# 1995 EXPLORATION OF BLU MOON/BLU STARR PROPERTIES

**For Canadian Sapphire Corporation**

NTS 82F/12E
U.T.M. ZONE 11

Slocan and Nelson Mining Divisions

Lat. 49° 33'
Long. 117° 39'



**By: M. Goldenberg,**
**Oct. 9, 1996**

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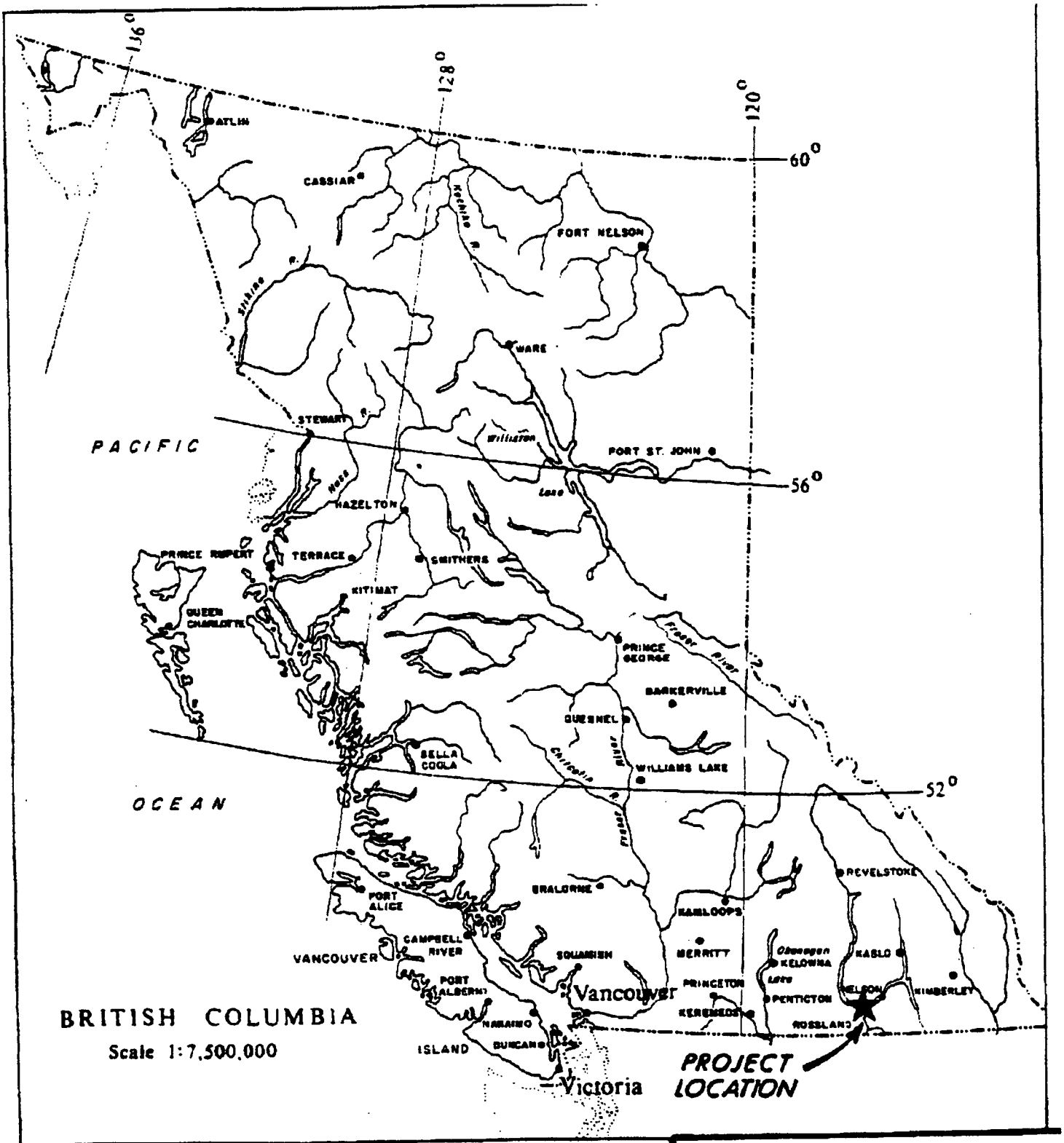



ANGLO SWISS INDUSTRIES INC.

BLU STARR PROJECT

SLOCAN & NELSON M.D.

GENERAL LOCATION MAP

| | |
|---|---|
| Scale : 1 : 7 500 000 | By : M. Coyle |
| Date : July , 1995. | Figure : 1 |

Zocalo Exploration Associated Inc

# I. LOCATION: Cf. Figure 1: Location Map

The Blu Moon and Blu Starr 3 claims are part of the Blu Starr Claim Group which is located in the Slocan Valley of southeastern British Columbia in the Valhalla Range of the Selkirk Mountains. The Claim Group straddles the boundary between the Slocan and Nelson Mining Divisions at elevations ranging from approximately 520 metres to 1800 metres. This year's work was concentrated on the Blu Moon (Lat 49$^0$ 34', Long. 117$^0$ 40') and the Blu Starr 3 (Lat. 49 $^0$32' Long. 117$^0$ 39').

The property lies on the southeastern flank of the Passmore Dome, which is the southernmost of two domal structures, (the other being the Valhalla Dome). While drainage in the region generally reflects the domal structures of the bedrock, with the central uplifts being essentially surrounded by watercourses, the core of the Passmore Dome has been breached by both the Little Slocan and Slocan Rivers.

The Blu Moon is at the juncture of Perry's Ridge and the Little Slocan River near where the Little Slocan empties into the Slocan River. The ridge is sharply truncated where it meets the alluvial gravels of the river. The valley bottom is flat with fairly steep 30 to 35 degree slopes. The property lies approximately 6 kilometres northwest of West Kootenay Power Corporation's substation on Little Slocan River Road.

