

E: September 20, 1991. 823732
A TO: I. Pirie, A. Davidson
COPIES A L. Reaugh, F. Sveinson (REA GOLD)
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DE A. Hill
FROM:
SUBJECT: Samatosum J.V.--1991 Drill Program Summary

Introduction

Exploration diamond drilling totalling 6305.2 metres was carried out on the Samatosum mine property in eighteen holes this year, and the Cana property received a further 1702.0m in four holes. This drilling is summarized in the attached tables, and highlighted on the surface drill plan (back pocket). The results are discussed below by area.

Discussion of Results

Rea Horizon

The 700 metre portion of Rea Horizon straddling Johnson Creek was finally drill-tested this year with four holes (799.7m). The results were disappointing with no significant mineralization encountered. The previous intersection of 1 metre of pyritic, sericite schist in hole RG290, was not repeated downdip or downstrike, and apparently it is a local fault-related phenomenon. The thickening intermediate pyroclastic package (RG67, RG332) also did not bear fruit.

The entire Rea Horizon, some 3.5 km of strike length, has now been tested at 100-150m spacing, (except for a 350m gap which remains under the Johnson Creek swamps). There are no indications of significant mineralization other than minor depositional chert and chert breccias, and minor possibly unrelated footwall sericitic, pyritic, and carbonate alteration. Much of the strike

length of horizon has been disturbed by sub-parallel thrust(?) faulting which has removed portions of the favourable stratigraphy and at the same time severely limited downdip potential. The only foci for massive sulphide deposition appear to be within the southeasternmost 500m of the horizon in the concession area, and trending onto the neighbouring Kamad property. Past exploration in this area has been fairly thorough and to date all mineralization on both properties, (approximately 400,000 tons), remains sub-economic.

Sam Horizon - Southeast of the Open Pit

This area was tested with five deeper holes, totalling 2540.3 metres. The Sam Horizon pierce points appear in orange on the enclosed long section.

Structurally, the geology of the area is complicated by the convergence of a major thrust fault at the base of the hangingwall mafics. This fault is well exposed in the pit and in the underground workings, and it removes successively more of the favourable stratigraphy as you move towards the southeast. The ore horizon becomes increasingly shattered, deformed, disrupted, and is eventually cut off by this fault by about 95+00W. The holes drilled on 94+00-91+00W sections did not encounter any "slivers" of the ore horizon, although downdip they did encounter wide, veined and silicified feeder(?) zone material.

Downhole PEM geophysical surveys were attempted on the deep holes in this part of the property. Unfortunately, all but RG395 were too badly caved to allow for passage of the downhole probe. The results of the RG395 survey indicated only moderate strength conductors corresponding to the upper Sam Sediments, (argillite?), updip in the vicinity of the known ore body.

The area southeast of the pit is now considered to be sufficiently drilled to a depth of about 300m, (up to 500m downdip). Current geological modelling does not indicate the likelihood of ore existing below this level.

Old Barite and Creek Zones

Each of these zones was tested by a single deep drillhole, (RG437 and RG409 respectively), in an attempt to explain the anomalously high values returned in previous shallow drilling. No economic mineralization was encountered, although low base and precious metal values were returned from thin quartz vein intervals in both holes. The "Old Barite" and "Creek" zones are both apparently very limited in size, and probably represent localized re-concentrations of metals associated with repeated faulting and veining of various ages.

The barite pod at the Old Barite Zone at least in part looks primary and sedimentary. The best sulphide mineralization, however, occurs in nearby veins, or at the veined margins of the barite. The vicinity of this barite has been well tested by drilling that appears on the long section around 102+00W.

The "Creek" zone is cut by several distinctive Tertiary hypabbysal basalt dykes which occupy relatively young or at least reactivated cross-faults. Low base and precious metal values were returned from nearby quartz veins and silicified breccias.

Cana Property

Four holes totalling 1702.0 metres were drilled this year on the Cana property. They were all designed to test the remaining portions of the favourable Sam stratigraphy, and to follow-up the thin tetrahedrite/quartz vein intersection hit in the 1990 drilling, (ie: 348 g/t Ag over 10cm).

The results of the drilling proved negative, as the "Sam-type" vein was not present downdip, and attained a thickness of only 7cm along strike 100m to the northwest. Elsewhere, drilling returned only minor patchy pyritic mineralization accompanied by minor yellow sericite alteration and silicification. Notable because of its absence was the grey sericite-pyrite alteration which is present at both the Sam and Rea-type deposits.

