GEOLOGICAL REPORT
ON THE
GRAVY II AND IV MINERAL CLAIMS
OMINECA MINING DIVISION
BRITISH COLUMBIA

FOR
HEMLO EXPLORATIONS LTD.

Nicholas C. Carter, Ph.D., P.Eng.
Consulting Geologist

Victoria, B.C.

April 9, 1985

SUMMARY

Hemlo Explorations Ltd. owns the Gravy II and IV mineral claims, each comprised of 15 units and situated in the Toodoggone River area of north-central British Columbia.

The Gravy II and IV claims are 300 kilometers north of Smithers and are accessible by fixed-wing aircraft and helicopter.

The Toodoggone River area is a significant epithermal precious metals district. Proven deposits include the formerly producing Baker gold-silver mine and the Lawyers property which has a reported reserve of 1 million tonnes grading 7.27 grams/tonne gold and 254 grams/tonne silver. The Lawyers and several other significant gold-silver prospects in the area are hosted by early Jurassic Toodoggone volcanic rocks.

The Gravy II and IV mineral claims are underlain by Hazelton Group andesitic flows and pyroclastic rocks which are slightly older than the Toodoggone volcanic sequence. Previous geological and geochemical surveys in parts of the present claims area have indicated several zones with anomalous lead, silver and gold values. A significant silver-gold showing is situated west of the present claims.

A two phase exploratory program is recommended to evaluate the Gravy II and IV claims. Phase I, including follow up sampling of previously defined anomalous zones and geological mapping and geochemical sampling of the entire claims area, is estimated to cost $53,500. A second phase, contingent on results of Phase I work, has estimated costs of $60,000.

TABLE of CONTENTS

Nicholas C. Carter, Consulting Geologist

LIST of FIGURES

INTRODUCTION

Hemlo Explorations Ltd. owns the Gravy II and IV mineral claims which are situated in the Toodoggone River area of north-central British Columbia.

This report, prepared at the request of Hemlo Explorations Ltd., is based on several examinations of the claims area in 1981 and 1982 and on published and unpublished reports and maps listed in the References section of this report.

The writer supervised exploration programs in the area of Mount Graves and has a good general knowledge of the Toodoggone area by way of numerous property examinations over the past 14 years.

LOCATION and ACCESS

The Gravy II and IV mineral claims are situated 300 kilometers north of Smithers in the Toodoggone River area of north-central British Columbia (Figure 1). The geographic centre of the claims is at latitude 57°23' North and longitude 126°56' West in NTS map area 94E/7W.

Access into the Toodoggone River area is by fixed wing aircraft to a 1,600 metre long gravel airstrip on the Sturdee River (Figure 2). The Gravy II and IV claims are a 20 kilometer helicopter flight northeast of the airstrip.

A road currently links Baker mine and the Lawyers property with the Sturdee airstrip (Figure 2). Extension of the Omineca mining road into the area from the present terminus 65 kilometers to the southwest, would provide conventional access to Prince George and points south.