The Blu Starr 3 lies in the main valley of the Slocan River at about 520 metres .

Much of the Blu Moon and Blu Starr 3 has been logged, with some Douglas Fir and Yellow Pine remaining. Most of the surface is privately owned land, with no buildings.

The Claim Group is approximately 40 kilometres from Nelson, (location of Gold Commissioner's office), and from Castlegar on the southern Trans-Provincial Highway where regularly sheduled air service is available. The southern boundary of the Claim Group is approximately 26 kilometres from the junction of Highways 3A and 6.

Some outcrops are exposed in cuts on Highway 6, along the abandoned rail line below the highway, and near the Slocan River bank below the railway.

## II. INTRODUCTION

The Blue Starr Claim Group was acquired by Canadian Sapphire Corporation, (a subsidiary of Anglo-Swiss Industries Ltd.), in 1995 when they were optioned from a group of prospectors, (comprised of M. Goldenberg, R. Luchansky, J. Demers, Brian Meszaros, and Inyo Youngreen), who had identified a number of varieties of semi-precious and industrial stones, including corundum, sapphires, and zircons.

Dr. Mary Lou Coyle, PhD., (of Zocalo Exploration Associated), in a July 1995 report attempted to estimate the material worked to date by the prospectors, and concluded that approximately 50,000 carats of star sapphire crystals had been produced from some 8 tons of rock removed from the outcrop face at the river's edge, and at two small high-grade piles.

According to Coyle handpicked rough star sapphires were accumulated and weighed on a digital scale. "Weighing this material produced 12,444 grams of (concentrated) rough corundum, with an estimated 20% matrix material ... resulting in a total of 9,855.2 grams of uncut corundum. The conversion from grams to carats would therefore yield 49, 276 carats." In addition about another 530 rough carats have been collected, some of which have been worked and sold thus demonstrating their marketability.

Estimated losses in the cutting of cabochons is about 60%. Coyle concluded "With this in mind, discounting a loss of 60 per cent of the rough carat weight mentioned above leaves us with a produced 6,250 carats per ton produced from eight tonnes of high-grade material. Using U.S. $50 per carat as a modest estimate for sale of these star sapphire crystals, this would yield an estimated $125,000 per ton of high grade material."

Coyle further referred to the fact that J. Pell has stated (BC EMPR Bull. 88,1994) that the Blu Starr occurrence resembles fenites in the Blue River and Perry River areas, and that fenites "are widespread and associated with carbonatites and syenitic gneissic complexes within other metamorphic packages, including the Shuswap Metamorphic Complex. She further states that these areas should be prospected for gem corundum."

In addition to gems such as corundum, zircon, garnet, and tourmaline Coyle also pointed to a potential for rare earth element minerals on this property, and the fact that the original prospectors have produced not only high-quality star sapphires, but also star garnets and titanite (sphene) originating from the same area.

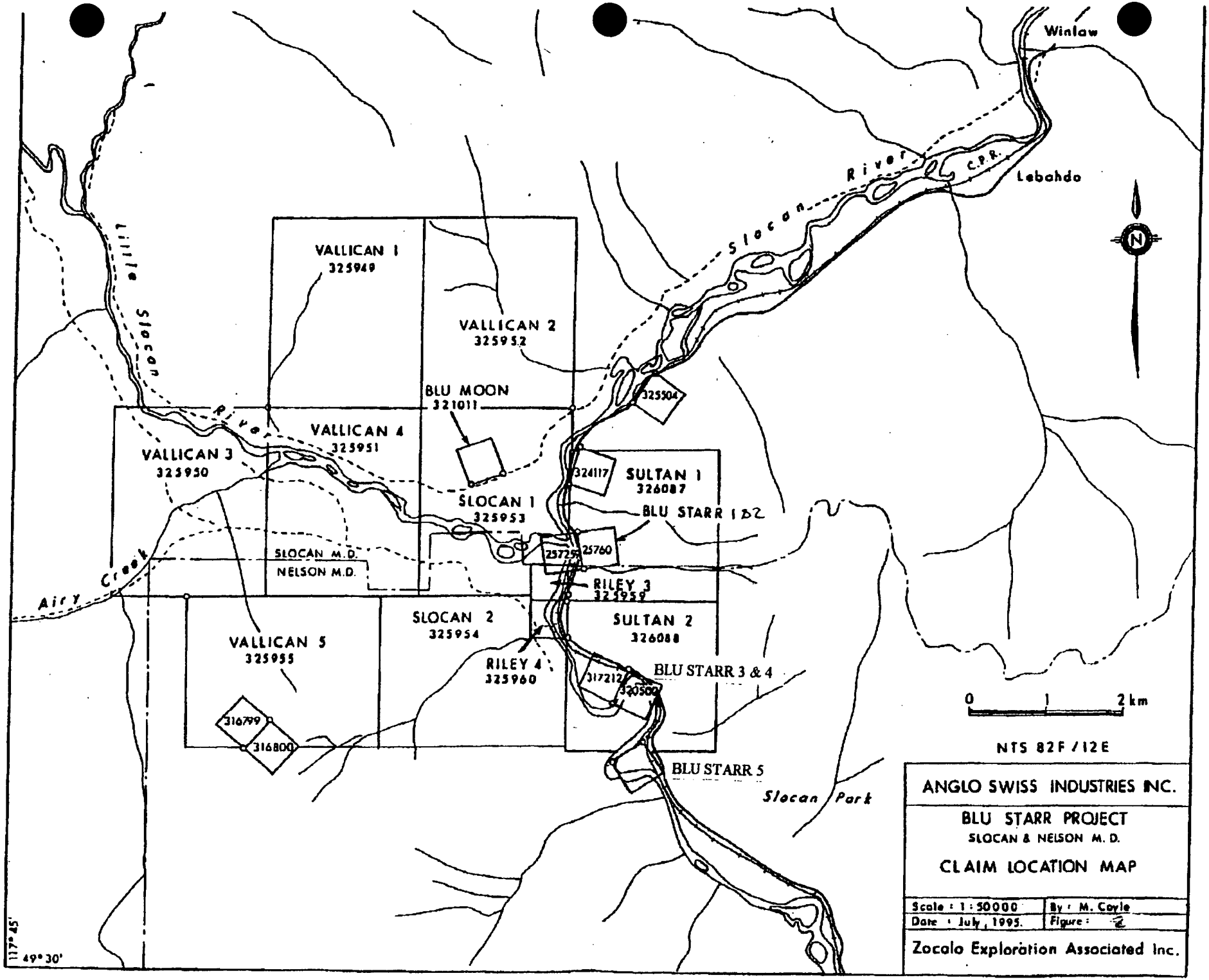
Coyle concluded "The exploration potential is extremely encouraging in the lower units of the Passmore Dome along the strike of the mineralized outcrop and in the vicinity of the confluence of the Slocan and Little Slocan Rivers." She made several recommendations for further exploration, including continued prospecting, (leading to bulk sampling), in the vicinity of the known corundum deposits, including "along the northeast continuation of the abandoned railway line on the south side of the Slocan River up to Lebadoh Flats", and along the southwest boundary of Unit 1 between Passmore and Slocan Park. In addition, Coyle alluded to the fact that "some gem quality corundum is also obtained from placer deposits."