The evaluation of the Cana property for both Sam and Rea type deposits can now be considered complete.

MBA Gold Zone

The area of lower Sam stratigraphy on section 120+00W was originally slated for a single drillhole because of the unexplained presence of anomalous Au/As in some of the silicified portions of surrounding drillholes. Six holes totalling 1788.3 metres were drilled here in 1991, after the discovery of coarse visible gold in the first two holes.

Hole RG398 (P-7) intersected two zones of deformed quartz-carbonate veining containing coarse visible gold which returned assays of: 40.0 g/t Au over 2.1m and 5.4 g/t Au over 4.9m. These intervals, which were separated by about 100m, consisted of deformed quartz-carbonate veins containing coarse visible gold. A follow-up hole 85m updip intersected minor visible gold, but the

best assay was only 5.2 g/t over 0.3m. Further drilling along strike both east and west, and downdip, encountered only weakly anomalous veining.

The zone, probably controlled by an older and now deformed structure, has apparently been closed off in all directions and has very limited tonnage potential (<< 100,000 tons). The fact that it also lies beneath 30 to 80 metres of overburden makes mining of a deposit of this size impractical.

The evaluation of the MBA Zone is ongoing, with various structural, lithogeochemical, and geological models now being examined. The amount of drilling completed in 1991 on this zone is, however, thought to be sufficient to eliminate the area at this time.

Conclusions

The potential for additional mineable reserves on the Samatosum and Cana properties is now extremely limited. All of the known favourable stratigraphy has been tested by diamond drilling at a spacing which precludes the presence of an orebody of significant size, and no unexplained targets remain. The large database should continue to be studied, in conjunction with the research program at McGill University, throughout the life of the mine and any new ideas generated should be followed up.

1992 BUDGET PROPOSAL

Due to the discouraging results in 1991 and the general lack of room left for a significant new orebody on the property, no further exploration is recommended for Samatosum. However, a \$100,000 (direct cost) budget is proposed to cover the following items:

- monitoring of the underground and surface mining in case new information comes to light which might lead to the generation of significant new ideas and targets.
- continued support and monitoring of the McGill research program, again in the hope that new ideas and targets will be forthcoming. This will include a commitment of \$5,000 of "in kind" to the research and specialized collaborative work.
- initial maintenance and subsequent decommissioning of the camp.
- drill core handling and storage.
- required reclamation.

Much of this amount will be contingency only and will not be spent unless required.

PROJECT BUDGET FORECAST 1992

PROJECT NAME: **SAMATOSUM**

PROJECT NO. **240**

GEOLOGY AND GENERAL

| | | | | |
|-------------------------------|-------------------|----------|-----------------|------------|
| monitor u/g mining and | Salaries | \$40,000 | | |
| McGill research and react | Travel Expenses | \$5,000 | | |
| to ideas generated. | Contract Payments | \$10,000 | | |
| Property administration | Field Expenses | \$30,000 | | |
| Reclamation, camp maintenance | Analyses | \$0 | \$85,000 | 85% |

GEOPHYSICS

| | | | | |
|--|-------------------|-----|------------|-----------|
| | Salaries | \$0 | | |
| | Travel Expenses | \$0 | | |
| | Contract Payments | \$0 | | |
| | Field Expenses | \$0 | \$0 | 0% |

GEOCHEMISTRY

| | | | | |
|--|-------------------|-----|------------|-----------|
| | Salaries | \$0 | | |
| | Travel Expenses | \$0 | | |
| | Contract Payments | \$0 | | |
| | Field Expenses | \$0 | | |
| | Analyses | \$0 | \$0 | 0% |

DRILLING

| | | | | |
|--|-------------------|-----|------------|-----------|
| | Salaries | \$0 | | |
| | Travel Expenses | \$0 | | |
| | Contract Payments | \$0 | | |
| | Field Expenses | \$0 | | |
| | Analyses | \$0 | \$0 | 0% |

| | | | | |
|-----------------------------|--|--|-----------------|------------|
| <i>Line Cutting</i> | | | \$0 | 0% |
| <i>Trenching</i> | | | \$0 | 0% |
| <i>Hotels and Meals</i> | | | \$15,000 | 15% |
| <i>Option Payments</i> | | | \$0 | 0% |
| <i>Property Maintenance</i> | | | \$0 | 0% |
| <i>Other</i> | | | \$0 | 0% |

| | | | | |
|---------------------------|--|--|------------------|--|
| TOTAL DIRECT EXPENDITURES | | | \$100,000 | |
| ADMIN | | | \$10,000 | |
| TOTAL EXPENDITURES | | | \$110,000 | |
| MINNOVA SHARE (70%) | | | \$77,000 | |
| REA GOLD SHARE (30%) | | | \$33,000 | |

