

MINNOVA

MEMORANDUM

FILE

DATE: August 28, 1987
 A TO: A.J. Davidson
 COPIES A TO: D.H. Watkins
 DE FROM: L.D. Pirie
 SUJET SUBJECT: SAM DEPOSIT CHECK ASSAYS

Attached are comparisons of 38 samples for which check assays were carried out at Chemex. All numbers are in grams per tonne with Min-En values as MINAG and MINAU versus Chemex values CHEMAG and CHEMAU.

At both labs, Au was from fire assay with a gravimetric finish. At Chemex, Ag less than 3000 g/T is an average of fire assay/gravimetric and aqua-regia/AAS determinations. Ag greater than 3000 g/T is straight fire assay. Min-En do all their Ag assays wet using an aqua-regia/perchloric digestion, adding HF if required to break up the silicates.

As can be seen from the graphs, Min-En Ag assays average 13% higher and are up to 27% higher. This is explained in part by Chemex's use of fire assay, which loses at least 3% of the Ag (Chemex's estimate) and as much as 30% which was the case at the Equity deposit with its similar mineralogy. An additional portion of the difference may be due to the different digestion procedure.

The 7% difference in the Au numbers is less easy to explain. The procedures are the same, but the low scatter of the values suggests a calibration difference rather than a nugget effect. However, since Au content is only a minor portion of the deposit the variation is probably not significant.

John Barakso informs me that Equity Silver only found out about the problem of fire-assay Ag numbers when they started to get 110% recovery of their mill-feed grades! That spawned some controversy but little research into the problem, so it's still uncertain why the loss occurs. Most likely it is related to the antimony and/or arsenic volatility.

I believe we can rely on Min-En's numbers because of John Barakso's experience with Ag. Further research could be undertaken if desired, perhaps in conjunction with metallurgical testing. Meanwhile, the moral of this is that we should stick to Min-En if we want higher numbers!?

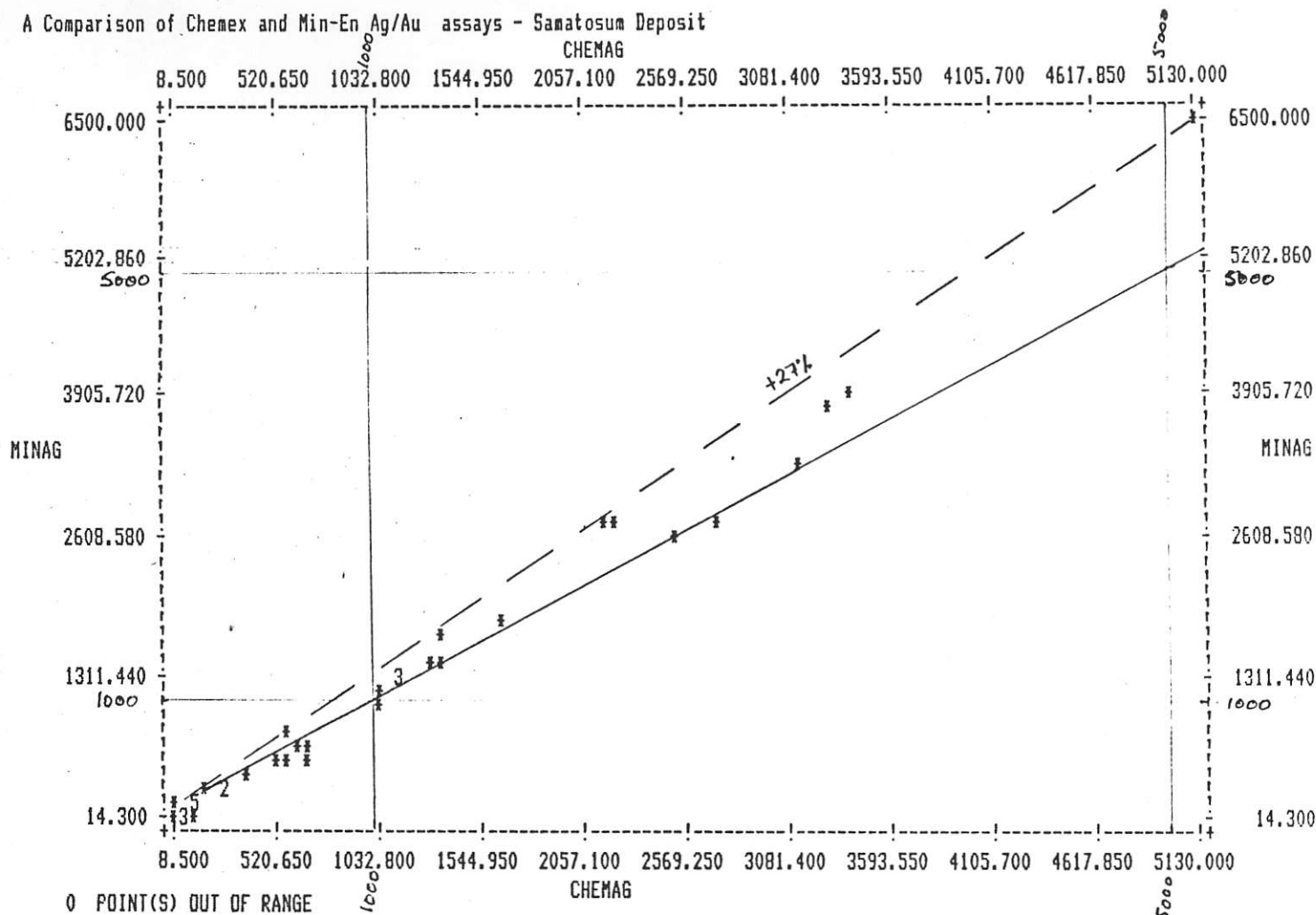
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All g/tonne

