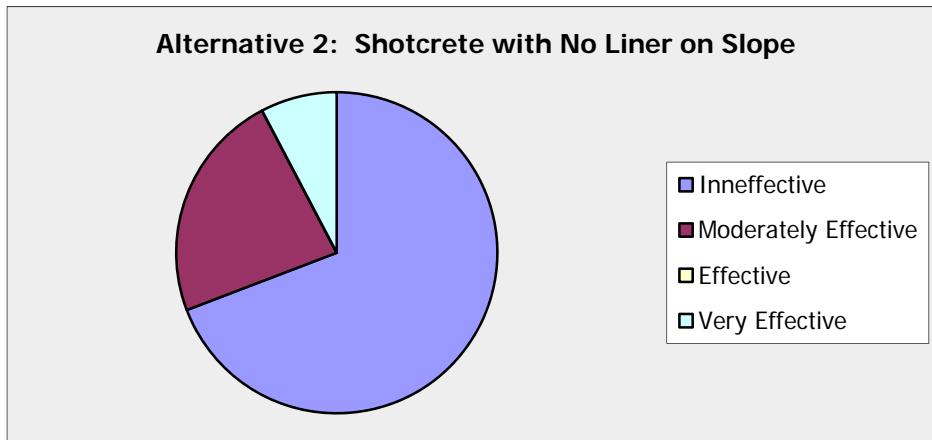
may retain historic appeal....but won't rid us of acid runoff

If waste piles are identified to serve an historic purpose this alternative best achieves this objective.

Of all the alternatives this would seem to leave the most historic visual appearance.

Alternative 2: Shotcrete with No Liner on Slope

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Inneffective | 69.2% | 18 |
| Moderately Effective | 23.1% | 6 |
| Effective | 0.0% | 0 |
| Very Effective | 7.7% | 2 |
| Comments: | | 7 |
| <i>answered question</i> | | 26 |
| <i>skipped question</i> | | 3 |



Comments:

doesn't look natural

The shotcrete looks needlessly silly and I don't think is preserving the character of the piles.

From an aesthetic standpoint.

will crack over time and requires more maintenance and not astheticly appealing

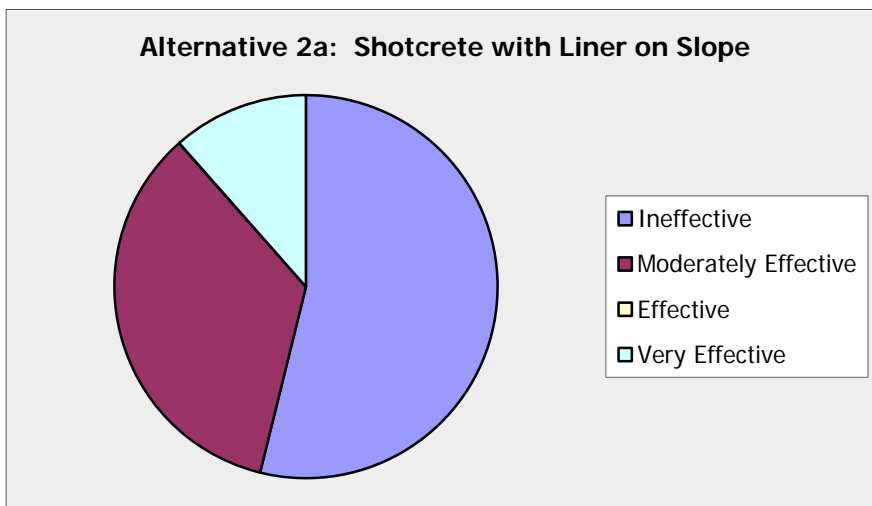
concrete cracks no matter what you reinforce it with....especially on unstable earth that will freeze, heave, thaw, settle, move and crumble

There is no constructive historic value to this approach.

Shotcrete will crack, stain, and degrade over time in a low pH environment even with Type 5 modifiers. It will likely be necessary to replace in 10 years.

Alternative 2a: Shotcrete with Liner on Slope

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Ineffective | 53.8% | 14 |
| Moderately Effective | 34.6% | 9 |
| Effective | 0.0% | 0 |
| Very Effective | 11.5% | 3 |
| Comments: | | 8 |
| <i>answered question</i> | | 26 |
| <i>skipped question</i> | | 3 |



Comments:

