To: McKim, Krista[mckim.krista@epa.gov]; Prichard, Gary[prichard.gary@epa.gov]; Pellegrini, Janet[pellegrini.janet@epa.gov]; Pepin, Rob[pepin.robert@epa.gov]
From: Jackson, Peter W.
Sent: Thur 11/21/2013 4:45:48 PM
Subject: RE: Bennoc Sulfate Issue

Gary's question is a good one. Ohio's Captina Creek water quality report indicates that Piney Creek is currently meeting its existing A.L use designation of WWH, the definition which is quoted by Gary below. Thus, we can't use failure to meet the WWH use designation as the basis for a sulfate limit. On the other hand, Ohio's report (p. 11) clearly pinpoints the AEC discharge at RM 2.8 as adversely impacting the macroinvertebrate community due to high TDS, conductivity and metals (all which are documented at very high levels in the report). Mayflies are said to be almost completely absent from the stream below the mine discharge. If the mine provided better control of its discharge Ohio EPA projects that it could meet the EWH use. So Ohio EPA is documenting the presence of high levels of sulfate and TDS below the mine discharge and a corresponding adversely impacted macroinvertebrate community, and it attributes the adverse impacts to the discharge.

It is an imperfection of IBIs that you can have an impacted portion of a community (mayflies) and yet the community as a whole (macros) is rated as good due to the presence of a diverse array of other taxa. Under Ohio's tired aquatic life system, the biology must show a score in the exceptional range for both fish and bugs before it can assign EWH to a stream. If we can make an argument that the stream is being prevented from attaining a higher use (EWH) due to the discharge (pointing to the Captina report to support this position), maybe that can bolster the case for a sulfate limit. It would help if we had biology data upstream of the mine. Ohio EPA notes this on p. 11 of the report.

Pete

From: McKim, Krista
Sent: Thursday, November 21, 2013 7:31 AM
To: Prichard, Gary; Pellegrini, Janet; Pepin, Rob; Jackson, Peter W.
Subject: RE: Bennoc Sulfate Issue

Project is in the western Allegheny plateau. Also, I wonder if Fish and Wildlife can help support this. Also, we can search through OEPA's captina report for some support.

Pete, do you have any thoughts on how or where we might look to find support for what Gary has pasted in below? (this is for the Murray permit). is there an ecoregion wide database that OH has that we can search that would tell us where the Piney creek data point, or downstream captina data are in comparison to the western Allegheny plateau at large?

I'm a little worried about this approach since the WAP is where all of the mining is, and I know OEPA takes a lot of their data downstream of discharges, on purpose, so they can assess impacts.

Krista McKim, PE

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From: Prichard, Gary
Sent: Thursday, November 21, 2013 7:21 AM
To: Pellegrini, Janet; McKim, Krista; Pepin, Rob
Subject: Bennoc Sulfate Issue

To support an objection based on failure to include sulfate limits, I think we need to be able to say that, as a result of the discharges, the sulfate levels in Piney Creek (in conjunction with the expected temperatures and hardness) will not be

> capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the twenty-fifth percentile of the identified reference sites within each of the following ecoregions: the interior plateau ecoregion, the Erie/Ontario lake plains ecoregion, the western Allegheny plateau ecoregion and the eastern corn belt

> plains ecoregion. For the Huron/Erie lake plains ecoregion, the comparable species composition, diversity and functional organization are based upon the ninetieth percentile of all sites within the ecoregion. For all ecoregions, the attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all upground storage reservoirs are designated warmwater habitats.

(What I pasted above is the definition from Ohio's WQS of the warmwater aquatic life use designation.) So, in addtion to explaining why from a technical basis we believe that the sulfate levels are going to be acutely toxic to aquatic life as a general matter (based on the science underlying Illinois' sulfate criteria), can you please also explain why those sulfate levels would mean that Piney Creek would not be "capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the twenty-fifth percentile of the identified reference sites within [the appropriate ecoregion]"?