



Date: October 17, 2007

To: Office of Geological Survey, Michigan Department of Environmental Quality
DEQ/DNR Kennecott Comments
Office of Geological Survey
PO Box 30256
Lansing, Michigan 48909-7756

From: Sierra Club Michigan Chapter
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Re: Kennecott Permit Applications for Eagle Mine Project
Section 12, T50N, R29W Michigamme Township, Marquette County

Please accept the following as the comments of the Sierra Club on all permit applications pertaining to the Kennecott Eagle Project. The Sierra Club is a non-profit environmental advocacy organization with over 18,000 members in its Michigan Chapter. Our mission is to explore, enjoy and protect the wild places of the earth; practice and promote the responsible use of the earth's ecosystems and resources; educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

The Sierra Club Michigan Chapter urges the MDEQ and MDNR to deny all permits to Kennecott. The following pages provide specific supporting detail.

Please note that we are requesting a distinct, separate reply to each titled, numbered comment. We note that in the DEQ responses to our comments dated December 26, 2006, we received a generic response to all of them which simply made the claim that the answers could be found at undisclosed locations within other documents. We resubmit these comments (see attached comments) with the request that the Department actually respond to each comment.

Our comments are as follows:

I Part 632 Permit Application

1) Decision making must be a 2 part process. The provisions of Part 632 require that an EIA be completed to assess the environmental impacts of the proposed mine. In order to assess whether or not the mine plan meets the requirements of Part 632, the Department must first determine whether or not the EIA is adequate and comprehensive. To date, this has not been determined in a manner transparent to the public.

2) Change of Mine Plan

There is no provision in Part 632 for changing the design of the mine plan after the application has been submitted. While there is a provision allowing the Department to request “additional information”, (R 425.201(4)(f)), this is the only mention of additional information in the Act.

There is a distinct difference between “additional information” and changed information. For instance, asking for more data supporting the contention that the crown pillar design is sufficient to prevent subsidence is “additional” information. This is clearly authorized under Part 632.

Asking that the crown pillar be redesigned is new or changed information. There is no provision in Part 632 allowing for new or changed information during the application process, after the submission of the application.

3) EIA Has Not Been Changed to Reflect New Mine Plan

Even if one were to assert incorrectly that Part 632 allows for a change in the design of the mining operation after submission of the application, there can be no question that any change in the mine design must be followed by a change in the EIA. If the reason to change a mine plan, whether initiated by the applicant to address deficiencies or by the Department to address deficiencies, the reason for doing so is to change (and hopefully improve) the environmental effects.

If the mine plan has been changed in order to change the environmental effects, then an assessment must be done to determine what the changes in effect to the environment will be. If the mine plan has changed without a corresponding change to the EIA, then we have a mine plan with no EIA addressing the effects of that plan, and we have an EIA which addresses the effects of a mine plan no longer under consideration.

There have been claims by the applicant and Department personnel that it is self-evident that increasing crown pillar depth will inevitably result in decreased environmental impacts. If environmental effects were in fact self-evident, the Legislature surely would not have required an analysis of the environmental effects.

It is incorrect to assert that reducing the scale of an operation *prima facie* reduces, without change, the effects. As an example, one could have concerns about runoff from impervious surface from a proposed parking lot. Reducing the area of the parking lot may indeed reduce runoff. If, however, the reduced size changes shape, then the runoff might now be directed to a nearby stream which might not have been the case before. Without analysis, it is simply impossible to tell.

Likewise, changing the design of the crown pillar will change the size, shape, and characteristics of the cavity while mining occurs. This will change groundwater flows amounts and perhaps direction through the cavity, as well as changing water treatment requirements. In addition, this will change reclamation plans, including amounts, volumes, and other characteristics of backfill concrete, waste rock, and lime. This in turn will change the height of the backfilled pillars and the amounts which may or may not settle over time.

All of these are potential large-scale changes to the environmental effects of the proposed mine plan. Without environmental impact analysis to determine what the effects of these changes will

be, the reviewer is simply left to guess, and any assertions about the effects will simply be unsubstantiated.

Consequently, the application as it stands has no EIA which addresses the impacts of the project as proposed.

