CKLC/MJ
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Notes on meeting held in office of Mr. R.A. Gibson at 2:00 p.m., February 8, 1950, to discuss problem of the disposal of arsenic from the Con Mine, Yellowknife, Northwest Territories

The meeting opened at 2:00 p.m., with Mr. R.A. Gibson in the chair. The following were present:

Mr. W.G. Jewitt,	Manager of Mines, Consolidated Mining and Smelting Company of Canada, Ltd.
Mr. K. Raht,	" "
Dr. K.K. Kay,	Department of National Health & Welfare;
Dr. K.C. Charron,	" "
Dr. O.L. Stanton,	Medical Health Officer, Yellowknife, N.W.T. and also Chairman, Local Trustee Board;
Dr. H.J. Atkinson,	Department of Agriculture;
Dr. M. Katz,	Defence Research Board;
Mr. C.S. Parsons,	Department of Mines and Technical Surveys;
Mr. R.J. Traill,	" "
Mr. K.J. Christie	Department of Resources and Development
Mr. G.M. Webster	" "
Mr. C.K. LeCapelain	" "

In opening the meeting the Chairman asked Mr. W.G. Jewitt to outline the problem. He said that the impinger method which Consolidated had installed was the only method which could be installed quickly to remove the arsenic fumes from the smokestack. Some difficulties were experienced during the initial operation of the impinger method. These have been overcome by minor improvements in the design of the installation of materials. For instance, it was found that wood which had been used in a cone in the smokestack tended to smoulder and burn under the intense heat. This has been corrected by substituting metal for the wood.

It is claimed that the impinger method is easier to handle and easier on the health of the workmen than the Cottrell method.

There are approximately one million tons of tailings at the Con mine. It is proposed to dig open pits in these tailings into which the slurry from the impinger method will be pumped. It was expected that the material of the tailings was of sufficient density to make it impervious to drainage from the liquids in the slurry, which it was proposed to store in these pits. The liquids contain about 20 per cent solids, including arsenic, and it was expected that after the evaporation of the liquid these solids would remain in the form of a cake.

It was mentioned that the permanent frost-line is about four feet below the ground surface and there would be no seepage through the permafrost and that any seepage or overflow which occurred from the open pits would be above the frost-line. A ditch would be provided to catch this overflow or seepage where the arsenic contents could be neutralized by using iron or lime and the surplus water pumped back to the impinger plant where it would be used over again. By using this water over and over again it was expected that the solid content might be increased to 40 per cent.

If the proposed open pits in the tailings do not prove satisfactory it will be necessary to dig the pits elsewhere in impervious soil or to make them impervious by artificial means.

Some preliminary open pits have already been dug and the slurry is probably being put into them now. The construction of a larger pit will have to await the springtime. It is proposed and was recommended strongly by the meeting that these open pits should be so placed that any seepage or overflow would flow away from Pud Lake.

It is estimated that the impinger method is now removing 94 per cent of the arsenic from the fumes from the roasting process. During the initial stages of this operation this figure got to 88 per cent but with minor improvements and redesign of the plant this has been brought to the present figure of 94 per cent. It is hoped that this figure will be further improved to possibly 98 per cent.

Dr. Charron mentioned that the proposal of the Con Company to dispose of slurry in open pits is unproved and therefore not advisable. He felt that it was still an experiment, although on a large scale, and experiments should not be conducted with the health of thousands of people at stake. It was brought out in the meeting that the Company is financially able to put in another system of disposal promptly if the method of disposing in open pits does not prove satisfactory. Dr. Charron mentioned that it was physically impossible to cart away large quantities of slurry if the open pit method of disposal proved unsatisfactory.

Dr. Stanton was then asked to give his impressions of the situation at Yellowknife in regard to the disposal and dispersal of arsenic in the area. He said that there is no danger of arsenic poisoning to the population generally throughout the year but that there was a definite hazard during the spring thaw caused by the accumulation of arsenic in the winter's snow. He mentioned that two men became ill through drinking snow water containing arsenic last spring. He also listed other cases of patients now under observation for possible arsenic poisoning. Samples of the urine of these patients have been taken over a period of twenty-four hours and tested in laboratories of the Alberta Government. He does not think there is any danger to the public under present conditions, except through drinking snow water, against which practice they have been warned. He has also warned the people of Yellowknife and vicinity to wash all vegetables and all berries. There are three patients in hospital with dermatitis, which probably has been caused by excessive exposure to arsenic in the impinger plant.

The following points of interest were brought out in the general discussion:

The smokestack at the Con mine is 100 feet high. It was raised recently to this height in order to give improved dispersal of SO_2 which previously had been drifting into the plant.

Disposal pits in the tailings area are to be fenced and policed.

The tailings area is big enough to take care of the proposed method of disposal by open pits for an indefinite time.

Dr. Katz said it was imperative to see that the open pits were absolutely impervious.

Mr. Parsons emphasized that the proposed disposal method and dispersal areas must be continuously tested by a departmental officer as well as by company officials. Mr. Jewitt gave his assurance that all Dominion Government officers would be given every assistance in making further tests of arsenic concentrations in the surrounding area. His company will continue to take samples of arsenic contents and will make the results available to the Department of National Health and Welfare.

Mr. Gibson summed up the proposal of the Consolidated Mining and Smelting Company for the disposal of arsenic in the slurry from the impinger method and asked the meeting if anyone had any better proposal. None was offered by anyone at the meeting. Mr. Gibson then asked Mr. Jewitt to submit his proposals in writing, with accompanying plans and authoritative engineering assurance that the scheme was practicable and that the material in the tailings was or could be made impervious.

Dr. Charron asked for a meeting with Mr. Jewitt, Mr. Rabt, Mr. Christie, and Dr. Stanton, and one was arranged for 9:30 a.m., February 9, 1950.

C.K. LeCapelain

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