EARTHWORKS

Nov. 9, 2015

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Re: Draft EIS comments on CR Kendall Mine Closure

Thank you for the opportunity to comment on the Draft EIS for the CR Kendall Mine Closure Plan. I am commenting on behalf of Earthworks, a non-profit conservation organization dedicated to protecting communities and the environment against the adverse impacts of mining. I have been involved in this issue for many years, and Earthworks has members who live and ranch downstream of the mine.

We are relieved to see the Department require Kendall to complete a closure plan to address management of long-term quality problems at the mine, which the DEIS predicts could continue for another 100 years. Given that the mine ceased operations in 1997, this plan is long overdue.

At this point, four administrations, starting with Governor Racicot, have promised that this would occur.

> *"On September 23, 1998, the Department issued a notice of violation and administrative order under the Water Quality Act. The order requires Kendall to propose by November 1, 1998 a plan to permanently correct the problem and to achieve compliance with water quality standards in all discharges to state waters by August 1, 2001. Upon receipt of a complete application for amendment and the compliance plan, we will conduct an environmental review under MEPA."*
>
> -Governor Mark Racicot, October 1998.[1]

[1] Governor Marc Racicot, Letter to Jim Jensen, Montana Environmental Information Center, October 13, 1998.

"The process of addressing pollution concerns at the Kendall mine site has regrettably been slow, but the time involved reflects the complexity of the situation."

-Governor Marc Racicot, January 12, 1999.[2]

"*Water quantity and quality issues at the site are complex and unresolved. We have determined that approval of the proposed modifications would be a major action of state government that significantly affects the quality of the environment. An environmental impact statement will therefore be necessary."*

- DEQ Director Jan Sensibaugh, January 11, 2002.[3]

"I've made a commitment that Kendall is going to be our top priority to resolve."

- DEQ Director Jan Sensibaugh, January 2002.[4]

"DEQ is committed to completing the EIS process."

- DEQ Director Richard Opper, June 2005.[5]

"Please understand that I share your frustration over the years that have passed. I have instructed the Environmental management Bureau (EMB) to restart the process and bring it to a successful conclusion as soon as possible."

- DEQ Director Tracy Stone-Manning, September 22, 2014.[6]

Now that the EIS for final closure of this mine is underway again, we urge the Department to complete the EIS process and require a comprehensive closure plan that ensures that Montana's water quality standards will be met with valid water treatment facilities. We urge DEQ to take immediate steps to require the company to increase its financial assurance to cover the cost of long-term water treatment for the anticipated 100 years, including the cost of additional treatment that may be necessary for selenium and arsenic.

This company has been allowed to delay water treatment for the highly contaminated process pad water long enough. We urge DEQ to develop a plan that requires the company to treat and return the water to the appropriate stream drainages, and secure an adequate reclamation bond to protect Montana taxpayers against the cost of long-term water treatment and downstream landowners from impacts.

Our more detailed comments are below.

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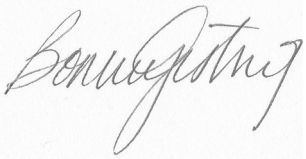
[2] Governor Marc Racicot, Letter to Stephanie Shammel, January 12, 1999.
[3] Montana DEQ, Letter to CR Kendall, January 11, 2002.
[4] Mike Dennison, Great Falls Tribune "State Orders Kendall EIS," January 2002.
[5] Meeting with Richard Opper, June 2005.
[6] DEQ Director Tracy Stone Manning, Letter to Bonnie Gestring, September 22, 2014.

Sincerely,



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1. The Purpose and Need section of the DEIS should incorporate the full scope of activities as they relate to the NEPA process.

It's important to note that the NEPA process has been highly irregular. The NEPA process for the closure plan started with DEQ Director Jan Sensibaugh in 2003 – fully 12 years ago.[7] Many local landowners and organizations spent considerable time on it. I participated in a scoping meeting in Lewistown on April 29, 2003[8] and technical team meetings with Montana DEQ and Canyon Resources in Lewistown on May 29, 2003 and June 3, 2003 and in Helena on June 26, 2003.

In April 2005, a preliminary draft of the Kendall Mine Reclamation Plan EIS was completed. On June 15, 2005, I met with the new DEQ Director Opper, who insisted the EIS would be completed. Yet, with no public notice or explanation, the Department discontinued the EIS process.

Now that the EIS process has been reinitiated, the DEIS should make the NEPA history clear in the document, including the scoping period and other agency decisions leading to this point.

