

MINNOVA

823432

MEMORANDUM

DATE: August 28, 1987
A TO: D.H. Watkins, A.J. Davidson
COPIES A COPIES TO:
DE FROM: L.D. Pirie
SUJET SUBJECT: SAMATOSUM DEPOSIT Sb and As GRADES

FILE

Attached for your information is an updated grade and tonnage summary which includes an estimate of antimony and arsenic grades. These have been calculated using the polygonal method. None of the holes prior to RG-89 had As, Sb routinely run but an approximation of their grades could be made by consideration of nearby intersections of similar Ag grade.

The attached tables also reflect a correction made to the intercepts of RG-94 and RG-96 on the long section. They should be moved 21m southeast. The resultant change in tonnage and grade is minimal.

AS
1

• TABLE 1. Grade and tonnage summary for the methods used.

TOTAL TONNAGE - FRUSTUM FORMULA

| | TONNES | CUZ | PBZ | ZNZ | AGg/T | AUg/T |
|---------|--------|------|------|------|---------|-------|
| BLOCK A | 201930 | 1.53 | 2.20 | 5.01 | 1146.30 | 1.88 |
| BLOCK B | 376372 | 0.99 | 1.47 | 2.40 | 965.60 | 1.60 |
| TOTAL | 578302 | 1.18 | 1.73 | 3.31 | 1028.70 | 1.70 |

TOTAL TONNAGE - AVERAGE ADJACENT SECTION METHOD

| | TONNES | CUZ | PBZ | ZNZ | AGg/T | AUg/T |
|---------|--------|------|------|------|---------|-------|
| BLOCK A | 211197 | 1.67 | 2.48 | 5.56 | 1242.80 | 2.07 |
| BLOCK B | 396485 | 1.00 | 1.37 | 2.34 | 960.50 | 1.63 |
| TOTAL | 607682 | 1.23 | 1.76 | 3.46 | 1058.61 | 1.78 |

TOTAL TONNAGE POLYGONAL METHOD

| | TONNES | CUZ | PBZ | ZNZ | AGg/T | AUg/T | SBZ | ASZ |
|---------|--------|------|------|------|---------|-------|------|------|
| BLOCK A | 223987 | 1.80 | 2.36 | 5.50 | 1330.00 | 2.22 | 0.84 | 0.13 |
| BLOCK B | 406073 | 1.00 | 1.42 | 2.42 | 955.00 | 1.59 | 0.53 | 0.08 |
| TOTAL | 630060 | 1.28 | 1.75 | 3.51 | 1088.31 | 1.81 | 0.64 | 0.10 |

SAMATOSUM DEPOSIT
block A

Grade and tonnage calculation using a polygonal method.

