

KER. ADDISON MINES LIMITED

020762

(FOR INTER-OFFICE USE ONLY)

To W. Sirola From J. K. Carrington

Subject Tonnage Factors for Grum Ore Date January 18, 1977.

I have gone through the data we have and suggest we use the following tonnage factors for Grum ores:

	<u>S.G.</u>	<u>T.F.</u>
Massive Sulphides	4.1	0.24 m ³ /tonne
Quartz Sulphides	3.1	0.32 m ³ /tonne

Attached are data sheets showing PbS, ZnS, FeS₂ and total sulphides and S.G. for each sample. The sulphide contents were calculated by dividing the Pb, Zn, and Fe assays by 0.866, 0.67 and 0.466 respectively. I also included the fourteen (14) samples Dave Carson and Jim Paxton took in November. Assay details for each are in the metallurgical report I left you when I was out last. We are assuming all the Pb, Zn and Fe are in sulphide form and no other sulphides are present which is an approximation at best.

All values were plotted on the accompanying Total Sulphide vs. S.G. graph. There is a well defined slightly curvilinear relation as we suspected. But as it stands this is of no practical use as we normally only have Pb and Zn values. By and large the quartz sulphides have a total sulphide content less than 55% and the massive sulphides have one greater than 55%. Based on the graph I have used 55% TS to differentiate between quartz and massive sulphides. There are seven (7) anomalous points on the graph, presumably due to barite. By the same token some barite samples fit quite well. I have included these anomalous values in the averages as they are bound to crop up in reality. (They hardly affect the averages anyway.) The results are as follows:

KER. ADDISON MINES LIM. ED

(FOR INTER-OFFICE USE ONLY)

To.....From.....

Subject.....Page Two.....Date.....

Massive Sulphides, TS \geq 55%

n = 48, avg. S.G. = 4.10
(n = 44, avg. S.F. = 4.07 excludes 4
anomalous values)

Quartz Sulphides, TS $<$ 55%

n = 26, avg. S.G. = 3.18
(n = 23, avg. S.G. = 3.06 excludes 3
anomalous values)

The corresponding tonnage factors are:

MS: $1000/62.4 \times 16.02 \times 4.1 = 0.24 \text{ m}^3/\text{tonne}$

PS: $1000/62.4 \times 16.02 \times 3.1 = 0.32 \text{ m}^3/\text{tonne}$

(Interestingly enough, as $62.4 \times 16.02 = 999.6$ the T.F. can be directly determined by dividing 1.0 by the S.G.)

