

6th June, 1951.

MEETING HELD IN ROOM 101, NORLITE BUILDING, JUNE 1, 1951, TO DISCUSS THE RECENT DEATH OF AN INDIAN CHILD AT YELLOWKNIFE AS A RESULT OF ARSENIC POISONING; THE GENERAL PROBLEM OF ARSENIC DISPOSAL; AND THE PRECAUTIONS TO BE TAKEN TO PROTECT PUBLIC HEALTH IN THE YELLOWKNIFE AREA.

The meeting opened at 4 p.m. with Mr. G.E.B. Sinclair, Director, Northern Administration and Lands Branch, as Chairman. The following representatives were present:

Mr. A.K. Muir,
General Manager,
Giant Yellowknife Gold Mines, Limited,

Mr. A.C. Callow,
Secretary Treasurer,
Giant Yellowknife Gold Mines, Limited.

Dr. P.E. Moore,
Dept. of National Health & Welfare.

Dr. K.C. Charron,
Dept. of National Health & Welfare.

Dr. K. Kay,
Dept. of National Health & Welfare.

Mr. J.R. Menzies,
Dept. of National Health & Welfare.

Mr. R.J. Traill,
Bureau of Mines,
Department of Mines and Technical Surveys.

Major D.M. MacKay,
Director, Indian Affairs,
Department of Citizenship and Immigration.

Col. F.J.G. Cunningham,
Deputy Commissioner of the Northwest Territories.

Messrs. Wright, Meikle, Lock, and Christie of the
Department of Resources and Development.

2. The Chairman outlined the steps which had been taken to cope with the situation arising from the emission of poisonous gas from the roaster plants of Consolidated Mining and Smelting Company of Canada, Limited, and Giant Yellowknife Gold Mines, Ltd., at Yellowknife. These resolved themselves into three phases, namely: (1) the collection of arsenic from the roaster fumes, (2) the disposal of the arsenic trioxide after removal from the smoke, (3) the institution of a continuing survey of water and vegetation to locate concentrations of arsenic trioxide. With regard to (1), the Consolidated Mining and Smelting Co., had adopted the impinger method of extraction, whereas Giant Yellowknife Mines Limited had decided to install the Cottrell system. Owing to certain circumstances, the equipment for the Cottrell system had not yet been installed.

3. In connection with the disposal of arsenic (2), the slurry or arsenic-bearing sludge from the impinger system was at first run off into pits in the Company's old tailings pile, but, as this method was found to be unsuitable owing to seepage, this procedure was abandoned in favour of storage in a large sealed-off rock basin. This basin is surrounded with a picket fence 6' high, with a strand of barbed wire on top. When the Cottrell

system is installed at the Giant Mine, the arsenic trioxide will be in a dry state, and it is proposed to store it in underground chambers excavated in the rock.

4. Continuing survey (3). As the result of a meeting in the office of Dr. K.C. Charron, Chief, Industrial Health Division, Department of National Health and Welfare, on February 11, 1950, Consolidated Mining and Smelting Company was asked to ring the area in which the slurry was impounded with test holes and to determine at frequent intervals the arsenic content of any seepage into these holes; to set up eight points within a mile radius of the plant for testing grass and other vegetation for arsenic content; and to test Kam, Pud, Rat, and Sand lakes in the vicinity at regular intervals. The local health authorities were requested to obtain soil samples for arsenic analysis from areas in which vegetables are grown; arrange for analysis of growing and mature vegetables and wild berries; to warn the public about the arsenic hazard at appropriate times, particularly in the spring, late summer, and fall; take and analyse urine samples in order to provide some clinical assessment of the hazard. It was agreed that representatives of the Department of Resources and Development would collect water samples during the summer from lakes around the circumference of the contaminated area and that representatives of the Industrial Health Division of the Department of National Health and Welfare would visit Yellowknife from time to time to consult local health authorities on control measures.