SAMATOSUM J.V. DRILLING 1991

SAM PROPERTY

| HOLE | SECTION | NORTHING | AZ | DIP | TD | SIGNIFICANT INTERSECTIONS |
|--------|---------|----------|-----|-----|-------|--|
| RG394 | 9300W | 600N | 225 | -75 | 387.4 | (P-15) 181.0-182.2: 1.2%Cu, 2.3%Zn, 3.9%Pb, 58.9g/TAg, .56g/TAu in siliceous zone with massive pyrite and patchy base metal sulphides. |
| RG395 | 9550W | 950N | 225 | -89 | 614.7 | (P-18) Broad weak alteration and vein mineralization from 411-501m. |
| RG396 | 9400W | 950N | 225 | -89 | 647.7 | (P-16) Silicified, pyritic, grey ser alteration over 80m. Minor bm's. |
| RG397 | 12600W | 775N | 225 | -55 | 325.2 | (P-6) Minor mineralization only. |
| RG398* | 12000W | 792N | 225 | -55 | 374.8 | (P-7) "MBA" Gold Zone discovery: 40.03g/T Au over 2.1m (including 208g/t Au over 0.4m) and in FW 5.4g/t Au over 4.9m. Coarse visible gold hosted by clean quartz-ankerite veining. |
| RG399 | 11580W | 269N | 225 | -55 | 102.7 | (P-8) 15m of ribbon chert at Rea Horizon. No significant assays. |
| RG400* | 11999W | 674N | 225 | -55 | 242.9 | Follow-up 85m updip of MBA discovery. Trace visible gold intersected in irregular qtz-carb veining. MBA horizon 5.26g/T Au, 81.3g/T Ag over 0.3m with .19%Cu, 2.5%Zn, 2.6%Pb, and 10%aspy. FW horizon: nil |
| RG401* | 12100W | 722N | 225 | -55 | 310.3 | 100m grid west of MBA discovery: 1.22g/t Au over 1.5m; FW horizon: nil |
| RG402 | 9300W | 825N | 225 | -89 | 504.4 | (P-17) SE of pit. Minor mineralization only. |
| RG403* | 11899W | 740N | 225 | -55 | 264.2 | 100m grid east of MBA discovery; 12m of broken qtz-carb veining with no visible gold. Best assay was 0.5g/t Au over 2.0m; FW: nil |
| RG404* | 12000W | 879N | 225 | -55 | 358.7 | 75m downdip of RG398 on MBA: 2.9g/t Au over 0.4m; FW .63g/t Au over 0.4m |
| RG405 | 11643W | 377N | 225 | -60 | 249.0 | REA HORIZON: (west side Johnson Ck.) No significant intersections. |
| RG406 | 9225W | 650N | 225 | -78 | 386.1 | (P-15A) SE of pit. No significant intersections. |

continued on next page...

SAMATOSUM J.V. DRILLING 1991

CANA PROPERTY

| HOLE | SECTION | NORTHING | AZ | DIP | TD | SIGNIFICANT INTERSECTIONS |
|--------|---------|----------|-----|-----|---------|--|
| C91-7 | 12880W | 904N | 225 | -89 | 370.9 | Proposed hole P-2. No significant intersections. |
| C91-8 | 12990W | 889N | 225 | -55 | 447.1 | (P-1) 139.20-139.27m (.07m): 1.7%Cu, 1.4%Zn, 5.7%Pb, 454g/TAg, 2.2g/tAu in thin qtz veinlet. No other significant intersections. |
| C91-9 | 12700W | 1035N | 225 | -55 | 486.8 | (P-3) 117.05-117.20m (.15m): .17%Cu, .60%Zn, .31%Pb, 72.4g/TAg, .28g/TAu in silicified heterolithic fragmental. |
| C91-10 | 12600W | 900N | 225 | -55 | 397.2 | (P-5) Minor patchy pyritic mineralization. |
| TOTAL: | | | | | 1702.0m | |

