EARTHWORKS

August 1, 2013

Herb Rolfes
Montana Department of Environmental Quality
Environmental Management Bureau
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Dear Mr. Rolfes,

Re: Draft EA Tintina Alaska Exploration, Inc., Black Butte Copper Project

Thank you for the opportunity to comment on the Draft Environmental Assessment for exploration activities at the Black Butte Copper Project. Please accept these comments on behalf of Earthworks, a non-profit conservation organization.

The proposed project is at the headwaters of the Smith River, one of the most treasured streams in Montana for its premier recreational opportunities, beautiful scenery and renowned trout fishing.

Given the acid-generating qualities of this ore-body and the value of the downstream resource, the proposed Black Butte exploration project merits rigorous review and the most protective measures.

Our most significant concern is the lack of detail in how wastewater from the site will be managed and treated. The EA provides various options for how water might be managed, but there isn't a specific detailed plan. Furthermore, the EA states that "kinetic humidity cell tests are ongoing and water treatment systems are under design, so Tintina cannot quantitatively predict the chemistry of water that would be land applied using the LAD system" (EA p. 53). Without this information, the EA can't effectively evaluate potential water quality impacts, mitigation measures, or determine whether impacts are significant.

We're also concerned that the EA doesn't provide specifics for how wastewater will be managed in the event that Tintina seeks an operating permit after the decline is complete. The permit application and EIS process may take years to complete. During this time the exposed decline

walls and waste rock will likely be an ongoing source of acid or metals leaching, which will require management and treatment.

It appears that the LAD systems may ultimately discharge to wetlands/surface water. What hydrologic analysis has been done to determine whether these discharges will ultimately report to surface water, and whether surface water quality will be impaired? Additional analysis should be done to evaluate the capacity of the LAD systems to manage flows and various contaminants.

A mile-long underground tunnel into acid generating rock at the headwaters of the Smith River is a significant proposal. Water quality impacts from hardrock mines are notoriously difficult to predict. Montana mines with acid mine drainage have resulted in severe impacts to surface and groundwater quality.[1] The State of Montana needs to do a better job of identifying these impacts up front rather than after the impact has occurred. For these reasons, we believe an Environmental Impact Statement (EIS) is warranted.

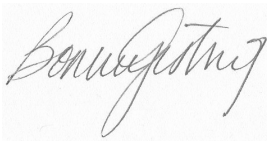
The EIS should include a thorough analysis of the potential impacts to water quality, and detailed plans for water management and treatment that extends over a 3-5 year timeframe to account for managing seepage in the event the company files for an operating permit.

We support the agency-mitigated alternatives that include a geotextile liner for the NAG stockpile and the additional water quality monitoring of water discharging to the LAD systems, but we believe that those should be incorporated within the alternatives analysis of the EIS process.

We also ask that MDEQ include the bond calculation in the EIS. Given Tintina's lack of financial resources, the bond amount needs to ensure that the cost of all aspects of exploration, reclamation and long-term water treatment are covered. The public ultimately bears the liability for these costs, therefore the public should have the opportunity to comment on the bond amount as part of the EIS process.

Thank you again for the opportunity to comment. More detailed comments are below.

Sincerely,



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[1] J. Kuipers, A. Maest, K. MacHardy, G. Lawson. Comparison of Predicted and Actual Water Quality at Hardrock Mines: The reliability of predictions in Environmental Impact Statements. April 2006.

Please consider these comments on the proposed Black Butte exploration project.

2.2.3 Waste Rock Storage and Seepage Collection Support Facilities

It is difficult to accurately segregate potentially acid generating waste rock (PAG) from non-acid generating waste rock (NAG), so it is likely that some PAG may be placed with the NAG. Furthermore, the geochemical analysis indicates that the NAG contains other pollutants, such as thallium, that may be an issue. Thallium has leached from unlined waste rock piles at the Kendall Mine near Lewistown, and resulted in violations of water quality standards.[2] Nitrates in blasting residue may also be an issue. For those reasons, the PAG and NAG waste rock piles and ponds should all be constructed on geotextile liners, with a leak detection system to minimize impacts to groundwater.

We agree that it would be useful to keep the various waste rock types segregated on the piles, so that additional leachate can be collected to evaluate how the different types are performing over time.