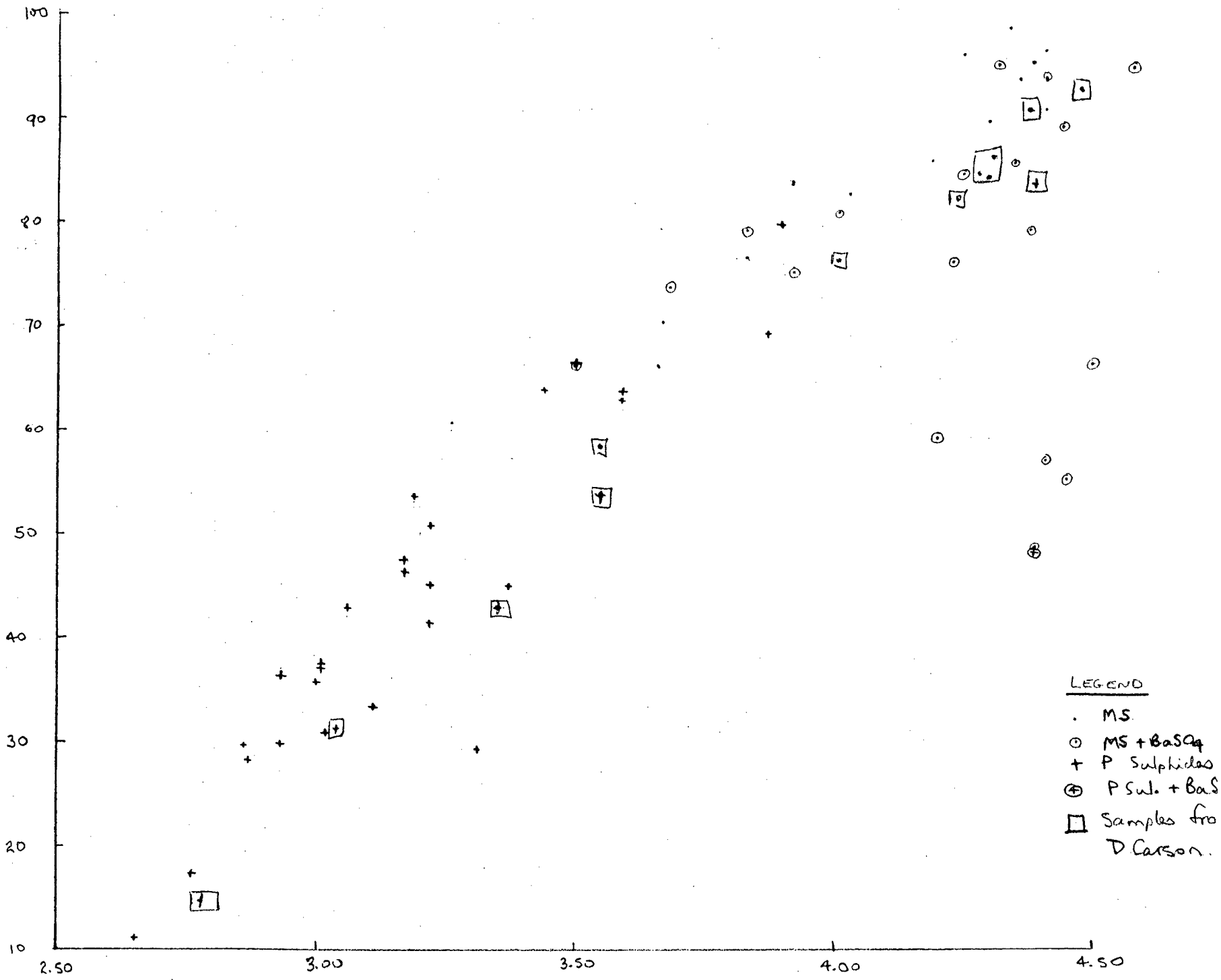
You will see there are some classification errors based on estimated versus ^{actual} total sulphide content. However, generally, these are not too great and I suggest using 55% TS to distinguish between the two classes.

*J.P. Summary Sheet

J. K. Carrington.

:ced

Total % Sulphides.



LEGEND

- MS
- ⊙ MS + BaSO₄
- + P Sulphides
- ⊕ P Sul. + BaS
- Samples from D. Carson.

S.G.

