EXPLORATION AND ECONOMIC POTENTIAL OF THE SADIM PROPERTY

Located Claims

Sadim 1	(20 units)	248987
Sadim 3	(20 units)	248989
Sadim 4	(12 units)	248990
Rum	(12 units)	380273

RECEIVED
OCT 9 - 2002
Gold Commissioner's Office
VANCOUVER, B.C.

Location:
Similkameen Mining Division
N.T.S.: 92 H/10
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.

Owner:
TOBY VENTURES INC.
430-580 Hornby Street
Vancouver, British Columbia
V6C 3B6

By:
John Ostler; M.Sc., P.Geo.
Consulting Geologist
September 30, 2002

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

26,944

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APPENDICES

EXPLORATION AND ECONOMIC POTENTIAL OF THE SADIM PROPERTY

SUMMARY

The writer was retained by Toby Ventures Inc. through Cassiar East Yukon Expediting Ltd. to log the drill core from the current program, to integrate those new data with data from previous work programs, and to produce a comprehensive summary of what currently is known of the geology, alteration, and mineralization in the Sadim property area.

The Sadim property is located on gently rolling slopes of the southern Thompson Plateau of southwestern British Columbia (Figure 1). This plateau is transected by widely spaced, deeply incised, north and northwesterly trending valleys. The eastern boundary area of the property is located on the steep western slope of one of these, the Summers Creek valley

The property comprises 4 located claims consisting of 64 claim-units which are owned by Toby Ventures Inc. of Vancouver, British Columbia. These claims cover about 1,526 ha (3,769 A) after deducting areas of overlapping, pre-existing claims.

The Sadim property is centred on 49° 43' 53" north latitude, 120° 32' 33" west longitude (U.T.M.: 5,511,400 N., 677,075 E.) in the Similkameen Mining Division (Figure 2). The property is near the northeastern corner of N.T.S. map sheet 92 H/10. Exploration has been conducted most intensively on two areas on these claims. One is near an outcrop of andesite, mineralized with chalcopyrite and malachite in the northeastern part of the property. The other is a group of gold-bearing quartz veins and stockworks located on its southern part. The chalcopyrite-malachite showing is located at 49° 44' 49" north latitude, 120° 31' 57" west longitude (U.T.M.: 5,513,181 N., 677,714 E.). The gold-bearing veins are located around 49° 43' 06" north latitude, 120° 32' 17" west longitude (U.T.M.: 5,510,000 N., 677,500 E.).

Reportedly, Toby Ventures Inc. is the owner of these located claims subject to a 3% net smelter return payable to Vanco Explorations Limited, a subsidiary of Laramide Resources Ltd.

The boundaries of the located claims comprising the Sadim property have not been surveyed, so their exact positions on the ground have not been defined.

All of the area covered by the Sadim property is crown land. No part of the land covered by it is part of a park, mineral reserve, or aboriginal homeland.

Telus's microwave station is located near the centre of the claims and B.C. Hydro's power line is located in the property's western part. These would have to be relocated if a mineral deposit requiring a large open pit is developed on the property.

The two closest service centres to the Sadim property are the towns of Merritt and Princeton. Princeton is located about 30 km (21 mi) south of the property via B.C. Highway 5A. Merritt is about 53 km (32.3 mi) north of it via B.C. Highway 5A. Merritt is the larger of the two towns. It serves a local ranching community and hosts several saw mills. Most supplies, services, and machinery necessary for exploration can be obtained from these towns. It is about 271 km (165.3 mi) from Vancouver to Merritt via B.C. Highways 1 and 5.

Access to the property is by a series of logging roads that branch off from the Dillard and Ketchan Creek main logging roads. The Dillard road joins B.C. Highway 5 about 12 km (7.3 mi) south of the village of Aspen Grove. The Ketchan Creek road branches off southward from the Dillard road few kilometers east of the highway. Roads into the northern and central parts of the property intersect the Ketchan Creek road at kilometers 15 and 16. A road into the southern part of the property is at kilometer 18 on the Ketchan Creek road. Another way to access the property is via the Hornet Lake road. It joins B.C. Highway 5 about 2.5 km (1.5 mi) north of Allison Lake. The Hornet Lake Road joins the Ketchan Creek road at kilometer 11.

The Sadim property is underlain by andesitic meta-volcanic and meta-sedimentary rocks of the Triassic-age Nicola Group. The northern and central parts of the property are underlain by a succession of sub-marine flows and pyroclastics that have been intruded by several coeval dioritic stocks. The southern part of the property hosts pyroclastic, lahar (volcanic mud flow) and associated proximal (volcanic wacke) turbidite deposits that overprint

background regional basin-floor turbidite (greywacke) sedimentation.

There are at least five generations of fracturing, alteration and vein development in these rocks. Both the first and fourth generations are of economic interest.

The first generation is comprised of extensive propylitic (epidote-chlorite-calcite-quartz) alteration and vein filling that affected the whole property area. This alteration is most intense in the KR-Rum area in the northeastern part of the property. There, porphyry-style, disseminated and fracture-hosted copper mineralization occurs with various amounts of potassic alteration and tourmaline-bearing breccia development. Mineralization is post-dated by some retrograde propylitic alteration.

The fourth generation is comprised of silicification, pyritization, and sericitization surrounding white quartz veins that contain highly variable amounts of gold. This alteration is sparse over most of the property area. It is prevalent in the lahar and associated turbidite deposits (epiclastic sediments) in the southern part of it.

The Sadim property hosts two types of mineralization that represent two very different economic targets. Disseminated and fracture hosted copper and gold mineralization in the KR-Rum area in the northeastern part of the property may be related to a porphyry-type deposit, like those that have been mined at several locations throughout the Nicola volcanic belt. A gold-bearing quartz stockwork vein system explored in the southern part of the claim area may be the expression of a mesothermal gold-quartz vein mineralization.

Sadim Gold-quartz Area

The Sadim gold-quartz area has been intensively explored by methods including: mapping, geochemical and geophysical surveys, trenching and diamond drilling. Its dimensions and character are now fairly well known.

This area is bounded to the west-southwest and beneath, by a shallowly eastward dipping fault, probably a thrust. Its eastern boundary coincides with a nearly vertical, north-northwesterly trending carbonate-rich shear zone, that could be a splay off the basal fault. No significant mineralization has been found east of this structure. The Sadim gold-quartz zone is open to the northwest and southeast.

A mild but pervasive alteration comprised of silicification, sericitization, and pyritization has penetrated along diverse paths through the host rock of this area, leaching out epidote, chlorite, carbonate and any copper minerals that may have been present. Within this outer alteration envelope are tan-coloured pyritic zones of intense alteration that seem to be broad haloes around lightly pyritized quartz veins. Almost all of the gold in this area is in the quartz veins.

Near the basal fault, these veins are very narrow and form an extensive interlacing (broadly spaced stockwork) pattern. Higher in the section, the quartz veins are thicker, spaced farther apart, and have small gold-bearing mineral chutes. Locally, these chutes can have gold contents. Sampling during a 1995 exploration program established a grade-estimate of 47.65 gm/mt (1.39 oz/ton) gold across an average width of 0.78 m (2.56 ft) along a length of 15 m (49.2 ft) in Trench 94-2. Several other trench samples and drill intersections in this area have had gold contents in excess of 34.3 gm/mt (1 oz/ton).

At current gold prices (about $US 320/oz), the lower stockwork veins in the Sadim gold-quartz area are too thin and widely spaced to justify bulk-tonnage open pit mining. The larger veins above the basal stockwork are too thin and irregular to support underground mining.

Further development of the Sadim gold-quartz area should await higher gold prices.

KR-Rum Copper-gold Area

The 2002 drilling explored mineralization associated with the the KR discovery outcrop located in the northern part of the KR-Rum copper-gold area. The KR horizon was intersected in all three drill holes that tested for it. It was estimated that the KR horizon had an attitude of 098°/13° SSW. It dipped gently toward the Rum showings area.

the best intersection through the KR horizon was in drill hole 02-10 where an estimated true thickness of 16.8 m (55.1 ft) contained an average of 0.19% copper and 0.0711 gm/mt (0.012 oz/ton) gold.

The KR horizon hosts pervasive propylitic epidote-chlorite-pyrite-calcite alteration. Mineralization is comprised of a stockwork of narrow chalcopyrite and pyrite-bearing veins that have cut through the earlier propylitic alteration. Some of these veins contain areas with elevated pyrite and quartz contents accompanied by sporadic concentrations of minute tourmaline blades. In more intensely mineralized areas potassic alteration accompanies mineralized veins although it does not form distinct haloes around them. This potassic alteration is cut by veins of retrograde propylitic alteration.

The propylitic alteration that hosts the KR horizon mineralization extends across the whole Sadim property area, and may form a circular pattern that extends westward from the Missezula Mountain fault and is centred on Microwave Hill. This alteration is most intense along the Missezula Mountain fault between the KR and Rum showings areas.

The most intense mineralization discovered in the KR-Rum area is in the Rum showings where a 91.4 m (300 ft) long trench intersection was found to contain an average of 0.34% copper.

All of the mineralization yet discovered in the KR-Rum copper-gold area is close to the surface trace of the Missezula Mountain fault. Current 2002 drilling confirmed that the Missezula Mountain fault was a steeply eastward dipping structure. An intense chargeability anomaly from the 2000 Toby Ventures induced polarization survey indicated that the plane of the fault may have been mineralized. It is assumed that this fault was the conduit for the copper an gold mineralization in the KR-Rum area.

KR horizon and Rum showings host copper and gold mineralization that has many of the attributes of porphyry-copper style mineralization. The writer believes that the KR horizon may be peripheral to a larger and more intensely mineralized body located along the Missezula Mountain fault somewhere in the KR-Rum area.

I recommend that a program of drilling be conducted throughout the KR-Rum copper-gold area. To facilitate financing of such a program, I recommend that it should be conducted in several phases.

The first phase, budgeted at about $200.000 should test the Rum showings area and the plane of the Missezula Mountain fault near it. Subsequent phases of drilling should extend drilling knowledge northward along the chargeability anomaly near the fault plane and outward from the Rum showings area following trends of mineralization.

EXPLORATION AND ECONOMIC POTENTIAL OF THE SADIM PROPERTY

1.0 INTRODUCTION

1.1 Introduction and Terms of Reference

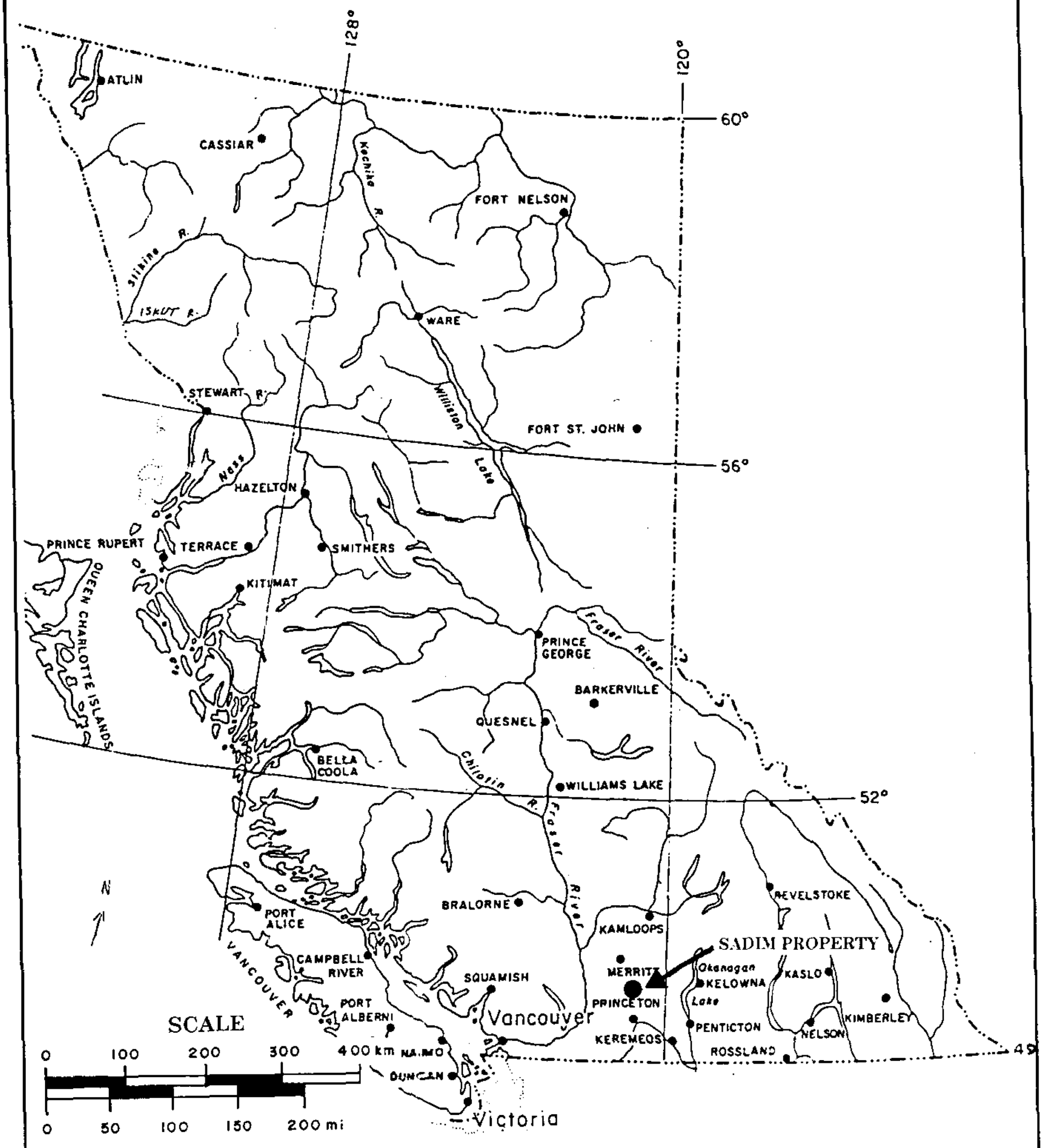
The writer was retained by Toby Ventures Inc. through Cassiar East Yukon Expediting Ltd. to log the drill core from the current program, to integrate those new data with data from previous work programs, and to produce a comprehensive summary of what currently is known of the geology, alteration, and mineralization in the Sadim property area. This summary report will be used to assist in planning the course of future exploration on the Sadim property.

Locations and orientations of Drill holes for the 2002 program were determined by a management committee of which the writer was a member.

This report is based on the results of previous exploration in the Sadim property area, published records of property examinations and regional mapping conducted by geologists of the British Columbia Geological Survey and the Geological Survey of Canada, and the writer's exploration conducted the Sadim property during the following times: November 21 to 28, 2001, June 10-14, July 5 to 12, and August 6 to 8, 2002.

1.2 Disclaimer

Statements in this report concerning permitting a mine in British Columbia have been made by the writer in reliance upon publications of the government of British Columbia. The writer is not qualified to practice law in British Columbia. Any statements made by the writer concerning the laws and regulations of the Province of British Columbia or the Dominion of Canada do not constitute qualified legal opinions.