| SECTION | DDH | POLYGON AREA | TRUE THICKNESS | | | | | | | | | TONNES * GRADE | | | | | | | | | | | | | | | | |
|---------|-----|-----------------|-------------------|--------|--------|--------|--------|---------|--------|-------|------|----------------|----------|----------|----------|----------|----------|----------|----------|----------|--|--|--|--|--|--|--|--|
| | | | | CUZ | PBZ | ZNZ | AGg/T | AUg/T | SBZ | ASZ | SG | TONNES | CUZ | PBZ | ZNZ | AGg/T | AUg/T | SBZ | ASZ | | | | | | | | | |
| 96+25 | 130 | 1304 | 4.6 | 0.71 | 0.95 | 2.03 | 456 | 1.25 | 0.32 | 0.07 | 3.03 | 18175.15 | 12904.35 | 17266.39 | 36895.55 | 8287869 | 22718.94 | 5816.048 | 1272.26 | | | | | | | | | |
| 96+50 | 74 | 1770 | 4 | 0.44 | 1.07 | 1.95 | 462.6 | 1.17 | 0.32 | 0.07 | 2.9 | 20532 | 9034.08 | 21969.24 | 40037.4 | 9499103 | 24022.44 | 6570.24 | 1437.24 | | | | | | | | | |
| 96+75 | 123 | 1731 | 2 | 0.29 | 0.54 | 1.16 | 278 | 0.5 | 0.1475 | 0.03 | 2.85 | 9866.7 | 2861.343 | 5328.018 | 11445.37 | 2742942 | 4933.35 | 1455.328 | 296.001 | | | | | | | | | |
| 97+25 | 64 | 1661 | 2 | 3.736 | 2.78 | 3.128 | 1081.2 | 1.5 | 0.55 | 0.1 | 3.06 | 10165.32 | 37977.63 | 28259.58 | 31797.12 | 10990743 | 15247.98 | 5590.926 | 1016.532 | | | | | | | | | |
| 97+50 | 109 | 984 | 2 | 0.34 | 3.82 | 3.04 | 386 | 0.66 | 0.3 | 0.03 | 2.92 | 5746.56 | 1953.83 | 21951.85 | 17469.54 | 2218172 | 3792.729 | 1723.968 | 172.3968 | | | | | | | | | |
| | 126 | 1826 | 2 | 0.198 | 0.2445 | 0.501 | 253.5 | 0.693 | 0.105 | 0.009 | 2.89 | 10554.28 | 2089.747 | 2580.521 | 5287.694 | 2675509 | 7314.116 | 1108.199 | 94.98852 | | | | | | | | | |
| 98+00 | 128 | 1545 | 2 | 0.54 | 0.8 | 1.14 | 395 | 0.56 | 0.33 | 0.06 | 2.89 | 8930.1 | 4822.254 | 7144.08 | 10180.31 | 3527389 | 5000.856 | 2946.933 | 535.806 | | | | | | | | | |
| 98+50 | 84 | 614 | 2 | 0.0963 | 0.003 | 0.7515 | 114 | 0.1725 | 0.05 | 0.01 | 2.8 | 3438.4 | 331.1179 | 10.3152 | 2583.957 | 391977.6 | 593.124 | 171.92 | 34.384 | | | | | | | | | |
| | 96 | 891 | 2 | 1.218 | 0.007 | 1.197 | 1043.7 | 0.994 | 0.55 | 0.1 | 2.75 | 4900.5 | 5968.809 | 34.3035 | 5865.898 | 5114651 | 4871.097 | 2695.275 | 490.05 | | | | | | | | | |
| 98+75 | 73 | 294 | 3.1 | 1.84 | 17.8 | 3.3 | 2855 | 4.46 | 1.3 | 0.3 | 3.5 | 3189.9 | 5869.416 | 56780.22 | 10526.67 | 9107164 | 14226.95 | 4146.87 | 956.97 | | | | | | | | | |
| | 97 | 1058 | 3.95 | 4.61 | 0.83 | 25.5 | 1192 | 1.25 | 0.67 | 0.08 | 3.66 | 15295.5 | 70512.28 | 12695.26 | 390035.4 | 18232243 | 19119.38 | 10247.98 | 1223.64 | | | | | | | | | |
