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July 24, 2008

Mackenzie Valley Environmental
Impact Review Board
Suite #200, Scotia Centre,
5102 50th Avenue Box 938,
Yellowknife, NT X1A 2N7

Dear Review Board Members and Staff:

My name is Bruce MacLean and my wife and daughter are YK Dene Band members. I would therefore like to align my statement with the YK Dene presenters and their elders desires that the arsenic trioxide stored at Giant Mine be taken out of underground and removed or made non-toxic for the land, water, animals and people.

I would like to elaborate on my statement at the Giant Mine Remediation Project EA0809-001 Scoping and public hearing on July 23 2008 and have this letter entered into the public record for this hearing.

In my two decades of experience working with arsenic trioxide I learned that the lethal dose of arsenic trioxide for a human is .128 of a gram. By my calculations there are over 11 trillion lethal doses of arsenic trioxide underground at Giant Mine which is enough poison to kill every person on our planet Earth 166 times and not 4 times as I heard was written in the information not supplied to the public at the hearing. Some people might think that these numbers are irrelevant but I only wish to underscore the toxicity of the arsenic stored at Giant Mine. In a fire deadly arsine gas is generated from the arsenic trioxide, which makes emergency situations if not impossible to deal with then very very dangerous.

I do not agree with the Developers conclusion that the Frozen Block Plan is the lowest risk plan. 237,000 million tonnes of arsenic trioxide left in the ground in bulk as it is, frozen or otherwise is a huge risk. This risk only increases through time as we can not predict the future until it is too late. To leave this poison underground so close to surface leaves it vulnerable to any number of global calamities that we can only deal with now.

The Developers also said that it took two years to convince people to accept that the arsenic was from Giant Mine and had to stay there. As I said in my statement, in the late 1980's we heat leached arsenic trioxide out of the mud at Con Mine and filtered the separated solution. Next we crystallized the arsenic trioxide in the solution in four multiple effect vacuum crystallizers and filtered the arsenic out of the solution.

We then dried the arsenic and packaged it into drums. This arsenic had a purity in the high 90% range and was sold as a wood preservative to the United States. Arsenic trioxide of higher purity is used to make glass and also for cancer medicine. China and Chile produce arsenic trioxide that is sold and some is even sold as 100% pure arsenic metal bars.

The arsenic at Giant Mine would be easier to process than at Con Mine because at Giant Mine the arsenic trioxide is purer and not in mud.

I also said in my statement that in the early 1990's we installed a high pressure high temperature autoclave at Con Mine that converted the arsenic trioxide to ferric arsenate. This oxidizing process is at 400 degrees F and 400 pounds pressure.

When the autoclave is cold we use steam from a boiler to raise the temperature of the slurry in the autoclave to 400 degrees F, at this temperature 500 pound pressure 96% pure oxygen is let into the autoclave where the arsenic, iron, oxygen and unoxidized sulphur react together to bond the arsenic and iron to form ferric arsenate (scorodite). Once the reaction starts, fresh slurry and oxygen are continually fed into the autoclave. A discharge valve is used to maintain the correct level and discharge the ferric arsenate acidic slurry into a flash tank let down vessel. Four automatic valves let in 600 pound pressure water to cool and maintain the autoclave operating temperature between 400 degrees F and 410 degrees F. An automatic valve controls the pressure and lets out steam and unused oxygen to maintain the autoclave pressure at between 400 pounds pressure and 410 pounds pressure. This steam and oxygen is vented to the flash tank where it is cooled in a scrubber so that only no condensable gases are vented out to the atmosphere. The gold can then be recovered in a gold circuit to reduce the cost.

There is some argument among scientists; that at a high PH through to neutral PH 7 arsenic can be released. I believe that these tailings should be kept slightly acidic below PH 7.

There is a mining company that has a quick process that makes bricks out of mine tailings.

The Developers use of the health and safety of the workers, as a greater risk than the risk of leaving the arsenic trioxide in the ground is wrong because we can limit the risk to the workers health and safety with the proper equipment and the proper training. Remote methods must be used in removing the arsenic from the stopes and chambers and DCS clean control room control in the plant.

Most of the equipment that was used at Con Mine to upgrade the purity of the arsenic trioxide, including the crystallizers are still at Con Mine and available.

The autoclave plant was last operated last summer and ran very well and safely.

The oxygen plant that produces the oxygen for the autoclave is still set up but could be taken down next year and all the equipment taken to the south.

All this equipment at Con Mine, available so close to Giant Mine would greatly reduce the cost of a plant at Giant Mine but they are for sale and would have to be acted on quickly before they are bought by other parties.

I have been told that for a few years Giant Mine stored arsenic trioxide in the silo by

the roaster and loaded the arsenic trioxide into Trimac trailers. The arsenic trioxide was hauled to customers in the United States.

The procedure to convert arsenic trioxide to the pure metal arsenic has been used for over one hundred years.

Arsenic trioxide is heated to 700- 800 degrees Celsius in a steel retort and the vapour given off is cooled in a condenser. Two passes leave the arsenic at a purity of 99.999%. The arsenic is vacuum packed so it will not oxidize. This arsenic metal is 500 times less toxic than arsenic trioxide.

Arsenic of 99.999% purity is combined with the metal Gallium to make a compound known as Gallium Arsenide. Gallium Arsenide is used to make computer chips and solar panels that work much better than silicon computer chips and solar panels because electrons move through Gallium Arsenide 1000 times faster than they move through silicon.

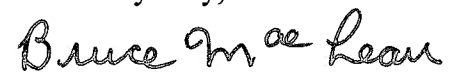
The Gallium Arsenide computer chips can work at a higher speed, higher heat levels and make less noise than silicon chips.

The Gallium Arsenide solar panels capture a larger band width of the sun's energy and can make electricity out of lower power bands that silicon solar panels do not capture.

The developers "Frozen Block Plan" is to put water into the arsenic trioxide stopes and chambers which is what is being avoided now. So any future attempt to make the arsenic trioxide safe will have to start with water saturated arsenic trioxide that will leak down under ground.

I therefore request that the Giant Mine Remediation Project "Frozen Block Plan" EA0809-001 undergo an "Environmental Impact Review" because this foolish plan leaves Great Slave Lake, the Mackenzie River Valley and the Arctic Ocean forever vulnerable to the largest poisoning the world has ever seen.

Yours very truly,

A handwritten signature in cursive script that reads "Bruce MacLean".

Bruce MacLean