John Ostler

Figure 1

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

GENERAL LOCATION

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

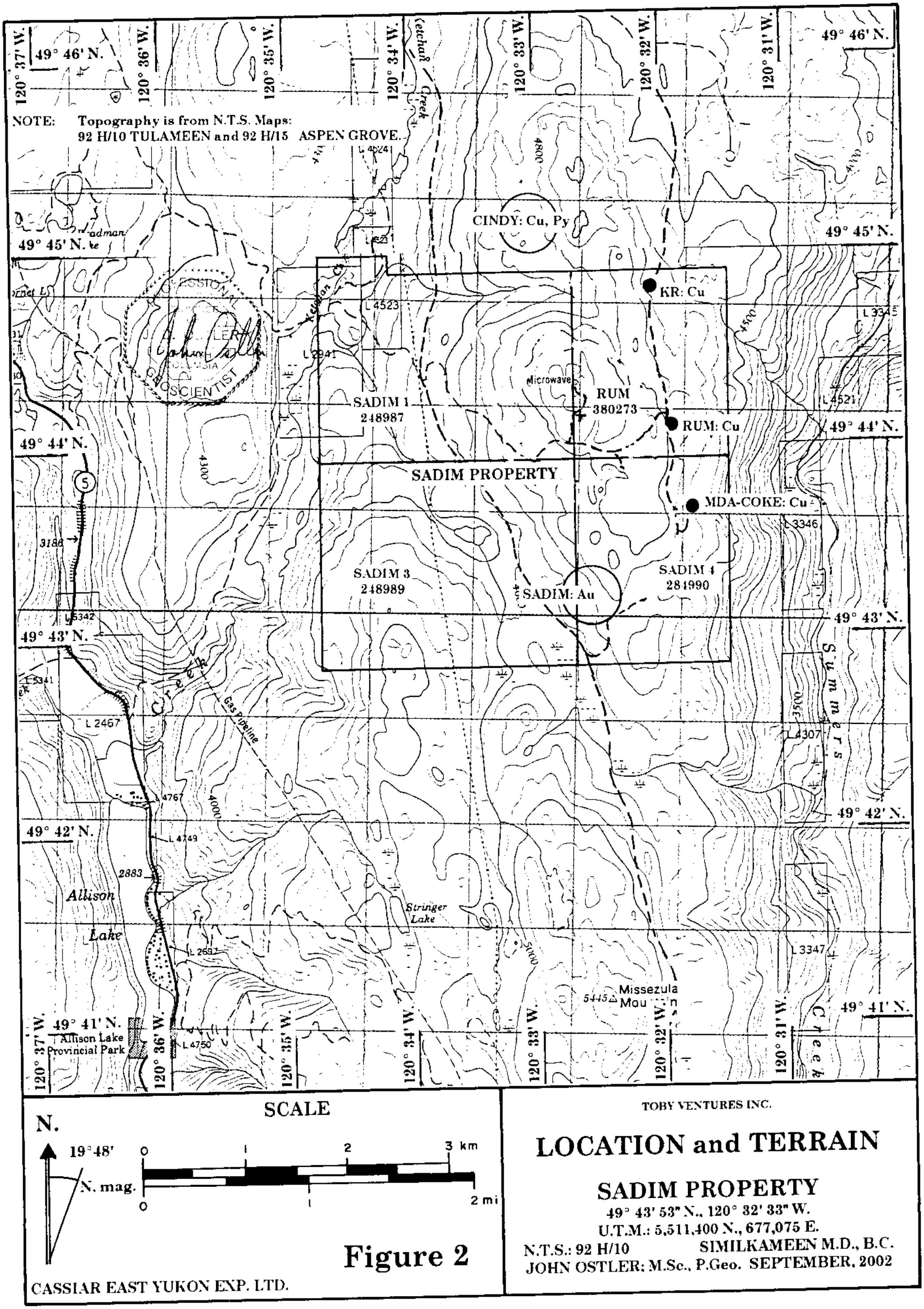


Figure 2

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

LOCATION and TERRAIN

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002

1.3 Property Description and Location

The Sadim property is located on gently rolling slopes of the southern Thompson Plateau of southwestern British Columbia (Figure 1). This plateau is transected by widely spaced, deeply incised, north and northwesterly trending valleys. The eastern boundary area of the property is located on the steep western slope of one of these, the Summers Creek valley

The property comprises 4 located claims consisting of 64 claim-units which are owned by Toby Ventures Inc. of Vancouver, British Columbia. These claims cover about 1,526 ha (3,769 A) after deducting areas of overlapping, pre-existing claims.

The Sadim property is centred on 49° 43' 53" north latitude, 120° 32' 33" west longitude (U.T.M.: 5,511,400 N., 677,075 E.) in the Similkameen Mining Division (Figure 2). The property is near the northeastern corner of N.T.S. map sheet 92 H/10. Exploration has been conducted most intensively on two areas on these claims. One is near an outcrop of andesite, mineralized with chalcopyrite and malachite in the northeastern part of the property. The other is a group of gold-bearing quartz veins and stockworks located on its southern part. The chalcopyrite-malachite showing is located at 49° 44' 49" north latitude, 120° 31' 57" west longitude (U.T.M.: 5,513,181 N., 677,714 E.). The gold-bearing veins are located around 49° 43' 06" north latitude, 120° 32' 17" west longitude (U.T.M.: 5,510,000 N., 677,500 E.).

Claim tenure of the Sadim property is as follows (Figure 2):

Located Claims

Claim Name	Record Number	No. of Units	Record Date	Expiry Date	Owner
Sadim 1	248987	20	Oct. 10, 1984	Oct. 10, 2012	Toby Ventures Inc
Sadim 3	248989	20	Oct. 10, 1984	Oct. 10, 2012	Toby Ventures Inc
Sadim 4	248990	12	Oct. 10, 1984	Oct. 10, 2012	Toby Ventures Inc
Rum	380273	12	Sept. 11, 2000	Oct. 10, 2012	Toby Ventures Inc
		64			

Reportedly, Toby Ventures Inc. is the owner of these located claims subject to a 3% net smelter return payable to Vanco Explorations Limited, a subsidiary of Laramide Resources Ltd.

A total of $200 worth of work per claim unit must be conducted on the property to advance the expiry dates of the constituent claims for one year. Up to ten years worth of assessment work can be filed to the credit of the claims at one time. Sufficient work from the current exploration program has been filed to the credit of the Sadim and Rum claims to advance their expiry dates to October 10, 2012.

The boundaries of the located claims comprising the Sadim property have not been surveyed, so their exact positions on the ground have not been defined. The writer has personally examined many of the posts and lines of the claims. In his opinion, those claims have been staked in accordance with the laws and regulations of the Province of British Columbia.

All of the area covered by the Sadim property is crown land. No part of the land covered by it is part of a park, mineral reserve, or aboriginal homeland.

Telus's microwave station is located near the centre of the claims and B.C. Hydro's power line is located in the property's western part. These would have to be relocated if a mineral deposit requiring a large open pit is developed on the property.

There is no plant or equipment, inventory, mine or mill structure of any value on the Sadim property.

The first phase of exploration recommended herein probably would require an environmental damage bond of about $5,000 to be posted for the British Columbia government. That bond must be in place before exploration is commenced.

1.4 On the Process of Permitting a Mine in British Columbia

Recently, the Canadian federal and provincial governments have taken steps to simplify and clarify the process of permitting a mine in Canada. Both the British Columbia and federal governments have become parties to the Canada-wide environmental assessment harmonization accord, the purpose of which was to remove duplication in the mine permitting process.

Under this agreement, all reviewable projects in British Columbia shall be assessed by the British Columbia Environmental Assessment Office. Federal involvement in the process is only triggered if the project being assessed has significant relevance to federal legislation and jurisdiction. For example, if a project affects international water or boundary treaties, or a fishery, the appropriate federal departments would be consulted during the review process by the British Columbia Environmental Assessment Office. However, the provincial body in all cases will conduct the review of a project.

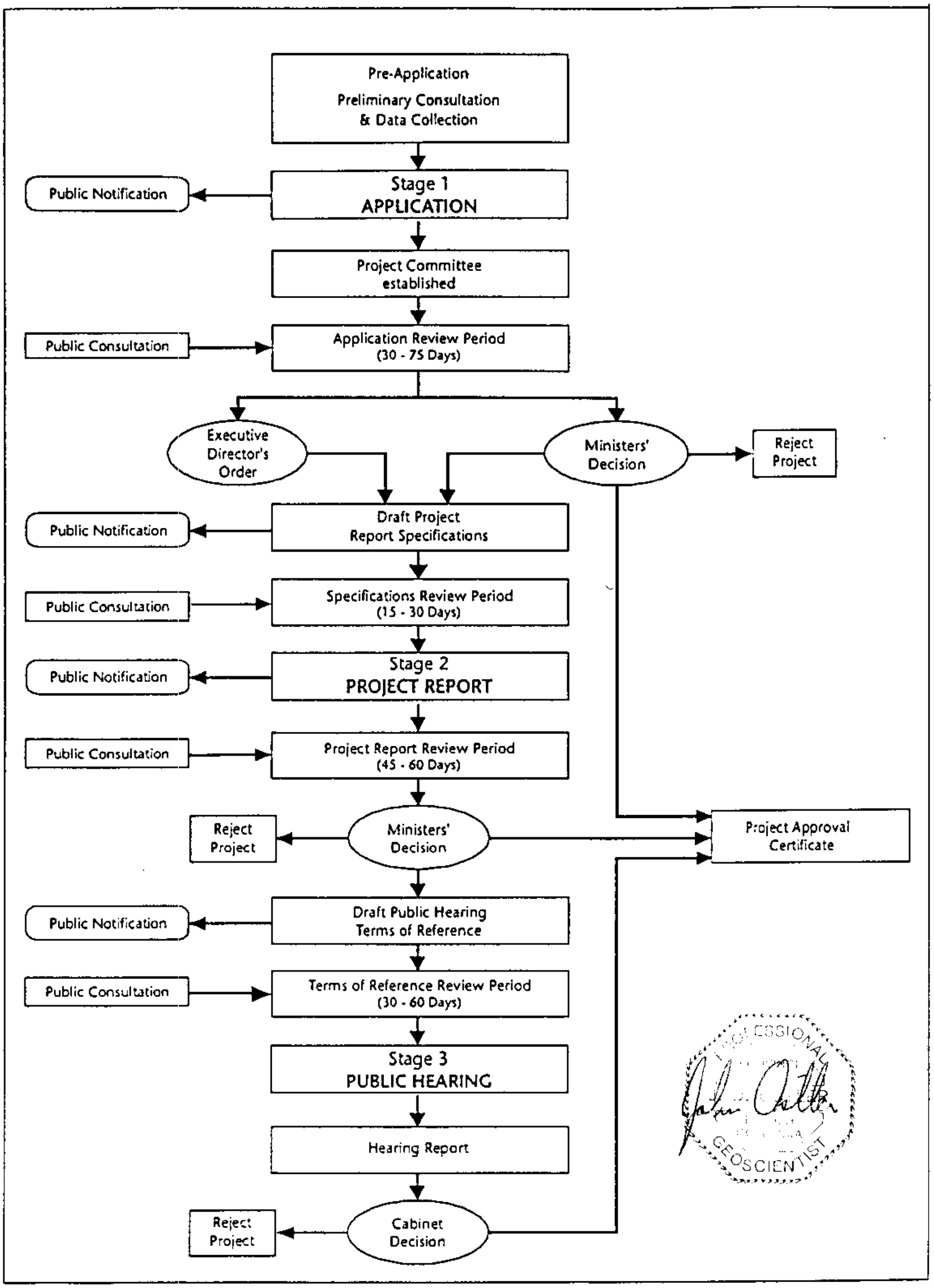
The British Columbia Environmental Assessment Office is mandated to be a non-political impartial body, the function of which is to expedite the mine permitting process while addressing the legitimate concerns of all parties that may be affected by a project. This office is charged with the responsibility of reviewing all projects that will have significant environmental impact. Such projects include, waste disposal operations, food processing plants, fish farms, and other large industrial developments as well as mines. Only logging operations are exempt from this process. They have their own review process.

Consequently there is one agency mandated to review all projects and all interested parties, including environmentalists and first nations, must be part of the process to be heard by those who make the decisions.

The British Columbia environmental review process is designed to be flexible. It is recognized that very large projects that have extensive environmental impacts should be reviewed more intensively than small projects with little associated environmental impact. Examples of projects that will be subject to formal review process are: large coal and mineral mines, specifically those with open pits, sand and gravel operations, large construction stone and industrial mineral quarries, and offshore mines.

The environmental review process itself is divided into three stages. A medium sized project may only be subjected to the first stage of the reviewing process, while a mega-project would have to pass all three stages of it (Figure 3). Section 20 of the Environmental Assessment Reviewable Projects Regulation (BCR 276/95) of the British Columbia Environmental Assessment Act defines a minimum threshold for a mining project to be formally reviewable under this process. It is defined as follows:

> (1) The construction of a new facility constitutes a reviewable project for the purposes of the Act if
>
> (a) the facility is a mineral mine, and
>
> (b) the facility has, or when the construction phase is completed will have, a production capacity of 75,000 tonnes (82,500 tons) of mineral ore per year
>
> (2) The modification of an existing facility constitutes a reviewable project for the purposes of the Act if
>
> (a) the facility meets the criteria described in subsection (1) for a new facility, and
>
> (b) the modification results in, or when construction of the modification is completed will result in, the lesser of
>
> (i) a disturbance of 750 ha (1852.5 A) or more of land not previously permitted by mining activity, and
>
> (ii) the disturbance of an area of land not already permitted for disturbance that is 50% or more of the area of land previously permitted for disturbance for mining activity at the facility.



NOTE: This figure is adapted from Table 1 of Guide to the British Columbia Environmental Process.