What is the storage capacity of the seepage ponds in relation to a large storm event? There have been numerous incidents at mines in Montana where engineering for the 100 year, 24-hour storm event has failed to prevent water quality impacts (e.g., Zortman Landusky).[3] The 2011 storm underscores the need for engineering seepage ponds to withstand larger storm events.

2.2.4 Water Treatment

There appears to be no clear plan for how water treatment will be managed at the site. The EA includes a variety of options, but no specific detailed plan, or analysis to support the plan. There needs to be a detailed plan to demonstrate how water will be managed and treated throughout the 18 months associated with constructing the decline, and extending throughout the time in which Tintina may need to manage and treat wastewater if they choose to apply for an operating permit. And, it should incorporate the analysis to demonstrate that the water management and treatment regime identified by Tintina will adequately protect surface and ground water.

Given the value of the downstream resource and the acid generating qualities of the orebody, the project should be required to have a water treatment system (i.e., RO unit) on site in advance of decline construction to ensure that the company can take prompt action to treat to water quality standards.

2.2.5 Land Application Disposal Areas

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[2] MTDEQ, Letter from MTDEQ to CR Kendall Corporation, re: Notice of Violation and Administrative Order, Docket No. WQ-98-06. July 19, 1999.

[3] David Williams, U.S. Bureau of Land Management, Climate Change – Extreme Conditions: Do Plans of Operation Need to Include an Ark?, Presentation for Mine Design, Operations & closure Conference, 2012. www.mtech.edu/mwtp/conference/2012.../**Dave**%20**Williams**.pdf

Also, Jim Kuipers P.E., Nothing New Here: A Technical Evaluation of I-147, September 2004. http://www.earthworksaction.org/files/pubs-others/Kuipers-NothingNewHere.pdf

The EA states that waste rock seepage will either be treated prior to discharge or directly discharged into a surface or underground LAD system. LAD systems have consistently failed to protect water resources at mines in Montana.

At the Beal Mountain Mine, land application of process solution initiated in 2001 resulted in adverse water quality impacts. The 2005 EECA analysis on Beal found that "Springs located within and downhill of the land application area show appreciable increases in cyanide and selenium concentrations since land application began in 2001." *(Draft EECA, Beal Mountain mine Engineering Evaluation/Cost Analysis, Prepared for USFS Northern Region, September 2005.)*

At the Zortman Landusky Mine, LAD resulted in serious water quality impacts, as described by a 2006 memo by Dr. Dave Chambers, "The most problematic mine discharge/compliance point at this time is Goslin Gulch, where the land application of partially treated effluent (mainly from the Landusky leach pads) had been applied for several years. It is anticipated that after this year (2006), the land application area will no longer be needed, and that all effluent from the mines (from both the leach pads and waste rock dumps) will be routed through the treatment plants. At the point of compliance for the Goslin Gulch the surface water, when running (Ruby Creek is an intermittent stream at this point), exceeds Montana Water Quality Standards for selenium (60 times the standard), nitrate (10 times the standard), and residual cyanide (20 times the standard). Selenium is the most problematic contaminant because it can affect aquatic organisms (probably no fish present), sheep and horses. Once land application stops, it is possible that water quality in Ruby Creek downstream of the LAD area will improve significantly. However, it is also possible that the existing water quality problems could continue for some time, as the solution that was land-applied is flushed through the soils. There are no present plans to collect or treat this discharge." *(David Chambers, Memorandum, May 18, 2006)*

At the Kendall Mine, impacts to vegetation and soils from LAD were identified: "Environmental management staff members have noticed signs of distressed vegetation in areas, which have received direct application of treated water on the site." *(Montana DEQ, Letter from Director Jan Sensibaugh to James Volberding CR Kendall, January 11, 2002.)* DEQ initiated an EIS in 2002 to develop a final reclamation plan for the site, including an evaluation of the effects of land application of process water on revegetation efforts. *(Final EA and Decision Notice on CR Kendall Corp Amended Closure Plan Proposed Coversoil System Changes, Appendix F. February 5, 2002)*

The EA for the Black Butte project doesn't include sufficient analysis on the capacity of the surface or underground LAD systems to evaluate potential impacts to water quality. Analysis is needed to evaluate the adsorption capacity of LAD soils, and whether the LAD areas are sufficient to manage the anticipated discharges and contaminants. A dye test should be done to identify where the injected discharges will emerge.