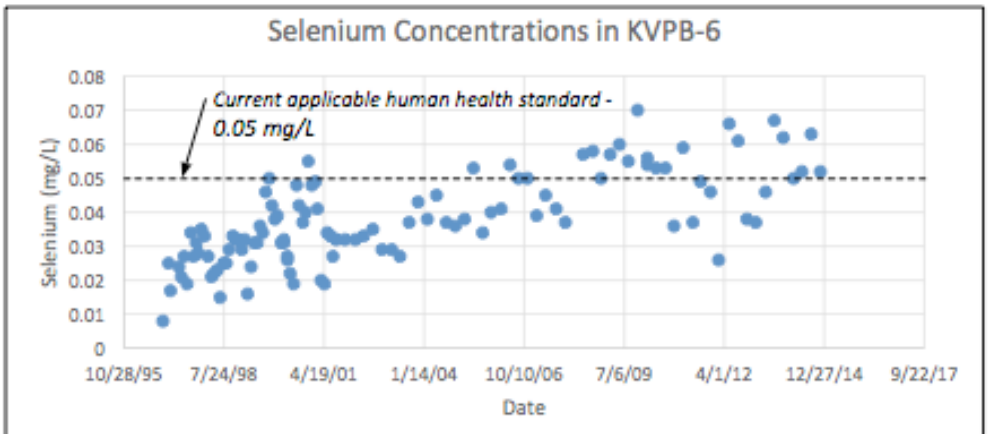
The scoping document released by DEQ in 2003, states that " The EIS will address the major issues identified in DEQ's 2001 environmental analysis.[9] As such, it will include:

- Reevaluation of the reclamation plan, including all existing reclaimed acres on the site, and addressing a range of alternatives for reclamation.
- Review of all potential impacts to water quantity and quality in the drainages.
- Review of water rights issues, and
- Review of water treatment alternatives.

2. The preferred alternative does not demonstrate that water quality standards will be met.

We support the proposed pretreatment component of the preferred alternative, but we remain concerned that the DEIS does not demonstrate that water quality standards will be met.

As demonstrated by selenium concentrations in KVPB-6 and the process pad discharge, the trend analysis for some sites is highly uncertain (p. 3-36 DEIS). In these areas, there isn't a clear indication that water quality concentrations are improving.



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The EIS should specify the additional water treatment requirements that will be required if arsenic and selenium concentrations do not improve as anticipated, and incorporate the cost of that treatment into the final closure plan and the associated reclamation bond.

Although the DEIS includes a vague references for additional water treatment if needed, it does not provide enough detail on how and when this would be implemented, and the cost of additional treatment must be included in the bond calculation to ensure that funds are collected now to cover those costs.

Furthermore, the DEIS preferred alternative calls for the pretreatment of process pad drainage, but it fails to specify how that treatment would occur. It proposes an adsorption process to remove constituents not susceptible to zeolite treatment, but defers to CR Kendall to determine what type of treatment technology it will use. Given the ongoing delay of appropriate treatment technology at Kendall, the EIS should specify how and when this new technology must be identified and implemented.

3. The EIS must clearly identify a range of reasonable alternatives.

MEPA requires state agencies to consider a range of reasonable alternatives, and state law requires that the agencies meet certain reclamation requirements outlined in the Metal Mine Reclamation Act. MCA 82-4-336 (9-12):

> (9)(a) With regard to disturbed land other than open pits and rock faces, the reclamation plan must provide for the reclamation of all disturbed land to comparable utility and stability as that of adjacent areas.
> (10) The reclamation plan must provide sufficient measures to ensure public safety and to prevent the pollution of air or water and the degradation of adjacent lands.
> (12) The reclamation plan must provide for permanent landscaping and contouring to minimize the amount of precipitation that infiltrates into disturbed areas that are to be graded, covered, or vegetated, including but not limited to tailings impoundments and waste rock dumps. The plan must also provide measures to prevent objectionable post-mining ground water discharges.

The language is very clear. This must be the starting point from which this reclamation plan is developed. As such, the DEIS must include additional reasonable alternatives.

a) An alternative that includes the treatment of mine discharges to water quality standards and release to the applicable drainages.

According to the DEIS, the various alternatives will require that "all captured groundwater would be combined with process pad drainage water in ponds 7 and 8, filtered to remove particulate, and treated with zeolite adsorption before being discharged to groundwater through the Kendall Pit. Pumpback and discharge to the Kendall Pit is assumed to continue for 100 years." (P. 2-2, DEIS)

The hydrological effects of diverting groundwater from four drainages, and discharging that water into the Kendall Pit for 100 years must be evaluated in the DEIS, along with the effects of diverting water from springs to augment water downstream from the mine.