Sample No.	PbS	ZnS	FeS ₂	Stal Sulphides	S.G.	Geol Desig.	Ba
62C	0.53	0.13	94.74	95.40	4.39	M	
67	6.28	16.46	34.29	57.03	4.41	MB	✓
70	2.60	3.60	83.63	89.83	4.44	MBb	✓
75	7.27	13.78	38.22	59.27	4.20	MB	✓
76	0.62	1.00	93.50	95.12	4.32	mb	✓
79	0.22	0.09	82.25	82.56	4.03	M	
80	0.13	0.10	76.33	76.56	3.83	M	
81	0.75	0.46	89.64	90.85	4.41	M	
84	4.98	6.66	78.03	89.67	4.30	M	
85	4.46	1.07	80.26	85.79	4.35	MB	✓
86	1.12	1.19	91.39	93.70	4.36	M	
64C	7.60	12.46	65.86	85.92	4.19	M/Q	
166	9.16	16.27	40.97	66.40	4.50	MB	✓
168	7.14	16.42	55.56	79.12	3.83	MB	✓
73	15.66	21.78	46.07	83.51	3.92	M	
177	3.39	5.33	87.38	96.10	4.25	MB	
183	3.04	7.34	64.70	75.08	3.92	mb	✓
187	4.67	14.91	61.39	80.97	4.01	MB	✓
190	0.61	6.03	69.51	76.15	4.23	MBb	✓
191	2.81	8.48	68.05	79.34	4.38	MB	✓
192	0.65	6.96	47.73	55.34	4.45	MB	✓
193	2.81	1.70	80.21	84.72	4.25	MB	✓
161C	11.93	14.57	34.14	60.64	3.26	MB	
163	14.65	25.91	55.92	96.48	4.41	MB	
165	16.91	39.96	41.76	98.63	4.34	MB	
169	9.94	30.27	26.09	66.30	3.50	mb	✓
171	13.20	39.91	20.54	73.65	3.68	mb	✓
72	10.55	18.75	64.57	93.87	4.41	MBb	✓
174	8.93	13.21	43.93	66.07	3.66	M	
178	9.03	14.81	24.91	48.75	4.39	mb	✓
188	6.10	7.90	79.70	93.70	4.41	MB	
189	12.94	27.40	30.11	70.45	3.67	MB	
194	7.46	7.72	79.74	94.92	4.58	mb	✓

$$PbS = \frac{Pb}{.866}$$

$$ZnS = \frac{Zn}{.68}$$

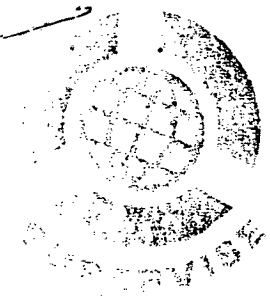
$$FeS_2 = \frac{Fe}{.466}$$

Sample No	PbS	ZnS	FeS ₂	Total Sulphide	S.G.	Geol. Desig. Ba
182C	1.00	4.31	58.13	63.44*	3.44 ✓	P
197	1.74	1.61	24.70	28.05	2.87	P _G
200	1.70	0.88	8.56	11.14	2.65	P
382	3.07	5.18	21.27	29.52	2.86	P _G
387	3.22	7.75	52.60	63.57*	3.59 ✓	P
388	1.33	3.42	24.59	29.34	3.31	P _G
391	0.33	5.19	32.02	37.54	3.01	P
392	0.13	0.28	29.38	29.79	2.93	P _G
394	2.15	6.66	60.49	69.30*	3.87 ✓	P
196	2.85	2.37	61.18	66.40*	3.50 ✓	P
199C	3.30	7.60	6.35	17.25	2.76	P-S ₆
385	1.74	4.84	28.99	35.57	3.00	P _G
391	3.61	12.06	21.33	37.00	3.01	P _G
384	7.22	11.60	31.91	50.73	3.22	P _G
386	3.68	5.22	36.01	44.91	3.37	P _G
389	11.15	10.34	23.54	45.03	3.22	P
390	8.49	5.90	16.52	30.91	3.02	P
393	2.33	5.90	54.68	62.91*	3.59 ✓	P
400	2.85	8.88	29.68	41.41	3.22	P
PSC	9.93	21.03	16.57	47.53	3.17	P
198	8.11	19.84	14.79	42.74	3.06	P
380	3.01	12.78	20.43	36.22	2.93	P _G
383	4.47	13.18	28.63	46.28	3.17	P _G
396	3.15	10.31	34.79	48.25	4.39 -	P _G ✓
397	2.29	9.04	21.87	33.20	3.11	P
398	8.86	19.04	51.70	79.60*	3.90 ✓	P _G
399	6.63	24.57	22.36	53.56	3.19	P