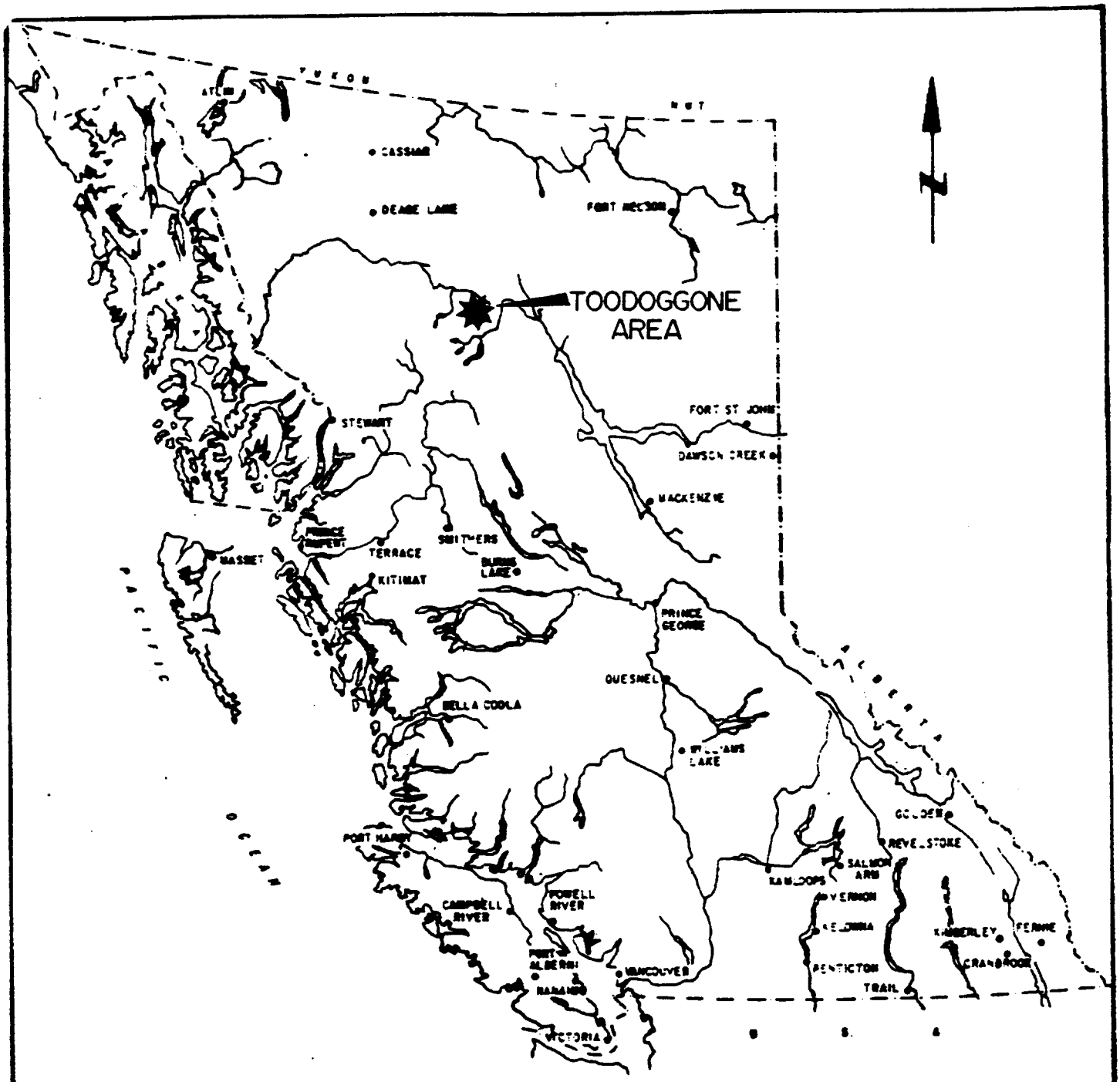

FIGURE 1

LOCATION MAP

MINERAL PROPERTY

The Gravy II and IV modified grid mineral claims each comprise 15 units and are situated in the northern part of the Omineca Mining Division.

The claims are believed to have been located in accordance with procedures as specified by the Mineral Act Regulations for the Province of British Columbia. The claims were located recently in winter conditions and the westernmost part of the Gravy IV claims apparently overlaps a previously located claim (Figure 3).

The writer has reviewed data provided by locators of the claim and records on file with the office of the Gold Commissioner, Vancouver.

Details of the claims are as follows:

Name of Claim	Units	Tag Number	Expiry Date
Gravy II	15	102375	March 25, 1986
Gravy IV	15	102402	March 25, 1986

PHYSICAL FEATURES

The Toodoggone River region is an upland area featuring rounded to craggy mountains and ridges dissected by broad alluvium-filled valleys. Steep-walled cirques are common on north-facing slopes while southerly slopes are generally more gentle and rounded.

The Gravy II and IV claims cover moderately rugged topography on the east slope of Mount Graves and the steep ridge south of Toodoggone Lake (Figure 3). Elevations range from 1,340 metres near the northwest corner of the Gravy II claim to 2,200 metres in the southeast part of the Gravy IV claim.