END OF 1991 PROGRAM

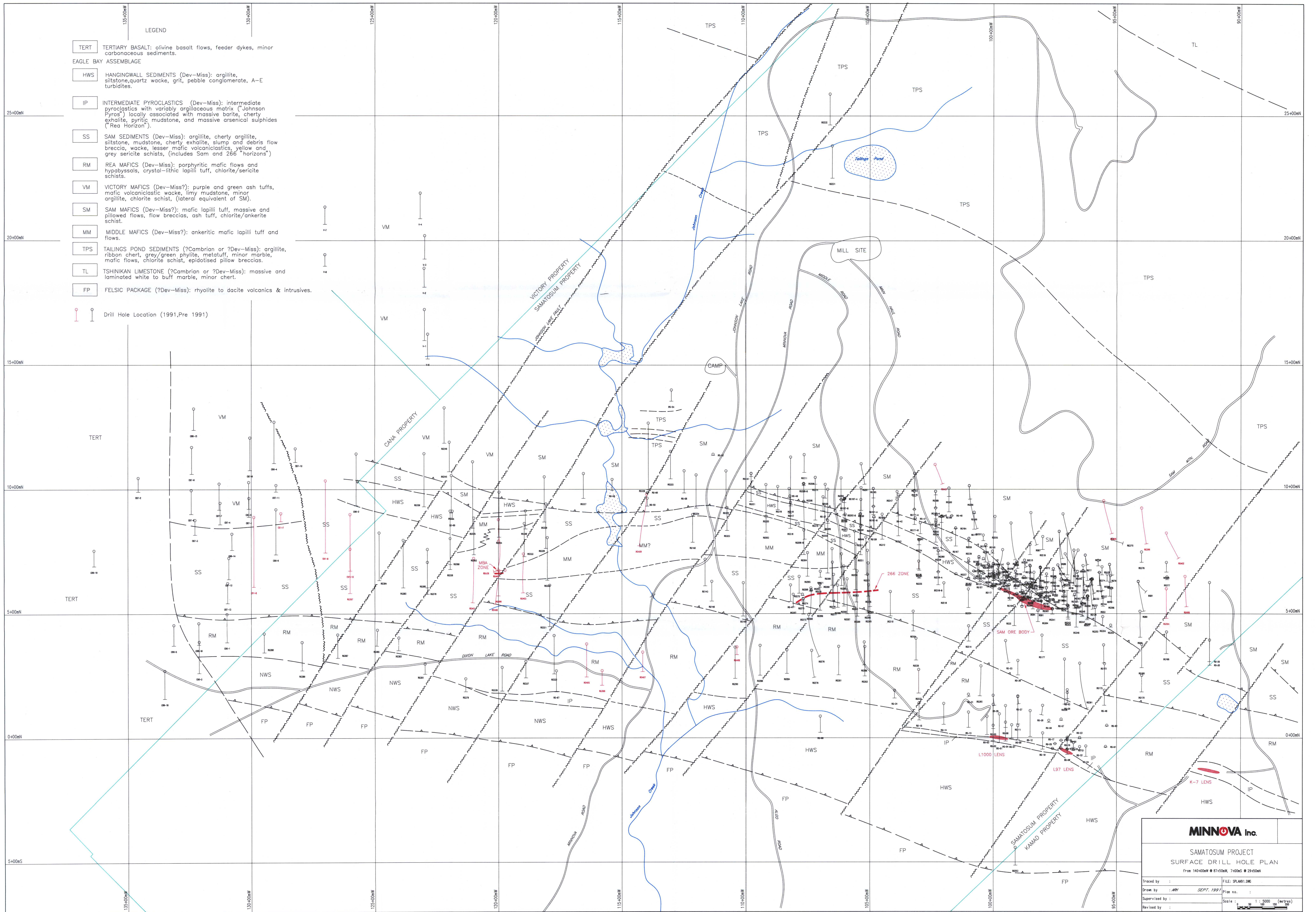
SAMATOSUM DRILLING 1991

| | | | | | | |
|---------------|--------|-------|-----|-----|-----------------|--|
| RG407 | 11417W | 344N | 225 | -70 | 199.0 | REA HORIZON: (adjacent to Johnson Ck.) No significant intersections. |
| RG408 | 11035W | 365N | 225 | -88 | 249.0 | REA HORIZON: (east side Johnson Ck.) No significant intersections. |
| RG409 | 11400W | 980N | 225 | -60 | 380.1 | (P-13 Creek Zone): Minor mineralization assoc. with qtz veins, best was .08%Cu, .96%Zn, .43%Pb, 8.6g/tAg, .08g/tAu over 1.5m |
| RG436* | 11974W | 674N | 315 | -78 | 237.4 | MBA ZONE: Off-azimuth hole to test for structure. MBA horizon: .22g/t Au over 1.35m, FW horizon: .52g/tAu over 1.5m, & middle zone of veined het. frag. that assayed .6%Cu, 1.7%Zn, .9%Pb, 163g/tAg, .7g/tAu over 6.2m, (best sample ran 1.9%Cu, 8.9%Zn, 3.9%Pb, 678g/tAg, 1.9g/tAu over 0.4m) |
| RG437 | 10235W | 1100N | 225 | -89 | 471.5 | (P-14) Tested below old barite zone. No significant intersections. |
| TOTAL: | | | | | 6305.2 m | |