Carson Samples

Sample No.	PbS	ZnS	FeS ₂	TS	SG	Geo/Desc.
1	7.97	21.49	63.09	92.55	4.48	M
2	7.51	28.21	22.32	58.04	3.55	M
3	11.43	23.88	55.52	90.89	4.38	M
4	10.39	23.43	50.64	84.45	4.30	M
5	9.24	17.91	59.66	86.81	4.31	M
6	10.39	22.84	48.93	82.16	4.24	M
7	9.35	17.91	57.30	84.56	4.28	M
8	9.82	21.79	44.64	76.25	4.01	M
9	10.51	24.33	34.33	83.83	3.92	M
10	1.73	4.78	8.15	14.66	2.78	P ✓
11	3.81	9.85	17.60	31.26	3.04	P ✓
12	5.54	13.43	23.82	42.79	3.35	P ✓
13	3.23	6.72	43.56	53.51	3.55	P ✓
14	9.93	8.66	66.31	83.90	4.39	M

* See Mattagami Met. Report for detailed assays etc.



GENERAL TESTING LABORATORIES

MINION SUPERINTENDENCE COMPANY (CANADA) LTD.

1001 EAST PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
PHONE (604) 254-1647 TELEX 04-507514 CABLE SUPERVISE

TO:

KERR ADDISON MINES
 Ste. 703 - 1112 West Pender St.,
 Vancouver, B.C.
 V6E 2S1

CERTIFICATE OF ASSAY

No.: **7611-1751** DATE: **Nov. 30/76**

We hereby certify that the following are the results of assays on: **DDC**

MARKED	GOLD & SILVER		Specific Gravity S.G.	XXX	XXX	XXX	XXX	XXX
	OZ/ST GR/MT	OZ/ST GR/MT						
162 - C			4.398					
167			4.405					
170			4.443					
175			4.201					
176			4.318					
179			4.033					
180			3.831					
181			4.410					
184			4.300					
185			4.350					
186			4.360					
164			4.185					
166			4.504					
168			3.827					
173			3.924					
177			4.245					
183			3.915					
187			4.008					
190			4.227					
191			4.377					
192			4.447					
193			4.245					
161			3.256					
163			4.407					
165			4.337					
169			3.498					
171			3.675					
172			4.411					
174			3.661					
178			4.389					
188			4.413					
189			3.671					
194 - C			4.583					

/ Continued on next page

NOTE: REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

ALL REPORTS ARE THE CONFIDENTIAL PROPERTY OF CLIENTS. PUBLICATION OF STATEMENTS, CONCLUSION OR EXTRACTS FROM OR REGARDING OUR REPORTS IS NOT PERMITTED WITHOUT OUR WRITTEN APPROVAL. ANY LIABILITY ATTACHED THERETO IS LIMITED TO THE FEE CHARGED.

L. W. H. C. PROVINCIAL ASSAYER

COPY

Analytical and Consulting Chemists, Bulk Cargo Specialists, Surveyors, Inspectors, Samplers, Weighers

MEMBER: American Society For Testing Materials • The American Oil Chemists' Society • Canadian Testing Association
 REFEREE AND/OR OFFICIAL CHEMISTS FOR Vancouver Merchants Exchange • National Institute Of Oilseed Products • The American Oil Chemists' Society

GENERAL TESTING LABORATORIES

SIGN SUPERINTENDENCE COMPANY (CANADA) LTD.

1001 EAST PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
 PHONE (604) 254-1647 TELEX 04-507514 CABLE SUPERVISE

TO:
KERR ADDISON MINES
 Ste. 703 - 1112 West Pender Street
 Vancouver, B.C.
 V6E 2S1

(Continued) ... page 2 ...