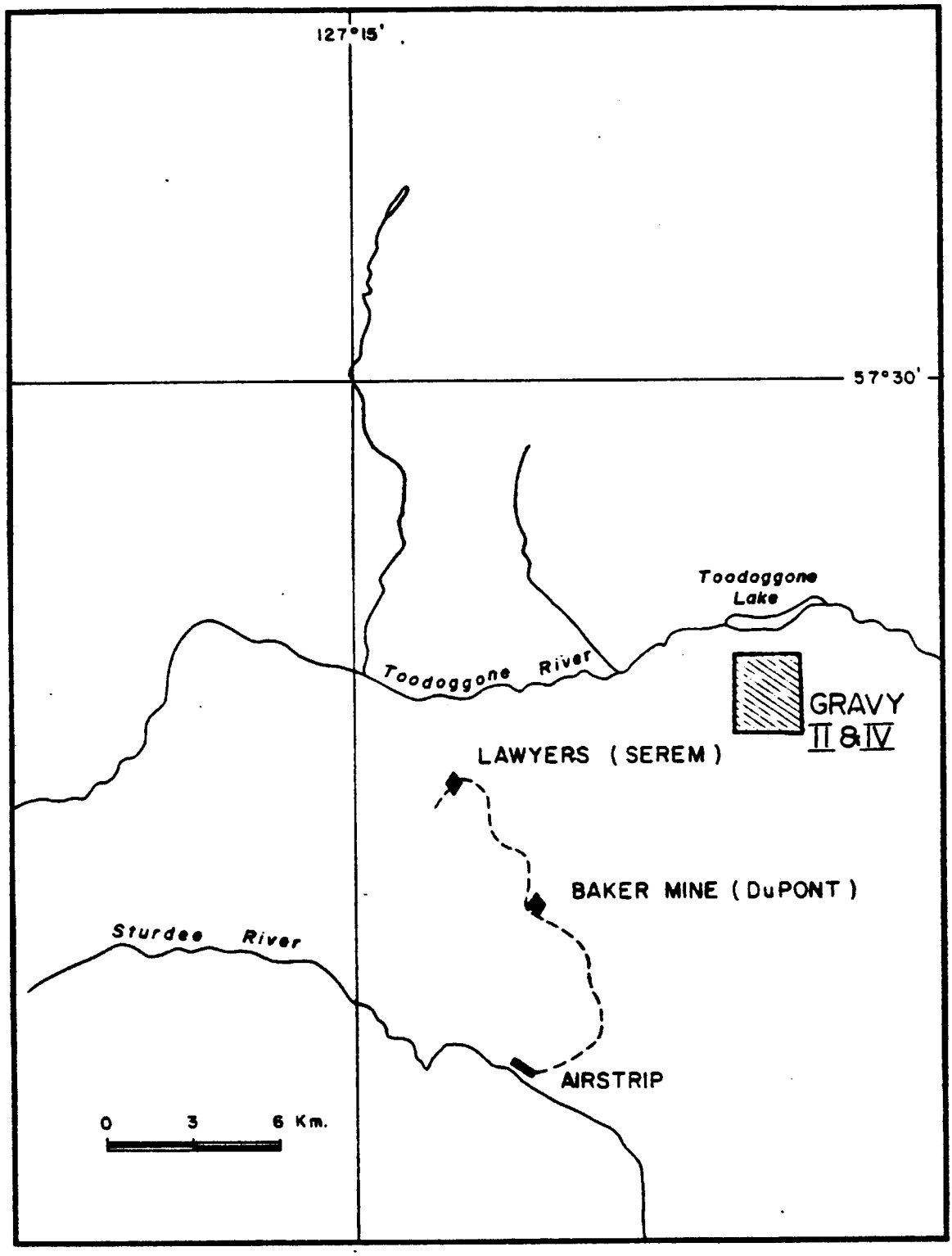

FIGURE 2 - LOCATION - GRAVY II & IV

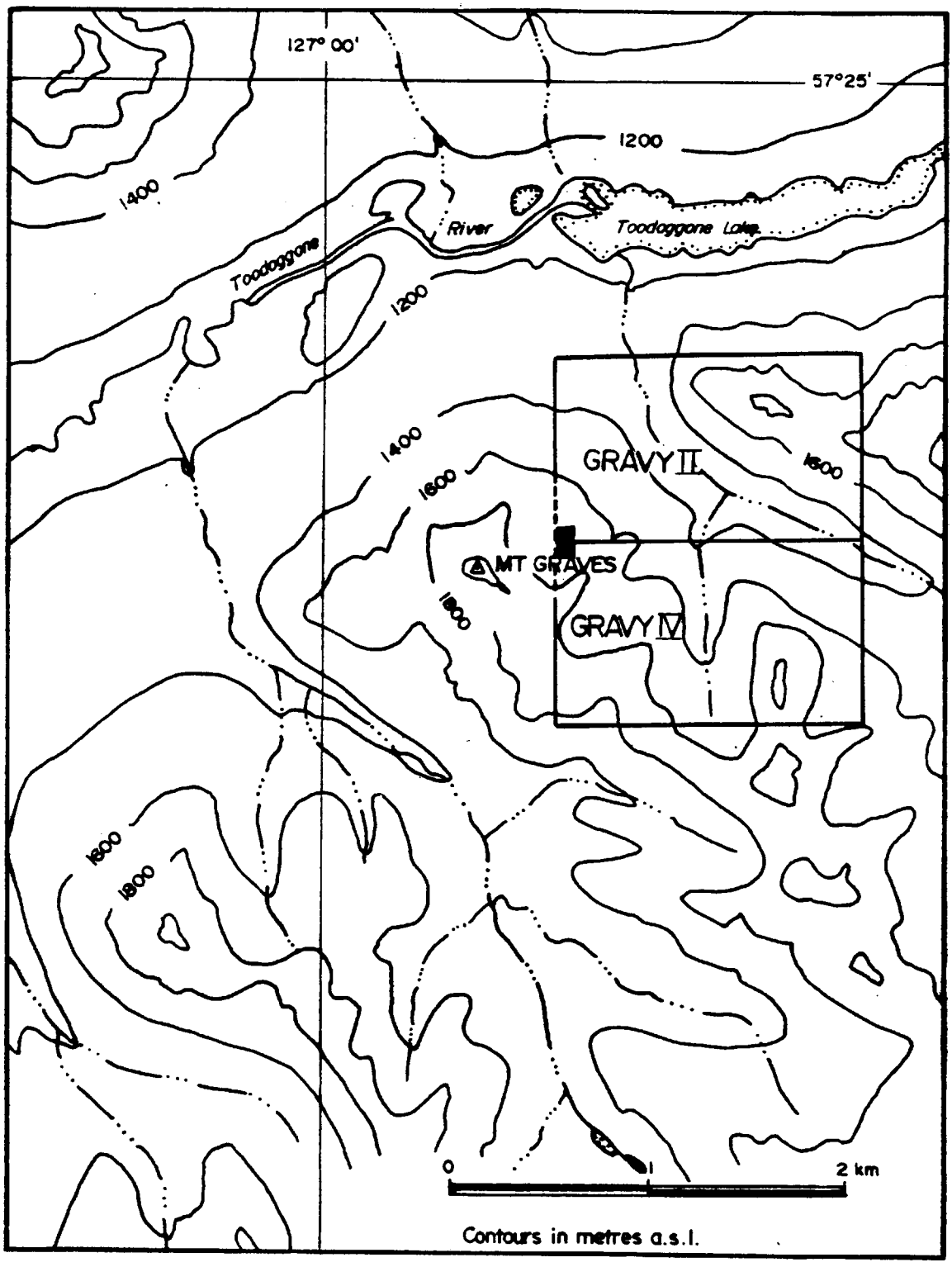

FIGURE 3 GRAVY II, IV MINERAL CLAIMS

Locally dense alpine spruce, balsam and fir extends to between 1,400 and 1,600 metres elevation in the valley central to the claims.

Typical open alpine country above 1,600 metres features abundant talus and felsenmeer. Bedrock exposures are prevalent on cliff-lined ridges and along major drainages.

The area is generally snow free between July and late September.