4) Environmental Impact Assessment is Inadequate

The following items, required by Part 632, are missing entirely from the EIA:

The multiple affected areas.

Cumulative impacts analyses of effects

Evidence of use of best available or generally accepted methodologies (see “Final Parker Vittan Report” attached.

Adequate Flora and Fauna surveys. The surveys included were not done in all seasons as required, and in fact noted themselves a lack of certainty regarding many plant species due to surveys during seasons where plants were not flowering by personnel unqualified to identify plants when not flowering.

Consideration of other prudent and feasible alternatives (see comments on DNR Lease and Surface Use Plan.

5) GeoCalculation Methodologies Not Current

The applicant has used geocalculation methodologies which are not currently generally accepted as adequate within the industry. See attached “Final Parker Vittan Report”

6) Safety Planning In Case of Fire Inadequate

See Attached “Final Parker Vittan Report”

II DNR Lease and Reclamation Plan

1) The applicant has asked for an unprecedented exclusive use of lands owned by the people of Michigan. It is unclear whether there is any statutory authority to allow private, for-profit use of such an extensive piece of state property for such a long period of time.

2) To date, no reason has been provided in any documentation indicating why the people of the state of Michigan should allow a private for-profit entity to have exclusive use of a large portion of state land for decades. We understand that the state is **allowed** to lease this land, however, there has been no explanation of why the state **should** allow such an exclusive use.

3) Kennecott owns large parcels of land much nearer the ore body than the proposed surface site. The reason cited has simply been “safety”. Neither Kennecott in it’s application nor the MDNR in any publicly disclosed documents has presented evidence that this is the case.

4) Part 632 requires that the EIA address “feasible and prudent alternatives”.(R 425.202(1)(c)(i). The applicant did not describe use of their own lands as a reasonable or prudent alternative.

5) Part 632 also requires description of “alternatives considered but not carried forward for further evaluation ”. (R 425.202(1)(c)(ii). The applicant also did not describe use of their own land as ana alternative considered but not carried forward.

6) Consequently, there has been no analysis given anywhere of why the applicant’s use of their own land is less preferable, or less safe than using publicly owned land. And in fact, there is no reason that even if using public land is more safe that this is sufficient reason to do so.

The applicant wishes to construct a mine. The applicant owns lands close to the ore body. If those lands are of such a nature that it is difficult to mine safely, this is not a matter the people of the state of Michigan need to address, it is an issue the company needs to address. If mining safely on the applicant’s own lands is infusible, then mining should not occur. It not the duty of the state to rectify the error made by a company which purchased minerals they may not safely access.

7) The precedent set would be devastating. Do we want it to be the case that every time a company purchases a piece of property that if they determine the use to which they had planned to put that property would be more safely done on state land that the state should allow that use of state land? If I purchase a piece of property for an airport, only to discover that it is in a goose flyway, thereby making planes unsafe on landing, should the state allow me to build an airport on public land not in the flyway, and fence out the public? Of course not.

There is simply no good public policy reason to approve the application for this lease.

8) In addition, it should be noted that there is no clear legal authorization to allow access of minerals from one lease by way of another lease. The applicant has leased the mineral rights, and access rights thereto, for the lease containing the ore body. In order to make use of the proposed surface facilities, the applicant will need to use the subsurface of the surface facility to access the leased minerals. While provisions clearly exist to allow surface access to leased minerals, there appears to be no authority allowing subsurface use of one leased parcel simply to access minerals in another parcel.

III Air Quality Division draft Permit to Install Application Number 50-06 and Water Bureau draft Groundwater Discharge Permit Number GW1810162 proposed for Kennecott Eagle Minerals Company,

We urge the MDEQ to deny both of these permits unless and until Kennecott proves they will have zero discharge and they will not pollute the air or water of the Yellow Dog Plains (YPD), and unless and until a complete independent hydrogeologic study is conducted there. Any air permit or groundwater discharge permit is in truth a permit to pollute because a permit allows some specified amount of loading, even if it’s relatively small. On the YDP, this concept really does matter because even a tiny change in groundwater quality due to pollution loading, especially through changes in pH that will mobilize metals from dust and from soils and resultant changes in specific conductivity would have a tremendous and possibly irreversible impact on the Salmon Trout River.