## III. CLAIMS Cf. Fig. 2

Contiguous claims held by **CANADIAN SAPPHIRE CORPORATION** include:

| CLAIM NAME | TENURE NUMBER |
|---|---|
| Vallican 1 | 325949 |
| Vallican 2 | 325952 |
| Vallican 3 | 325950 |
| Vallican 4 | 325951 |
| Vallican 5 | 325955 |
| Slocan 1 | 325953 |
| Slocan 2 | 325954 |
| Sultan 1 | 326087 |
| Sultan 2 | 326088 |
| Riley 3 | 325959 |
| Riley 4 | 325960 |
| Blu Starr 1 | 257259 |
| Blu Starr 2 | 257260 |
| Blu Starr 3 | 317212 |
| Blu Starr 4 | 320502 |
| Blu Starr 5 | 320503 |
| Blu Moon | 321011 |

(Mineral titles reference map 082F/12E, U.T.M. Zone 1)


Winlaw
Lebahdo
C.P.R.
Slocan River
Little Slocan River
VALLICAN 1
325949
VALLICAN 2
325952
VALLICAN 3
325950
VALLICAN 4
325951
VALLICAN 5
325955
BLU MOON
321011
SLOCAN 1
325953
SLOCAN 2
325954
RILEY 4
325960
RILEY 3
325959
SULTAN 1
326087
SULTAN 2
326088
BLU STARR 1 & 2
BLU STARR 3 & 4
BLU STARR 5
325504
324117
25725
25760
317212
320502
316799
316800
SLOCAN M.D.
NELSON M.D.
Airy Creek
Slocan Park
0 1 2 km
NTS 82F/12E
117° 45'
49° 30'
ANGLO SWISS INDUSTRIES INC.
BLU STARR PROJECT
SLOCAN & NELSON M. D.
CLAIM LOCATION MAP
Scale : 1 : 50000
By : M. Coyle
Date : July, 1995.
Figure : 2
Zocalo Exploration Associated Inc.

## IV. GENERAL GEOLOGY Cf. Fig. 3

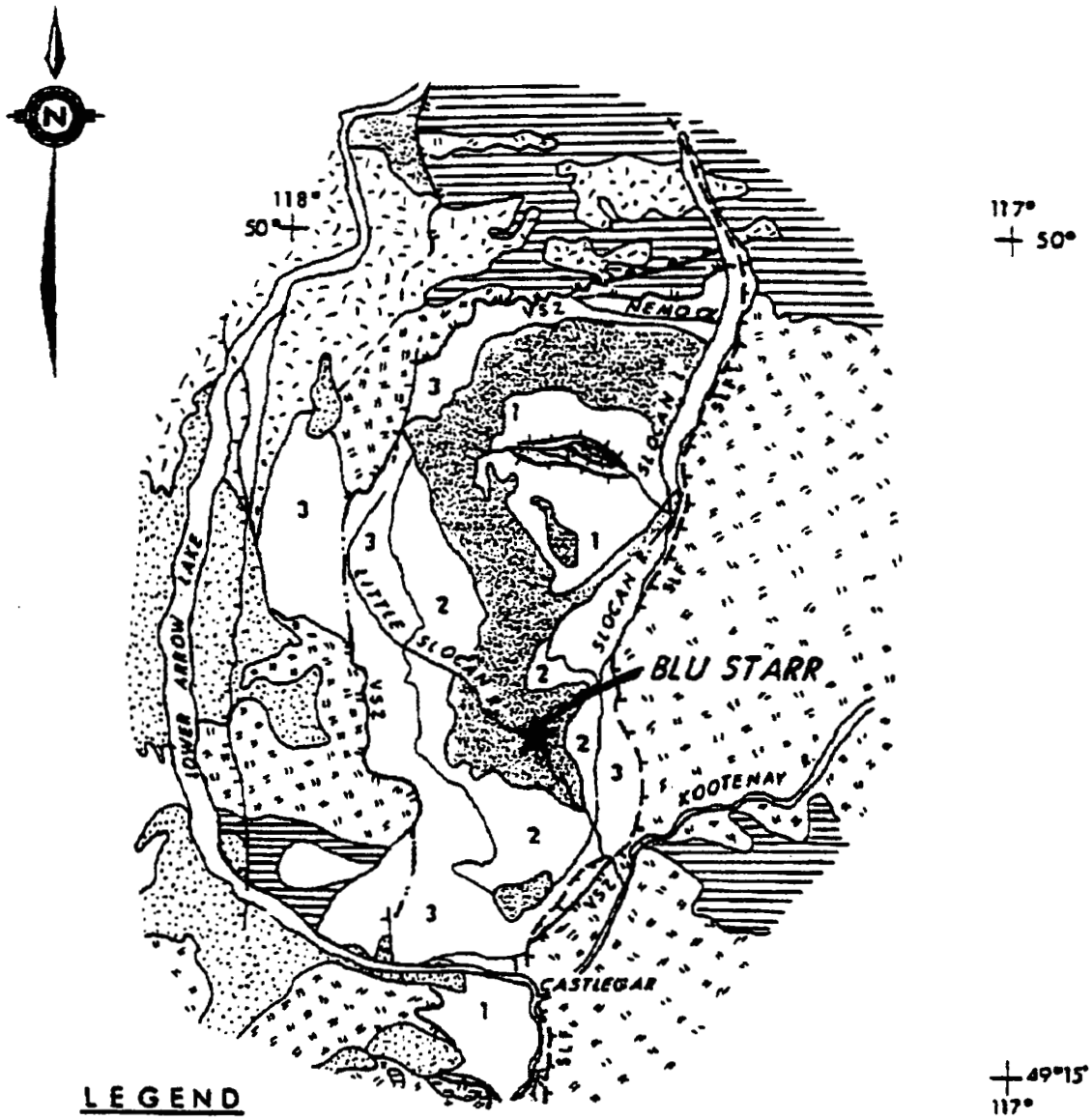
The Blu Starr property lies within the Shuswap Metamorphic Complex in the Omenica Terrane, which Coyle describes as "an uplifted region underlain by metamorphic and granitic rocks." She further describes the belt as "a line of northwesterly structural culminations and depressions. The depressions consist of low-grade sedimentary rocks and the structural culminations or domes comprise core zones of moderate to high-grade metasedimentary rocks and enclosed wedges of Lower Proterozoic basement gneiss. Younger gneisses, deformed Late Proterozic, Devonian, Mesozoic, and Tertiary Intrusions are found throughout the belt. Abundant Middle Jurassic age plutonism occurs in the south." These rocks are "penetratively deformed and have sustained several phases of ductile deformation in the lowest strutural levels, while the higher structural levels display more concentric folds and brittle deformation."