Figure 3

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

OVERVIEW of the ENVIRONMENTAL ASSESSMENT PROCESS

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002

Act	Relevant Section	Permit/License
Fisheries Act	Sec. 13 (4.1)	License to carry on the business of aquaculture
Forest Act	Sec. 45	Free Use Permit
	Sec. 47	License to Cut to a person who does not otherwise have the right to harvest Crown timber
	Sec. 91	Road Permit
Provincial Forest Regulation, BC Regulation 562/78 (*Forest Act*)	Sec. 3	Special Use Permit
Heritage Conservation Act	Sec. 5	Permit to alter an archaeological site
Highway Act	Sec. 57	Permit for access to a Controlled Access Highway
Highway (Industrial) Act	Sec. 5	Certificate granting leave for an industrial road to cross or join, or be crossed or joined, by a public road or highway
Mines Act	Sec. 10 or 11	Permit for work in or about a mine
Mining Right of Way Act	Sec. 3	Consent or permit to take and use private land, or to use Crown land, for a right of way
	Sec. 4 (1)(b)	Written approval described in that provision relating to the taking and using of private land, or the using of Crown land, for a right of way
Park Act	Sec. 24	Park Use Permit
Safe Drinking Water Regulation, B.C. Regulation 230/92 (*Health Act*)	Sec. 2	Permit for construction, alteration or extension of a water works system
Sewage Disposal Regulation, B.C. Regulation 411/85 (*Health Act*)	Sec. 3	Authorization for the construction, installation, alteration or repair of a sewage disposal system
	Sec. 4	Authorization to use, operate or cover a sewage disposal system
Utilities Commission Act	Sec. 24 or 25	Energy Removal Certificate
Waste Management Act	Sec. 8	Permit to introduce waste into the environment, store special waste, or recycle special waste
	Sec. 9	Approval to introduce waste into the environment, store special waste, or treat or recycle special waste
Water Act	Sec. 7, 12, or 14	Water licenses
	Sec. 8, 9	Approval for the short-term use of water, or approval for changes in and about a stream

John Ostler

NOTE: **This figure is adapted from Table 3 of Guide to the British Columbia Environmental Process.**

CASSIAR EAST YUKON EXP. LTD.

Figure 4

TOBY VENTURES INC.

LICENCES that may be needed
to PERMIT a MINE

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002

If size of initial production on the Sadim property is modest, it probably would not require a formal project review for permitting. All projects must pre-apply to the *Environmental Assessment Office to determine the necessity of a formal review. If a formal* review is not required, then the Office will circulate the mining plan to the various permitting agencies that it deems necessary (Figure 4). Upon receiving responses from those agencies within specified time limits, the Office will consult with the applicant to alleviate any concerns and expedite a mine permit.

If a large body of economic mineralization is found on the Sadim property that justifies a large mining operation, the project would require a formal project review of the appropriate *stage (Figure 3).*

The environmental review process is necessary for operating a mine. It is not necessary to explore a mineral property. Damage bonds are not required for non-destructive exploration programs like geological mapping or soil surveys. More intrusive activities like drilling and trenching do require bonds, most of which are less than $5000.

1.5 Accessibility, Climate, Local Resources, Infrastructure, and Physiography

The Sadim property is located on gently rolling slopes of the southern Thompson Plateau of southwestern British Columbia. This plateau is transected by widely spaced, deeply incised, north and northwesterly trending valleys. The eastern boundary area of the property is located on the steep western slope of one of these, the Summers Creek valley (Figure 2).

The terrain of the southern Thompson Plateau containing the Sadim property is described by S.S. Holland (1976) as follows:

> The Thompson Plateau ... is the most southerly of the plateau areas in the southern interior, extending southward for about 150 miles from its boundary with the Fraser Plateau at Clinton and having a width of 75 to 90 miles. It includes much of the familiar and well-traveled country in the vicinity of Kamloops, Princeton, and Merritt as well as the Okanagan and North Thompson valleys.
>
> The plateau is bounded on the west and south by the Clear Range and the Cascade Mountains. There is complete transition between the plateau and the adjoining mountains because the rise of the plateau surface toward the mountains is gradual, with progressively higher summit levels and greater dissection of the plateau surface. The boundary between them is an arbitrary line. On the southeast and east

> the plateau is bounded by the Okanagan and Shuswap Highlands, and there, too, the boundary is transitional. The boundary with the Okanagan Highland, between Osoyoos and the Coldstream Valley, is north along the Okanagan Valley to Penticton, thence northeastward along the northwest side of Little White Mountain and the west side of the Black Hills and down McAuley and Harris Creeks to the Coldstream. From Vernon northwestward the boundary with the Shuswap Highland is along the Louis Creek fault zone to Barriere and thence northward along the North Thompson River.
>
> The Thompson Plateau has a gently rolling upland of low relief, for the most part lying between 4,000 and 5,000 feet, but with prominences of more resistant rock rising above it to 5,952 feet at Gnawed Mountains, 6,630 feet at Mount Thynne, 6,684 feet at Cornwall Hills, 5,653 feet at Swakum Mountain, 6,220 feet at Chuwels Mountain, 6,218 feet at Lodestone Mountain, 6,545 feet at Pennask Mountains, 6,688 feet at Tahaetkun Mountain, 7,227 feet at Mount Brent, and 7,372 feet at Apex Mountain. This upland represents the late Tertiary erosion surface that has been dissected by the Thompson River and its tributaries, and by the Similkameen and Okanagan Rivers tributary to the Columbia.
>
> The plateau contains a great diversity of rocks; stocks of granitic rock intrude sedimentary and volcanic formations of Palaeozoic age. Flat-lying or gently dipping early Tetiary (Eocene) lavas obscure large areas of older rocks and their gentle dips to a large extent are reflected by step-like slopes and large unbroken plateau areas.
>
> The area was occupied by Pleistocene ice, and a thick mantle of drift covers bedrock over a large part of it. Movement of the ice over the plateau produced drumlin-like forms oriented southeasterly and southerly. From a divide just north of Clinton, ice moved southeastward and southward along the length of the Thompson River ... The Pleistocene ended with a gradual stagnation and a wasting of the ice in place. As a consequence, ice marginal meltwater channels were quickly made, used temporarily, and then abandoned. On many slopes a series of channels was formed at successively lower levels as ice surfaces wasted. Such channels are to be seen on the walls of the Okanagan Valley and in the Merritt area. The irregular melting of stagnant ice lobes in the larger valleys created numerous temporary glacial lakes into which silt-laden streams discharged. The white silt banks seen in many parts of the southern interior, particularly in the Thompson and North Thompson River valleys, on lower Okanagan Lake, and elsewhere are remnants of silt beds deposited in extensive glacial lakes which occupied depressions along the front or sides of wasting ice lobes as the ice-sheet melted and retreated northward, norheastward and northwestward across the Thompson Plateau ...
>
> Holland, S.S.; 1976: pp. 71-72.

The Sadim property covers the summit upper flanks of a broad northerly trending upland area between Summers and Allison creeks. Elevations on the property range from about 1,219 m (4,000 ft) on the western slope of the Summers Creek valley near the southeastern corner of the property, to about 1,618 m (5,310 ft) at the crest of Microwave Hill near the centre of the claims (Figure 2).

Although there are several intermittent small creeks on the property, none of them can provide sufficient fresh water to sustain a mining operation. Adequate fresh water for mining purposes could be obtained from Summers Creek located just east of the property.

The property hosts open forest in which pine and fir are the dominant tree species. Northerly facing slopes that are shaded from the summer sun support the densest forest on the property. About half of the property area has been either selectively logged or clear-cut recently. Sufficient timber remains on the property to support a small underground mining operation only.

Electricity is available in the property area. A heavy B.C. Hydro transmission line crosses the Sadim 1 and 3 claims. Also, a local three-phase transmission line that provides electricity to the facility atop Microwave Hill crosses the western part of the property.

Rock outcrop generally is sparse on the Sadim property. Most outcrops occur near ridge crests. All surface rock exposures are quite weathered. In most parts of the claims, soil profiles are sufficiently mature to have distinct undisturbed horizons amenable to meaningful survey results.

The closest weather station to the property-area is at Princeton, British Columbia. Climatic statistics for the Princeton station are quoted from Environment Canada as follow:

Average temperature:	January,	High -2.6°C. Low -6.7°C.	July,	High 26.3°C Low 8.9°C.

Average annual precipitation: 343 mm

of which 218.3 mm falls as rain and 154 cm (124.7 mm of rain equivalent) falls as snow

The climate around the property-area is colder in winter and somewhat wetter than at Princeton because it is at a higher elevation than is Princeton. Most of the precipitation in the property area falls as snow during winter. During an average year, shaded northerly facing slopes on the property are snow-covered from November until April.

The two closest service centres to the Sadim property are the towns of Merritt and Princeton. Princeton is located about 30 km (21 mi) south of the property via B.C. Highway 5A. Merritt is about 53 km (32.3 mi) north of it via B.C. Highway 5A. Merritt is the larger of the two towns. It serves a local ranching community and hosts several saw mills. Most supplies, services, and machinery necessary for exploration can be obtained from these towns. It is about 271 km (165.3 mi) from Vancouver to Merritt via B.C. Highways 1 and 5.

The closest accommodation to the property-area is AP Guest Ranch, located about 23 km (14 mi) south of the village of Aspen Grove on B.C. Highway 5A.

Access to the property is by a series of logging roads that branch off from the Dillard and Ketchan Creek main logging roads. The Dillard road joins B.C. Highway 5 about 12 km (7.3 mi) south of the village of Aspen Grove. The Ketchan Creek road branches off southward from the Dillard road few kilometers east of the highway. Roads into the northern and central parts of the property intersect the Ketchan Creek road at kilometers 15 and 16. A road into the southern part of the property is at kilometer 18 on the Ketchan Creek road. Another way to access the property is via the Hornet Lake road. It joins B.C. Highway 5 about 2.5 km (1.5 mi) north of Allison Lake. The Hornet Lake Road joins the Ketchan Creek road at kilometer 11.

2.0 HISTORY

2.1 General Chronology of Recent Exploration around the Sadim Property-area

1962 Kolbjorn Lovang and Christopher Riley, prospectors employed by Plateau Metals Limited, discovered copper showings in andesite outcrops covering a 0.4 ha (1 A) area in the northeastern part of the current Sadim property area. Plateau Metals staked the 40-claim KR group around the showings. Lovang and Riley retained a 10% interest in the ground.

1963 A road was extended eastward from the microwave station road to the showings-area where an undisclosed amount of trenching was done (Figures 2 and 24).

Kolbjorn Lovang and Christopher Riley (1963A and B) conducted a soil survey over a 914.4 X 2,743.2 m (3,000 X 9,000 ft) grid around the copper showings. Samples were processed in the field using the rubeanic acid method. Rejects from the anomalous samples were sent for analysis at a lab. Two soil-copper anomalies were identified, one around the showings and another, about 500 m (1,640 ft) south of them.
ASARCO became interested in the property, and had C.A.R. Lammle and Keith Whiting (1963) conduct a magnetometer survey over the northern part of Lovang and Riley's soil grid. They identified a magnetic anomaly that generally coincided with the soil-copper anomaly located southwest of the mineralized outcrop-area.

1963-1966

Plateau Metals Limited excavated an unknown number of bulldozer trenches around the copper showings on the KR claims (Lammle, 1966). That area is now covered by the Rum claim.

1966 Plateau Metals drilled a total of 157.3 m (516 ft) in 3 AX diamond drill holes, PA 1 to 2 (Figure 24). Adera Mining Limited optioned the KR claim group. C.A.R. Lammle (1966) directed additional soil and magnetometer surveys over a 1,219.2 X 731.5 m (4,000 x 2,400 ft) grid that extended south of the KR copper showings (Figures 5 and 12). High copper concentrations in soils occurred near the showings and in the southern part of the grid. Magnetic highs were identified in the same areas.

Adera drilled a total of 200.3 m (657 ft) in two AX diamond drill holes, A3 and A4 (Figure 24). Adera dropped its option on the KR claims. Subsequently the claims lapsed.

1970-1971

AMAX staked the Rum claim group which covered all but the southwestern margin of the current Sadim property-area. AMAX conducted geological mapping, soil, magnetic and induced polarization surveys over the crest and on the western slope of Microwave Hill (Christoffersen et al., 1971) (Figures 2, 5, 13, 21, and 35). Reportedly, AMAX drilled a total of 572.7 m (1,879 ft) in a 9-hole percussion drill program (Figure 24).

The MDA-Coke showings area probably was discovered during the 1971 AMAX exploration program. Although Christoffersen et al. (1971) are mute about their discovery, their maps are the first ones that show the road extending southward to that area. Two of AMAX's percussion drill holes were drilled in the MDA-Coke area.

The results of that work did not measure up to AMAX's parameters, and the Company's enthusiasm for the property waned.

1972 Kalco Valley Mines Ltd. Mapped and sampled eight of AMAX's trenches in the KR-Rum area (Mark, 1976). Four short diamond drill holes K-1 to 4 were drilled into the Rum and KR showings areas. A report of their work was not available to the writer. However, D.G. Mark (1976; Sheet 1) (Figure 24) reported that a sample containing 0.34% copper over a length of 91.4 m (300 ft) was taken from the southern part of AMAX Trench No. 7 in the central part of the Rum showings area. Another sample containing 0.16% copper over a length of 182.9 m (600 ft) was obtained from the adjoining northern part of the same trench. A 91.4 m (300-ft) long section in AMAX Trench 8W, excavated at a right angle to Trench 7 contained 0.10% copper.

Sheba Copper Mines Ltd. staked two groups of tie-on ground, one northeast and the other southeast of AMAX's Rum claims. Part of its South MDA-RCS claim group covered the southern part of the current Sadim 4 claim area including the Sadim gold-quartz showings area. A program of geological mapping, soil sampling and magnetic survey was conducted (Figures 6, 12, and 35).

1973 The western part of AMAX's Rum claims lapsed and Bronson Mines Ltd. staked the Cindy claim group on the western slope of Microwave Hill over ground now covered by the northwestern part of the Sadim property.

1974 Bronson's prospectors led by Evan Sleeman (1974) found several copper (chalcopyrite and malachite) showings in the area now covered by the Sadim 1 claim, and an intensely pyritized area near the northern boundary of that claim (Figure 10).

1976 Ruskin Developments Ltd. acquired the remaining Rum claims and conducted a more detailed soil survey over a 396.2 X 152.4 m (1,300 X 500 ft) grid in the area that included the KR copper showings and the previous Plateau-Adera drilling in the Rum showing area (Figure 7). The grid covered the area between the Missezula Mountain fault and the crest of Microwave Hill. That area is currently covered by the Rum claim in the northeastern part of the Sadim property. David Mark (1976) identified the trends of the Missezula Mountain fault and some north- and northwesterly trending offsets in the soil-copper anomalies.

1977 Bronson Mines Limited let the Cindy claim group lapse.

1979 Ruskin let its claims lapse. The area now covered by the northeastern part of the Sadim property was staked as the Rum claim group by Cominco.

1980-1981

David Mehner (1980 and 1981) conducted magnetic and soil surveys over irregularly shaped grids that by 1981 extended 3,600 m (11,808 ft) north-south and an average of 800 m (2,624 ft) east-west. That area is now covered by the Rum ans Sadim 4 claims. Cominco's magnetic survey tested the area from the KR copper showing southward to the Rum showing area (Figure 14). It extended the southeastern boundary of AMAX's 1971 magnetic survey. The strongest anomalies were identified in the areas southwest of the KR and Rum showing areas. Soil-copper anomalies (Figure 8) were concurrent with the magnetic anomalies and in similar locations to those of Ruskin Developments's 1976 soil survey.

Mehner (1981) concluded that the copper anomalies were too small and weak to warrant further work. Cominco's Rum claims subsequently lapsed.