All draft permits appear to plan for mostly “normal” situations, for dealing with sludge build-up in the ponds, for heavy rain or snow-melt. But planning for catastrophe appears to be lacking in both the air and groundwater permits. Given the high probability for mine cave-in, these situations should also be planned for, with ample funds set aside to pay for it.

1. What is the MDEQ’s and Kennecott’s backup plan to manage the catastrophe to all water, both groundwater and surface water, should the mine cave in? Aside from the immediate human impact, how will the waste water treatment plant be utilized to treat all the water that would be impacted? The mine water storage/treatment ponds are sized for 50-year snowmelt and 100-year rain events, but not for catastrophic mine failure underneath the headwaters of the Salmon Trout River. What is the plan for dealing with this situation should it occur? Neither of these permits should be granted unless and until this potential situation is properly planned for.

2. How will MDEQ stop any new mercury that originates from the flyash from being deposited onto the Yellow Dog Plains? In an email and subsequent telephone conversation with AQD’s Mark Mitchell we learned that as of August 10, 2007, Kennecott had not yet provided information about where they plan to attain the flyash to use in their cement operation, that this would not be considered until much later in the process. **This is relevant now because the Salmon Trout River is already listed on the state’s 2006 303(d) list of impaired waters for mercury exceedances from the Northwestern Road upstream to the AAA Road, exactly in the immediate area that would be impacted from the air discharge.** Ironically, if the flyash comes from an operation that uses technology that scrubs the mercury from their own air discharge then the flyash will contain that mercury and that mercury will in turn be deposited onto the Yellow Dog Plains.

3. We request that the MDEQ require a complete independent hydrogeologic study of the Yellow Dog Plains by the US Geological Survey before granting any groundwater discharge permit to Kennecott. It appears the groundwater discharge permit has been written to take advantage of “dilution” as part of the solution to pollution, described on page 8 paragraph 3 of the hydrogeologic summary for new permits: “...*This will cause the groundwater from the discharge to merge with groundwater from the lower aquifer when the “transitional deposits” are not present. The proposed monitoring well locations 150 feet downgradient of the discharge will monitor any changes in groundwater quality to the north and east.*”

The same document states the site is very complex hydrogeologically, yet apparently assumes that the groundwater flows will not be altered by mine dewatering processes. A better understanding via a hydrogeologic study is needed of mine dewatering and how it will alter groundwater flowage to the two main rivers on the YDP, the Yellow Dog River and the Salmon Trout River. Local knowledge suggests that though the surface water divide is relatively easy to discern that in fact the groundwater divide between the two rivers is in fact much more complex and perhaps even overlaps in different strata. **How can the MDEQ safely make predictions about exactly how Kennecott’s groundwater discharge will behave and interact with a lower aquifer, when mine dewatering can cause alterations in groundwater flow?**

4. How will Kennecott be required to change their wastewater treatment process if and when downgradient monitoring shows that discharges are not meeting either groundwater or surface water quality discharge standards? Page 2 paragraph 6 of the groundwater discharge permit fact sheet states that “*Any results outside the approved operating range for specific conductance will require steps by the permittee to return to compliance, up to and*

*including **ceasing all groundwater discharges.***” (Bold emphasis added.) What is Kennecott’s back-up plan should their monitoring show that acid mine drainage has begun? What is their backup plan should MDEQ order them to cease all groundwater discharges? How will the MDEQ implement this order and how quickly?

We believe that any pollutant loading to the air or water of the Yellow Dog Plains (YDP) will have a deleterious impact to the Salmon Trout River and its aquatic community. The Salmon Trout River is a very low-productivity system that has evolved over the past 10,000 years without industrial discharges, and the resulting ecosystem is extremely sensitive. Even chemicals that might be used for dust control would impact this system. Any changes, such as increases in conductivity or discharges that upset the natural balance of nutrients there will forever change the ecosystem. While it may recover to some semblance of “healthy”, especially if compared to the highly impacted streams of the Lower Peninsula, it is a given that **it will not return to before-mining conditions**. There are very few locations left in Michigan that match the pureness of the waters of the Yellow Dog Plains. We urge the MDEQ to deny these permits unless and until Kennecott proves they will have zero discharge and they will not pollute the air or water of the Yellow Dog Plains.

