Mt. Sicker

SIROTOPE

CSIRO
Division of Mineralogy and Geochemistry
Sydney Laboratory

Delhi Road, North Ryde
P.O. Box 136, North Ryde, NSW, Australia 2113
Intl. Phone: 61-2-887 8712, 61-2-887 8713
Telex: MINRE AA 25817

827543
92B/13

Pb Isotope Data

3/6/86

Mr Alex Davidson,
Corporation Falconbridge Copper
Fax (604) 946-5451

Dear Alex,

Following is a short report written by Judy Dean and myself on the 1st 19 samples. The Sullivan data have been added to a few analyses we already had and now give a well constrained target population.

As we noted in the report, we could take the interpretation further if we had a little more information on the samples (for example could 3623 be from basement?) and the local geology (is there any basement nearby?). In the same vein, could we have a little more information on the second batch of samples, the analyses of which are almost complete. Are they prospects and/or targets? Under which guidelines do you want them done?

Sorry for sounding so demanding- I'm just trying to get the most out of the data.

Hope you are well, and give my regards to Dave.

Cheers for now,

Graham

(GRAHAM CARR)

SUMMARY REPORT:

The first 19 samples are completed and a full report will be mailed soon. The five high lead samples from Sullivan (Table 1) form, as expected, a homogeneous population with Pb iotopic ratios that are the same as galenas we have previously analysed from the Sullivan mine. The combined data form a well constrained target signature for Precambrian massive sulfide mineralization.

Samples from the Lynx and HW Mines of Westmin's Buttle Lake deposit, Vancouver Island, have been analysed (Table 2) in order to define a target isotopic signature for massive sulfide mineralization in the area, in particular for the Upper Palaeozoic Mount Sicker Group. The two highest lead samples, 3976 (from the Lynx Mine) and 3981 (from the HW Mine) have the same Pb isotope ratios within experimental error. In the absence of other high Pb samples, the target ellipses (95% confidence ellipses) presented in the data plots (Figs. 1 and 2) include all the Buttle Lake samples except for 3977 which has a Pb content of only 115 ppm.

Three of the Mount Sicker group of samples fall within these ellipses on both plots. These three samples are all from the Lenora-Tyee area and have the same isotopic ratios as the two high Pb Buttle Lake samples, despite the low Pb content of 3985 (124 ppm Pb).

The Buttle Lake target ellipses need to be constrained further by more analyses of high Pb samples from the massive mineralization. However they do fall in the same general field as Devonian Cordilleran mineralization (e.g. Howards Pass) although they plot well below the Pb evolution curves (growth curves) for massive sulfide deposits. This indicates that the source rocks had lower U/Pb and Th/U ratios than the average crust which is considered to be the source of Pb for most SEDEX orebodies.

Generally in any particular prospect or deposit the least radiogenic lead (lowest 208/204, 207/204 and 206/204 Pb ratios) is found in samples with the highest lead values. Here however the situation is reversed. The samples from Mount Sicker and Buttle Lake plot on the same linear trends with the most radiogenic samples having the highest lead contents. The trends project back to Precambrian Pb isotope values for massive sulfide mineralization (e.g. Sullivan) and sample 3623 from Mount Sicker, with a Pb content of 640 ppm, approaches this value. It appears therefor that at least two populations of Pb are present:

1. Precambrian lead with an isotopic composition similar to that of Sullivan and
2. Devonian lead representing a major mineralizing event.

The linear trend joining these two populations probably represents a mixing line, although it is possible that the intermediate low Pb samples, 3982 and 3983, contain Precambrian Pb to which has been added radiogenic lead due to the in situ decay of U. To determine the significance of this line we need more information on the nature and relationships of the samples together with an understanding of the geographic distribution of the prospects and basement rocks.

At this stage we see the ability to distinguish pyrite with probable Precambrian (3623) or mixed Pb (3982 and 3983) from rock with a Devonian signature as being important in an exploration sense as the former are unlikely to represent significant mineralization if they occur in Palaeozoic rocks.

Further analyses of high Pb samples from the Buttle Lake

massive sulfide mineralization need to be undertaken to more tightly constrain the target value. The most prospective area for Devonian mineralization of the Buttle Lake type within the Mount Sicker Group would appear to be the Lenora-Tyee area where all three ore types including the barite ore and the low Pb sample from the quartz ore (3985 with 124 ppm Pb) have the target isotopic values.

GRAHAM R. CARR

JUDITH A. DEAN

3/6/86.

Table 1:

DATA FROM THE SULLIVAN MINE, B.C.