| | 98 | 975 | 5.4 | 2.63 | 1.65 | 1.96 | 2740 | 4.944 | 1.42 | 0.22 | 3.09 | 16268.85 | 42787.07 | 26843.6 | 31886.94 | 44576649 | 80433.19 | 23101.76 | 3579.147 | | | | | | | | | |
| | 100 | 938 | 5.6 | 1.34 | 1.87 | 3.36 | 979 | 1.29 | 0.79 | 0.11 | 2.97 | 15600.81 | 20905.09 | 29173.52 | 52418.74 | 15273198 | 20125.05 | 12324.64 | 1716.089 | | | | | | | | | |
| | 65 | 635 | 2 | 0.34 | 1.51 | 2.22 | 397 | 1.38 | 0.23 | 0.03 | 3 | 3810 | 1295.4 | 5753.1 | 8458.2 | 1512570 | 5257.8 | 876.3 | 114.3 | | | | | | | | | |
| 99+00 | 74 | 444 | 2 | 1.79 | 10.6 | 0.58 | 3719 | 4.7 | 2.5 | 0.5 | 3.5 | 3108 | 5563.32 | 32944.8 | 1802.64 | 11558652 | 14607.6 | 7770 | 1554 | | | | | | | | | |
| | 107 | 880 | 2 | 3.6575 | 3.605 | 32.725 | 2275 | 2.51125 | 1.15 | 0.21 | 3.79 | 6670.4 | 24396.98 | 24046.79 | 218288.8 | 15175160 | 16751.04 | 7670.96 | 1400.784 | | | | | | | | | |
| | 102 | 964 | 7.5 | 2.3 | 1.2 | 2.21 | 3094 | 3 | 1.53 | 0.22 | 2.95 | 21328.5 | 49055.55 | 25594.2 | 47135.98 | 65990379 | 63985.5 | 32632.6 | 4692.27 | | | | | | | | | |
| | 104 | 781 | 2.9 | 0.57 | 2.6 | 4.27 | 398.4 | 0.59 | 0.23 | 0.04 | 2.98 | 6749.402 | 3847.159 | 17548.44 | 28819.94 | 2688961 | 3982.147 | 1552.362 | 269.976 | | | | | | | | | |
| 99+25 | 75 | 456 | 4.8 | 1.75 | 8.65 | 0.82 | 2734 | 1.64 | 1.2 | 0.2 | 3 | 6566.4 | 11491.2 | 56799.36 | 5384.448 | 17952537 | 10768.89 | 7879.68 | 1313.28 | | | | | | | | | |
| | 110 | 775 | 2.1 | 0.499 | 0.52 | 1.245 | 205.5 | 0.815 | 0.1 | 0.01 | 3 | 4882.5 | 2436.367 | 2538.9 | 6078.712 | 1003353 | 3979.237 | 488.25 | 48.825 | | | | | | | | | |
| | 108 | 1095 | 3.1 | 6.34 | 9.43 | 19.56 | 3428 | 11.664 | 3.77 | 0.53 | 3.76 | 12763.32 | 80919.44 | 120358.1 | 249650.5 | 43752660 | 148871.3 | 48117.71 | 6764.559 | | | | | | | | | |
| 99+50 | 83 | 1000 | 3.6 | 0.39 | 0.69 | 0.5 | 393 | 0.63 | 0.23 | 0.03 | 2.8 | 10080 | 3931.2 | 6955.2 | 5040 | 3961440 | 6350.4 | 2318.4 | 302.4 | | | | | | | | | |
| 99+75 | 114 | 894 | 2 | 0.22 | 1.04 | 2.85 | 298 | 0.2 | 0.18 | 0.01 | 3 | 5364 | 1180.08 | 5578.56 | 15287.4 | 1598472 | 1072.8 | 965.52 | 53.64 | | | | | | | | | |
| | | | | | | | | | | | | TONNES | 223986.6 | 402133.7 | 528154.4 | 1232377 | 2.98E+08 | 498026 | 188171.9 | 29339.54 | | | | | | | | |
| | | | | | | | | | | | | GRADE | 1.795347 | 2.357972 | 5.502013 | 1329.681 | 2.223463 | 0.840103 | 0.130987 | | | | | | | | | |
| | | | | | | | | | | | | 20% DILUTION | 268783.9 | 1.496122 | 1.964977 | 4.585011 | 1108.067 | 1.852886 | 0.700086 | 0.109156 | | | | | | | | |

