87-303-15922

AIR PHOTOGRAPHY AND MAP GENERATION SAUNDER 1-4 MINERAL CLAIMS NTS 94E/6E LATITUDE 57 deg. 21' NORTH LONGITUDE 127 deg. 05 WEST 03 OMINECA MINING DIVISION BRITISH COLUMBIA

FILMED

Owner Operator: GOLDEN RULE RESOURCES LTD. CALGARY, ALBERTA

GEOLOGICAL BRANCH

JUN 9- 1097 GOVERNMENT AGENT SMITHERS, B.C. by

Bruce T. Evans, P. Geol. May, 1987

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Map 1 Saunder project Digital map - Scale 1:5,000

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#### CERTIFICATE

I. Bruce Thomas Evans, of #165, 78 Glaimisgreen, SW, in the City of Calgary, Province of Alberta, do hereby certify that:

1. I am a Senior Exploration Geologist with the firm of Golden Rule Resources Ltd. with offices at #410, 1122 - 4 Street. SW., Calgary, Alberta.

2. I am a graduate of Queen's University, B.Sc. (Hons.) Geology (1982) and have practiced my profession continuously since graduation.

3. I am a member in good standing of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

4. Work contained within this report was contracted by myself and performed under my supervision.

5. I do not own and do not expect to receive any interest (direct, indirect or contingent in the property described herein nor in the securities of Golden Rule Resources Ltd.

DATED at Calgary, Alberta this 13th day of May, 1987.

Respectfully submitted. Evans, 🎙. Geol.



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#### SUMMARY

During September of 1986 Golden Rule Resources Ltd. contracted Orthoshop to fly an airborne photographic mission over several claim blocks in the Toodoggone region of Northern British Columbia, one of which being the Saunder 1-4 claim block.

The air photo scale taken was 1:20,000 and in select cases 1:10,000; all photographs are black and white. Terrain data from the photos was digitized by using a computer stereoplotter and from this data a series of Orthophotos created. Ground control points from the existing NTS 94E/6E 1:50,000 map sheet were utilized to provide horizontal and vertical control of the digitized data.

Data presentation is by Orthophoto and by a 1:5,000 topographic map with 5 metre contour intervals.

#### INTRODUCTION

#### 1.1 PROPERTY AND OWNERSHIP

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The Saunder 1-4 mineral claims are located in the Omineca Mining Division of Northern British Columbia. The claims are owned entirely by Golden Rule Resources Ltd. of Calgary, Alberta.

CLAIM NAME	NO. OF UNITS	RECORD NO.	DATE OF RECORD
Saunder 1	12	7603	May 2, 1986
Saunder 2	12	7604	May 2. 1986
Saunder 3	20	7605	May 2, 1986
Saunder 4	20	7606	May 2, 1986

Figure 2 illustrates the exact location of the Saunder 1-4 claim block.

#### 1.2 LOCATION AND ACCESS

The Saunder 1-4 mineral claims form a contiguous property located within N.T.S. map-area 94E/6E. The approximate coordinates of the claims are 57 deg. 21' North Latitude and 127 deg. 05' West Longitude (Figure 1).

The property encompasses the area around Saunders Creek, approximately 2 km south of the confluence of this creek with the Toodoggone River. The property is situated approximately 300 km north of Smithers, the normal supply centre.

Access to the property is via fixed-wing aircraft to the Sturdee Airstrip, then by helicopter to the property.

#### 1.3 PHYSIOGRAPHY AND GLACIATION

The claims lie within the Cassiar Mountains physiographic subdivision of the Interior Plateau. The region is entirely glaciated and is characterized by wide U-shaped drift-filled valleys and deeply-cut V-shaped upland valleys. Mountain peaks in the area average 1.980 metres ASL, and rise fairly abruptly from the major valleys. The topographic expression of the Toodoggone Volcanics is considerably more subdued as compared to the more rugged topography in areas underlain by Takla Group volcanic rocks.

