

IMPERIAL SMELTING PROCESSES LIMITED

6 ST. JAMES'S SQUARE.

LONDON. S. W. 1.

ENGLAND.

TELEPHONE: WHITEHALL 2399

TELEGRAPHIC ADDRESS:

PROCESISCO LONDON

TELEX NO. 24639

M. J. FREEMAN (CHAIRMAN)
S. W. E. MOROAN (MANAGING DIRECTOR)
A. A. CLARK R. W. A. REHARD
D. A. TENFLE E. L. THOMPSON
S. E. WOODS

PLEASE REPLY TO:

ST. ANDREW'S ROAD

AVONMOUTH

TELEPHONE: AVONMOUTH 2031

TELEGRAPHIC ADDRESS:

PROCESISCO AVONMOUTH

TELEX NO. 44286

015435

of
FILE

Vangorda
37

28th April, 1966.

Mr. J.H. Stovel,
Executive Vice President,
Kerr-Addison Mines Ltd.,
44 King St. West,
Toronto,
CANADA.

Dear Mr. Stovel,

IMPERIAL SMELTING PROCESS
VANGORDA CREEK

We wish to confirm having cabled you as follows:-

"Re Imperial Smelting Process our preliminary assessment shows standard 185 sq. ft. I.S.F. capable of treating 178100 tons Vangorda Bulk concentrate per year producing 45300 tons slab zinc and 40500 saleable lead in bullion. Recovery of zinc approx. 89.6%, lead 94.6%, silver 93.5%. All weights tons of 2000 lb. All figures subject to confirmation. Letter will follow in few days."

Regards, Temple Processisco

During my visit to Toronto we undertook to prepare a preliminary metallurgical assessment of the Imperial Smelting Process treating the Vangorda materials. Please find enclosed three copies of the summary of this assessment, Calculation 643. You will see that we have assumed the use of a standard size (185 sq. ft. shaft area) Imperial Smelting Furnace as at Swansea, Cooke Creek, Noyelles-Godault and Duisburg etc. As you are aware we are building a larger size furnace at our Avonmouth Works which will treat approximately

IMPERIAL SMELTING PROCESSES LIMITED

Mr. J.H. Stovel

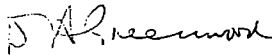
28th April, 1966.

60% more materials with a proportional increase in zinc and lead output. Once you have this metallurgical information we will be very pleased to provide any further data on the process, i.e. sintering, capital costs of equipment and perhaps if you would kindly let us know what additional information you require we will be very pleased to send it to you.

I hope that it will be possible for you or one of your colleagues to come over and see us some time in the not-too-distant future.

With kind regards,

Yours sincerely,



for D.A. TEMPLE
CHIEF METALLURGIST

11/DAT/DAG/VC

Enc. 3 Copies Summary of Calculation 643

IMPERIAL SMELTING PROCESSES LIMITED

PRELIMINARY ASSESSMENT FOR VANGORDA CREEK

Summary of Calculation 643

Analyses of Raw Materials

	Bulk Concentrate	Lime-stone	Hard Burnt Lime	Sand	Coke & Coke Ash	Coke ash as % Fixed C
Zn	28					
Pb	24					
Fe	12					
Fe as FeO	15.44	0.5	0.5	1.0		1.04
CaO	-	54	94	0.5		0.62
SiO ₂	4.5	2	2	97.0		5.20
Al ₂ O ₃	(Say) 1.0	(Say) 0.5	1	0.5		4.14
Others	(Say) 1.0	(Say) 0.5	1	0.5		0.36
S	28					
Cu	0.85					
Ag (oz/st)	7.5					
Au (oz/st)	0.09					
Fixed C					87	
Ash					11	

Main Performance Factors

	<u>Economic</u>	<u>Design</u>
Carbon burnt per day (short tons)	145.6	168
Days operation per year	315	320
Zinc in slag	6%	6%
Zinc in dross and blue powder (as % C)	15%	17%
Lead in dross and blue powder (as % C)	17	15
I.S.P. Carbon Estimation	72.5%	67.5%

SUMMARY OF ANNUAL PERFORMANCE

(All weights in short tons - rounded off)

	Annual Performance		Standard 185 sq.ft. ISF	
	Economic		Design	
Carbon in hot coke burnt in I.S.F.	45860		53750	
Concentrate used	178100		223200	
New zinc	49900		62500	
New lead	42700		53600	
New copper	1500		1900	
New silver	1,335,500 oz.		1,673,800 oz.	
New gold	16000 oz.		20100	
New sulphur	49900		62500	
Limestone	25200		31500	
Sand	Nil		Nil	
Sinter to I.S.F. (approx.)	187900		237300	
Hard burnt Lime (to ISF)	1500		1600	
Slab zinc (1.2% Pb)	45300		56800	
Lead bullion	43400		55700	
Total Lead in bullion	41300		53100	
Lead addition to condenser	800		2300	
Net lead in bullion	40500		50800	
Copper in bullion	1200		1500	
Silver in bullion	1,249,400 oz.		1,566,300 oz.	
Reject Slag	65900		81800	
<u>DISTRIBUTION OF NEW METALS</u>	<u>Zinc</u>	<u>Lead</u>	<u>Zinc</u>	<u>Lead</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Slab zinc	89.7	1.3	89.8	1.3
Net lead in bullion	-	94.7	-	94.8
Slag	7.9	1.	7.9	1.
I.S.F. loss	1.4	1.1	1.3	1.0
Sintering loss	1.0	1.8	1.0	1.8
Total	100.0	100.0	100.0	100.0
<u>ANALYSES</u>	<u>Sinter</u>	<u>Slag</u>	<u>Sinter</u>	<u>Slag</u>
		<u>(on zinc-</u>		<u>free basis)</u>
	<u>%</u>	<u>%</u>	<u>%</u>	<u>%</u>
Zn	29.9	-	29.9	-
Pb	25.4	-	25.6	-
FeO	14.7	46.1	14.6	46.5
CaO	7.3	25.1	7.2	25.0
SiO ₂	4.5	17.9	4.5	17.8
Al ₂ O ₃	1.0	6.3	1.0	6.1