The public and downstream landowners have repeatedly urged DEQ to require the company to treat their discharges and return it to the appropriate drainages, rather than discharging to the pit.

In fact, DEQ has also said this is the right course, "Mixing of pumpback water and process water should be avoided whenever possible because this reduces the treatment and disposal options available. Provided appropriate standards can be met, it would be preferable to return this water to the streams. The agencies will encourage the return of suitable water to the creeks."[10] This alternative should be evaluated in the EIS.

b) An alternative that includes additional source controls.

The mine uses a pumpback system to capture groundwater that has been adversely affected by waste rock piles in various stream drainages. For example, the proposed Kendall Mine Closure Plan states that, "Shallow groundwater in the area is captured by the KVPB-6 pumpback system, located at the toe of the Muleshoe repository."[11]

The pumpback data for KVPB-6, which captures alluvial groundwater from the Muleshoe waste rock pile, clearly shows concentrations of selenium in the pump back system in the South Fork of Little Dog Creek drainage above standards (Figure A-9, DEIS). The water quality exceeds human health standards for arsenic 50% of the time; thallium 100% of the time; selenium 23% of the time, and nitrates 62% of the time (Table 3-25). Thallium concentrations in KVPB-6 in 2014 were still 100 times the standard. Furthermore, it isn't certain whether water quality is improving in KVPB-6.

The DEIS should include an alternative that considers additional source control measures for waste rock piles to prevent objectionable groundwater discharges and reduce the need for water treatment.

4. **The proposed action does not meet the Montana constitution's requirement that all lands disturbed by mining be reclaimed.**

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[10] Marc Simonich, Montana DEQ and Bud Clinch DNRC, Letter to Alan Shammel, August 9, 1999.
[11] CR Kendall, Amended Closure Plan Water Management, July 2012.

It appears that the proposed action would leave portions of the Kendall and Muleshoe pits unreclaimed. (Table 2-1, DEIS) This does not meet the requirements of the Montana Constitution, which states that all lands disturbed by the taking of natural resources shall be reclaimed.

Section 2. Reclamation. (1) All lands disturbed by the taking of natural resources shall be reclaimed.

5. The DEIS does not provide for adequate reclamation of storage ponds.

The DEIS states that the treatment ponds will be reclaimed by folding the liners over the zeolite and establishing a free-flowing drainage that would discharge to surface water in Mason Canyon. It further states that liners in all other ponds will be cut, folded into the pond bottoms and buried with clean fill. (P.2-7, DEIS) The pond sites would be regraded, 8-10 inches of clean soil placed on surfaces and reseeded. (P. 3-46, DEIS)

This is inadequate to ensure that the storage ponds that contain spent zeolites, and possibly arsenic, won't leach pollutants into groundwater. These ponds should be reclaimed with a protective barrier to prevent infiltration. Liners have limited life expectancy, and re-using the existing liners as some type of cover system 50-100 years down the road is entirely inappropriate.

The scoping document released by DEQ in 2003, states that " The EIS will address the major issues identified in DEQ's 2001 environmental analysis.[12] As such, it will include:

- Reevaluation of the reclamation plan, including all existing reclaimed acres on the site, and addressing a range of alternatives for reclamation.
- Review of all potential impacts to water quantity and quality in the drainages.

Reclamation and closure of the storage ponds is a critical element of this EIS.

6. The no action alternative fails to identify the impact of the no action alternative.

There is no data to support the assertion in the EIS that minimum additional impacts to surface water would occur under the No Action Alternative. The current system is operating under interim effluent limits that were approved by the DEQ in 1999. According to DEQ, those effluent limits would be temporary while the company applied for an MPDES permit to meet water quality standards. Yet, the Department has allowed these interim standards to continue, without any public review process or appropriate scientific analysis and without any regulatory basis for allowing discharges to continue for the last fifteen years. Furthermore, impacts from Land Application Disposal have been documented in the past, and the on-going use of LAD would be expected to exacerbate problems at the site. The continued release of these contaminants would reasonably be expected to result in cumulative effects.

[12] Id.

The monitoring wells demonstrate that water continues to exceed standards in surface water and groundwater monitoring wells, including Mason Canyon groundwater at TMW-24A (Figure A-4); and Mason Canyon surface water KVSW – 4 (Table 3-10, P. 3-20), surface water in Barnes King Gulch (KVSW-3) (Table 3-12, p 3-22), groundwater in Barnes King Gulch (TMW-30A)(Table 3-22, p. 3-30), and the Section 29 spring (Table 3-15, p. 3-25).