Looks worse

Doesn't look natural

Same as above

Aesthetic standpoint

again cracks over time and high maintenance

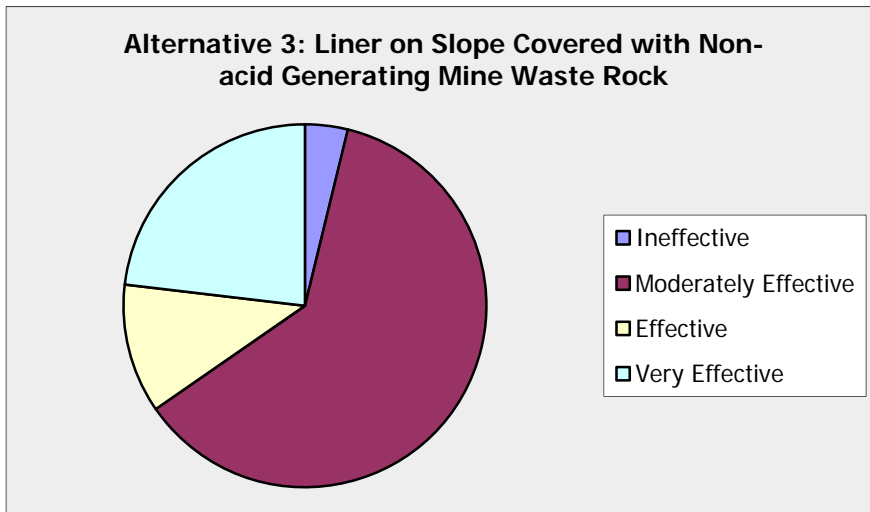
same as #2 comments, a liner under the weight of eventually crumbling and shifting "plates" of concrete would be torn as well I believe

There is no constructive historic value to this approach.

Shotcrete will crack, stain, and degrade over time in a low pH environment even with Type 5 modifiers. It will likely be necessary to replace in 10 years.

Alternative 3: Liner on Slope Covered with Non-acid Generating Mine Waste Rock

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Ineffective | 3.8% | 1 |
| Moderately Effective | 61.5% | 16 |
| Effective | 11.5% | 3 |
| Very Effective | 23.1% | 6 |
| Comments: | | 8 |
| <i>answered question</i> | | 26 |
| <i>skipped question</i> | | 3 |



Comments:

looks pretty good

As, I said before, this approach seems to require the least amount of maintenance and accomplishes the goal of stopping the contamination and acid rock drainage.

Best of the approaches identified... still prefer removal of the piles.

Better than shotcrete

both effective and appealing to historic preservation look to area

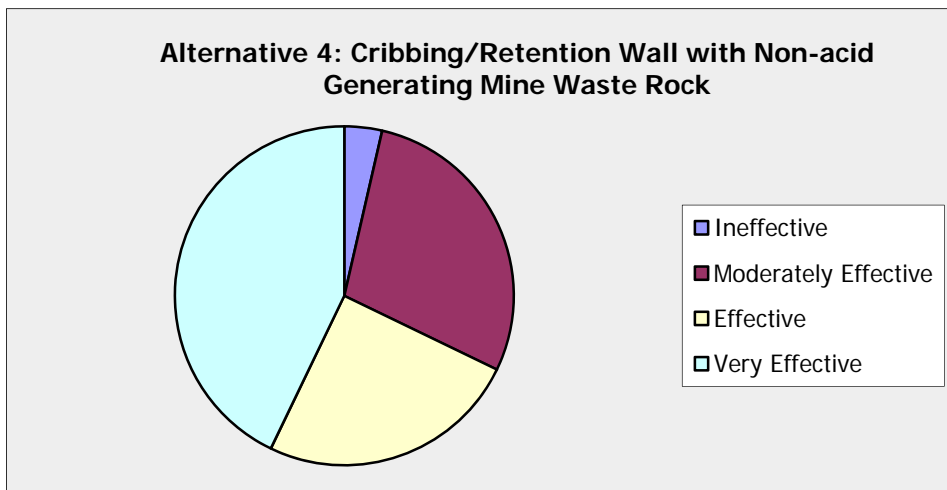
liner would probably last longer than under shotcrete...maybe, as long as hillsides can't shift

Milled non-acid generating waste rock doesn't maintain the character of sulfide waste rock, but it is the closest alternative presented, to maintain some historic visual character. While this alternative brings into question a viable environmentally appropriate remedy, I'm not sure to what degree history is preserved. The result is certainly subjective, for instance is an antique car with low miles that has been repainted "historically accurate?" I'm sure there will be a slightly different answer from each respondent.

This will eliminate the historical importance of the tailings piles

Alternative 4: Cribbing/Retention Wall with Non-acid Generating Mine Waste Rock

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| Ineffective | 3.6% | 1 |
| Moderately Effective | 28.6% | 8 |
| Effective | 25.0% | 7 |
| Very Effective | 42.9% | 12 |
| Comments: | | 8 |
| <i>answered question</i> | | 28 |
| <i>skipped question</i> | | 1 |



Comments:

looks good, although new wall makes it look recent rather than historic

The cribbing seems to add very little (some stability) and is a needless use of money that could be directed to other EPA sites.

Cribbing will eventually rot... require replacement... still prefer removal of the piles.

