

In my studies to become a geologist, I did my bachelor's thesis on the Barber's Lake granite body and its surrounding geology. My focus was on its high Uranium content. One of my findings was the presence of pegmatite offshoots around the margins of this granite with vastly elevated levels of Uranium even compared to the main granite itself. There are geological issues with the site of the Cavanagh Construction gravel pit proposal on Barber's Lake that must be addressed.

1. The gravel deposit proposed to be mined by Cavanagh Construction lies on just such a margin, which should be expected to have elevated Uranium levels. These deposits will have, over the past ten thousand years or so, decayed into clay minerals at the contact between them and the gravel, binding the decayed deposits' Uranium content within them. Were this gravel to be removed, all of these clays would be exposed to rapid erosion and the release of their Uranium into the water table.

2. Related to this last point of #1, even aside from any Uranium contamination, the mining of this gravel deposit, situated as it is below the waters of the lake itself, should be expected to kill nearly all of the wildlife residing within Barber's Lake. There are two main reasons for this. One is that the gravel and other sediments in the deposit currently act as a filtration system, greatly cooling and filtering the rain water that would otherwise flow directly into the lake. The shift in the water's chemistry, and dramatic increase in its temperature, that would result from removing this deep, thick natural filtration system would be a shock that few species could contend with.

The other reason why the lake's wildlife would die out, is that the mining itself requires washing out the gravel and sand of finer sediments. Barber's Lake is a small lake, with slow water recharge. The silts and clays that would necessarily be washed out of the mined gravel, both as it is mined from the lake bed and while it is being sorted for size, will end up in the lake. Being fine sediments, they will not simply sink; they will fan out, covering the lake bed and suffocating anything growing on it. Plant life, filter feeders such as clams, the whole food chain that keeps the lake alive, will be cut off at the root, so to speak. The lake should be expected to die from this.

Has any study been done on the presence of Uranium-bearing pegmatites beneath the gravel deposit? Regular surface mapping would not have uncovered such features due to the overburden.

What has been the proposed mechanism to prevent washout of fine particulate from the mined sediments from choking out Barber's Lake?

What alternative deep water filtration system has been proposed to replace the functionality of the metaphorical natural Brita filter that the gravel deposit provides? How will it prevent rise in temperature and degradation of water quality?

Thank you for taking these matters seriously.  
- Eric Dugdale