* MBA gold zone hole

(Total for MBA zone: 1788.3 m)

END OF 1991 PROGRAM



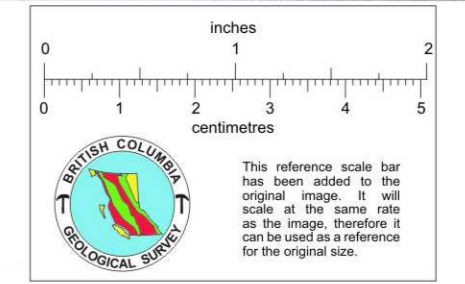
- LEGEND**
- TERT TERTIARY BASALT: olivine basalt flows, feeder dykes, minor carbonaceous sediments.
 - EAGLE BAY ASSEMBLAGE
 - HWS HANCINGWALL SEDIMENTS (Dev-Miss): argillite, siltstone, quartz wacke, grit, pebble conglomerate, A-E turbidites.
 - IP INTERMEDIATE PYROCLASTICS (Dev-Miss): intermediate pyroclastics with variably argillaceous matrix ("Johnson Pyros") locally associated with massive barite, cherty exhalite, pyritic mudstone, and massive arsenical sulphides ("Rea Horizon").
 - SS SAM SEDIMENTS (Dev-Miss): argillite, cherty argillite, siltstone, mudstone, cherty exhalite, slump and debris flow breccia, wacke, lesser mafic volcanics, yellow and grey sericite schists, (includes Sam and 266 "horizons")
 - RM REA MAFICS (Dev-Miss): porphyritic mafic flows and hypabyssals, crystal-lithic lapilli tuff, chlorite/sericite schists.
 - VM VICTORY MAFICS (Dev-Miss?): purple and green ash tuffs, mafic volcanoclastic wacke, limy mudstone, minor argillite, chlorite schist, (lateral equivalent of SM).
 - SM SAM MAFICS (Dev-Miss?): mafic lapilli tuff, massive and pillowed flows, flow breccias, ash tuff, chlorite/ankerite schist.
 - MM MIDDLE MAFICS (Dev-Miss?): ankeritic mafic lapilli tuff and flows.
 - TPS TAILINGS POND SEDIMENTS (?Cambrian or ?Dev-Miss): argillite, ribbon chert, grey/green phyllite, metatuff, minor marble, mafic flows, chlorite schist, epidotised pillow breccias.
 - TL TSHNIKAN LIMESTONE (?Cambrian or ?Dev-Miss): massive and laminated white to buff marble, minor chert.
 - FP FELSIC PACKAGE (?Dev-Miss): rhyolite to dacite volcanics & intrusives.
- Drill Hole Location (1991, Pre 1991)