CERTIFICATE OF ASSAY

No.: 7511-1751 DATE: Nov. 20/75

We hereby certify that the following are the results of assays on: **DIC**

MARKED	OZ / ST		Specific Gravity	XXX	XXX	XXX	XXX	XXXX
	GR / MT	GR / MT						
			3.0.					
182 - C			3.112					
197			2.872					
200			2.619					
382			2.858					
387			3.589					
388			3.313					
391			3.006					
392			2.927					
394			3.870					
196			3.499					
199			2.756					
385			3.002					
381			3.008					
384			3.221					
386			3.366					
389			3.216					
390			3.016					
393			3.594					
400			3.224					
195			3.169					
198			3.061					
380			2.928					
353			3.174					
396			4.387					
397			3.106					
398			3.902					
399 - C			3.193					

NOTE: REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

ALL REPORTS ARE THE CONFIDENTIAL PROPERTY OF CLIENTS. PUBLICATION OF STATEMENTS, CONCLUSION OR EXTRACTS FROM OR REGARDING OUR REPORTS IS NOT PERMITTED WITHOUT OUR WRITTEN APPROVAL. ANY LIABILITY ATTACHED THERETO IS LIMITED TO THE FEE CHARGED.

[Handwritten Signature]

T. LEUNG PROVINCIAL ASSAYER

COPY

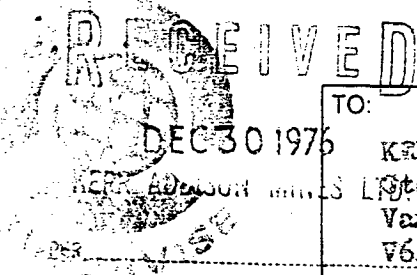
Analytical and Consulting Chemists, Bulk Cargo Specialists, Surveyors, Inspectors, Samplers, Weighers

MEMBER American Society For Testing Materials • The American Oil Chemists' Society • Canadian Testing Association
 REFEREE AND/OR OFFICIAL CHEMISTS FOR Vancouver Merchants' Exchange • National Institute Of Oilseed Products • The American Oil Chemists' Society

GENERAL TESTING LABORATORIES

SION SUPERINTENDENCE COMPANY (CANADA) LTD.

1001 EAST PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
 PHONE (604) 254-1647 TELEX 04-507514 CABLE SUPERVISE



TO: **KERR ADDISON MINES**
 Site. 703 - 1112 West Pender Street
 Vancouver, B.C.
 V6E 2B1

CERTIFICATE OF ASSAY

No: **7611-1751B**, DATE: **Dec. 10/76**

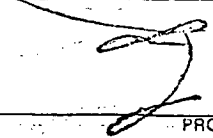
We hereby certify that the following are the results of assays on: **ADC**

MARKED	GOLD	SILVER	Lead	Zinc	Iron	XXX	XXX	XXX
	OZ/ST GR/MT	OZ/ST GR/MT	Pb (%)	Zn (%)	Fe (%)			
162 - C			0.46	0.09	44.15			
167			5.44	11.03	15.98			
170			2.25	2.41	38.97			
175			6.30	9.23	17.81			
176			0.54	0.67	43.57			
179			0.19	0.06	38.33			
180			0.11	0.07	35.57			
181			0.65	0.31	41.77			
189			4.31	4.46	36.36			
185			3.86	0.72	37.40			
186			0.97	0.80	42.59			
164			6.58	8.35	30.69			
166			7.93	10.90	19.09			
168			6.18	11.00	25.89			
173			13.56	14.59	21.47			
177			2.94	3.57	20.72			
183			2.63	4.92	30.15			
187			4.04	9.99	28.61			
190			0.53	4.04	32.39			
191			2.43	5.68	31.71			
192			0.56	4.66	22.24			
193			2.21	1.14	37.38			
161			10.33	9.76	15.91			
163			12.69	17.36	26.06			
165			14.64	26.77	19.46			
169			8.61	20.28	12.16			
171			11.43	26.74	9.57			
172			9.14	12.56	30.09			
174			7.73	8.85	20.47			
178			7.82	9.92	11.61			
188			5.28	5.29	37.14			
189			11.21	18.36	14.03			
194 - C			6.46	5.17	37.16			

/ Continued on next page...

