

Texada goop articles on arsenic content in the *Flying Shingle*.

[These were in response to a series of *Gabriola SOUNDER* articles over the same period implying that the arsenic content of the goop was dangerously high. Some of the responses given below were also submitted to the *SOUNDER*, but none were selected for publication.

I am not a health expert on toxic substances and so might be wrong. Also possible is that samples tested were not representative of the whole.]

Flying Shingle, February, 2008: No arsenic found in Texada slime, 36(4), p.4

Dear editor

Over the weekend, I got the results back from a chemical analysis of one of the pothole water samples (the murkiest, TEX-5, on Horseshoe Road, Gabriola Island) for trace elements. The road is unpaved and has been surfaced with "Texada Gravel".

I asked the lab. to look for boron, fluoride, arsenic, iron, and manganese.

Iron and manganese are rarely health hazards, but a high concentration would raise suspicions about the presence of other metals that are. Boron and arsenic are present in some groundwater aquifers naturally on Gabriola, but usually at safe levels. Fluoride levels that exceed water Canadian quality standards are not uncommon on Gabriola and are a problem in the Gulf Islands in general.

The lab. found only trace amounts of boron, fluoride, iron, and manganese, and none was in a concentration that exceeded, or even came close to exceeding, safe drinking water standards. The lab. was unable to detect any arsenic at all (<1 microgram per litre). Taken with the earlier tests for sodium, calcium, etc., this means the water tested meets all Islands Trust, Canadian, and International potable water standards.

Briefly the testing method was to filter with a 0.45 micron filter, and analyse with a flame atomic absorption spectrometer. Because of concern over arsenic levels, the lab. uses the hydride generation method to enhance the sensitivity of the spectrometer.

These results are in line with my own expectations based on an examination of the rocks, minerals, and clay in one sample of the goop. That sample showed no sign of skarn mineralization, which is the source of heavy metals on Texada.

If further tests are to be done, it would be interesting to see what a whole rock analysis using an ICP-mass spectrometer comes up with, but in the meantime, I think it would be far more useful to concentrate on the cementation and "slippery mess" aspects of the goop, and the interaction of the goop with road treatment chlorides, than to worry about the toxicity of the road runoff.

There is of course always the possibility that my sample is not representative, but the non-health defects of this material as applied to our roads is an easily demonstrable concern and is, in my opinion, what we should be focusing our attention on.

I also have what may be the last revision of a report on what I have found in the past couple of weeks. It is a largish file with pictures and a diagram, and too technical evidently to some people's taste, but if not attached, it is freely available to anyone who wants it.

Sincerely

Flying Shingle, February, 2008: More on arsenic, 36(4), p.10

Dear editor

There's no reason to suspect the goop contains arsenic based on the minerals it contains—it is not mining tailings [or so I thought at the time, it is arguably gangue]—and in the single water sample I had tested for trace elements, the lab couldn't detect any arsenic yet alone measure its concentration. However, I have received a report of arsenic in a well. It does occur naturally in some places on Gabriola, but on looking at this particular well's chemical content it was evident that somebody had been putting it in the well. Not deliberately of course, but by spreading the ash left over from burning treated lumber out in the yard. The clue that this is what happened? The well also had measurable traces of copper and chromium, metals very commonly found in wood preservative but, so far as I know, never in Gabriola's bedrock

Sincerely

Editor's note: <http://www.naturalhandyman.com/iip/infxtra/infpref.html>

*Until 2003, the preservative most commonly used in residential pressure-treated lumber was **chromated copper arsenate** (CCA), an extremely toxic chemical. Remember "Arsenic and Old Lace"? How about that old box of rat poison you have lurking in the garage? CCA is so toxic that the Environmental Protection Agency, over 20 years ago, imposed strict guidelines regarding the manufacturing practices of companies using CCA.*

However, one must distinguish between the toxicity of the chemical and the toxicity of the wood product in everyday use. Extensive studies were done since the mid 1980's concerning the potential dangers of pressure-treated wood. And rightfully so! Large volumes of CCA were being used, and the treated wood products were beginning to be widely distributed, justifying the need for some hard research.

*The research was mixed, but the typical hysteria ensued as attorneys and plaintiffs lined up to claim damages from exposure to CCA. In the end, the industry agreed to voluntarily eliminate use of CCA for residential use. Your local home store or lumberyard is now selling lumber treated with (hopefully) less toxic alternatives... **amine copper quat** (ACQ) and **copper azone** (CA)... though you may find other chemical combinations in specific areas. CCA is still being used in certain marine and industrial applications since it is still the best preservative available at the present time.*

Whether these new chemicals will turn out to be less hazardous in the long term is anyone's guess.

Flying Shingle, May 30, 2008: Dear Editor: Arsenic levels on Gabriola 'not excessive', p.6

Dear editor

The material submitted for analysis by Lefarge for the Port of Portland Terminal 4 clean-up was analyzed by ICP-MS or "whole rock" analysis, a method that has not been used for testing Texada Gravel or Goop on Gabriola, primarily because such an analysis exaggerates what will realistically leach into the environment.

If one wants to compare what has been found by strong-acid extraction on Gabriola with the Portland results. Here they are. All the numbers are ppm (parts per million).

TEC is the EPA's standard for clean-up jobs. There is so far as I'm aware no evidence that the Port of Portland material is being used on Gabriola. I would doubt that it is. Figures in red indicate failure to meet the standard, those in green are the "best".

	TEC	Morse	Scarcella	Portland	Texada	Gabriola	Texada
Arsenic	9.8	0.5	1.1		29.6		9.9
Chromium	43.4	6.8	4.1		8.8		3.3
Copper	31.6	10.8	9.5		189.0		79.0
Iron	--	39600	11800		26600		8010
Lead	35.8	2.0	1.3		3.0		2.0
Nickel	22.7	2.7	6.2		9.0		0.9
Zinc	121	47	27		45		29

A level of 29.6 ppm of arsenic is not excessive and commonly exceeded in bedrock in several parts of the world. The Morse and Scarcella material is clearly igneous rock of some kind and their numbers are quite typical of such bedrock.

Sincerely