5. How can the MDEQ expect to quickly recognize deleterious changes in water quality when no monitoring reports will be submitted to MDEQ, but will instead be kept on site to be made available to DEQ staff only when they visit?

6. How can the water-monitoring public gain access to Kennecott’s monitoring reports if they are not submitted to the MDEQ, because as such, the reports are not subject to FOIA? How will local residents and recreation camp-owners know if their drinking water has been impacted by Kennecott’s operations if reports are not submitted to MDEQ and thus subject to FOIA?

Any new loadings of any pollutant either directly to streams via groundwater discharge or to the air that will settle out over the watershed, will likely hasten a shift in ecosystem integrity that will in turn cause long term changes to the aquatic community, and make it look like any other stream in the Lower Peninsula. This statement is based on our water quality monitoring of the Yellow Dog Plains over the last 3 ½ years, and on our observations of snowfall on the YDP.

Except for April and May, the streams on the YDP are very small. In winter every surface in the watershed is covered with several feet of snow, and in April and May the melting snow carries everything that settled from the air onto surfaces, be they roads, trees, plants, fields, or rooftops. When the snow melts, the streams roar. While similar snow conditions occur in some places in the Lower Peninsula, the difference is that today there are as yet no industrial operations on the YPD, so there is no industrial deposition of pollutants that wash into streams.

The Sierra Club Michigan Chapter Water Sentinels Project (WS) has for over 3 ½ years **conducted a baseline water quality monitoring project on the Yellow Dog Plains (YDP)**. The WS monitoring project tracks baseline measurements of pH, specific conductivity, dissolved oxygen, water temperature, depth, and flow at 14 sites located on the main stem and several branches of the Salmon Trout River and of the Yellow Dog River, near the AAA and the Northwestern Roads.

In particular, the consistency of our measurements on the Salmon Trout River, notably for temperature and conductivity, indicate that the Salmon Trout is largely a stable groundwater-

fed system, where hundreds of seeps form small rivulets that lead to the relatively larger streams. Our data were corroborated by measurements at:

- A) USGS 04043238 Salmon Trout River gauge near Big Bay, MI where the minimum specific conductivity measurement was **36 microsiemens** (page 4 2006 water data report at <http://web10capp.er.usgs.gov/imf/sites/adr06/pdfs/04043238.2006.pdf>), and
- B) USGS 04043244 East Branch Salmon Trout River near Dodge City, MI where the minimum specific conductivity measurement was **33 microsiemens** (page 4 2006 water data report at <http://web10capp.er.usgs.gov/imf/sites/adr06/pdfs/04043244.2006.pdf>)

Conductivity readings of 33 and 36 microsiemens is amazingly low, especially when one compares this stream to streams in lower Michigan, where conductivity usually ranges from 300 to 800 microsiemens and even higher in our more degraded rivers. Michigan has very few streams left with conductivity as low as we find in our Salmon Trout River.

According to the U.S. Environmental Protection Agency (EPA) web site at <http://www.epa.gov/volunteer/stream/vms59.html> states “Conductivity in streams and rivers is affected primarily by the geology of the area through which the water flows. Streams that run through areas with granite bedrock tend to have lower conductivity because granite is composed of more **inert materials that do not ionize** (dissolve into ionic components) when washed into the water.Discharges to streams can change the conductivity depending on their make-up. ...”

Again, we urge the MDEQ to deny these permits unless and until Kennecott Eagle Minerals Company proves they will have zero discharge of any pollutant, because the Salmon Trout River and its ecosystem will quickly degrade otherwise.

Thank you for the opportunity to share our comments on these permits. We look forward to a comprehensive response.

Should either the MDEQ or the MDNR have questions you may reach Marvin Roberson at marvin.roberson@sierraclub.org and Rita Jack at rita.jack@sierraclub.org. The office telephone number is 517-484-2372.