HISTORY

The Toodoggone area was investigated for placer gold in the 1920's and 1930's. A public company, Two Brothers Valley Gold Mines Ltd., undertook considerable test work, including drilling, in 1934. Most of this work was directed to extensive gravel deposits principally near the junction of McClair Creek and Toodoggone River several kilometers south of the present claim.

Lead-zinc mineralization near the north end of Thutade Lake and south of Baker mine was also investigated in the 1930's.

Gold-silver mineralization was discovered on the Chappelle (Baker Mine) property by Kennco Explorations (Western) ltd. in 1969. DuPont of Canada Exploration Ltd. acquired the property in 1974 and began production at a milling rate of 90 tonnes per day in 1980.

Numereus other gold-silver discoveries were made in the area in the 1970's and 1980's, including the Lawyers deposit which was discovered by Kennco in 1973

and optioned by SEREM Ltd. in 1979. Work on this property to date has included considerable trenching, drilling and underground development and a feasibility study is currently underway.

The Toodoggone area has been the scene of intense exploration activity during the past four years with numerous companies exploring over 3,000 mineral claim units. Exploration and development expenditures to date are estimated to be in the order of $33 million.

The Gravy II and IV claims are partly a relocation of ground previously held by SEREM Inc. (Duke 1 and 2), Great Western Petroleum Corporation (Snafu) and DuPont of Canada Exploration Ltd. (TO 2). Between 1980 and 1982, these companies carried out geological and geochemical surveys and incurred aggregate expenditures of $7,500 (Carne, 1981; Eccles, 1982; Harron, 1981).

REGIONAL GEOLOGICAL SETTING and MINERAL DEPOSITS

The Toodoggone River area is situated near the eastern margin of the Intermontane tectonic belt. Oldest rocks in the area are late Paleozoic limestones in the vicinity of Baker mine where they are in fault contact with late Triassic Takla Group volcanic rocks.

A distinctive lithologic volcanic unit of early Jurassic age, called the Toodoggone volcanics, is a subaerial pyroclastic assemblage of predominantly andesitic composition (Pantelyev, 1983). These unconformably overlie, or are in fault contact with older rocks, principally Takla Group volcanic rocks and undivided Hazelton Group feldspar porphyry flows and fragmental rocks.

Toodoggone volcanic rocks are contained in a 100 by 25 kilometer northwest-trending belt extending from Thutade Lake in the south to Stikine River in the north.

Several major stratigraphic subdivisions of Toodoggone volcanics have been identified (Panteleyev, 1982, Diakow, 1983). These and older layered rocks of the Takla and Hazelton Groups are cut by Omineca granitic rocks of Early Jurassic age, which commonly occur along the eastern margin of the Toodoggone volcanic belt, and by subvolcanic intrusions related to Toodoggone volcanics.

Clastic sedimentary rocks of the Cretaceous-Tertiary Sustut Group overlie older layered rocks near the Stikine River and form the southwestern exposed margin of the Toodoggone volcanic belt.

Regional fault systems trend northwesterly and northerly throughout the Toodoggone area.

Several styles of economic mineralization have been identified (Schroeter, 1981), of which the most important are epithermal precious and base metal deposits hosted principally by lower and middle units of Toodoggone volcanics and related to Toodoggone volcanic processes. Gold-silver mineralization occurs principally in fissure veins, quartz stockworks, breccia zones and areas of silicification in which ore minerals are fine-grained argentite, electrum, native gold and silver and lesser chalcopyrite, galena and sphalerite. Alteration mineral assemblages are typical of epithermal deposits with internal silicification, clay minerals and locally alunite, grading outward to sericite and clay minerals, chlorite, epidote and pyrite.

Examples include Baker Mine, a fissure vein system developed in Takia volcanic rocks, but spatially related to dikes believed to be associated with Toodoggone volcanic rocks. Pre-mining indicated reserves were 90,000 tonnes grading 30 grams/tonne gold and 600 grams/tonne silver. Recovered grades during the 3 year mine life were about half the indicated grades due to initial mill recovery problems and greater than expected dilution during mining.