Sample	$\frac{208\ Pb}{206\ Pb}$	$\frac{207\ Pb}{206\ Pb}$	$\frac{206\ Pb}{204\ Pb}$	$\frac{207\ Pb}{204\ Pb}$	$\frac{208\ Pb}{204\ Pb}$	Pb(ppm)
SULLIVAN-CFC						
A931 3617 MASS PBZN	2.1842	0.9357	16.499	15.439	36.037	90,300
A932 3619A HW ALT	2.1695	0.9127	16.938	15.459	36.746	73
A932 3619B HW ALT.	2.1686	0.9117	16.973	15.479	36.807	73
A933 3619 MASS SP	2.1851	0.9361	16.488	15.433	36.026	124,500
A934 3620 MASS SPH.	2.1859	0.9359	16.514	15.455	36.096	131,500
A935 3621 TOURM.	2.1909	0.9370	16.482	15.443	36.111	1,760
A936 3622 SPH-GAL.	2.1841	0.9357	16.500	15.439	36.038	465,000
SULLIVAN CSIRO GALENAS						
K955	2.1834	0.9354	16.491	15.426	36.006	
K957	2.1854	0.9358	16.504	15.444	36.068	
K958	2.1849	0.9358	16.500	15.441	36.051	
K959	2.1867	0.9363	16.502	15.451	36.085	
K960	2.1854	0.9360	16.497	15.441	36.053	

Table 2:

BUTTLE LAKE AND MOUNT SICKER LEAD ISOTOPE DATA

Sample	$\frac{208\ Pb}{206\ Pb}$	$\frac{207\ Pb}{206\ Pb}$	$\frac{206\ Pb}{204\ Pb}$	$\frac{207\ Pb}{204\ Pb}$	$\frac{208\ Pb}{204\ Pb}$	Pb(ppm)
BUTTLE LAKE						
3976 LYNX FRAG. ORE	2.0557	0.8398	18.515	15.545	38.061	9,200
3977 LYNX, FEL TUFF	2.1495	0.9103	17.007	15.480	36.556	115
3978 LYNX FELTUFF	2.0663	0.8462	18.400	15.570	38.020	495
3979 LYNX FELTUFF	2.0652	0.8472	18.375	15.568	37.949	57
3980 HW MINE, MASS PY	2.0591	0.8425	18.470	15.561	38.032	250
3981 HW MINE MASS ORE	2.0546	0.8402	18.507	15.549	38.025	505
MT SICKER						
1. 3623-MTS 8	2.1807	0.9328	16.555	15.442	36.101	640
2. 3982 A HEATHER	2.1044	0.8742	17.752	15.519	37.359	20
3. 3982 B HEATHER	2.1035	0.8737	17.749	15.507	37.335	20
4. 3983 TOM SHAFT	2.1082	0.8783	17.681	15.530	37.274	19
5. 3984 LENORA BARITE	2.0587	0.8395	18.516	15.543	38.117	16,200
6. 3985 LENORA QTZ ORE	2.0602	0.8403	18.523	15.566	38.161	124
7. 3986 LENORA CARB ORE	2.0594	0.8397	18.518	15.550	38.137	19,800
8. 3987 QC FEL TUFF	2.0680	0.8491	18.294	15.533	37.832	7

A,B denotes separate dissolutions
Sample number prefixes to Mount Sicker analyses refer to plotted points

Fig 1:

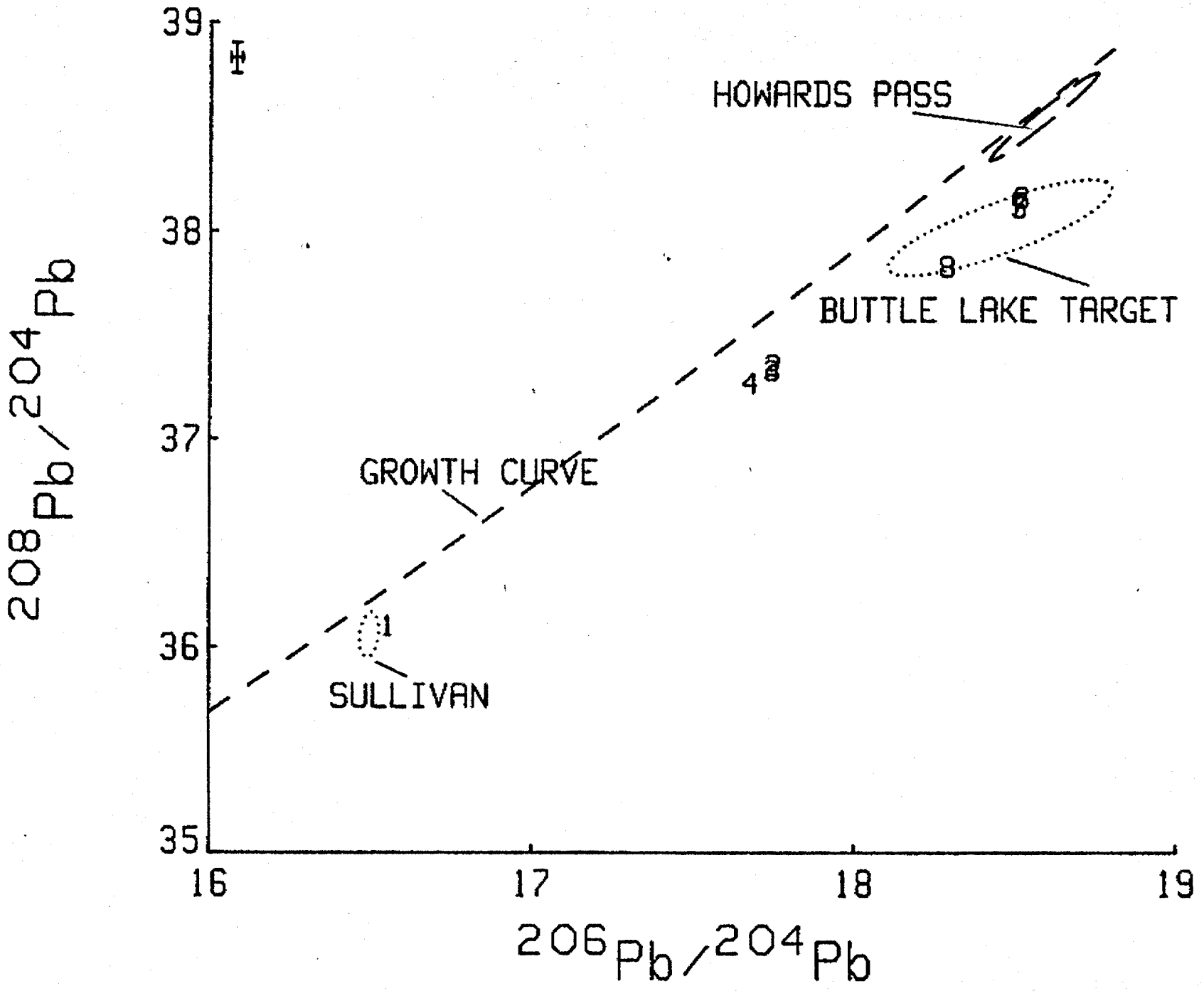
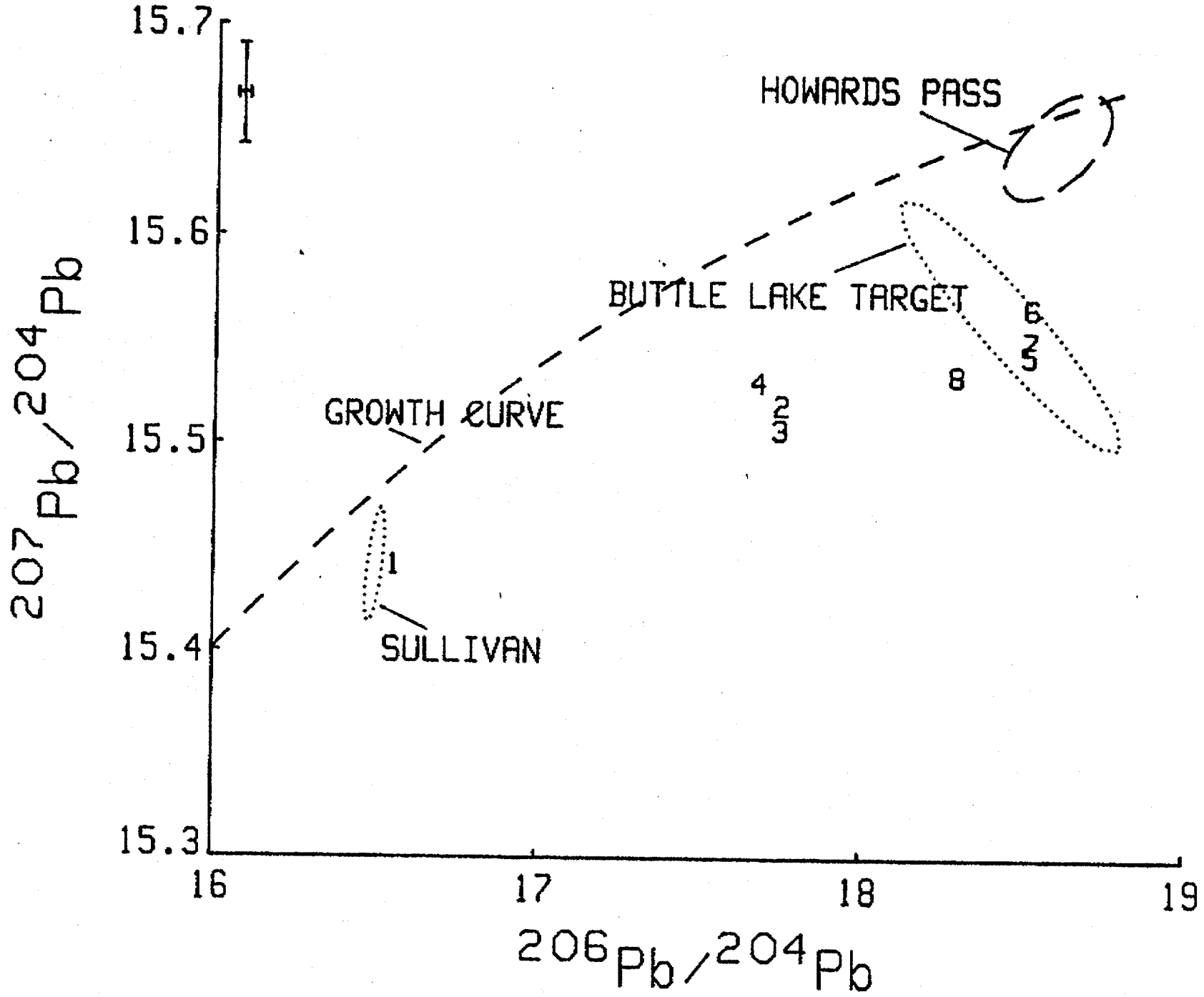