SAMPLE NO.	MINAG	CHEMAG	MINAU	CHEMAU
5170	83.	8.5	0.01	0.
5206	715.	600.	1.18	0.96
5209	590.	520.	0.58	0.34
5211	650.	660.	1.01	0.82
5281	1690.	1330.	4.62	4.19
5706	1890.	1640.	3.24	2.85
5713	84.5	90.	0.43	0.48
5719	235.	270.	0.22	0.21
5721	37.8	49.	0.09	0.14
5730	1310.	1160.	1.8	2.03
5736	3220.	3120.	3.	3.22
5755	3850.	3400.	5.7	5.66
5767	6500.	5130.	13.6	11.
5770	1410.	1340.	4.39	3.77
5782	344.	345.	0.4	0.48
5790	46.2	54.	0.2	0.21
5804	1135.	1040.	1.26	1.85
5805	2800.	2700.	3.7	3.46
5808	480.	550.	0.85	0.89
5822	313.	270.	0.64	0.59
5830	1340.	1120.	2.75	2.47
5831	1040.	1040.	1.6	1.55
5841	3820.	3310.	3.35	3.16
5843	2760.	2210.	3.7	3.19
5852	2600.	2520.	2.87	2.64
5860	36.	59.	0.3	0.21
5862	148.	132.	0.2	0.21
5863	83.	87.	0.21	0.21
5879	1320.	1160.	2.76	3.19
5893	88.2	108.	0.4	0.34
5917	220.	154.	0.74	0.34
5928	2710.	2150.	2.09	2.13
5932	520.	660.	1.04	1.17
5941	780.	550.	1.43	1.1
5948	63.2	96.	0.11	0.07
5955	1445.	1300.	1.6	1.82
5975	14.3	23.	0.01	0.07
5990	84.	97.	0.08	0.14