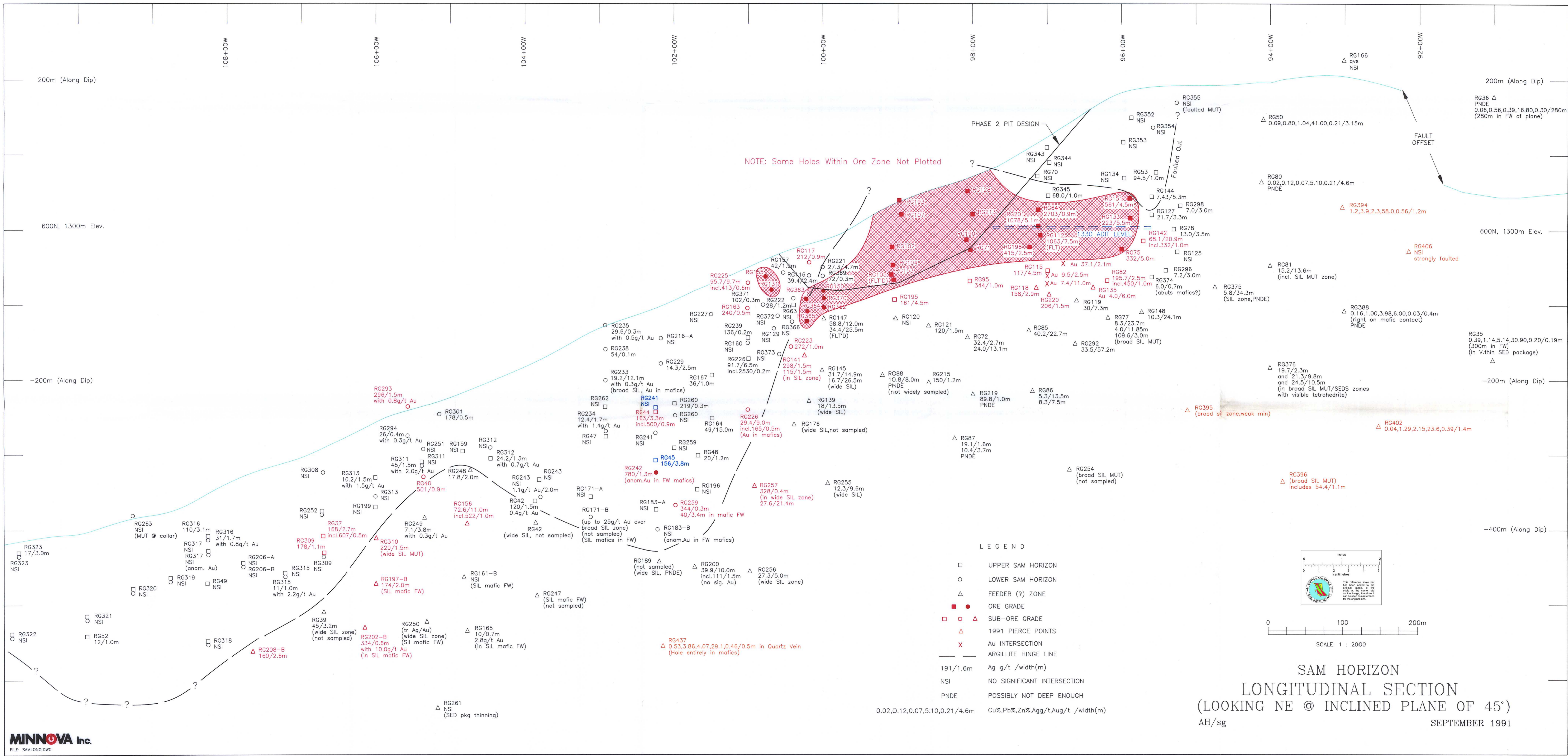
MINNOVA Inc.

SAMATOSUM PROJECT
SURFACE DRILL HOLE PLAN

From 140+00m @ 87+50m, 7+00m @ 29+50m

| | |
|-----------------|-------------------------|
| Traced by : | FILE: SPLM01.DWG |
| Drawn by : | AWY SEPT, 1991 |
| Supervised by : | Plan no. : |
| Revised by : | Scale 1 : 5000 (metres) |





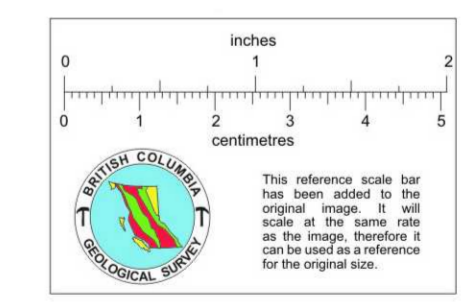
NOTE: Some Holes Within Ore Zone Not Plotted

PHASE 2 PIT DESIGN

FAULT OFFSET

LEGEND

- UPPER SAM HORIZON
- LOWER SAM HORIZON
- △ FEEDER (?) ZONE
- ORE GRADE
- ○ △ SUB-ORE GRADE
- △ 1991 PIERCE POINTS
- X Au INTERSECTION
- ARGILLITE HINGE LINE
- 191/1.6m Ag g/t /width(m)
- NSI NO SIGNIFICANT INTERSECTION
- PNDE POSSIBLY NOT DEEP ENOUGH
- 0.02,0.12,0.07,5.10,0.21/4.6m Cu%,Pb%,Zn%,Agg/t,Au/g/t /width(m)



SAM HORIZON
 LONGITUDINAL SECTION
 (LOOKING NE @ INCLINED PLANE OF 45°)
 AH/sg
 SEPTEMBER 1991