1984-1986

Peter Peto (1985 and 1986) staked the Coke claim group around the KR and Rum copper showings. During that year he took a few rock samples from old trenches. In 1986 he conducted an electromagnetic survey over a 600 X 400 m (1,968 X 1,312 ft) part of the Cominco grid (Figure 18). He identified a series of weak, discontinuous, north-south trending conductors, that seemed to be related to local drainage.

1985 Gold-bearing veins were discovered about 1.5 km (0.9 mi) south-southeast of the crest of Microwave Hill (Figures 2 and 25). I.M. Watson staked the Sadim 1-4 claims to acquire the discovery. Within weeks of recording the claims, Watson transferred them to Laramide Resources Ltd.

Laramide's exploration team was investigating areas with associated dioritic intrusions, calcareous metasedimentary rocks, sulphide mineralization and major fault zones in the Central Belt of the Nicola Group volcanics as defined by V.A. Preto (1979). They found the Sadim gold-quartz veins hosted in what was described as a tuff (Watson, 1985). They were poorly exposed in a 300 m (984 ft) long area on a low ridge just east of the Ketchan Creek road near kilometer 18. Isolated vein outcrops were discovered up to 700 m (2.296 ft) away from the main showings.

A reconnaissance rock geochemical survey was conducted over the northern and western parts of the current Sadim property area (Figure 11). That survey comprised the southern part of a survey that was later extended for more than 12 km (7.3 mi) north of the current Sadim property area (Watson, 1988B). The most intensive survey was conducted around the discovery area.

A soil survey was conducted over most of the current Sadim 4 claim area (Figure 9).

1986 Laramide excavated 11 trenches across the main Sadim gold showing area and its adjacent extensions to the north and south. The main part of the showing area was trenched at 25 m (82 ft) intervals. Three additional trenches tested an area west of the swamp that flanks the main showings (Figure 25). A total length of 775 m (2,542 ft) of trenching was excavated, mapped and sampled (Watson, 1987). The most intense mineralization was found in trenches in a 200 X 60 m (656 X 197 ft) area. Gold content in chip samples ranged from 50 to 4,350 ppb. A 1.1-m (3.6-ft) vein in Trench No.2 ran 6.39 gm/mt (0.19 oz/ton) gold.

1987 During January and February, 1987, a six-hole reconnaissance diamond drilling program was conducted (Watson, 1987) (Figures 25 and 26). The holes were drilled vertically on roughly even spacings along a 200 m (356 ft) long north-south cord in the central part of the Sadim showing area. A total of 292 m (957.8 ft) of NQ drilling was done. Five of the six holes were lost in squeezing ground in what was assumed to be a gently dipping shear zone beneath the mineralized area. The most northerly hole in the program 87-6, cut a 9-m (29.5-ft) section that contained 3.09 gm/mt (0.09 oz/ton) gold and 25.4 gm/mt (0.74 oz/ton) silver. Within that was a 1-m (3.3-ft) section that contained 19.8 gm/mt (0.58 oz/ton) gold and 159.1 gm/mt (4.6 oz/ton) silver. Mineralization was thought to intensify northward.

Trenching, and drilling continued around the Sadim gold showings during summer, 1987 (Watson, 1988A) (Figures 25 and 26). A geological map was made of the southern part of the current Sadim property area (Figures 35 and 36). Magnetic and a VLF electromagnetic surveys were conducted over the showings area (Figures 15 and 17). By the conclusion of that program, 28 additional trenches had been excavated for a total of 42 trenches in all. Gold seemed to have been concentrated in three zones: the Main zone, explored by the original trenching and drilling program, the East zone, located adjacent to the northeastern margin of the Main zone, and the comparatively small North zone, located about 650 m (2,132 ft) north of the main zone. Nine NQ diamond drill holes 87-7 to 15, tested both the Main and East zones (Figures 25 and 26). All but one of those holes was vertical. It was found that the gold-bearing zones were bounded beneath by a gently eastward-dipping shear zone. No significant gold concentrations were encountered beneath the shear.

The Coke group which covered the copper showings on the current Rum claim were optioned to Mingold Resources Incorporated. E.W. Yarrow (1987) conducted a soil survey over a 700 X 950 m (2,296 X 3,116 ft) grid centered on the KR copper showing. A north-south trending group of soil-copper and gold anomalies was identified. They were most intense around and south of the showings.

1994 Vanco Explorations Ltd. optioned the Sadim claims to Richard van Vloten who assigned the option to Harlow Ventures Inc. The Coke group had been allowed to lapse and Harlow staked the Rum 1-8 claims to cover the copper showings in the northeastern part of the current Sadim property area.

Magnetic and VLF electromagnetic surveys were conducted over two contiguous grid areas (Presunka in; McDougall, 1994) (Figures 16 and 18 to 20). The southern grid encompassed a 1,000 X 1,400 m (3,280 X 4,592 ft) area. It straddled the Sadim 3-4 claim boundary to cover the Main and East zones of the Sadim gold-quartz showings area. The northern grid adjoined the northeastern corner of southern grid. The northern grid contained a 550 X 2,700 m (1,804 X 8,856 ft) area that covered the copper showings on the northeastern part of the property. The magnetic survey resulted in the identification of a magnetic low over the metasedimentary rocks in the central part of the southern grid. The volcanic and intrusive rocks in the rest of the survey area hosted numerous mild magnetic highs that seemed to be related to the general northwesterly trend of the stratigraphy (Figure 16).

Two trenches were excavated in the Main zone of the Sadim gold zone, and a third was dug in the North zone, about 600 m (1,968 ft) north northwest of the Main zone (Figures 25 to 30). Trench 94-1 was oriented north south to cut across the east-westerly striking quartz veins comprising the Sadim gold showings. Several veins were intersected. Trench 94-2 was an extension of Trench 87-19. The vein in that trench was opened and sampled for a total length of 52 m (170 ft) (Figures 28 to 30). McDougall's (1994) sampling established a grade-estimate of 47.65 gm/mt (1.39 oz/ton) gold across an average width of 0.78 m (2.56 ft) along a length of 15 m (49.2 ft). Grade decreased sharply at each end of the central chute. Trench 94-3 uncovered some float that contained 16.28 gm/mt (0.475 oz/ton) gold the source of which was not found. Some of the 1987 trenches were resampled.

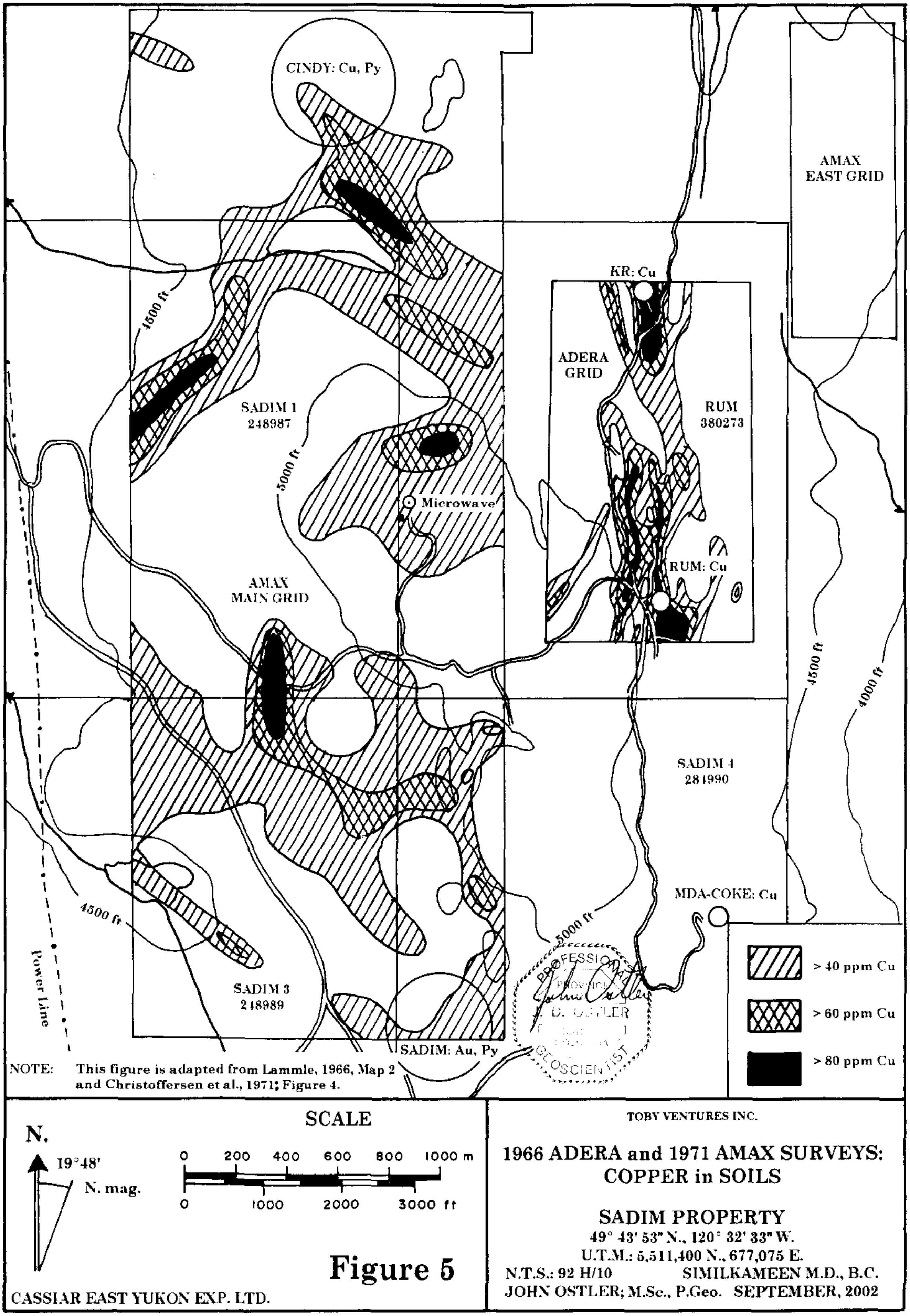
1995 Harlow conducted a program comprising 729 m (2,393 ft) of NQ diamond drilling in the Main zone of the Sadim gold-quartz showings area (McDougall, 1995) (Figures 25 and 26). The 12 1995 drill holes were located among the Laramide's 1987 drill holes. Holes of the 1995 program were all oriented northward at dips of from -45° to -60° to intersect the steeply southward-dipping veins. The high-grade vein sampled in Trench 94-2 was encountered in drill holes 95-7, 8, and 9. Intersections in those holes were: DDH 95-7, 1.07 m of 5.86 gm/mt (3.5 ft of 0.171 oz/ton) gold, DDH 95-8, 0.3 m of 109.7 gm/mt (1 ft of 3.2 oz/ton) gold, and DDH 95-9, 0.3 m of 24.3 gm/mt (1 ft of 0.71 oz/ton) gold. Other vein structures exposed in the 1987 and 1994 trenches were encountered at depth.

2000 Toby Ventures Inc. bought the Sadim property from Harlow Ventures Inc. subject to a 3% net smelter return payable to Vanco Explorations Limited, the purveyor of the underlying option. The Rum 1-8 claims were replaced by the current Rum claim to clean up property tenure, and to more completely cover the copper showings in the northeastern part of the property area.

Toby excavated three additional trenches around Trench 94-2 in the Sadim gold-quartz showings area (Figures 25, 26, and 28). A total of 338 m (1,109 ft) of trench was dug during that program (Hicks, 2001). Two new narrow gold-bearing, southward-dipping quartz veins were discovered. SJV Geophysics conducted an induced polarization survey over an irregularly shaped grid that covered most of the Rum claim. A 2,000-m (6,560-ft) long chargeability anomaly was identified that presumably was related to the north-south trend of the Missezula Mountain fault (Pezzot, 2000) (Figures 22 and 23).

2002 **The current exploration program, reported upon herein.**

Toby Ventures Inc. conducted a program comprising a total of 1,385.4 m (4,544.1 ft) of NQ diamond drilling. The first nine drill holes comprising a total of 862.3 m (2,8218.3 ft), penetrated the Sadim gold-quartz area in the southern part of the Sadim property. The remaining three drill holes comprising 523.1 m (1,715.8 ft), penetrated the KR structure in the KR-Rum copper-gold area in the northeastern part of the Sadim property.



J. D. OSTLER

NOTE: This figure is adapted from Lammle, 1966, Map 2 and Christoffersen et al., 1971; Figure 4.

CASSIAR EAST YUKON EXP. LTD.

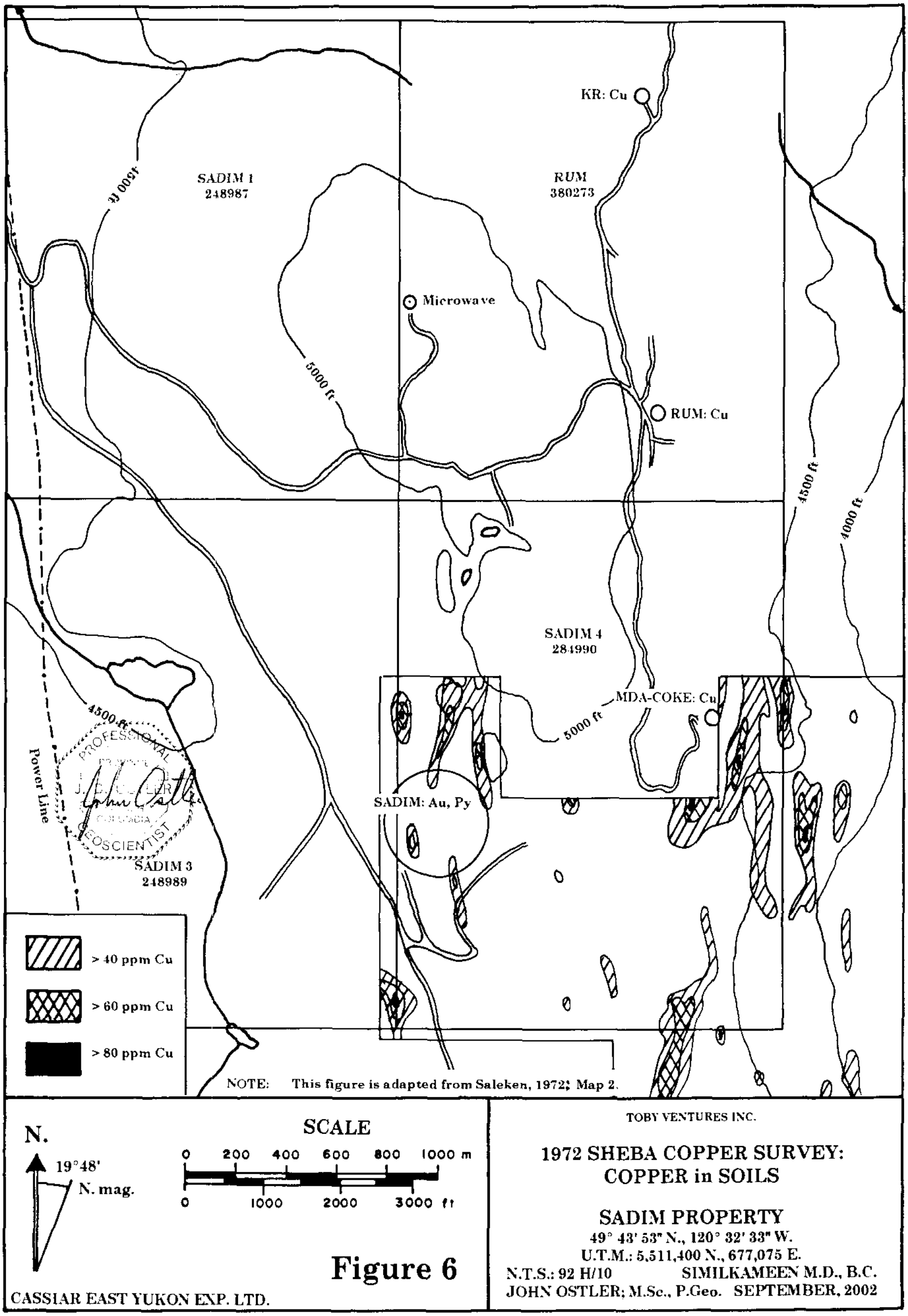
Figure 5

TOBY VENTURES INC.