On the Saunders claims, the maximum relief from the valley of Saunders Creek to the highest mountain in the area is 665 metres. Lowlands are present along Saunders Creek and its tributaries; the Saunders 1 claim encompasses the flanks of the Toodoggone River Valley. The upland ridges and mountains tend to be serrated into aretes by Pleistocene valley glaciation. Bedrock

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#### 1.4 PREVIOUS WORK

The initial exploration within the boundaries of the current Saunder 1-4 claims was carried out by Denison Mines Limited during 1969-1972. This work was designed to evaluate the gold, silver, and copper potential of the area. Work completed included air photogeology; geological mapping; and silt, soil, and rock geochemistry. This exploration resulted in the location of the SOM chalcopyrite showing (see Map 1).

In addition to exploration carried out by Denison Mines, Kennco Exploration (Western) Limited staked the original Saunders claims and carried out an exploration program in 1971. This work included geological mapping along with limited silt, soil, and rock geochemical sampling. This work was directed towards both base and precious metals.

In 1980, Golden Rule Resources Ltd., within the Saunder claims, performed limited silt and soil sampling. In 1981, a helicopterborne VLF-EM and magnetometer survey was completed, followed by ground VLF-EM and magnetometer surveys. In addition, the claims were mapped geologically; and silt, soil, and rock geochemical samples were acquired and geochemically analyzed. A number of gold and/or silver geochemical anomalies were delineated. Nine of these anomalies could be related to strong fracture systems which transect the property.

In 1983, a limited geochemical program consisting of close-spaced grid sampling, was carried out in the area previously identified as anomalous.

During 1985 continued geochemical sampling was performed and returned encouraging results within a 3-4 metre wide quartz barite breccia, assaying 0.210 oz Au/ton

#### 2.0

#### REGIONAL GEOLOGY

Regional mapping of the Toodoggone area has been carried out by both the Geological Survey of Canada and the British Columbia Ministry of Energy, Mines and Petroleum Resources.

During 1971-1975, the regional geology was mapped by Geological Survey of Canada at a scale of 1:250,000 under the direction of Dr. H. Gabrielse, with the results published in 1977 as G.S.C. Open File 483.

The British Columbia Department of Mines carried out an on-going mapping program in the Toodoggone area from 1971 to 1984. In 1985, a compilation map was published at a scale of 1:50,000 as Preliminary Map 61. This mapping, completed under the direction of T. G. Schroeter, details the units of the Toodoggone Volcanics which had become the focus of gold exploration in the district. The following description of the regional geology is excerpted from his 1982 report:

> The Toodoggone area lies within the eastern margin of the Intermontaine Belt. The oldest rock exposed are wedges of crystalline limestone more than 150 metres thick that have been correlated with the Asitka Group The next oldest rocks consist of of Permian age. andesitic flows and pyroclastic rocks including augitetremolite andesite porphyries and crystal and lapilli tuffs that belong to the Takla Group of Late Triassic The Omineca intrusions of Jurassic and age. Cretaceious age (potassium-argon age of 186 to 20 Ma obtained by Geological Survey of Canada) range in composition from granodiorite to quartz monzonite. Some syenomonzonite bodies and quartz feldspar porphyry dykes may be feeders to the Toodoggone rocks which unconformably overlie the Takla Group. The volcanic rocks (named informally by "Toodoggone" Carter, 1971) are complexly intercalated volcanic and volcanic-sedimentary rocks of Early and Middle Jurassic age, 500 metres or more in thickness, along the west flank of a northwesterly trending belt of "basement" rocks at least 90 kilometres in length by 15 kilometres in width. A potassium-argin age of 186 plus or minus 6 Ma was obtained by Carter (1971) for a hornblende separate from a sample collected from a volcanic sequence 14 kilometres southeast of Drybrough Peak. subdivisions of "Toodoggone" rocks have Four principal been recognized:

> Lower Volcanic Division -- dominantly pyroclastic assemblage including purple agglomerate and grey to grey to purple dacitic tuffs.

