

Mr. J. Scott,
Mining Coordinator,
Abatement & Compliance Branch,
Place Vincent Massey, 13th Floor,
Hull, Quebec

D. Cohen, Head,
Residue Management Unit,
Wastewater Technology Centre

SECURITY-CLASSIFICATION - DE SÉCURITÉ

OUR FILE - N/RÉFÉRENCE

Proj. 053

YOUR FILE - V/RÉFÉRENCE

DATE

14 July, 1977

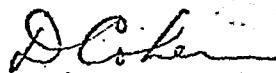
SUBJECT
OBJET

GIANT YELLOWKNIFE SLUDGE ANALYSIS

As a followup to my memo of July 12, 1977, concerning the bench scale sludge dewatering tests, I am enclosing a table which summarizes the cyanide and metals analysis (wet and dry basis) of the carbon plant barren sludges with and without lime addition. On a dry weight basis, the total arsenic contents of these two sludges are virtually identical but the As fraction remaining in the residue of the CPB + Lime sludge exceeds 99% compared to only 87.6% without lime. Similarly, lime addition reduces cyanide in the filtrate from 100% of total CN in CPB only to 80% in CPB + Lime, and copper in the filtrate is reduced from 88% of total Cu in the former to 56% in the latter sludge. All other metals analysed (Ca, Cd, Pb, Ni, Zn, Fe) are not significantly affected by lime addition.

Dr. H. Erkkku will report to you separately concerning the economic implications of lime enhanced As, CN and Cu removals as they relate to subsequent pollution abatement of the filtrate recycle stream.

This information completes the work of Residue Management staff in this aspect of the GYK project.



D. Cohen, Head,
Residue Management Unit,
Wastewater Technology Centre

DC/md

cc: J. Schmidt.
N. Schmidtke
H. Erkkku
H. Campbell

Attach/1

GYK - CARBON PLANT BARREN SLUDGES (WITH AND WITHOUT LIME)

CYANIDE AND METALS ANALYSIS

(mg/l wet basis - mg/kg dry weight basis)

CONSTITUENT	UNIT	CPB		CPB + LIME		FRACTION IN RESIDUE (%)	
		Total (Susp. + Dissolved)	Filtered (Dissolved)	Total (Susp. + Dissolved)	Filtered (Dissolved)	CPB	CPB + LIME
Total Solids	g/l g/kg	591.5 1000	16.0 -	451.7 1000	10.0 -	97.3 -	97.8 -
Cn ⁻	mg/l mg/kg	700 1183	700 -	690 1528	550 -	0 -	20.0 -
As	mg/l mg/kg	20,900 35,334	2600 -	15,900 35,200	126 -	87.6 -	99.2 -
Fe	mg/l mg/kg	128,400 217,075	90 -	74,100 164,047	12 -	99.9 -	99.9 -
Cu	mg/l mg/kg	900 1522	795 -	760 1683	425 -	11.7 -	44.1 -
Zn	mg/l mg/kg	1450 2451	1.9 -	1090 2413	0.4 -	99.9 -	99.9 -
Ni	mg/l mg/kg	232 392	40 -	156 345	24 -	82.8 -	84.6 -
Pb	mg/l mg/kg	1741 2943	1.6 -	1268 2807	<0.02 -	99.9 -	99.9 -
Cd	mg/l mg/kg	1.12 1.89	<0.02 -	1.10 2.43	<0.02 -	99.9 -	99.9 -
Ca	mg/l mg/kg	17,406 29,427	412 -	17,347 38,403	500 -	97.6 -	97.1 -