1966 ADERA and 1971 AMAX SURVEYS: COPPER in SOILS

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



PROFESSIONAL GEOSCIENTIST J. E. OSTLER

NOTE: This figure is adapted from Saleken, 1972; Map 2.

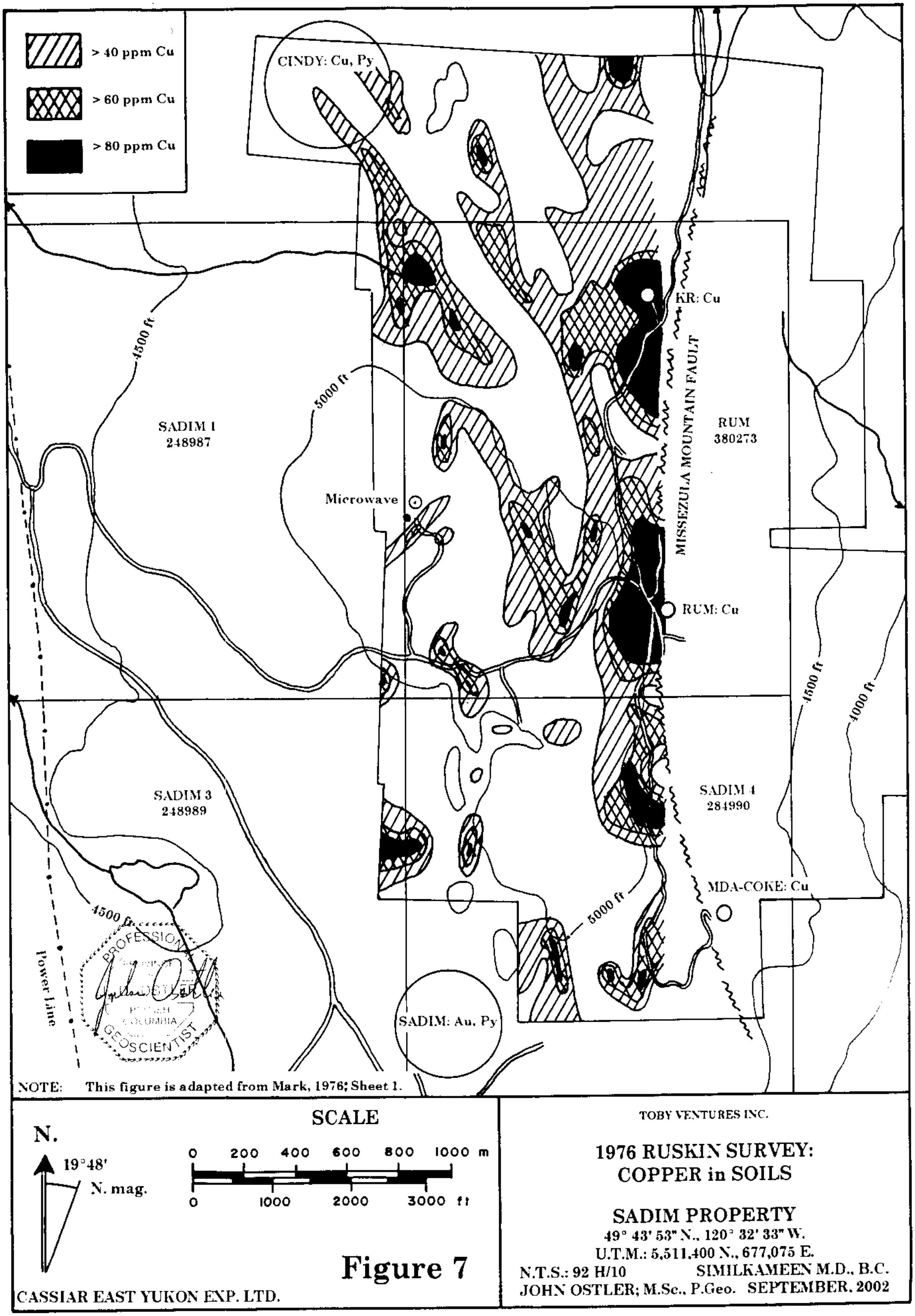
Figure 6

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1972 SHEBA COPPER SURVEY:
COPPER in SOILS

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from Mark, 1976; Sheet 1.

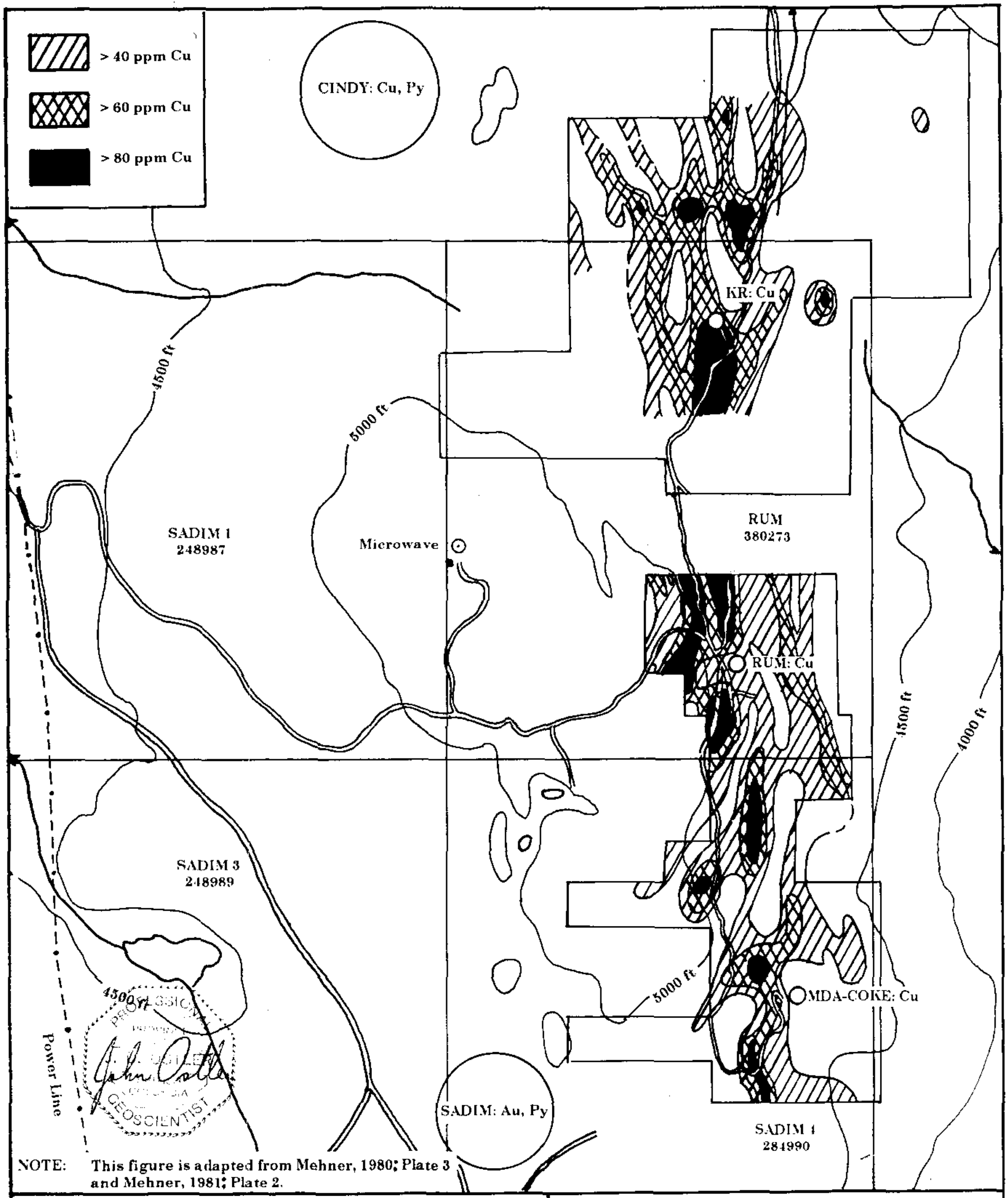
Figure 7

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1976 RUSKIN SURVEY:
COPPER in SOILS

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from Mehner, 1980; Plate 3 and Mehner, 1981; Plate 2.

J. OSTLER

Figure 8

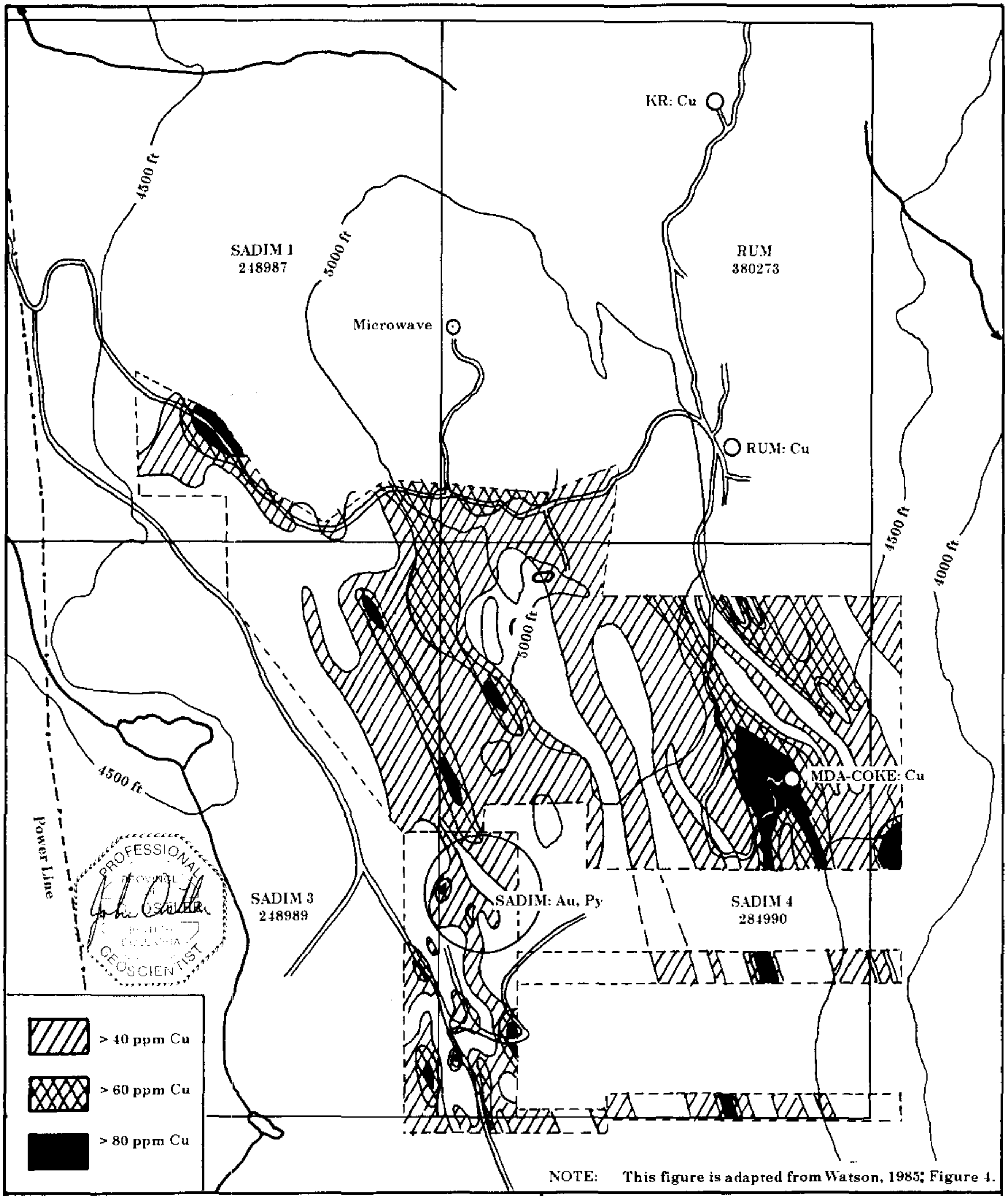
CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1980 and 1981 COMINCO SURVEYS: COPPER in SOILS

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



J. OSTLER

NOTE: This figure is adapted from Watson, 1985; Figure 4.

Figure 9

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

**1985 LARAMIDE SURVEY:
COPPER in SOILS**

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

2.2 Recent Exploration around the Sadim Property-area

2.2.1 Soil Geochemical Surveys

The first soil geochemical survey conducted in the current Sadím property area was commissioned by Plateau Metals Limited. Kolbjorn Lovang and Christopher Riley (1963A and B) conducted a soil survey over a 914.4 X 2,743.2 m (3,000 X 9,000 ft) grid around the newly discovered KR copper showings. Samples were processed in the field using the rubeanic acid method. Rejects from the anomalous samples were sent for analysis at a lab.

Two soil-copper anomalies were identified, one 350 X 600 m (1,148 X 1,968 ft) anomaly was centered on the KR discovery showing area. The other, about 500 m (1,640 ft) south of the KR showings in the area that later would become the Rum showing area (Figure 2). The southern anomaly covered a 100 X 200 m (328 X 656 ft) area within a north-northwest trend that transected the whole of the grid area. The KR anomaly was the most intense of the two. Soil-copper concentrations there were up to 3,000 ppm. Concentrations only reached 400 ppm in the southern anomaly. Soil-gold analyses were not considered to be practical during the 1960s. None were done at that time.

Adera Mining Limited optioned the KR claim group. C.A.R. Lammle (1966) directed additional soil and magnetometer surveys over a 1,219.2 X 731.5 m (4,000 x 2,400 ft) grid that extended south of the KR copper showings. Two soil-copper anomalies were identified; one was around the KR showings near the northern boundary of the Adera grid. and the other was around the Rum showings near the grid's southern margin (Figure 5). Unlike the previous soil survey conducted by Plateau Minerals, all of Adera's samples were sent to a lab for analysis. The result was that soil-copper anomalies were much better defined by Adera's work.