- (2)Middle Volcanic Division -- an acidic assemblage including rhyolites, dacites, "orange" crystal to lithic tuffs, and quartz feldspar porphyries; includes welded tuff. The "orange" color of the tuffs resulted from oxidation of the fine-grained matrix while the rock was still hot. A coeval period of explosive volcanism included the formation of "laharic" units and intrusion of syenomonzonite bodies and dykes. This event was accompanied by explosive brecciation along zones of weakness, predominantly large-scale faults and attendant splays, followed by silicification and deposition of precious and base metals to varying degrees in the breccias. Rounded fragments of Omineca intrusive rocks are rare components in Toodoggone tuffs.
- (3) Upper Volcanic-Intrusive Division -- grey to green to maroon crystal tuffs and quartz-eye feldspar porphyries.
- (4) Upper Volcanic-Sedimentary Division -- lacustrine sedimentary rocks (sometimes varved), stream bed deposits, and possible local fanglomerate deposits and interbedded tuff beds.

Many Toodoggone rocks have a matrix clouded with fine hematite dust implying a subaerial origin, however, some varieties may have accumulated in shallow water. The host rock for mineralization (division 2) is an orange to chocolate brown colored crystal tuff with varying minor amounts of lithic and vitric ash. Broken crystals of plagioclase and quartz are set in a finegrained "hematized" matrix of quartz and feldspar. The exact chemical composition(s) and rock name(s) await chemical analyses. Carter (1971) determined the composition of a suite of rocks collected from the Toodoggone area to range from latites to dacite.

To the west, Upper Cretaceous to Tertiary pebble conglomerates and sandstones of the Lower Tango Creek Formation of the Sustut Group unconformably overlie both Takla Group volcanic rocks and Toodoggone volcanic rocks.

The structural setting was probably the most significant factor in allowing mineralizing solutions and vapours to migrate through the thick volcanic pile in the Toodoggone area. The entire area has been subjected to repeated and extensive normal block faulting from Jurassic to Tertiary time. It is .....

postulated that a north-westerly trending line of volcanic centres along a gold/silver-rich "province" marks major structural breaks, some extending for 60 kilometres or more (for example, McClair Creek system, Lawyers system). Prominent gossans are often associated with structural zones but many contain only pyrite; sulphides occur as disseminations and fracture fillings in Toodoggone and Takla Group rocks. Thrusting of Asitka Group limestones over Takla Group rocks probably occurred during Middle Jurassic time.

Today Toodoggone rocks display broad open folds with dips less than 25 deg. The Sustut Group sedimentary rocks have relatively flat dips and do not appear to have any major structural disruptions.

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#### 3.0 AIRBORNE PHOTOGRAPHY AND MAP GENERATION

The September, 1986 air photo mission provided complete black and white photo coverage of the Saunder 1-4 claim block. Air photograph scales provided were 1:10,000 and 1:20,000. For mapping purposes terrain points from the photos were digitized by using a computer stereoplotter, a Wild AC-1. Corrected orthophotos were created from the digitized data.

Ground control points from the existing NTS 94E/6E 1:50,000 topographic sheet were utilized to provide horizontal and vertical survey control for the plotting of the digitized data.

Terrain data presentation is by black and white orthophoto and by a 1:5,000 scale digital topographic map with 5 metre contour intervals.

#### BIBLIOGRAPHY

DAVIS, J.W. (1985): Geological and Geochemical Report, on the Saunders 1-4 Minerals Claims, NTS 94E/6E, for Golden Rule Resources Ltd.

GABRIELSE, H. (1977): Geology of the Toodoggone and Ware Map Areas, B.C.: Geological Survey of Canada, Open File 483.

SCHROETER, T.G. (1983): Toodoggone River Area, B.C.: <u>In</u> Geological Fieldwork 1984, B.C. Min. Energy Mines, Paper 1985-1, pp 291-298.

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# APPENDIX I

## SUMMARY OF EXPENDITURES

Supervision: B. Evans - 1.0 day @ \$250	\$ 250.00
Airborne Photographic Mission: Orthophoto Management, Cameras. Aircraft	2,585.00
Map Generation: Orthoshop digitizing and plotting	<u>3,565.00</u>
TOTAL	\$ 6,400.00 =======