MATOSUM DEPOSIT
Block B

Grade and tonnage calculation using a polygonal method.

| SECTION | DDH | POLYGON AREA | TRUE THICKNESS | | | | | | | | | -----TONNES ± GRA----- | | | | | | | | |
|---------|-----|--------------|----------------|--------|------|-------|-------|--------|------|------|------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | | | CUZ | PBZ | ZNZ | AGg/T | AUG/T | SBZ | ASZ | SG | TONNES | CUZ | PBZ | ZNZ | AGg/T | AUG/T | SBZ | ASZ | |
| 96+00 | 75 | 1078 | 2 | 1.21 | 2.47 | 3.86 | 514 | 0.46 | 0.2 | 0.05 | 3.4 | 7330.4 | 8869.784 | 18106.08 | 28295.34 | 3767825 | 3371.984 | 1466.08 | 366.52 | |
| | 133 | 983 | 2 | 0.48 | 0.53 | 0.46 | 513 | 1.81 | 0.2 | 0.05 | 2.9 | 5701.4 | 2736.672 | 3021.742 | 2622.644 | 2924818 | 10319.53 | 1140.28 | 285.07 | |
| 96+25 | 130 | 1004 | 2 | 1.0845 | 5.67 | 0.567 | 360 | 0.4995 | 0.06 | 0.01 | 3.03 | 6084.24 | 6598.358 | 34497.64 | 3449.764 | 2190326 | 3039.077 | 365.0544 | 60.8424 | |
| | 132 | 1065 | 4.6 | 0.43 | 0.64 | 1.2 | 454 | 0.7 | 0.2 | 0.05 | 2.85 | 13962.15 | 6003.724 | 8935.776 | 16754.58 | 6338816 | 9773.505 | 2792.43 | 698.1075 | |
| 96+75 | 122 | 1650 | 10.2 | 1.26 | 1.28 | 2.31 | 1048 | 2.03 | 0.5 | 0.07 | 3.05 | 51331.5 | 64677.69 | 65704.32 | 118575.7 | 53795412 | 104202.9 | 25665.75 | 3593.205 | |
| 97+25 | 112 | 2151 | 6 | 1.19 | 0.96 | 2.06 | 1276 | 1.65 | 0.77 | 0.1 | 2.77 | 35749.62 | 42542.04 | 34319.63 | 73644.21 | 45616515 | 58986.87 | 27527.2 | 3574.962 | |
| 97+50 | 106 | 1710 | 2.4 | 1.44 | 0.34 | 1.51 | 1781 | 2.55 | 0.89 | 0.12 | 2.92 | 11983.68 | 17256.49 | 4074.451 | 18095.35 | 21342934 | 30558.38 | 10665.47 | 1438.041 | |
| | 109 | 1106 | 2.4 | 2.38 | 1.5 | 4.23 | 2460 | 2.55 | 1.51 | 0.15 | 2.92 | 7750.848 | 18447.01 | 11626.27 | 32786.08 | 19067086 | 19764.66 | 11703.78 | 1162.627 | |
| 98+00 | 71 | 1444 | 8.72 | 0.63 | 2.1 | 2.94 | 548 | 1.27 | 0.2 | 0.05 | 3 | 37775.04 | 23798.27 | 79327.58 | 111058.6 | 20700721 | 47974.3 | 7555.008 | 1888.752 | |
| | 99 | 1484 | 6.7 | 1.73 | 2.23 | 3.46 | 1264 | 2.14 | 1.03 | 0.13 | 3.06 | 30424.96 | 52635.19 | 67847.67 | 105270.3 | 38457159 | 65109.43 | 31337.71 | 3955.245 | |
| 98+25 | 89 | 704 | 10.1 | 1.1 | 1.33 | 2.85 | 1427 | 2.24 | 0.81 | 0.11 | 3.02 | 21473.4 | 23620.74 | 28559.63 | 61199.21 | 30642553 | 48100.43 | 17393.46 | 2362.074 | |
| 98+50 | 90 | 1259 | 3.01 | 2.1 | 0.93 | 2.6 | 2350 | 3.63 | 1.86 | 0.22 | 2.91 | 11027.7 | 23158.18 | 10255.76 | 28672.03 | 25915111 | 40030.57 | 20511.53 | 2426.095 | |
| | 136 | 538 | 9.4394 | 0.66 | 1.59 | 1.51 | 631 | 1.41 | 0.25 | 0.05 | 2.82 | 14321.08 | 9451.912 | 22770.51 | 21624.83 | 9036601 | 20192.72 | 3580.27 | 716.054 | |
| | 137 | 709 | 11.3 | 1.53 | 1.69 | 3.55 | 1798 | 2.78 | 0.89 | 0.13 | 3.14 | 25156.73 | 38489.8 | 42514.88 | 89306.41 | 45231814 | 69935.73 | 22389.49 | 3270.375 | |
| 98+75 | 65 | 891 | 2 | 0.62 | 0.04 | 0.43 | 694 | 1.1 | 0.25 | 0.05 | 2.75 | 4900.5 | 3038.31 | 196.02 | 2107.215 | 3400947 | 5390.55 | 1225.125 | 245.025 | |
| 99+00 | 104 | 426 | 2.4 | 0.3 | 0.39 | 0.82 | 296 | 2.18 | 0.12 | 0.03 | 2.94 | 3005.856 | 901.7568 | 1172.283 | 2464.801 | 889733.3 | 6552.766 | 360.7027 | 90.17568 | |
| | 105 | 1688 | 10.4 | 0.43 | 2.23 | 3.63 | 366 | 0.82 | 0.27 | 0.06 | 3.03 | 53192.25 | 22872.67 | 118618.7 | 193087.8 | 19468365 | 43617.64 | 14361.9 | 3191.535 | |
| 99+50 | 111 | 2131 | 10.8 | 0.64 | 0.39 | 1.11 | 599 | 0.89 | 0.21 | 0.05 | 2.82 | 64901.73 | 41537.11 | 25311.67 | 72040.92 | 38876139 | 57762.54 | 13629.36 | 3245.086 | |
| | | | | | | | | | | | | TONNES | 406073.1 | 406635.7 | 576860.7 | 981056 | 3.88E+08 | 644683.6 | 213670.6 | 32569.79 |
| | | | | | | | | | | | | GRADE | | 1.001385 | 1.420583 | 2.415959 | 954.6627 | 1.587604 | 0.526187 | 0.080206 |
| | | | | | | | | | | | | 20% DILUTION | 487287.7 | 0.834487 | 1.183819 | 2.013299 | 795.5522 | 1.323004 | 0.438489 | 0.066838 |