39
38
37
36
35
16
17
18
19
$^{208}Pb/^{204}Pb$
$^{206}Pb/^{204}Pb$
HOWARDS PASS
BUTTLE LAKE TARGET
GROWTH CURVE
SULLIVAN
1
4

FIG 2:


15.7
15.6
15.5
15.4
15.3
16
17
18
19
$^{207}Pb/^{204}Pb$
$^{206}Pb/^{204}Pb$
HOWARDS PASS
BUTTLE LAKE TARGET
GROWTH CURVE
SULLIVAN
1
2
3
4
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6
7
8

MIN-EN Laboratories Ltd.
Specialists in Mineral Environments
705 WEST 15th STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

PHONE: (604)980-5814 OR (604)988-4524 TELEX: 04-352828

CERTIFICATE OF ASSAY

COMPANY: CORP. FALCONBRIDGE COPPER
PROJECT:
ATTENTION: A. DAVIDSON

FILE: 6-80
DATE: FEB. 13/86.
TYPE: ROCK ASSAY

We hereby certify that the following are assay results for samples submitted.

SAMPLE NUMBER	PB %	PB PPM	
3617	9.03		SULLIVAN - MASSIVE PB-ZN ORE
3618		73	SULLIVAN - PY-CHL-Ab Hangingwall Altered.
3619	12.45		SULLIVAN - BANDED MASSIVE SULPHIDES
3620	13.15		SULLIVAN - MASSIVE SPHALERITE
3621	.18	1760	SULLIVAN - MASSIVE TOURMALINITE
3622	46.50		SULLIVAN - BANDED SPHALERITE GALENA
3623		640	MT SICKER - MTS.8 intersection
3976	.92		LYNX MINE; FRAGMENTAL ORE
3977		115	LYNX MINE; DISS PY IN FELSIC TUFFS
3978		495	LYNX MINE; DISS PY IN FELSIC TUFFS
3979		57	LYNX MINE; BANDED FELSIC TUFFS
3980		250	HW MINE; MASSIVE PYRITE ORE
3981		505	NW MINE; MASSIVE ORE
3982		20	HEATHER; PYRITE IN SERICITE SCHIST
3983		19	MT SICKER; TOM SHAFT PYRITE
3984	1.62		MT SICKER LENORA BARITE ORE
3985		124	MT SICKER LENORA QUARTZ ORE
3986	1.98		LENORA CARBONATE ORE
3987		7	MT SICKER QTZ EYE FELSIC TUFF

Certified by

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