Coyle states "The lowest assemblage within the Valhalla metamorphic gneisses, Unit 1d (Reesor, 1965), makes up the core of the Passmore Dome and is described as a very heterogeneous succession of paragneiss and interlaminated quartzo-feldspathic rock, pegmatitic granite, and pegmatite. This unit is said to be overlain by the veined granodioroite gneiss, chiefly an augen granodiorite gneiss veined with lucogranodorite, lucogranite, and pegmatite of the Valhalla Dome." It was unclear to Coyle whether the lower gneisses were in fact Pre-Cambrian in age.

Coyle considers the region's pinching and swelling domes and depressions to represent a broad scale boudinage texture, (that can be extrapolated to outcrop scale geology), and that the broad or swelled regions represent "domal" or "upwarped" basement complexes with overlying stratified rocks, and the depressions characterized by lower metamorphic grade younger rocks. She stresses the contact zone between these basement complexes and the overlying gneisses, with their fault boundaries and intrusions. Another relationship stressed is the "occurrence of syenitic intrusive rocks and plutonic bodies, which in some cases make up part of the basement and in other cases are defined as part of the overlying gneissic assemblages." She felt it important to understand the relationship between these intrusions and their fenitized margins in order to "relate the core comlex geochemistry to the overlying fenites and gneisses found in the lower parts of the Shuswap and Valhalla Metamorphic Complexes."

According to Coyle the key element for the identification of the important corundum bearing strata is the location of plagioclase-feldspar-augen or "eyes" surrounded by haloes of biotite and chlorite.

Map 1714A shows the area to be underlain by sillimanite grade metamorphic rocks.




## LEGEND

### GEOLOGY

- Middle Eocene (Coryell) syenite, granite
- Mid - Cretaceous granitic rocks
- Middle Jurassic granitic rocks
- Middle Paleozoic - Early Mesozoic rocks of allochthonous Quesnel terrane
- Paragneiss, age uncertain

**METAPLUTONIC ROCKS**

- 3 Early Eocene Ladybird granite suite
- 2 Paleocene quartz monzonite
- 1 Mid - Late Cretaceous granitic rocks

SLF Slocan Lake Fault
VSZ Valkyr Shear Zone

0 5 10 15 km

### SYMBOLS

- Slocan Lake fault
- Valkyr shear zone
- Thrust fault
- Steep normal fault
- Geologic contact

*Note: Modified from Carr et al. 1987.*

ANGLO SWISS INDUSTRIES INC.

BLU STARR PROJECT
SLOCAN & NELSON M.D.

GEOLOGICAL MAP
OF VALHALLA COMPLEX

| Scale : as shown | By : M. Coyle |
|---|---|
| Date : July, 1995. | Figure : 3 |

Zocalo Exploration Associated Inc.

## V. PROPERTY GEOLOGY Cf. Fig 4 (Reesor)

Hoy *et al*, (1993) describes the hostrocks on the property as being "representative of the metasedimentary gneisses and leucocratic granitoid intrusions at a relatively deep level of the Passmore domal culmination. Here the metasedimentary gneisses are mainly syenitic or monzonitic in bulk composition.."

Coyle describes the Blu Starr occurrence as a an augen gneiss unit with a strike length of over 250 metres, with outcrop ranging from as little as 10% to as much as 50%. She estimates vertical exposure of the corundum bearing horizon as 30 metres.

"Intimately interbanded and interlayered quartzofeldspathic lucogranitic zones are found with biotite, amphibole, dominant mafic schistose horizons, layers and foliations. In some areas, a distinctive banding is noted, with augen noted in the pale bands and surrounded by the dark mafic shears. The augen appeared to be pegmatitic and perhaps generated in pressure windows with clusters and clots of large euhedral to anhedral bronzy-blue and grey corundum crystals with distinctive cross sections and long sections.

