THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA, LIMITED

CABLE ADDRESS
"COMINCO"

Sullivan Concentrator,
Chapman Camp, B. C.

October 16, 1951.

Dr. Kingsley Kay,
Chief, Industrial Hygiene Laboratories,
Dept. of Health & Welfare,
200 Kent St.,
Ottawa, Ont.

Dear Dr. Kay:

Herewith is a copy of a memo and mine drawings to Mr. Jewitt concerning our investigation into the source of arsenic bearing water in the mine.

Our investigations indicate the probable source of this water to be in the area which was flooded during the early impinger work. As indicated in the memo, all excess water will be diverted from this area and sumps, etc., have been made water-tight. We expect that these measures will cure the condition or at least hold it to a minimum.

I have to report that test holes have been placed to determine any seepage from the permanent storage basin. There is no evidence of seepage and samples taken from two holes in which there was some water on Sept. 18 show only the normal 2 mgs/L As. At this time the other holes were dry. This figure of 2 mgs As/L seems to be the normal for any water taken in the areas immediately adjacent to the plant. This is due of course to residual air-borne deposits which are subject to solution by rain and ground solutions.

Yours truly,

K. Raht/mrw
cc: W.G.Jewitt
H.C.Giegerich
G.E.B.Sinclair
O.L.Stanton, M.D.

FORM 395—44M MAY '50 T.T. 1864

(FOR USE WITHIN THE COMPANY ONLY)

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA, LIMITED

MEMORANDUM

To Mr. W. G. Jewitt, Manager of Mines, Trail, B. C. Date October 16, 1951

(USE TITLE IF POSSIBLE)

From K. Raht File No.

(USE TITLE IF POSSIBLE)

Subject Arsenic Disposal and Storage, Con Mine Ref.

Some time ago it was discovered that certain mine waters in that section of the mine situated directly below the roaster building contained appreciable amounts of arsenic. The volume of contaminating water is small and is of no particular concern so far as working conditions are concerned. A thorough investigation has been made to determine the source of this contamination. Details are given below.

Mine water is not used in any of the mining operations and all water for drilling and for drinking is taken from the surface domestic supply.

All mine water is ditched to sumps and pumped to surface as a waste water.

In dealing with the small amount of contaminated water, this can be taken out of the ditches and piped directly to the waste sumps. The contaminated water has the effect of raising the arsenic tenor of total mine water pumped to surface to about 10 mgs. per litre. Normal mine water has an arsenic tenor varying from, say, about .3 mgs/l. to one or two mgs/l.

I am attachine hereto plans of the affected areas on the 125, 250 and 375 levels. Sample positions are marked and assays recorded in tabular form on each sheet. The following excerpt from a letter dated August 31, 1951 from C. E. White, Superintendent of the Con property, is explanatory.

"An original sample from the ditch in C 125 station showed only 0.25 mg/litre of arsenic so this level was temporarily set aside while the 250 level was studied. It now appears that a very small amount of water is being made in C 106 DS and C 107 XCE which has about 30 mg/litre arsenic. This water is finding its way directly down to the 250 level through DDC 101 which intersects C 205 G stope where sample 21 indicated 51.0 mg/litre, and through C 203 H stope where no flow large enough to sample has been detected on the 250 level.

" Samples 29, 30 and 31 are not of individual inflows of water but were dipped from the large puddle that has formed behind a dam at C 105 DS".

Of the samples taken for the purpose of this investigation Nos. 3 and 8 as noted on the accompanying mine plans, are of primary interest. These samples are representative of the total flow of contaminated water from the 250 and 375 levels. The volume represented by sample No. 3 is about .6 g.p.ms. and the volume represented by sample No. 8 is about 1 g.p.m.

Investigation has disclosed that the source of contamination is probably from spills of arsenic material around the roaster building. During the period

Cont'd. . . . . .

Signed

FORM 395—44M MAY '50 T.T. 1884 (FOR USE WITHIN THE COMPANY ONLY)

THE CONSOLIDATED MINING AND SMELTING COMPANY OF CANADA, LIMITED

MEMORANDUM

To Mr. W.G.J. Date Oct. 16, 1951
(USE TITLE IF POSSIBLE)

From K.R. File No.
(USE TITLE IF POSSIBLE)

Subject Ref.

2. . .

of experimental impinger operation a large amount of arsenical slurry was spilled in this area and the area has since been subject to constant flooding by waste water from roaster cooling and by filtrate from calcine washing. As a corrective procedure all excess water will be diverted from the area and sumps, floors, etc. in the impinger building have been checked for leaks and made water-tight. These measures should prove effective.

In order to determine the total weight of arsenic in solution and consequently the weight of arsenic to Pud Lake the volume and arsenic content of mine water was determined as follows:

	Flow	Mgs As/L	# As/Day
125 level ditch	No flow	.25	--
250 " sump	1 g.p.m.	49.00	.7
250 " " , flow from east workings	25 g.p.m.	.35	.13
Lbs. As to surface from 250 level pumping			.83
375 level ditch	.6 g.p.m.	17.40	.15
500 " main sump. All water from lower levels	175 g.p.m.	6.0	15.10
Lbs. As to surface from 500 level pumping			15.25

Total Lbs. As to surface .83 + 15.25 = 16.08.

This amount of arsenic will not constitute a significant increase to the general arsenic hazard on surface. In this regard it should be noted that the amount of arsenic discharged to atmosphere with the impinger operating at 98% efficiency is in the order of 130 lbs. per day.

The matter of contaminated waters entering the mine is being watched very carefully and you will be informed of any change in the situation.

K. Raht/mrw
Enc.
cc: Dr. K. Kay, Ottawa
G.E.B. Sinclair, Ottawa.

Signed K Raht