

850-5-X751(M16)

SENT?

My dear Colleagues:

In your recent letter you raised the continuing problem of control of arsenic pollution at Yellowknife and specifically mentioned the results of analyses performed recently on vegetables.

The control of arsenic pollution at Yellowknife is a rather outstanding example of what can be done to protect the public. The major accomplishment has been in regard to city water. Today Yellowknife has a safe supply, the arsenic level of which is maintained within the recommended limit for safety. This was accomplished by your department moving the water intake to the mouth of the Yellowknife River from Yellowknife Bay which we considered unsafe. City water also supplies the two active gold mines.

As you are aware, gold ore has been milled at Yellowknife since the early 1930s, and arsenic emitted in smoke is a by-product of a roasting process to which the ore is subjected. From 1933 onward tons of arsenic were deposited on the surrounding countryside. Since 1950 however the smoke has been washed to remove gaseous arsenic, and since 1954 bag collectors have also been employed to remove particulate material. These practical measures were successful in reducing the amount of arsenic emitted from the stacks to less than 1,000 pounds per average day which is less than 235 tons per year. The smoke washings go to tailings ponds. At Giant Yellowknife Mines the tailings pond overflows periodically into Yellowknife Bay, however, the amount of arsenic reaching the Bay has been controlled to some extent by construction of better berms and by lime precipitation of arsenic from the tailings which lowers the level of dissolved arsenic in any overflow which may occur. The arsenic content in the Bay is now being maintained below 0.05 milligrammes per litre.

The Honourable Jean Chrétien, P.C., M.P.,  
Minister of Indian Affairs and Northern Development,  
Department of Indian Affairs and Northern Development,  
Ottawa 4, Ontario.

....2



The Honourable Jean Chrétien, P.C., M.P.

The water from the Yellowknife River however, which is now used as the source of city supply, is better and meets the recommended maximum limit for potable water of 0.01 milligrammes per litre.

A health survey conducted in 1967, before the water supply was improved, revealed some skin irritations in mill workers, but apart from this the findings failed to demonstrate any alarming effects of arsenic on the population.

It is our understanding that commercial gardening is not practised in Yellowknife at present, and the analyses of vegetable core samples recently carried out showed considerable improvement by comparison with analyses done five years previously when values were ten to twenty times higher. Some vegetables did show values above recommended standards. Fish samples taken this summer show arsenic levels well below levels which would be regarded as harmful.

The situation at Yellowknife requires constant and active monitoring, and this is being done. Announcements may be necessary from time to time if certain foods or waters from specific sources are found to be dangerous. From time to time some special action may be necessary to maintain a healthful environment. We must continue to ensure that the amount of arsenic emitted from the stacks is kept to the lowest practical minimum, and we must realize that arsenic pollution will probably continue to be a problem requiring surveillance long after the mills have ceased to function. Not only is there considerable arsenic blanketing the countryside but the rather scanty amount of top soil in most areas predisposes to a rather copious run-off with every major rain storm.

There is no doubt that vegetables grown in the Yellowknife area will show traces of arsenic for many years to come. The fact that the arsenic content is now reduced 15 or 20 times appears to be more of a cause for satisfaction than for alarm and the absence of proven harmful effects appears to indicate that the problem is under reasonable and practical control.

Dr. Butler has been advised to withhold public comment and further consultations are taking place to consider any further practical means of control, which may be warranted.

Yours sincerely,

*Manro*  
John Munro

M161

c.c. Dr. G.C. Butler, Edmonton.