7. Cumulative impacts fail to account for the change in hydrology related to the long-term loss and diversion of the alluvial aquifer and associated stream flow.

The DEIS should disclose the cumulative effects to surface and groundwater resources from the capture and diversion of contaminated surface and groundwater from the various drainages as a result of the pumpback system. Page 2-6 points out that the combined flow rate from the four pumpback systems has ranged from 33 gpm to 125 gpm over the last 18 years (1997 to 2014). At 33 gpm the loss of water to the drainages is over 17 million gallons per year. At 125 gpm the loss to the drainages is over 65 million gallons per year or an average of 41,522,400 gallons per year with a total loss over 20 years of 830,448,000. This is a significant loss of water to the four drainages, especially when this may continue for 100 years as stated on Table 2-1 for all the alternatives.

8. Land application disposal (LAD) impacts to soils, vegetation, water and other resources should be disclosed and LAD should not be authorized in the final closure plan.

On February 5, 2002, DEQ released the Final EA and Decision Notice on Kendall amended Closure Plan. DEQ concluded that issues were raised by the public "that cannot be dealt with using the changes added to the Agency Modified Plan in the Draft EA. According to the Final EA and Decision Notice, "the process valley water, which has been disposed of on the reclaimed acres, contains a relatively large amount of salts. DEQ is concerned that continued LAD of process solutions could impact reclaimed area soils and lead to limited revegetation success." "If the process solutions have impacted or could impact future reclamation areas, then revegetation success would be limited, erosion would increase, and more potential problems to water quality and quantity could result." Furthermore, "the leach pad ore may have become contaminated because of the disposal of process valley water and the reverse osmosis brine on the leach pads. The salt load in the process valley water may limit the ability of the ore to provide a subsoil resource as originally thought by DEQ. <u>Therefore the agency has decided that a comprehensive EIS is needed.</u> On May 14, 2002, DEQ submitted a letter to Canyon informing Canyon that the department was denying its application for an amendment (March 8, 2001 plan). The letter states "Department inspectors have recently observed that portions of the vegetation that has been irrigated using water from the process valley are distressed. The process valley waters contain elevated levels of salts and metals.

In March 2003, DEQ initiated scoping under the Montana Environmental Policy Act (MEPA). According to the March 2003 Scoping Document, DEQ stated that "an EIS was needed to address the soil, vegetation and water resources efforts on Canyon's proposed amended water resources management plan. It further states that the EIS will "address the major issues identified in DEQ's 2001 EA: 1. re-evaluation of the reclamation plan, including all existing reclaimed acres on the site, and addressing a range of alternatives for reclamation, 2. A review

of all potential impacts to water quantity and quality in the drainages and, 3. A review of water rights issues, and Review of water treatment alternatives."

The Kendall mine has continued to use the LAD system to discharge process pad water, because it hasn't installed the water treatment technology necessary to meet standards. Yet, the DEIS fails to describe the conditions associated with the long-term land application disposal (LAD) on soils, vegetation and water, and it still proposes to allow LAD to continue.

The EIS must provide information on contaminant levels in the soils and vegetation throughout the mine site LAD areas, and whether long-term land application has resulted in adverse impacts to those resources. It should also provide data on whether the long-term application of metals-contaminated leachate may have contributed to elevated concentrations of these metals in groundwater in the applicable drainages, including the Section 29 spring. Land application is not suitable for long-term treatment of metals such as thallium and selenium, and it certainly isn't suitable as the primary treatment mechanism.

9. The EIS must disclose how the Administrative Order on Consent (AOC) and discharge permits will be addressed in conjunction with the final closure plan.

The Kendall mine has caused extensive water quality and quantity problems over the years. In 1998, the State of Montana ordered Canyon to pay a penalty for polluting downstream surface and groundwater with cyanide, selenium, arsenic, nitrates and thallium.

At the same time, the State issued an Administrative Order requiring the company to obtain (NPDES) discharge permits for its various discharges. It also authorized interim effluent limits that were set at levels substantially weaker than state water quality standards. These interim effluent limits were described as a temporary measure intended to give the company time to show progress with reclamation activities and obtain the required discharge permits.

According to the administrative order, Canyon Resources was required to submit a draft compliance plan that "explains how the discharges from the mine will be brought into compliance with the Water Quality Act" and "how applicable water quality standards will be achieved for all discharges to state waters at the site by August 1, 2001." There was no scientific or public review of the interim limits as would occur in the MPDES process. The company was never required to obtain a discharge permit, and the "interim" effluent limits remain in place today.