5. Analyses of snow samples and observations made by the inspection service of the Department of Resources and Development last winter indicated that heavy concentrations of arsenic existed in the snow in the Yellowknife area, particularly at the north end of Latham Island. A wireless message was, therefore, sent to the local Medical Health Officer on April 14, 1951, advising him to warn the people in and around Yellowknife that certain precautions should be taken during the spring run-off period. This was done by the insertion of a prominent advertisement which appeared in two issues of the local paper, the News of the North, and posting of signs throughout the district. The Indian Agent at Yellowknife was also informed of the dangerous conditions prevailing and he in turn warned the local Indian Chief. In spite of these precautions certain Indians living on the north end of Latham Island used the water in the vicinity, with the result that a number of them had to be given hospital treatment and one died.

6. The Chairman read the recent correspondence concerning the death of the Indian child, Frank Abel, including a wireless message received from Dr. O.L. Stanton, reading as follows:

"JURY VERDICT QUOTE DIED OF ACUTE GASTROENTERITIS CAUSED BY ARSENICAL POISONING ADMINISTERED BY UNKNOWN MEANS EVIDENCE INDICATED PRESENCE OF ARSENIC IN AREA OF CHILDS HOME AT TIME BECAME ILL UNQUOTE STOP ALL SNOW HAS NOW MELTED NO POOLS OR RUNOFF WATER FROM NOW ON STOP LAKE WATER TESTS CONSISTENTLY LOW STOP I CONSIDER ALL DANGER PAST."

7. The Chairman then asked Mr. Muir to give an explanation of the delay which had occurred in the installation of Cottrell equipment at the Giant Mine. Mr. Muir said that when it was decided in January of 1950 that the mining companies might continue roasting operations, if suitable precautions were taken to curb the emission of arsenic fumes, his Company had ordered arsenic collection equipment to be delivered in the summer of 1950. It was not delivered, however, until after freeze-up in that year. The steel framework required for the building of the Cottrell plant was ordered from the Manitoba Steel Company in Winnipeg, but, owing to the Winnipeg flood in the spring of 1950 and the general rail strike, fabrication of the material was delayed for 10 weeks. The last portion of this equipment was freighted across the ice on Great Slave Lake early in May, 1951. With the arrival of the steel, the erection of the Cottrell

plant was commenced in an effort to ensure operation of the unit this summer. Mr. Muir described the proposed method of disposing of arsenic trioxide underground in permafrost. He also said that his Company would arrange a settlement for the death of the Indian child with the Director of Indian Affairs, through the local Indian agent.

8. It was the consensus of the meeting that the method of disposal contemplated by the Company would be satisfactory.

9. During the discussion which followed, concern was expressed by the representatives of the Department of National Health and Welfare at the heavy concentrations of arsenic in the Yellowknife area, particularly in Pud, Rat, and Kam lakes. Mr. Christie pointed out that seepage from the disposal areas of impregnated slurry was responsible for these concentrations. It was suggested that this matter be given further attention to avoid trouble in the future.

10. In view of the fact that the heavy concentrations of arsenic trioxide would probably exist for some time, the opinion was expressed that precautions for the protection of public health should be intensified. It was decided, therefore, that: -

- (1) More clinical examinations should be made to ascertain the effect of the ingestion of small amounts of arsenic by Yellowknife residents.
- (2) A regular check should be made of any persons settling near Kam Lake or any other badly contaminated body of water.
- (3) More water, vegetation, and soil samples should be taken in order to ascertain the areas in which the arsenic trioxide concentrations are heavy.
- (4) Warning signs should be erected in areas where the concentration was found by analysis to be above the tolerance, that is above 0.05 mgs., arsenic per litre, and in any other places where it is known that contamination exists.
- (5) Mr. Lundman, operating engineer of the water system, should be asked to take water samples at various points off shore from the water intake of the Yellowknife water supply.

11. The Chairman promised that the mining companies and the local authorities would be informed of the decisions reached at this meeting, and that all those interested would be kept posted on the results of the continuing survey. He thanked those present for their attendance and expressed his appreciation particularly of the co-operation received from all Departments in dealing with this very difficult problem.

12. Since the meeting was held, the Secretary of Giant Yellowknife Gold Mines Limited, has forwarded five photographs showing the progress being made in the erection of the Cottrell plant at the mine.

J.W.K. Lock.