Although Lammle (1966) was impressed at the extent of the copper mineralization in the KR-Rum area, he recommended that the company drop the property because of a lack of high-grade gold showings there.

Lammle (1966) used both frequency distribution and log probability plots to divide soil-copper concentrations into normal and anomalous populations. About 18% of his samples had copper concentrations greater than 58 to 62 ppm. These, he considered anomalous and chose the 60 ppm contour to define his anomalies. About 7% of his samples contained more than 120 ppm copper. They were deemed to be highly anomalous.

Lammle's grid tested a small area adjacent to known showings, that contained a disperportionate number of elevated soil-copper concentrations compared with a regional survey. In a more extensive soil survey, thresholds of 40 ppm (sub-anomalous), 60 ppm (anomalous), and 80 ppm (highly anomalous), probably would be more appropriate to define regionally significant soil-copper anomalies.

The writer has re-scaled the soil-copper results of several surveys conducted in the Sadim property area to 1:20,000, and recontoured them at 40, 60 and 80 ppm (Figures 5 to 9) to facilitate comparison among the various surveys.

AMAX staked the Rum claim group which covered all but the southwestern margin of the current Sadim property area. During 1971, that company conducted a soil survey over the crest and on the western slope of Microwave Hill (Christoffersen et al., 1971) (Figure 5).

The AMAX soil survey seemed to have been designed to sample the broadest possible area at a minimal cost. Samples were taken at 152.4-m (500-ft) intervals along east-west lines that also were spaced at 152.4-m (500-ft) intervals. That sampling pattern resulted in very broad, ill-defined anomalies that lacked shape detail. Never-the-less, a generally circular or orthogonal pattern of elevated soil-copper concentrations emerged (Figure 5). It was about 3.5 km (2.14 mi) in diameter, and was centered near the crest of Microwave Hill.

Christoffersen et al. (1971) used soil-copper concentrations of 80 and 120 ppm to define sub-anomalous and anomalous samples. They lamented that only 8 out of 203 soil samples contained in excess of 80 ppm copper. The area was written off. The writer could find no evidence that Christoffersen's group ever contoured their survey results using less stringent soil-copper thresholds. Probably, that group was unaware of the circular pattern of soil-copper concentrations around Microwave Hill.

Sheba Copper Mines Limited staked two claim groups northeast and southeast of

AMAX's Rum claims. Sheba's South MDA-RCS claim group covered the southern part of the current Sadim 4 claim area (Figure 6). A soil survey was conducted over an irregularly shaped grid that mostly tested the area east of the Missezula Mountain fault and southeast of the MDA-Coke showing (Saleken, 1972) (Figures 2, and 6). A total of 883 soil samples were collected at 30.5-m (100-ft) spacings along east-west lines that were spaced 152.4 m (500 ft) apart in the south MDA-RCS grid.

Only a few minor soil-copper anomalies were found. Most of them were interpreted to have been related to mild copper mineralization in fractured diorite bodies emplaced along the trend of the Missezula Mountain fault. Sheba Copper's south grid was south of the circular feature defined west of the Missezula Mountain fault in AMAX's and Adera's grid areas (Figure 5). *Consequently, soil-copper anomalies west of the trace of the Missezula Mountain fault* reflected the north-northwesterly trend of the Nicola Group stratigraphy in that area.

The northwestern corner of Sheba Copper's 1972 grid went right over the Sadim gold-quartz zone. At that time, soil samples generally were not analyzed for gold, so no gold determinations were done. The Sadim gold-quartz zone remained undiscovered for another 13 years.

In 1976, Ruskin Developments Ltd. conducted a soil survey over a 396.2 X 152.4 m (1,300 X 500 ft) grid in the area that covered most of the eastern part of the current Sadim property area, including the KR and Rum showing areas. By the time that this soil survey was done, the location of the surface trace of the Missezula Mountain fault was known. Previous soil-survey results indicated that all significant copper mineralization in the KR-Rum area was located west of the trace of the Missezula Mountain fault. The fault was used as the eastern boundary of the 1976 survey (Mark, 1976) (Figure 7). A total of 428 samples were taken at 61-m (200-ft) intervals along lines that were 152.4 m (500 ft) apart over most of the grid. Samples were taken at odd-numbered stations along even-numbered lines and at even-numbered stations along odd-numbered lines, resulting in a rhombic sampling pattern. No reason was given for the decision to sample in such a pattern.

As could be expected in light of previous soil survey results in the KR-Rum area, the most extensive soil-copper anomalies were strung out along the Missezula Mountain fault. However, some new patterns emerged from the Ruskin soil survey. The strongest soil-copper anomalies were along the western margin of the grid, south of the Microwave Hill road and not along the fault in the showings areas. Also, the circular or orthogonal pattern of soil-copper concentrations that could be identified by the AMAX soil survey results on the western slope of Microwave Hill could be extended eastward to the Missezula Mountain fault in the Ruskin survey area. A relation between that fault and the circular pattern was re-enforced by the concentration of copper showings and soil anomalies where the two features intersected (Figures 5 and 7).

Cominco conducted soil surveys over irregularly shaped grids, that by 1981, extended 3,600 m (11,808 ft) north-south and an average of 800 m (2,624 ft) east-west (Mehner, 1980 and 1981) (Figure 8). That area is now covered by the Rum and Sadim 4 claims.

Cominco's soil surveys were the most intensive yet done in the KR-Rum showings area. A total of 512 samples were collected at intervals of either 50 or 100 m (164 or 328 ft) on closely, but irregularly spaced lines. All samples were analyzed for copper, lead, and zinc.

Cominco's soil survey tested the area north of the KR showing and south of the Rum showing area. Also, it extended eastward across the Missezula Mountain fault. The strongest soil-copper anomalies were identified south of Rum showing. Soil-copper anomalies were in similar locations to those of Ruskin Developments's 1976 soil survey.

Mehner (1981) concluded that the copper anomalies were too small and weak to warrant further work. Cominco's Rum claims subsequently lapsed.

The Coke group which was staked over the KR and Rum copper showings in 1985 were optioned to Mingold Resources Incorporated in 1987. E.W. Yarrow (1987) conducted a soil survey over a 700 X 950 m (2,296 X 3,116 ft) grid centered on the KR copper showing. A total of 325 samples were taken at 25-m (82-ft) intervals along lines spaced at 100-m (328-ft) intervals. Samples were analyzed for copper and gold. A north-south trending group of soil-copper and gold anomalies was identified that was generally coincident with the 1976 Ruskin and 1981 Cominco anomalies. They were most intense around and south of the KR discovery outcrop. High soil-gold concentrations were identified in areas adjacent to the Rum and KR showings.

In 1985, the Sadim gold-quartz veins were discovered about 2 km (1.2 mi) south of the crest of Microwave Hill (Figure 2). The veins were hosted in what was described as a tuff (Watson, 1985). They were poorly exposed in a 300 m (984 ft) long area on a low ridge just east of the Ketchan Creek road near kilometer 18. A soil survey was conducted along the road to the microwave tower and across the eastern margin of the Sadim 3 claim and the Sadim 4 claim (Figure 8). The most intensive survey was conducted around the discovery area.

Samples were taken at 50-m (164-ft) intervals along irregularly spaced lines on most of the Sadim 4 claim, and at much closer intervals across the Main Sadim gold zone at the Sadim 3-4 boundary (Figure 9). Samples were analyzed for copper, lead, zinc, silver, and gold.

On the eastern part of the Laramide grid, soil copper concentrations formed a north-northwesterly pattern that seems to have been due to the trace of the Missezula Mountain fault and adjacent Nicola Group stratigraphy. The most intense soil anomaly was located around the MDA-Coke showing area.

Around the Main zone, soil copper concentrations had a more irregular distribution. There, copper was donated to soil profiles from both the underlying north-northwesterly trending stratigraphy and from steeply southward dipping, east-westerly striking veins, resulting in destructive interference in the pattern of copper in soils.

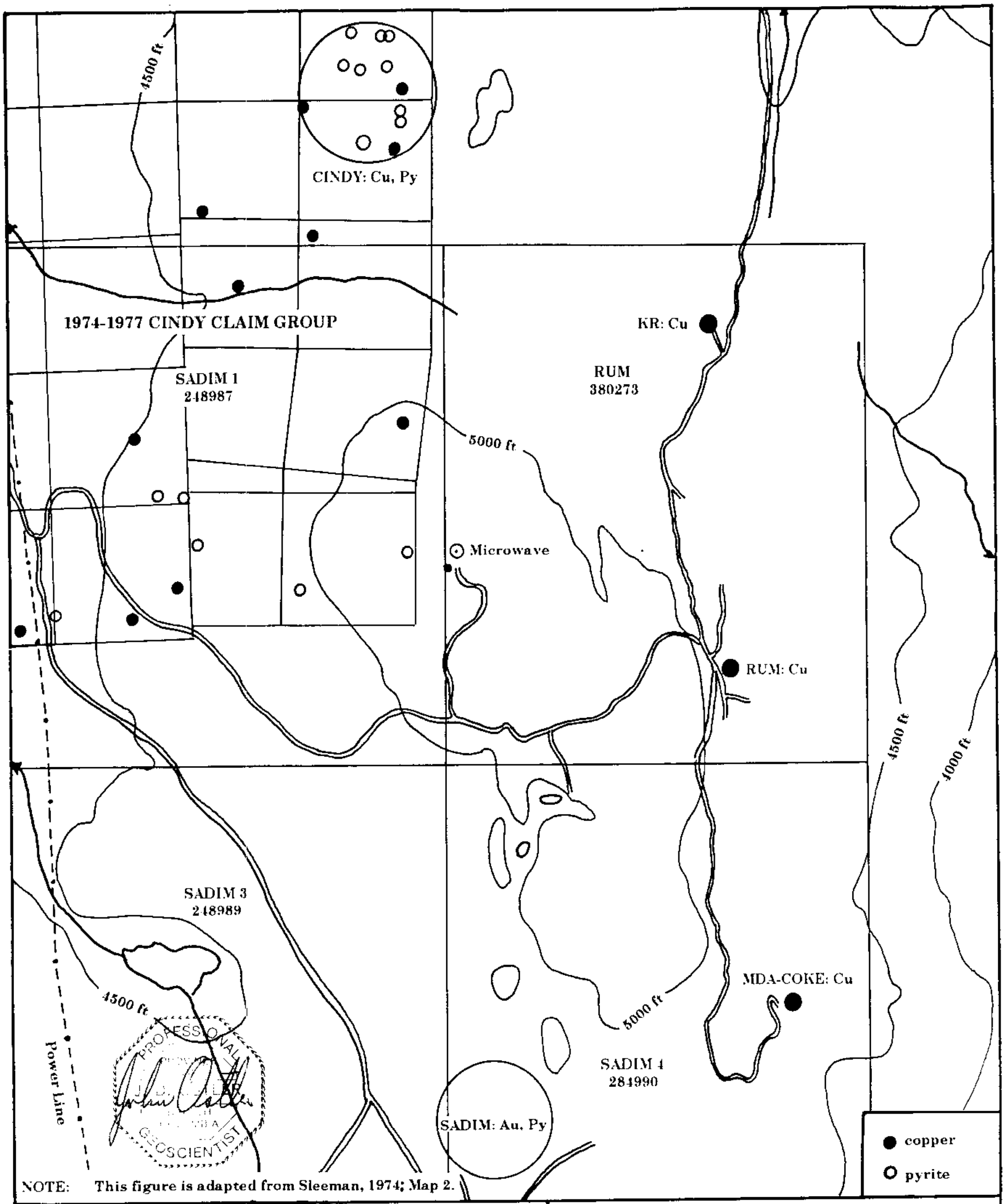
The northern margin of the Laramide soil grid was at the southern boundary of the circular feature that was previously defined by the AMAX and Ruskin soil surveys (Figures 5 and 9). In that area, the soil pattern that was defined by the north-northwesterly trending stratigraphy in the rest of the grid, seems to be overprinted by an east-west pattern of high soil-copper concentrations. Unfortunately, Laramide's sampling in that area was sparse.

The distributions of lead and zinc in soils in the Laramide grid area are subtle, but seem to mirror that of copper. Gold anomalies, as would be expected, are clustered around the gold-bearing quartz veins in the Main zone.

The 1985 Laramide soil survey results contained a large number of soil-copper concentrations compared with those from the results of previous surveys. Probably this was due to improved lab techniques resulting in more accurate soil-metal determinations than were attainable previously.

2.2.2 Rock Geochemical Surveys

During 1974, Bronson Mines Ltd. conducted a prospecting program led by Evan Sleeman (1974). Prospecting was hampered by an almost total lack of rock outcrop on the lower slope of Microwave Hill in the western part of the claim area. Rock exposures were progressively more common toward the crest of the hill in the area now covered by the Sadim 1 claim. Several copper (chalcopyrite and malachite) and pyrite occurrences were found in the andesitic volcanic and dioritic intrusive rocks exposed here. An extensively and intensely pyritized area was discovered near the northeastern corner of the Cindy property, just north of the current Sadim 1 property area (Figure 10).



John Ostler

NOTE: This figure is adapted from Sleeman, 1974; Map 2.