Large and small garnets are also found along banding and foliation planes, and also in clusters, distributed as clots or augen regularly associated with quartz. Zircon crystals are abundant and can be up to a centimetre in size, and can be found associated and intergrown with biotite, amphibole and perhaps tourmaline."

In her 1994 MEMPR Bulletin 88 J. Pell states " blue corundum crystals (star sapphires) up to 1-2 centimetres in size have been discovered ... within a syenitic phase of the Valhalla gneiss complex, part of the Passmore Dome."

The sodium feldspar pegmatite intrusions into hybrid gneisses of Passmore Dome have very little quartz, < 5%, and consist of very coarse grained interlocked feldspar crystals up to 9 cm in size, whitish in colour, with some hornblende, (8%), and minor biotite and muscovite. The pegmatite bodies are sub-horizontal, and 10 to 80 centimetres thick, with a biotite selvage on the margins. The outcrop trends approximately $260^0$.

The unit appears to be Reesor's Unit 1d. (Cf. Fig.4)

The Blu Moon occurrence is much less complex than the Blu Starr. It is a simple pegmatite with no garnets or titanite, minor epidote, calcite, actinolite, with some black tourmaline in radiating sprays up to 8 cm. Contacts are not observed, so the pegmatite is open in all directions. The pegmatite is exposed in the hillside, also in 4 trenches dug on the hill-slope where overburden was dug away from the outcrop to expose up to a 2.5 metre depth of pegmatite.

The overburden is a talus and coarse sand, buff in colour. There were no items of interest on visual inspection of the overburden. The cliff face appears to have been exposed to water action at one time - it has a smooth, water worn appearance. There appear to be cavities with free form

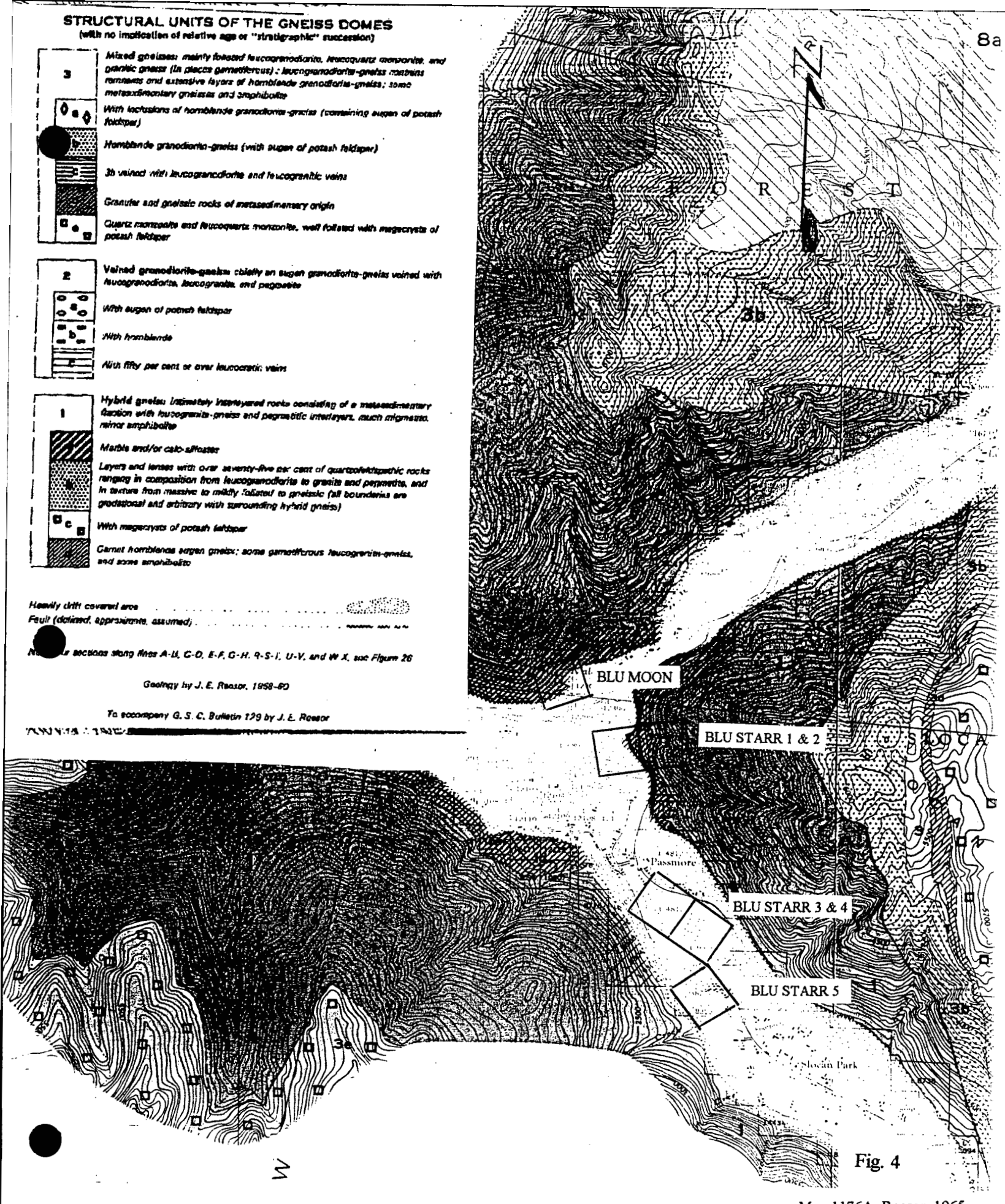



Fig. 4

Scale: 1: 63,360 (Claims plotted approx. using 1:50,000 template)

- Map 1176A, Reesor, 1965, (showing relationship between Blu Moon and Blu Starr 3&4 Claims to Regional Geology.)

corundum crystals growing in them, with the cavities up to 6 cm long, and 1.5 cm wide.