NOTE: REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

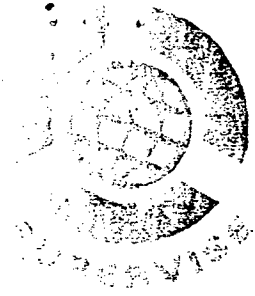
ALL REPORTS ARE THE CONFIDENTIAL PROPERTY OF CLIENTS. PUBLICATION OF STATEMENTS, CONCLUSION OR EXTRACTS FROM OR REGARDING OUR REPORTS IS NOT PERMITTED WITHOUT OUR WRITTEN APPROVAL. ANY LIABILITY ATTACHED THERETO IS LIMITED TO THE FEE CHARGED.


 L. WOOD
 PROVINCIAL ASSAYER

COPY

Analytical and Consulting Chemists, Bulk Cargo Specialists, Surveyors, Inspectors, Samplers, Weighers

MEMBER American Society For Testing Materials • The American Oil Chemists' Society • Canadian Testing Association
 REFEREE AND/OR OFFICIAL CHEMISTS FOR Vancouver Merchants Exchange • National Institute Of Oilseed Products • The American Oil Chemists' Society
 OFFICIAL WEIGHMASTERS FOR Vancouver Board Of Trade • Vancouver Merchants Exchange



GENERAL TESTING LABORATORIES

DIVISION SUPERINTENDENCE COMPANY (CANADA) LTD.

1001 EAST PENDER ST., VANCOUVER, B.C., CANADA, V6A 1W2
 PHONE (604) 254-1647 TELEX 04-507514 CABLE SUPERVISE

TO:
KERR ADDISON MINES

 (Continued) .. page 2 ...

CERTIFICATE OF ASSAY

No.: **7611-17513** DATE: **Dec. 10/76**

We hereby certify that the following are the results of assays on: **DDC**

MARKED	GOLD		Lead Pb (%)	Zinc Zn (%)	Iron Fe (%)	XXXX	XXXX	XXXX
	OZ/ST GR/MT	OZ/ST GR/MT						
182 - C			0.87	2.89	27.09			
197			1.51	1.08	11.51			
200			1.47	0.59	3.99			
382			2.66	3.47	9.91			
387			2.79	5.19	24.51			
388			1.15	2.29	11.46			
391			0.29	3.48	14.92			
392			0.11	0.19	13.69			
394			1.86	4.46	28.19			
196			2.47	1.59	28.51			
199			2.86	5.09	2.96			
385			1.51	3.24	13.51			
381			3.13	8.08	9.94			
384			6.25	7.77	14.87			
386			3.19	3.50	16.78			
389			9.66	6.93	10.97			
390			7.35	3.95	7.70			
393			2.02	3.95	25.48			
400			2.47	5.95	13.83			
195			8.60	14.09	7.72			
198			7.02	13.29	6.89			
380			2.61	8.56	9.52			
383			3.87	8.83	13.34			
396			2.73	6.91	16.21			
397			1.98	6.06	10.19			
398			7.67	12.76	24.09			
399			5.74	16.46	10.42			
395 - C			7.00	17.95	24.30			

NOTE: REJECTS RETAINED ONE MONTH. PULPS RETAINED THREE MONTHS. ON REQUEST PULPS AND REJECTS WILL BE STORED FOR A MAXIMUM OF ONE YEAR.

ALL REPORTS ARE THE CONFIDENTIAL PROPERTY OF CLIENTS. PUBLICATION OF STATEMENTS, CONCLUSION OR EXTRACTS FROM OR REGARDING OUR REPORTS IS NOT PERMITTED WITHOUT OUR WRITTEN APPROVAL. ANY LIABILITY ATTACHED THERETO IS LIMITED TO THE FEE CHARGED.

PROVINCIAL ASSAYER

L. WONG

Analytical and Consulting Chemists. Bulk Cargo Specialists, Surveyors, Inspectors, Samplers, Weighers

MEMBER American Society For Testing Materials • The American Oil Chemists' Society • Canadian Testing Association

COPY