The Lawyers deposit has gold-silver mineralization in banded chalcedony-quartz stockwork veins and breccia zones developed in Toodoggone volcanic rocks. Three potential ore zones have been defined to date and recently announced reserves (Schroeter, 1985) are 1 million tonnes grading 7.27 grams/tonne gold and 254 grams/tonne silver. Numerous other epithermal gold-silver deposits in the area are hosted by lower and middle units of the Toodoggone volcanic sequence. These include the Sha, Saunders, Graves, Moosehorn, Mets, Metsantan, Al, JD and Golden Lion prospects. It is interesting to note that most of the known deposits and occurrences are adjacent to two northwesterly striking regional fault structures; the Sha-Baker-Lawyers-Alberts Hump structure and the Saunders-McClair fault system.

Soil, rock and stream sediment geochemistry have proven to be useful tools in the search for epithermal precious metal deposits in the area. Gold and silver give diagnostic signatures, but analyses for copper, lead and zinc are also helpful.

PROPERTY GEOLOGY and MINERALIZATION

Recent geological mapping (Gabrielse et al, 1976; Panteleyev, 1983) shows the Mount Graves area to be underlain by early Jurassic Hazelton Group andesitic flows and pyroclastic rocks. These are slightly older than, and in fault contact with lower units of the Toodoggone volcanic sequence several kilometers west.

The western part of the Gravy IV claim is underlain by green to reddish andesitic ash flow tuffs with prominent flow banding striking northwest and dipping steeply northeast (Eccles, 1982). These are apparently overlain by basaltic feldspar porphyry flows and breccias which underlie much of the eastern half of the Gravy IV claim and much of the Gravy II claim (Carne, 1981).

The volcanic sequence is intruded by a prominent northwest-striking pink quartz feldspar porphyry dike up to 25 metres wide which extends through the western half of the Gravy IV claim. A similar dike has been noted near the present eastern boundary of the Gravy II claim (Carne, 1981). Local areas of Omineca intrusions, principally granodiorite, have been reported in the south part of the present Gravy IV claim (harron, 1981) and east of the Gravy II claim (Carne, 1981). Northeast and northwest striking dark green basic dikes, ranging in width from 0.5 to 10 metres, are common in the area of the claims.

Stream sediment sampling of the major north-flowing drainages within the claims has yielded values of up to 4.8 ppm silver and 220 ppb goid (Carne, 1981). Soil and rock samples collected from a prominent gossan in the northeast part of the present Gravy IV claim indicated a broad area of anomalous lead values ranging from 60 to 265 ppm (Caira, 1982). Within this zone are silver

values ranging from 2 to 8 ppm and a few scattered anomalous gold values in the 55 to 80 ppb ranges. Similar high lead values have been noted in the eastern part of the present Gravy II claim (Carne, 1981).

Narrow, base metal bearing quartz veins in volcanic rocks have been reported in the area of the present Gravy II and IV claims. One of these contained 800 ppm copper, 29 ppm silver and 250 ppb gold (Carne, 1981). Best known mineralization in the vicinity of the claims area is a zone exposed in the headwall of the east-facing cirque on Mount Graves, west of the Gravy II and IV common legal corner post. Detailed surface sampling in 1982 indicated two zones, each 2 metres wide and containing values of 536 to 756 ppm silver (15 to 22 oz/ton) and 2.45 to 2.66 ppm gold (0.072 to 0.077 oz/ton).

CONCLUSIONS

The Gravy II and IV mineral claims are situated in the Toodoggone River area which is noted for epithermal gold-silver deposits and occurrences.

The claims are in part a relocation of previously held claims on which a number of zones with anomalous lead, silver and gold values have been indicated. Two zones of undetermined size, each with interesting silver-gold values are known to occur on Mount Graves a short distance west of the present claims.

Previous work in the area of the Gravy II and IV claims provides a framework for further investigation and a thorough exploratory program is warranted.

RECOMMENDED PROGRAM

A first phase program is recommended to make use of previous work, which while not a thorough coverage of the present claims, has indicated several areas for follow-up sampling. The gossanous ridge area in the northwest part of the Gravy IV claim has a number of coincident lead-silver anomalous and these should be resampled in detail.