The corundums here are a more intense blue than on the Blu Starr. On the Blu Starr 85% of the stones are brown and copper coloured, with about 15% blues and greys; on the Blu Moon some 85% are various shades of blue with 15% greys and browns. [The Blu Starr also has yellow, green, mauve, copper and black coloured stones.]

On both showings about 1% is facet grade, with the remaining being star quality. This is unusual: most deposits elsewhere are facet grade material rather than star quality. The corundum crystals from this area average 25 carats or more, with biggest being 250 carats.

Dan Hora has commented that the zircons from this property are the biggest he has seen, (personal communication). They are browns and reds up to some 6 cm in size, and may have an industrial mineral potential.

## VI. 1995/ 96 WORK PROGRAMME

In keeping with Coyle's recommendations the 1995/96 exploration programme focussed on extending the known areas of corundum mineralization through prospecting, trenching and sampling. Most effort was concentrated on the Blu Moon and Blu Starr 3 claims.

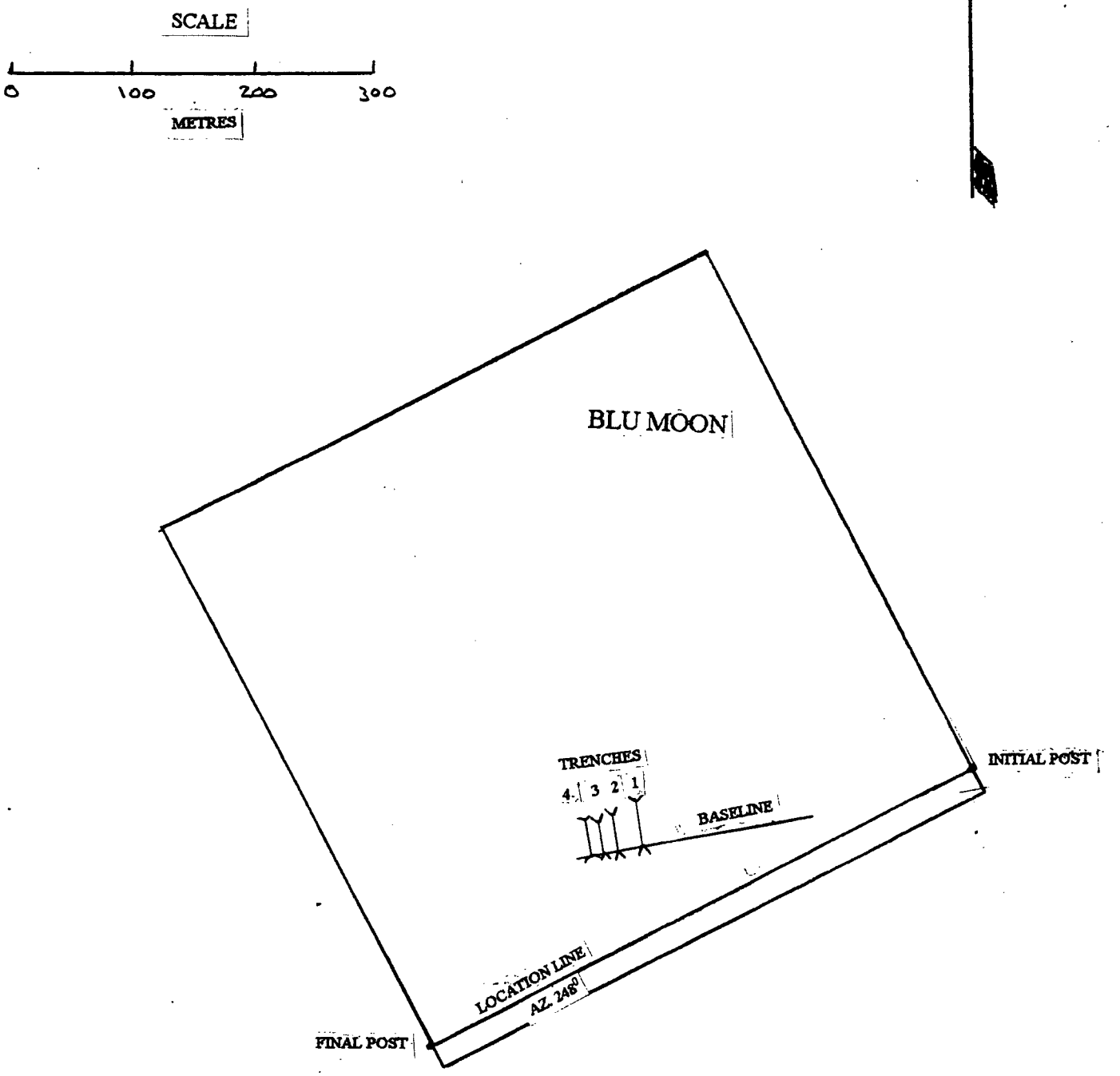
### A. Blu Moon

Between May 08 and May 17, 1996, a crew prospected, flagged occurences, trenched and collected samples. The first three days were rainy and cool, while the rest of the days enjoyed good weather conditions. Trenching exposed more corundums and zircons in the outcrop face, and corundum bearing float was found on the talus slope to the base of the hill. (Cf. Fig. 5)

May 08: A crew consisting of J. W. Demers, R.L. Luchansky, and B. Meszaros spent day scouting and prospecting the cliff face, flagging all visible showings of crystals. Blue flagging identified corundum occurences; orange flagging was used for zircons. The crew also found nice blue crystal in a piece of float. The latter part of the day was spent collecting samples from the talus slope.

May 09: The same crew ran a baseline at Azimuth $260^0$ at the foot of the cliff wall, and brushed it out. They then flagged and brushed three lines perpendicular to the baseline. The intention was to trench along these lines. Another showing of blue corundums was discovered at the base of the slope, and more blue corundums were found in float.