N.
19°48'
N. mag.

SCALE
0 200 400 600 800 1000 m
0 1000 2000 3000 ft

Figure 10

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1974 BRONSON PROSPECTING PROGRAM:
COPPER and PYRITE OCCURRENCES

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

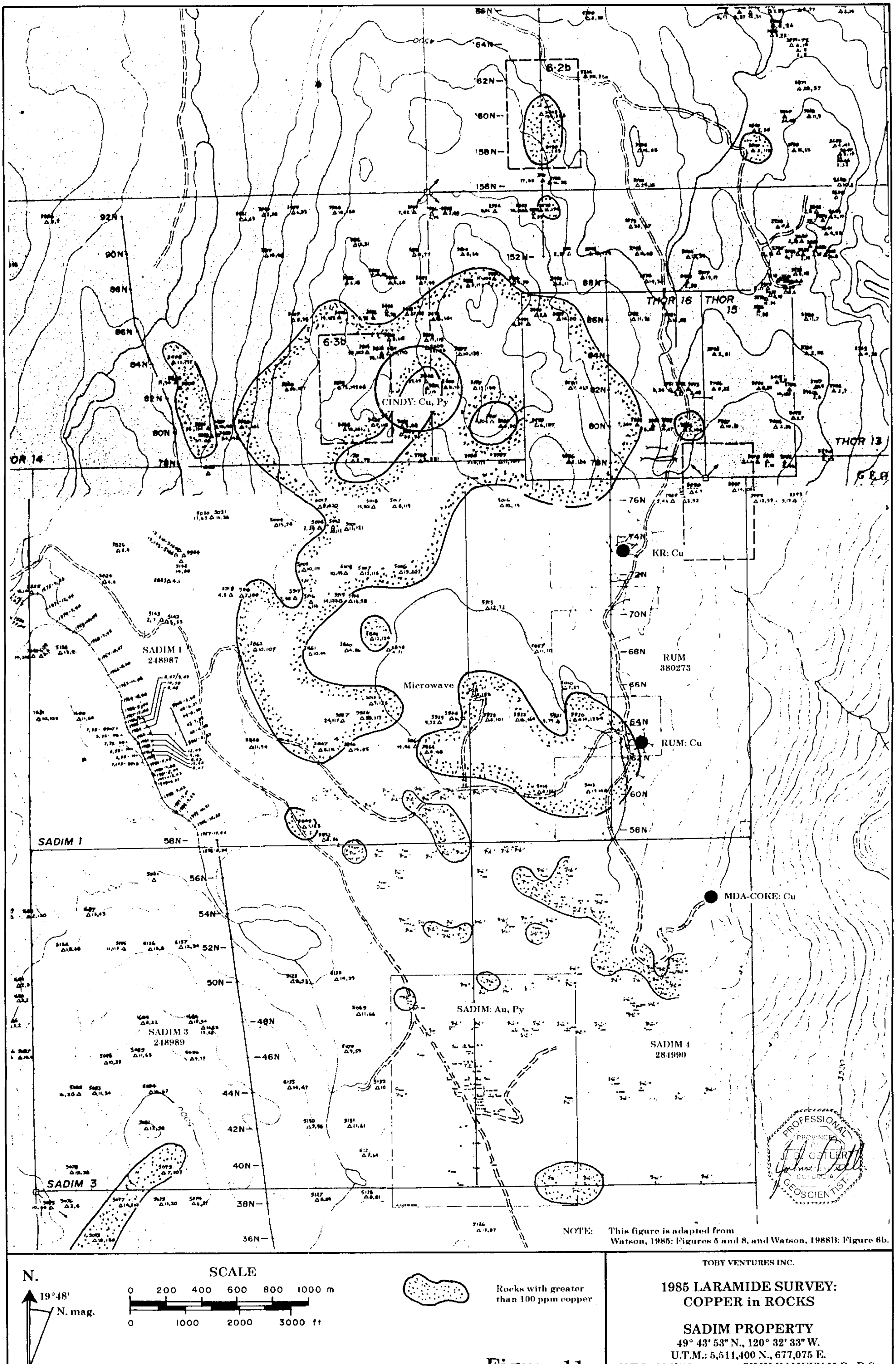
Evan Sleeman described that mineral occurrence as follows:

> On line 56N and 35E on claim 15, a large zone of heavily pyritized, rusty weathered diorite was discovered. This zone was from 300 to 500 feet (91.4 to 152.4 m) wide and continued north unbroken to the north boundary of the claim -1600 feet- (487.7 m) and was still in evidence north of this point.
>
> The rock is shattered and stained reddish brown from oxidation of pyrites.
>
> This zone extends to the eastern edge of claims 13 and 15, and is cut off on the west by a large pronounced fault running in a northerly direction. In many places the fault looks like a canal about 100 feet (30.5 m) wide and about 40 feet (12.2 m) deep.
>
> Chalcopyrite was observed in several places on the eastern edge of the fault but no mineralization was found west of the break. I suspect most of the heavily pyritized rock carries minor chalcopyrite, and similar occurrences in the area have assayed some silver as well.
>
> Several small fissure veins found in the pyrite zone contained chalcopyrite with some galena.
>
> Sleeman, Evan; 1974, pp. 2-3.

Peter Peto (1985 and 1986) staked the Coke claim group around the KR and Rum copper showings. During 1985, he took a few rock samples from old trenches. Just enough work was done to keep the 8-unit Coke group in good standing for one year. Nothing new was added to the knowledge of the property area.

1985 Laramide's exploration team discovered pyritic, gold-bearing quartz veins about 2 km (1.2 mi) south of the crest of Microwave Hill (Watson, 1985) (Figure 2). A program of soil and rock chip sampling was conducted along the road to the microwave tower and across the eastern margin of the Sadim 3 claim and the Sadim 4 claim (Figure 11). The most intensive survey was conducted around the discovery area.

A reconnaissance rock geochemical survey was conducted over the northern and western parts of the current Sadim property area (Figure 11). That survey comprised the southern part of a survey that was later extended for more than 12 km (7.3 mi) north of the current Sadim property area (Watson, 1988B). Samples were composites taken from 10 m^2 panels at locations throughout the survey area.



NOTE: This figure is adapted from Watson, 1985: Figures 5 and 8, and Watson, 1988B: Figure 6b.

J. D. OSTLER

CASSIAR EAST YUKON EXP. LTD.

Figure 11

TOBY VENTURES INC.

1985 LARAMIDE SURVEY:
COPPER in ROCKS

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Watson (1985) reported the results of the rock geochemical survey in the Sadim property area as follows:

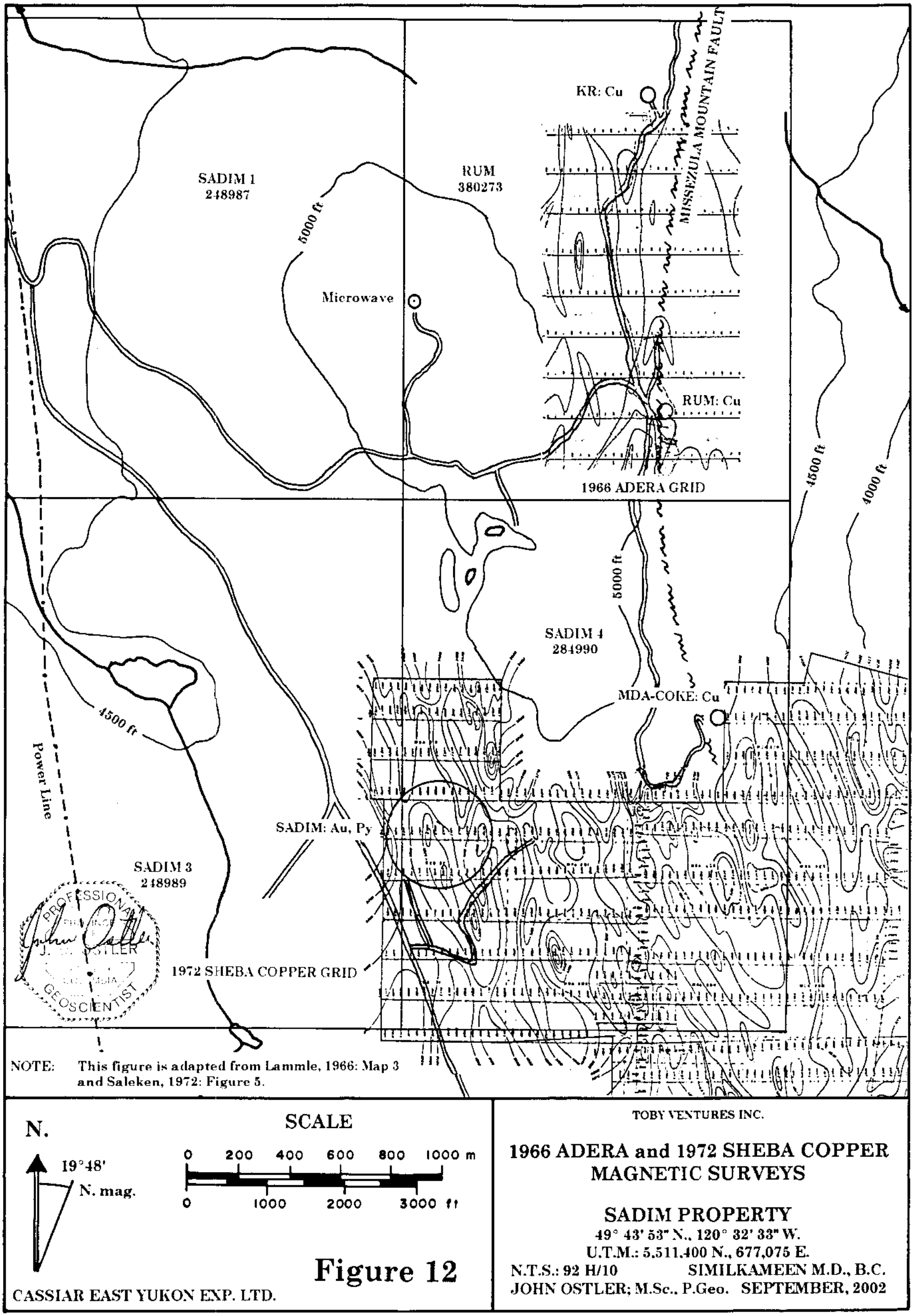
> Copper (up to 4856 ppm) and low gold (20-55 ppb) concentrations occur in fractured weakly to moderately mineralized (pyrite, chalcopyrite) diorites, and in fractured and altered volcanics/sediments immediately east of the diorites (Sadim 4 claim).
>
> The rusty weathering fractured tuffs ... which outcrop along the boundary of the Sadim 3 and 4 claims ... contain up to 560 ppb Au, along with silver and lead. Quartz veins within the tuff range from a few cms. to 30 cms. in width and yield assays from 915 ppb to over 6000 ppb Au ...
>
> Watson, I.M.: 1985: p. 11.

The circular distribution of rocks containing in excess of 100 ppm copper which coincided with the circular feature revealed by the AMAX and Ruskin soil surveys was not reported at that time.

2.2.3 Magnetic Surveys

In 1963 ASARCO became interested in Plateau Metal's KR copper showing and commissioned C.A.R. Lammle and Keith Whiting (1963) conduct a magnetometer survey over the area surrounding the discovery outcrops. Their grid was 609.6 m (2,000 ft) north-south and had east-west lines spaced 76.2 m (250 ft) apart that were alternately 304.8 m (1,000 ft) and 457.2 m (1,500 ft) long. Readings were taken at 30.5-m (100-ft) intervals. They identified a magnetic anomaly that generally coincided with the soil-copper anomaly that Lovang and Riley had identified southwest of the mineralized outcrop-area.

When Adera Mining Limited optioned the KR claim group, C.A.R. Lammle (1966) directed an additional magnetometer survey over the Adera soil grid (Figures 5 and 12). Magnetic highs coincided with the soil-copper anomalies that were identified in the southern part of the grid near what would become known later as the Rum showing area.



NOTE: This figure is adapted from Lammle, 1966: Map 3 and Saleken, 1972: Figure 5.

Figure 12

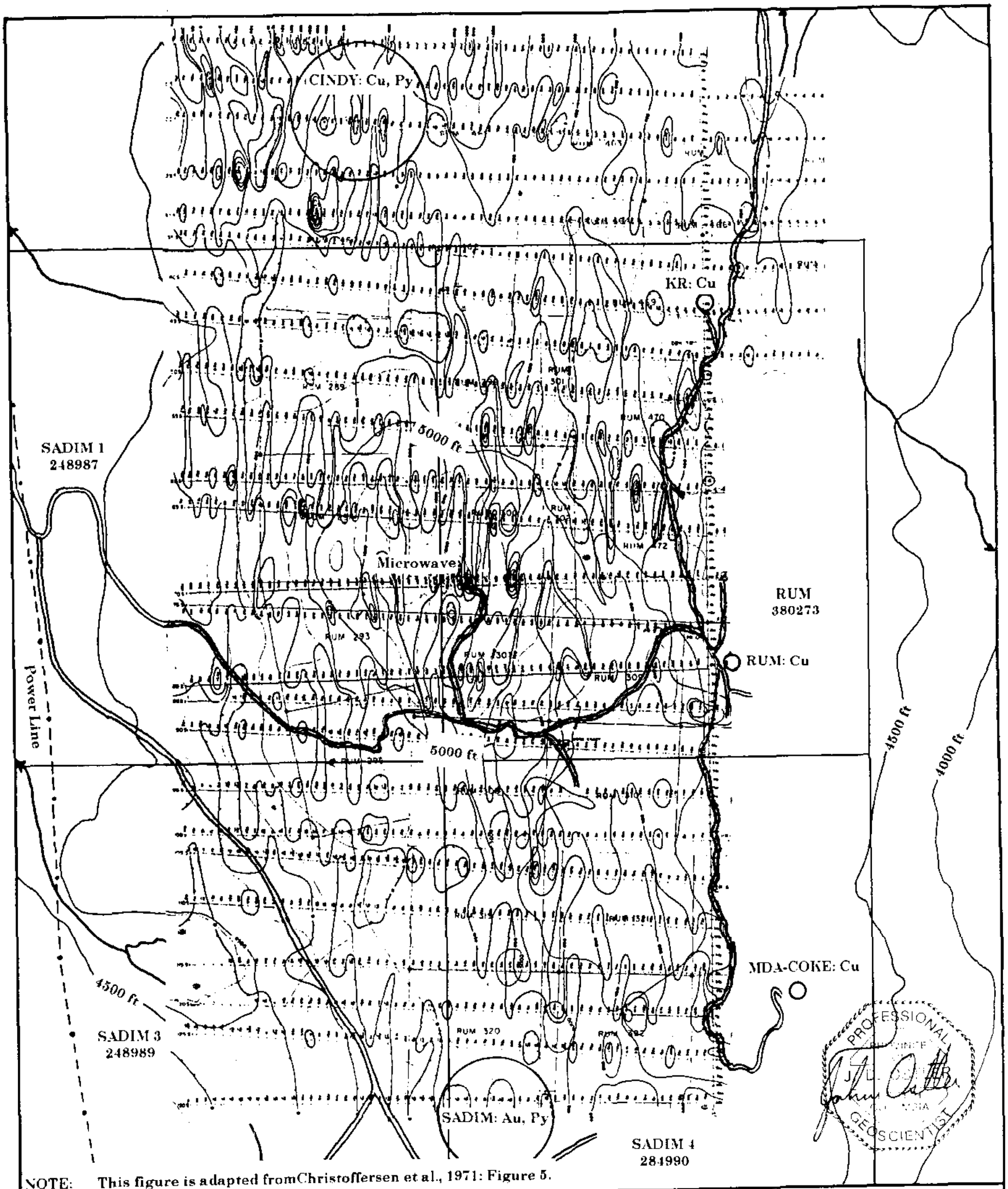
CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1966 ADERA and 1972 SHEBA COPPER MAGNETIC SURVEYS

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from Christoffersen et al., 1971: Figure 5.