Acceptable if lesser chance of acid drainage or pollution.

will do the job but will also need maintenance

WILL NEED TO BE COORDINATED WITH ROAD AND BRIDGE SO SNOWCAT AND OTHER MACHINERY CAN STILL FIT THROUGH MINERAL BELT TRAIL

cribbing will help stabilize slopes, reducing the chance that the liner might tear, also the historic value and look will be retained with the timber being utilized, keeping with the "theme" started 100+ years ago

Milled non-acid generating waste rock doesn't maintain the character of sulfide waste rock, but it is the closest alternative presented, to maintain some historic visual character. While this alternative brings into question a viable environmentally appropriate remedy, I'm not sure to what degree history is preserved. The result is certainly subjective, for instance is an antique car with low miles that has been repainted "historically accurate?" I'm sure there will be a slightly different answer from each respondent.

This will eliminate the historical importance of the tailings piles

4. What other comments or questions do you have about historic mitigation and/or the pilot study?

| Answer Options | Response Count |
|--------------------------|----------------|
| | 17 |
| <i>answered question</i> | 17 |
| <i>skipped question</i> | 12 |

Responses:

All of the alternatives look better than the wedding cakes. However, time will tell how effective any of these alternatives will be. The brutal nature of our environment generally takes a toll. Anything that is done up here will be defined by how well the engineering of the "pilot" was implemented.

Why hasn't the issue of actually draining been offered to get rid of the acid water instead of trying to cap the piles?

I believe any improvement to protect human and animal exposure is good.

While preserving our history is important, safety and cost is more important, to me.

Why not offer removal of the piles as an option?

None

Adding a spur loop off of the Mineral Belt Trail will help promote the history of the area as well as add to the offerings of the MBT and Lake County.

I like the idea that historic preservation is a key component of this project. We rely on tourism for our economy, those historic values are the reason that a portion of our visitors come to see and experience. This project can be one that will help enhance our visitors' experience, especially on the Mineral Belt Trail.

The real question and ensuing debate, in my mind, is which piles should be fully remediated by grading, capping, and re-vegetating, and which should be preserved for their historic benefits. If historic preservation is preferred, the sites should be developed promoted and maintained for the public through uses such as a public trail system and interpretive signage. Without such development, I see no need to preserve dumps.

Shotcrete, whether with or without a liner, is costly, ugly and will require as much or more maintenance over time than any of the alternatives. I would be very surprised if there is not a sufficient amount of non-acid generating waste rock available locally.

Leadville's drinking water has been contaminated several times by runoff out of OU 6 during storm events.

Above all. please maintain the historical integrity of the area.

It seems the overall problem and issues have not been defined well. 1 - What specifically is the problem with documentation of a report or study. 2 - Why can't one of the two in-place mine waste water facilities treat the water other than failure to negotiate with the operators and/or federal conflicts. 3 - How is the effectiveness of the proposed options going to be evaluated - are there studies or reports that clearly outline how much surface water or infiltration is being reduced with each method?

thanks for including public comment

since this area is along the mineral belt trail. I think it would be a great place to display all four types of capping. The trail is a great source of historic information and present. I feel it is important to show what and tell what the outcomes are from mining. These 4 types of capping would be a good opportunity to display them and tell about their plus and minus.

I think this can be an opportunity for the town to move forward, and my proposal seeks to include a present use beyond historic tourism. Economic development is important to the future of Leadville, and I believe respectful to the heritage of the town because it preserves and uses an environmental degraded landscape for a beneficial purpose: keeping the town alive.

| 5. Do you have any other comments or questions? | |
|---|----------------|
| Answer Options | Response Count |
| | 12 |
| <i>answered question</i> | 12 |
| <i>skipped question</i> | 17 |

Responses:

How can you make judgements regarding the looks of the "alternatives" shouldn't effectiveness play the largest role? I believe all monies should only go to mitigating historic impacts and nothing else.

There are worse things going into other water sources around the state. Look at Sex A fish in the Platter River due to birth control chemicals being flushed

I like walking the mineral belt and seeing our town's history, however more importantly, to me, is that it is safe and is cost effective to maintain.

None

Other treatments besides CAPPING do not seem to have been considered. How about Physical Removal? Clean-up and Landscape?

I said it all in No.1

I could write a book, but this isn't the appropriate forum for that exercise.

It seems the primary driving motive to cap the tailings is the conflict between the BOR and EPA. It seems the reasons why the Leadville community has to deal with this should be documented in the ROD. It also seems a no-action option is an option or at least should be documented why it cannot be an option (with documentation in the form of a hydro-geologic report or study. It seems a lot of money is to be spent but there is not a lot of factual data for why we are at this stage.

keep up the good work.

Shot-crete seems like a less attractive option that may have sustainability issues.

My name is Cameron Millard, and I have lived in Leadville for four years. I can be contacted at bikefast@yahoo.com. I have spoken with many people in regard to the mitigation efforts, and believe my proposal combines the desires of everyone to help the town move forward.