The previousiy reported base metal-bearing quartz veins should be relocated and resampled and the areas subjected to careful prospecting.

It is recommended that soil and/or rock sampling be conducted over the entire claims area on at 100 metre stations where possible or by way of contour sampling in steeper terrain.

Geological mapping of the claims area should be coupled with prospecting of alteration zones and structural breaks.

Contingent on the results of first phase work, phase two could include more detailed sampling involving hand trenching of selected areas.

It would be advantageous to carry out as much follow-up work as possible during the first phase because of high support costs involved in this relatively remote area. This would necessitate fairly rapid analysis of all samples collected during the first phase.

COST ESTIMATE

PHASE I

Geological Mapping and Prospecting	$ 4,000
Crew Wages	10,000
Camp Costs	7,500
Mobilization and Demobilization	5,000
Helicopter Support	7,500
Analytical Costs	5,000
Engineering, Supervision	5,000
Report Preparation	2,500
Contingencies	7,000
TOTAL OF PHASE I	$53,500

PHASE II

Follow up sampling, hand trenching VLF-EM and magnetometer surveys	$60,000

N.C. Carter, Ph.D., P.Eng.

REFERENCES

CAIRA, N.M.
1982: Geology and Geochemistry Report Graves 1-8 Claims, Omineca Mining Division, British Columbia, BCMEMPR Assessment Report 10050

CARNE, Joan
1981: Geology and Soil Geochemistry Duke 1 and 2 Claims, Omineca Mining Division, British Columbia, BCMEMPR Assessment Report 9502

CARTER, N.C.
1972: Toodoggone River Area and Chappelle, Geology, Exploration and Mining in British Columbia 1971, p. 63-70

1974: Lawyers, Geology, Exploration and Mining in British Columbia 1973, p. 458-461

ECCLES, Louise
1982: Geological Report on the SNAFU Claim, Omineca Mining Division, British Columbia, BCMEMPR Assessment Report 11217

GABRIELSE, H., DODDS, C.J. and MANSY, J.L.
1976: Geology of the Toodoggone River (94E) Map Area, GSC Open File 306

HARRON, G.A.
1981: Geological and Geochemistry of the TO 2 Claim, Omineca Mining Division, British Columbia, BCMEMPR Assessment Report 9297

PANTELEYEV, A.
1983: Geology between Toodoggone and Sturdee Rivers, BCMEMPR Geological Fieldwork, 1982, Paper 1983-1, p. 142-148

1984: Stratigraphic Position of Toodoggone Volcanics, BCMEMPR Geological Fieldwork, 1983, Paper 1984-1, p. 136-183

SCHROETER, T.G.
1981: Toodoggone River, BCMEMPR Geological Fieldwork, 1980, Paper 1981-1, p. 124-131

1982: Toodoggone River, BCMEMPR Geological Fieldwork, 1981, Paper 1982-1, p. 122-133

1983: Toodoggone River Area, BCMEMPR Geological Fieldwork, 1982, Paper 1983-1, p. 125-133

1984: Toodoggone River Area, BCMEMPR Geological Fieldwork, 1983, Paper 1984-1, p. 134-135

1985: Toodoggone River Area, BCMEMPR Geological Fieldwork, 1984, Paper 1984-1, p. 291-297

CERTIFICATE

I, NICHOLAS C. CARTER, do hereby certify that:

1. I am a Consulting Geologist, resident at 1410 Wende Road, Victoria, British Columbia.

2. I am a graduate of the University of New Brunswick with B.Sc. (1960), Michigan Technological University with M.S. (1962), and the University of British Columbia with Ph.D. (1974).

3. I am a registered Professional Engineer in the Association of Professional Engineers of British Columbia.

4. I have practised my profession in eastern and western Canada, and in parts of the United States over the past 24 years.

5. This report is based on several examinations in the area of the Gravy II and IV mineral claims, the writer's extensive background in the Toodoggone River area and on published and unpublished reports and maps.

6. I have no direct or indirect interest in the Gravy II and IV mineral claims or in Hemlo Explorations Ltd.

Nicholas C. Carter
Consulting Geologist

DATED in the City of Vancouver, this 9th day of April, 1985.