Fig. 5: SKETCH SHOWING APPROX. LOCATION OF TRENCHES ON BLU MOON



May 10: The same crew flagged and brushed a fourth trench line, and prospected the face and slope for more specimens. Blue corundums were found growing in a cavity on the hillslope. More corundums, and some nice zircons were collected from the float.

May 13: A larger crew including M. Goldenberg, I. Youngreen, M. Bullanoff and D. Wolbaum began hand trenching on No. 1 Line. This crew was able to uncover another 3 metres of strata. Another zone of blue corundums was found to the extreme right of this outcrop, and some nice specimens were collected.

May 14: The crew was split into two teams with one team each working on trenches on Lines 2 and 3. While scouting the face more blue crystals were found growing in a cavity. In another cavity green crystals of an unidentified mineral were found.

May 15: Trenches 2 and 3 were completed, and a new trench begun on Line 4. Some blue corundum was exposed in Number 3 trench.

May 16: The trenches were completed. All trenches were approximately 2.5 metres deep, and 2.5 metres wide. Finished lengths of the trenches from the baseline were:

| | |
|---|---|
| No. 1 | 35 metres |
| No.2 | 30 metres |
| No. 3 | 29 metres |
| No. 4 | 30 metres |

May 17: The crews went over the trenches, making them safe. All loose rock was moved away from the edges, and the sides of the trenches were sloped to as safe a degree as possible (considering the geology). The remainder of the day was spent collecting and sorting samples.

While Trench No. 1 exposed some 3 metres of new strata no new showings stood out, although some zircons and corundum were recovered from float. Trench No. 2 also exposed about 3 metres of new strata showing visible zircons. Once again some corundum was found in the trench float. In Trench No. 3 about 5 metres of new strata was uncovered. A new showing of blue corundum was found near the top of this trench and zircons abound. Trench No. 4 exposed 6 metres of strata with much of the upper layers carrying much zircon. Some sprays of black tourmaline were found at lower elevations, mostly in Trench No. 3.

## B. BLU STARR 1

Between March 13 to 15, 1996 some physical work was done extracting rock and recovering gem quality corundum specimens for evaluation.

March 13: R. Luchansky and Lloyd spent 6 man-hours extracting rock by hand from the old railway cut.

March 14: R. Luchansky and M. Goldenberg spent 5 man-hours working with a rented Cat and its operator. The cat was used to loosen and scale the face, thus aiding the recovery of gem quality corundum crystals. Some handpicking was done as well.

March 15: M. Goldenberg, R. Luchansky, and Lloyd spent 12 manhours using a rented hammer drill to break down large boulders recovered with the Cat, again extracting gem quality corundum crystals.

On May 10 a four man crew, (M. Goldenberg, M. Bulanoff, I. Youngreen, and D. Wolbaum), collected 68 kilograms, (150 pounds), of sapphire bearing material from the old C.P.R. rail bed over a distance of 100 metres.

## C. BLU STARR 3

Cf. Fig. 6

Because of its location in the valley bottom the Blu Starr 3 is mostly underlain with alluvial gravels, and lacustrine silts and sands, deposited since the last ice age by the shifting Slocan River. To help evaluate the gem bearing potential of this claim 30 sample pits, each 1.5 metres deep, were dug by hand. From each pit four shovelfuls of gravel were bagged and saved for future concentration.

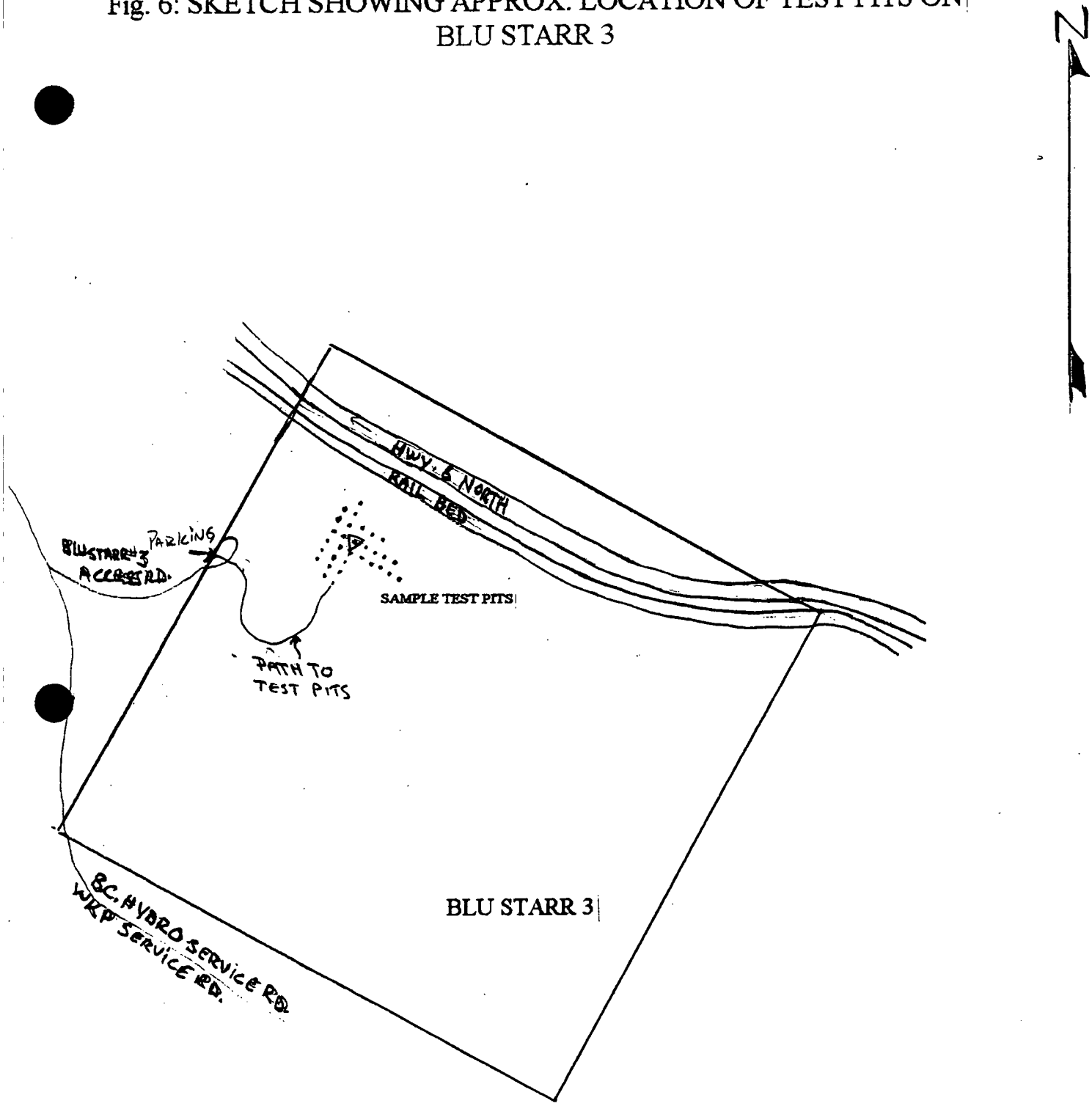
A crew of four, (M. Goldenberg, I. Youngreen, M. Bulanoff, and D. Wolbaum), was employed for this project.