The monitoring wells demonstrate that contaminated water continues past the pumpback system in some cases, including Mason Canyon groundwater at TMW-24A (Figure A-4); and Mason Canyon surface water KVSW – 4 (Table 3-10, P. 3-20), surface water in Barnes King Gulch (KVSW-3) (Table 3-12) and groundwater in Barnes King Gulch (TMW-30A)(Table 3-22) (p. 3-30).

The DEIS should describe how DEQ will terminate the AOC and explain how these discharges will be required to meet water quality standards and meet the requirements of the MMRA, which

states that the reclamation plan must provide sufficient measures to ensure public safety and to *prevent the pollution of air or water* and the degradation of adjacent lands. MCA 82-4-336 (10)

Once again, CR Kendall should have an MPDES permit for these discharges and be required to meet water quality standards. The DEIS should specify how this will occur. If not, the Department should specify why these discharges are exempt. It is entirely inappropriate to continue to authorize effluent limits of 0.1 milligrams per liter of thallium in surface water and groundwater (as authorized in the 1999 NOV).

10. The EIS should provide data on the maximum storm event, and analyze whether the storage ponds are of sufficient volume to prevent releases.

The DEIS should identify the maximum storm event, and determine whether the ponds are sufficient in volume to prevent a release. DEQ has made it clear that designing for a 24-hour, 100-year storm event isn't adequate to deal with the large storm events that are now more frequent with climate change.[13] It should not rely on land application for backup, when the soils are likely to be saturated during a maximum storage event and unable to function as needed.

11. The EIS should describe the long term monitoring requirements that will be required post-closure.

The DEIS does not include any discussion of long-term water monitoring requirements, particularly for the process valley, to ensure that liners and cover systems are working appropriately.

12. The EIS should specify dates by which the water treatment system must be identified and operational.

For too long, Kendall has been allowed to delay the implementation of a closure plan by proposing a myriad of inadequate water treatment technologies. The EIS should specify the dates by which a water treatment system is identified, implemented and operational.

13. DEQ is correct in precluding any use of "estimated" background levels to determine applicable discharge limits.

According to the DEIS, "CR Kendall assumed (1) either the natural background arsenic concentration in the Madison Limestone aquifer is also above the standard, or (2) dilution provided by mixing of the effluent from the treatment plant with groundwater moving through the aquifer would result in compliance with groundwater quality standards after mixing. CR Kendall has not collected data from the local Madison Limestone aquifer to document the validity of either assumption, which might allow for effluent limits higher than groundwater standards."

As stated, there is not data to demonstrate the validity of these assumptions, and they should not be used.

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[13] http://www.mtech.edu/mwtp/conference/2012_presentations/Warren%20McCullough.pdf

Similarly, the DEIS states that

> "CR Kendall Mine completed two previous studies to determine background concentrations for arsenic, selenium, thallium, and other water quality parameters in the surface water of five main drainages that traverse the mine (WMC, 1999 and 2003). DEQ scientists reviewed both reports and provided technical memoranda with their comments and overall assessments (DEQ, 2001 and 2004). Concentrations of contaminants in Dog Creek, South Fork of Last Chance Creek, and North Fork of Last Chance Creek were all fairly low. The Mason Canyon and Barnes-King Gulch drainages had elevated concentrations of arsenic, selenium, and thallium. These two drainageshave had the most historical mining and could also be assumed to have the most naturally occurring mineralization. However, DEQ's interpretations for background water quality are that background levels of arsenic, selenium, and thallium in Mason Canyon and Barnes-King drainages are similar and not very different from those in the unimpacted drainages.
>
> The current conditions and activities of the Proposed Action are a direct result of past mining and previously completed reclamation. Past mining activities created the need for water treatment of the contaminated groundwater and process pads drainage water. The past mining actions will continue to have effects on water quality, as demonstrated by the elevated concentrations of thallium, arsenic, and other contaminants requiring treatment to be below groundwater discharge standards. Consequently, the impacts described in Chapter 3 on water resources include the cumulative effects of past and present actions." (P. 4-1 & 4-2, DEIS)

We agree that CR Kendall should not be authorized to discharge to "estimated" background concentrations. Adequate baseline data was not collected to quantify background levels.

14. Stormwater runoff should be addressed in the EIS, particularly impacts to adjacent landowners.

Downstream landowners, Stephanie and Alan Shammel, are concerned about the adequacy of stormwater controls on the mine site, and impacts to their adjacent property from directed stormwater runoff from the mine (see photo below). The Metal Mine Reclamation Act requires that the reclamation plan provide sufficient measures to ensure public safety and to prevent the pollution of air or water and the degradation of adjacent lands.(MCA 82-4-336 (10))