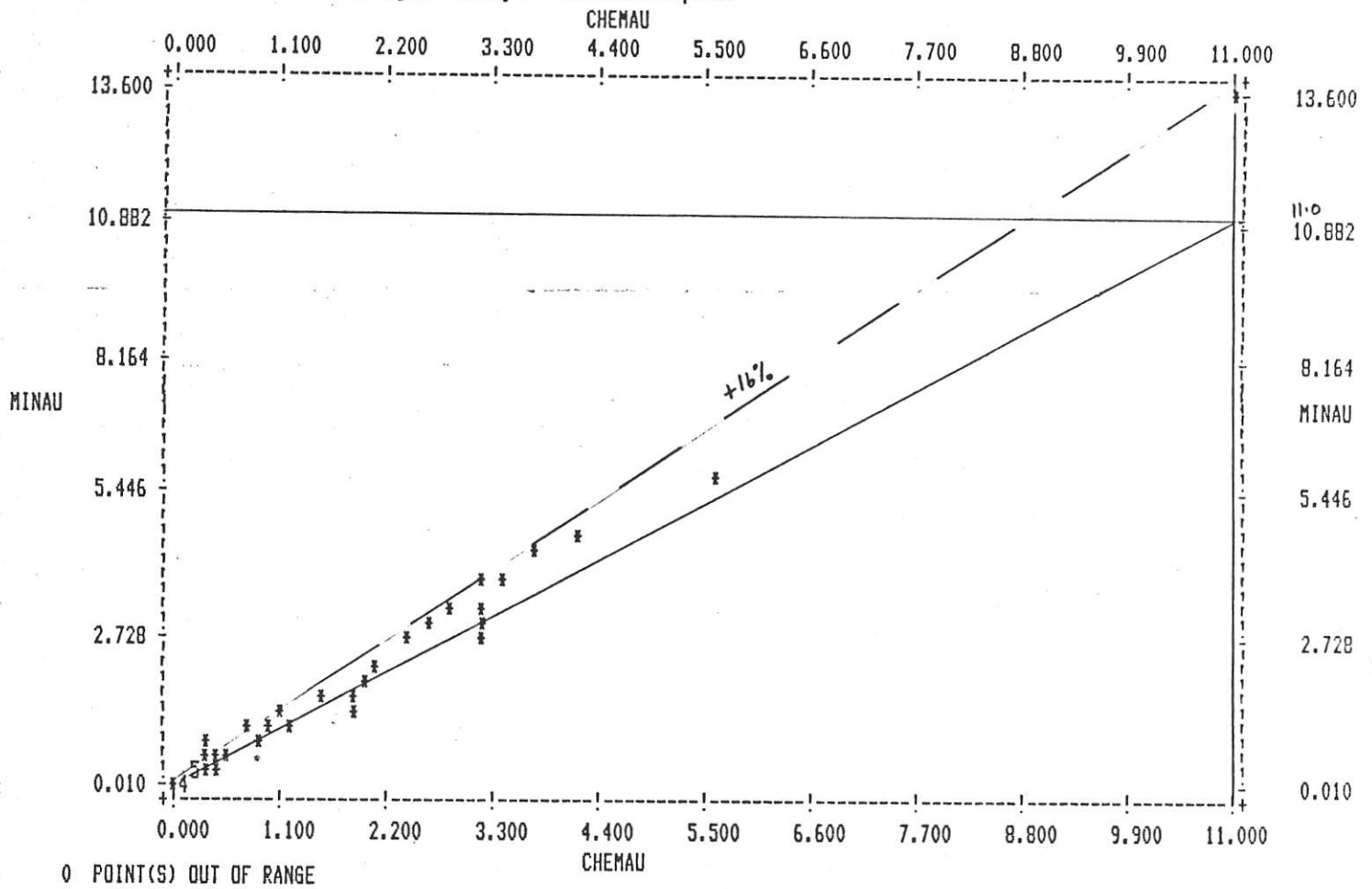
A Comparison of Chemex and Min-En Ag/Au assays - Samatosum Deposit

CHEMAG



STATISTICS FOR VARIABLES:	CHEMAG	MINAG
NUMBER OF OBSERVATIONS:	38	38
MINIMUM:	8.50	14.30
MAXIMUM:	5130.00	6500.00
MEAN:	1080.33	1222.51 (+13% _c)
STANDARD ERROR OF MEAN:	195.77	232.05
STANDARD DEVIATION:	1206.79	1430.45
COEFFICIENT OF VARIATION:	111.71	117.01
SKEWNESS:	1.41	1.64
KURTOSIS:	1.56	2.84
CORRELATION COEFFICIENT:	0.9938	

A Comparison of Chemex and Min-En Ag/Au assays - Samatosum Deposit



STATISTICS FOR VARIABLES:	CHEMAU	MINAU
NUMBER OF OBSERVATIONS:	38	38
MINIMUM:	0.00	0.01
MAXIMUM:	11.00	13.60
MEAN:	1.77	1.90 (+7%)
STANDARD ERROR OF MEAN:	0.34	0.40
STANDARD DEVIATION:	2.11	2.47
COEFFICIENT OF VARIATION:	119.18	129.92
SKEWNESS:	2.33	2.87
KURTOSIS:	7.25	10.64
CORRELATION COEFFICIENT:	0.9905	