It appears that the wastewater (comprised of wasterock seepage, decline inflow and stormwater) released to the surface LAD system could discharge to adjacent wetlands associated with a tributary to Sheep Creek. It also appears that the underground LAD system is adjacent to the

upper reaches of a tributary, and could ultimately discharge to surface water (figure 28 in Black Butte Copper Project's application). What data and analysis has been done to ensure that pollutants from the LAD discharge will not reach surface waters, requiring an MPDES permit?

3.2.6 Aquifer Testing

The EA states that the decline will pass within 90 feet of Coon Creek, and that the cone of depression won't affect the creek. However, it's possible that the decline could intercept a fracture, and result in unanticipated dewatering. What will be the potential impacts to Coon Creek if a fracture is intercepted? How long will it take to grout a fracture to reduce inflows?

While the EA states that this won't occur, it has occurred at other mines in Montana. For example, at the Stillwater Mine, the adit encountered a large inflow of water that peaked at 884 gpm and within a few months decreased to a steady-state of approximately 200 gpm where it remained. A small watershed containing a several springs and a perennial stream was located a vertical distance of 830 ft above the adit.[4] The springs and stream both dried up and remained dry.

3.5.3 Fisheries and Aquatic Resources

The EA states that Coon creek, in its lower reaches, is a perennial stream. What baseline data has been collected concerning the presence or use of Coon Creek by fish or other aquatic life? Given its proximity to the drawdown, baseline data should be collected, and incorporated into the EA on this stream.

4.1.3 Wetland and Riparian Area Resources

It would appear that the surface LAD system could discharge wastewater into the wetland system associated with an unnamed tributary to Sheep Creek. The EA should provide analysis on these LAD systems, analyzing the fate of these flows and associated contaminants, and potential impacts to the wetland area and any associated surface water.

4.2.1.3 Geochemistry Agency-Mitigated Alternative

The NAG wasterock pile should be lined to minimize impacts to groundwater, given the challenges of effectively segregating NAG from PAG, and the potential for leaching of nitrates and other contaminants from NAG.

4.2.2 Groundwater Resources

According to the EA, after the decline is backfilled with PAG, the majority of seepage out of the decline would occur where bedrock is most permeable, within the shallow bedrock system beneath and south of Coon Creek. The seepage would flow toward the Sheep Creek alluvial

[4] Blodgett and Kuipers, Technical Report on Underground Hardrock Mining: Subsidence and Hydrologic Environmental Impacts, February 2002.

aquifer. The EA asserts that impacts to the aquifer would be below the level of significance. Where is the data and analysis to support this assertion?

If Tintina applies for an operating permit, seepage from waste rock left on the NAG pad could escape, but the EA states that impacts to groundwater are unlikely because the water table is 100 feet blow the pad. Where is the data to demonstrate that contaminants wouldn't reach groundwater?

If Tintina defers closure of the decline while it applies for an operating permit, the groundwater quality in the decline area could worsen as it is exposed to acid-generating and metals leaching from the decline walls. The EA says that it may take longer for the water quality to return to background conditions after the decline is flooded. It asserts that the impacts on groundwater would be below the level of significance. Where is the supporting data for this?

It would appear that impacts to groundwater from acid mine drainage, nitrates and metals are likely to be significant, and warrant the full analysis afforded by an Environmental Impact Statement.

4.2.3.2. Soil Suitability for Land Application of Water

According to the EA, kinetic humidity cell tests are ongoing and water treatment systems are under design, so Tintina cannot quantitatively predict the chemistry of water that would be land applied using the LAD system (EA p. 53). It states that by mid-2013, such data will be available and batch attenuation tests will be conducted, using representative samples of surface soils developed within the proposed surface LAD areas F and J. It would appear that this EA is premature. MTDEQ should wait until this data is available, and then incorporate it into an EIS. How can DEQ or the public appropriately evaluate the potential impacts of this proposed action without such essential information?

The EA is too vague and contains incomplete information to accurately evaluate impacts to water quality/quantity, and therefore the conclusion that impacts are insignificant aren't adequately supported. An EIS should be conducted to incorporate this data and analysis, provide a detailed water management and treatment plan, and address the full risks of acid mine drainage at the headwaters of the Smith River.