May 07: A total of 20 sample sites were established on a grid with 10 metre spacings, chained and flagged. Eleven pits were dug.

May 08: Nineteen sample pits were dug, and another 21 sites were established on the grid, 10 metre spacings, chained and flagged.

May 09: The sample pits were filled in.

# Fig. 6: SKETCH SHOWING APPROX. LOCATION OF TEST PITS ON BLU STARR 3



In total 30 pits were dug, and 12 were sampled. The gravels encountered were very coarse, and semi-angular with very coarse light coloured sands. However, not all sample sites displayed gravels: 18 were fine sands, silts and loams. Only those pits with coarse gravels and sands were sampled.

The fragments encountered in the gravels were feldspars, clear, smoky and milky quartz, and granitic/pegmatitic rock fragments with muscovite and biotite, with the largest fragments being up to 1 centimetre in size. In total 12 samples, each weighing about 22.7 kilograms, (50 pounds), were collected for a total of 272 kilograms, (600 pounds).

The water table was encountered at about 1 metre below the forest floor; it may drop later in the year allowing better recoveries.

These samples were processed in Thrums, (near Castlegar), using a rented home-made machine based on a water turbine. Gravel is shovelled into a hopper, and then dropped into the water flow which concentrates the heavy fraction by gravity, the heavy fraction containing moonstone (feldspar) and quartz. No corundum was recovered from the horizon sampled but moonstones were abundant. [This is not unexpected, as the heavier corundum can be anticipated to have settled at lower horizons in the sedimentary column.]

## VII. CONCLUSION

The exploration programme was successful in confirming and extending areas of mineralization. The corundum is gem grade (star and facet) sapphires which can be worked into beautiful star sapphires which have been sold locally in the Nelson Area, commanding good prices, thus demonstrating the marketability of these stones.

Moonstones are cut and polished and are also marketable, as are zircons recovered from the property.

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# STATEMENT OF EXPENSES

## EQUIPMENT CHARGES

| | |
|---|---|
| Cat Work | $ 720 |
| Air Hammer | $ 150 |
| Concentrator | $ 100 |
| 4 x 4 | $ 810 |

## LABOUR

| | Hours | Rate/hr | Total |
|---|---|---|---|
| B. Meszaros | 72 | 15 | $ 1080 |
| I. Youngreen | 72 | 14 | $ 1008 |
| M. Bullanoff | 72 | 14 | $ 1008 |
| J. Demers | 72 | 20 | $ 1440 |
| R. Luchansky | 99 | 20 | $ 1940 |
| M. Goldenberg | 72 | 20 | $ 1440 |
| D. Wolbaum | 72 | 14 | $ 1008 |
| Miner (Lloyd ) | | | $ 400 |
| March labour costs | 23 | | $ 400 |

MEALS $5/day x 7 men x 9 days $ 165

MISC. SUPPLIES $ 150

REPORT $ 1000

SUPERVISION (Leroy Wolbaum, Canadian Sapphire Corp.) $ 4000

## TRANSPORTATION

Mileage (@ 40 cents per kilometre) $ 880

SUB-TOTAL $17699

OVERHEADS (plus 15%) $ 2655

**GRAND TOTAL** **$20354**

# STATEMENT OF QUALIFICATION

I, **MARC GOLDENBERG**, of Box 33, Slocan Park, BC, V0G 2E0, do hereby certify that:

1. I am a graduate, (1986), of the Advanced Mineral Exploration Course for Prospectors taught at Mesachie Lake, sponsored by MEMPR and Malaspina College.

2. I completed a Basic Rock and Mineral Identification Course instructed by Mr. George Addie, District Geologist, in 1984.

3. I have been engaged in Prospecting for 14 years. My experience includes:
   i) staking numerous claims, both for clients and on my own account, (including the first known sapphire bearing deposit in Western Canada);
   ii) conducting assessment work on my own claims, including mapping, sampling, test pitting and trenching an epithermal amethyst-barite-gold deposit;
   iii) geophysical survey of mineralized area in Mavis Bank, Jamaica W.I., an area identified by CIDA surveys as having numerous copper anomalies. Supervised SP survey, mapping and mineral sampling. Reviewed geochemical results, analysing and reporting;
   iv) conducted an SP survey on east side of Crusader Creek BC, (Mount Ruppel area).

4. I was intimately involved in the 1995 exploration programme detailed in this report.

M. Goldenberg

M. Goldenberg, FMC 109866GOLDMR
October 9, 1996