Introduction
In the Great Lakes area, the mining of metallic ores helped to shape the economy and culture of the Midwest. Today, within the Penokee Hills of northern Wisconsin there is a current proposal from a mining company to begin a taconite iron mine. Taconite is a lower grade of iron ore rock that has to be crushed in order for the iron to be extracted. At 21 miles long, over 4 miles wide and over 800 feet deep, the proposed open pit mine would be the largest in the world. The company, Gogebic Taconite LLC (GTac), promises an increase in employment and a reinvigoration of the local economy.

My approach was to first document the mining history of the Great Lakes Area. I then researched the potential costs and benefits of this type of mining in the Penokee Hills at this time in order to determine whether mining here is advisable. To aid in this examination of the costs and benefits of mining in this particular area the size of Rhode Island that would be affected by runoff and pollutants (see Figure 2 below). Also, the massive amounts of sulfide ore that would need to be processed can react with oxygen and water to create carcinogenic–heavy acid mine drainage (Figure 3 to the right).

Benefits of Mining
The primary benefit from mining taconite is economic gain. GTac has estimated that their operations will provide jobs for as many as 700 people directly through mining—2,000 in surrounding towns—for the expected 35-year lifespan of the proposed mine.

Costs of Mining
At 4 1/2 miles long, .5 miles wide and more than 800 feet deep, the proposed mine would be the largest in the world. Thus, the general environmental costs like deforestation and habitat loss/fragmentation would be exacerbated.

Particular to this area is the presence of six watersheds with an area the size of Rhode Island that would be affected by runoff and pollutants (see Figure 2 below). Also, the massive amounts of sulfide ore that would need to be processed can react with oxygen and water to create carcinogenic–heavy acid mine drainage (Figure 3 to the right).

Discussion
Mining is an extremely sensitive issue politically, with constant lobbying for legislation to rewrite laws and regulations concerning environmental quality standards. This case was particularly controversial: owners of GTac helped fund ads supporting the reelection of (R) Gov. Scott Walker, who in turn let them rewrite laws reducing mining regulations. It also exempted their operations from Wisconsin’s established Prove-It-First law which mandates proof that they can safely operate a mine.

It should also be noted that during the research of this topic and thesis writing, GTac abandoned all mining activity in northern Wisconsin, leaving just one employee in their office in Hurley. While this can be seen as a temporary victory for activists, efforts to mine this area are unlikely to completely cease.

Conclusion
There are an exceptionally high number of likely negative effects on the ecosystem, watersheds, and the local water supply. Even if GTac did meet EPA water quality standards, they would be losing money trying to meet them because taconite is a lower grade iron and requires increased labor and improved technology to extract the iron from the rock. Therefore, based on the examination of the costs and benefits of mining in this particular area along with the study of related cases, the mining of taconite iron in northern Wisconsin is inadvisable at this time.