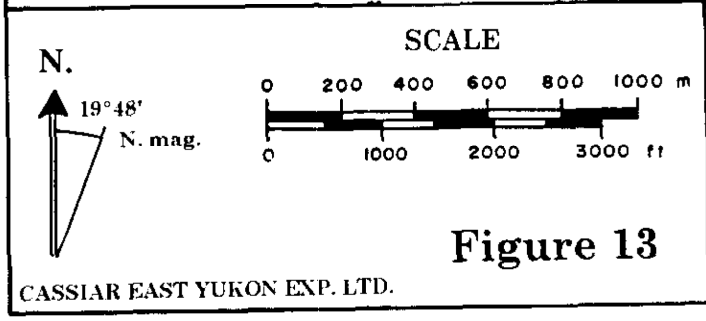


Figure 13

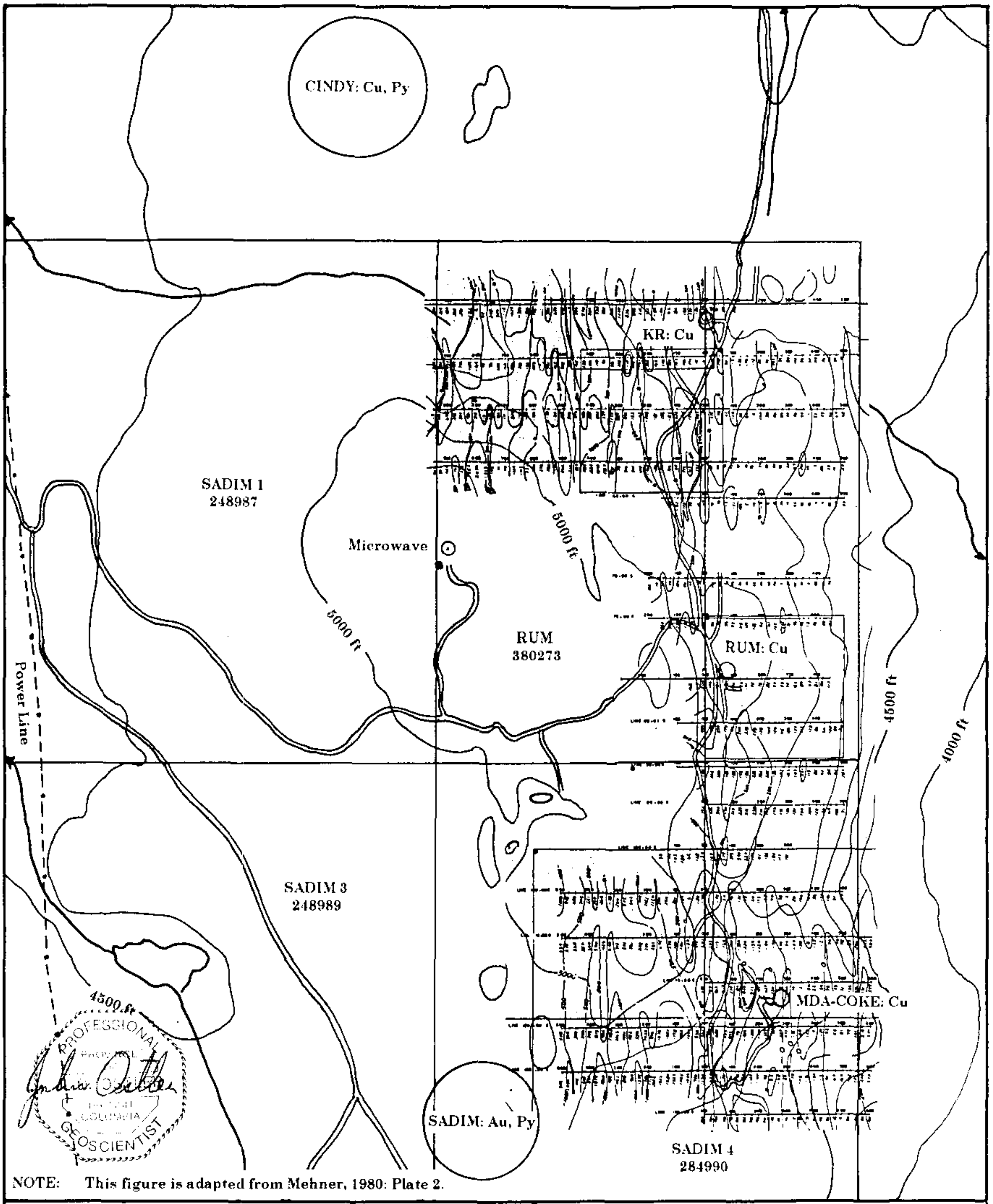
CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1971 AMAX MAGNETIC SURVEY

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from Mehner, 1980: Plate 2.

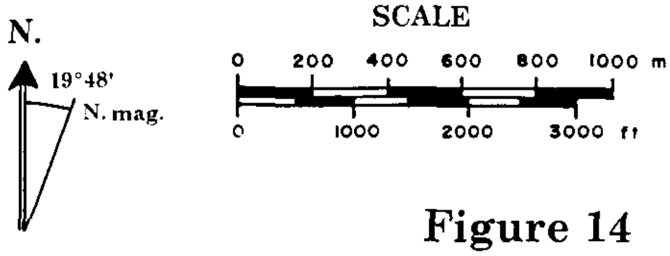


Figure 14

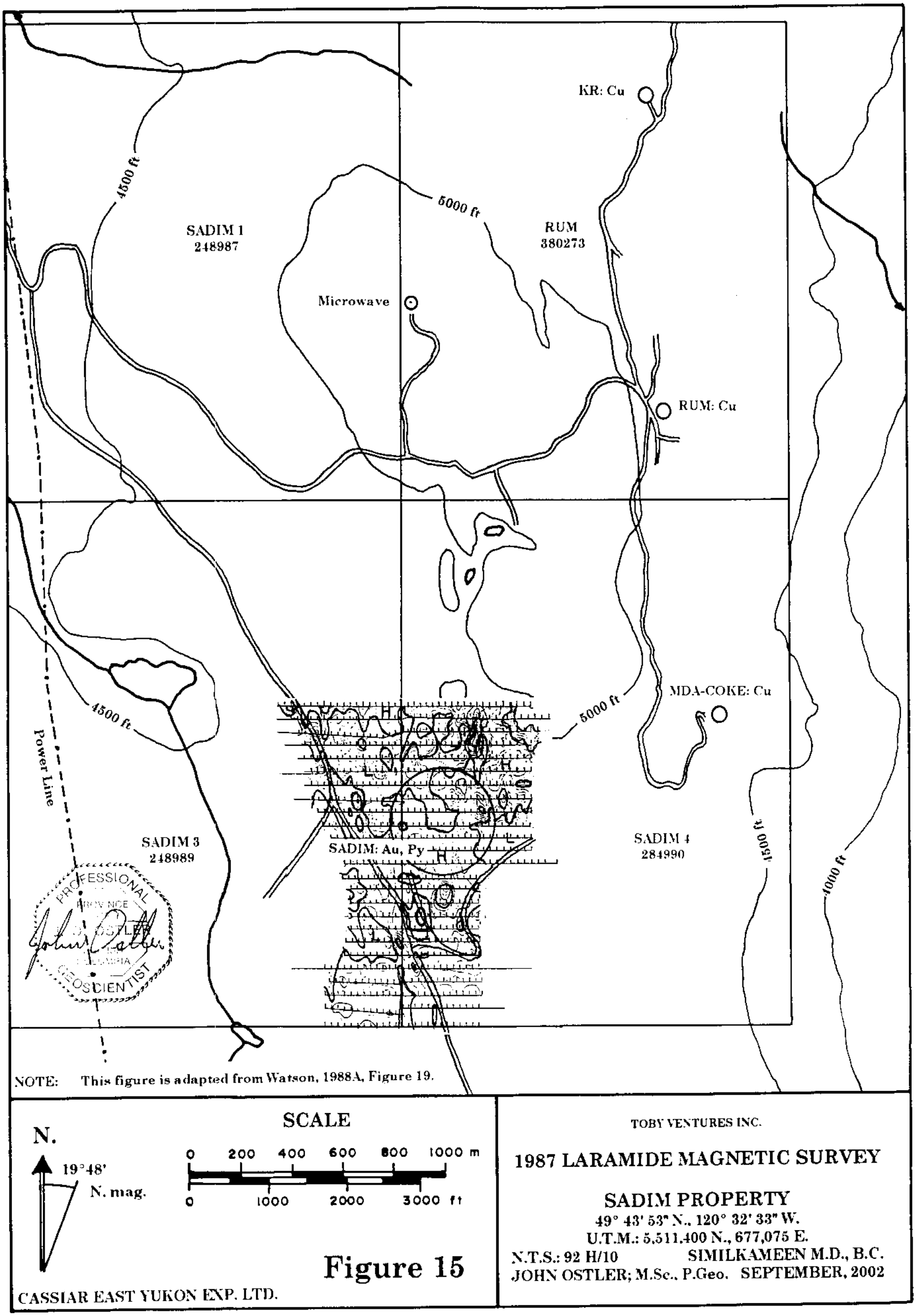
CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1980 COMINCO MAGNETIC SURVEY

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



J. OSTLER

NOTE: This figure is adapted from Watson, 1988A, Figure 19.

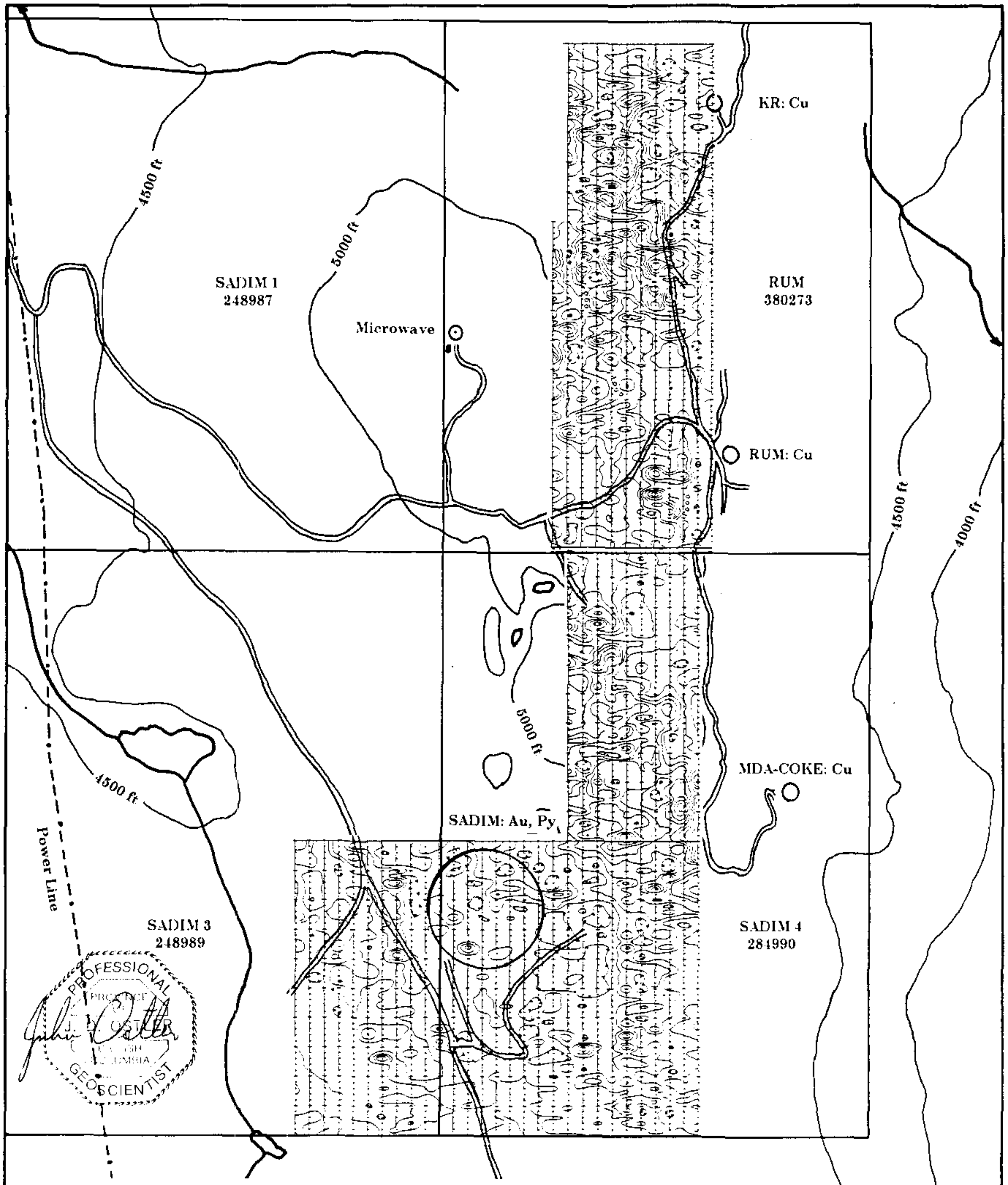
Figure 15

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1987 LARAMIDE MAGNETIC SURVEY

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from McDougall, 1994: Figures 7 and 10.

Figure 16

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1994 HARLOW MAGNETIC SURVEY

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: *92 H/10* *SIMILKAMEEN M.D., B.C.*
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

In 1971, AMAX conducted a magnetic survey over a grid that extended from the surface trace of the Missezula Mountain fault, westward to the lower western slope of Microwave Hill. The grid extended from the Cindy area southward to the Sadim gold zone, both of which were undiscovered at that time. The total surveyed area was about 8 km^2 (3 mi^2). Readings were taken at 30.5-m (100 ft) intervals along east-west lines that were 152.4 m (500 ft) apart.

Because the spacings between the lines was five times greater than that between the readings along each line, the amount of data that was gathered in an east-west direction was far greater than that obtained north to south. This directional data disparity resulted in a severe skewing of data contours in a north-south direction, resulting in very "noisy" results (Figure 13).

Christoffersen et al. interpreted the data as follows:

> Sedimentary and pyroclastic rocks had the lowest magnetic susceptibility on the property. They are characterized by very gentle gradients with values under 200 gammas. The magnetic contrast between these units and the other igneous rocks define the location of the Missezula Mountain fault. More pyroclastic rocks are indicated in the southwestern part of the grid-area.
>
> Further magnetic-lithological correlations become difficult due to the intermingling of flows, pyroclastics and volcanic sediments creating an indiscreet magnetic signature. In general, however, the hornblende-augite microdiorite is characterized by values between 200-600 gammas while the highest susceptibility areas (greater than 1200 gammas) reflect the augite porphyry and igneous breccia units.
>
> Three important magnetic trends are exposed. The most fundamental is the north-south direction which is evident throughout the map. Superimposed on this general grain are younger north-west and east-west trend directions. The east-west trends being more abrupt and discreet suggest late faulting.
>
> Christoffersen et al.: 1971: pp. 10-11.

Seeing through the north-south bias of the AMAX contouring detail, a broader magnetic pattern can be found in the results of this survey. It is a generally circular magnetic high centered near the crest of Microwave Hill that is flanked by a magnetic low on the north, west and south sides. Although volcanic stratigraphy may have some influence on this pattern, the writer believes that a circular or orthogonal pattern of fracturing is the primary cause of the circular feature.

1972 Sheba Copper Mines Ltd. conducted a magnetic survey over its soil grid (Figures 6 and 12) which covered the southern and central parts of the current Sadim 4 claim area. The Sheba Copper grid was well south of the Sadim circular feature on Microwave Hill. Consequently, all of the major trends were northwesterly. Three such trends were quite noticeable in that data. The one south of the MDA-Coke showing is probably due to the trace of the Missezula Mountain fault. A northwesterly trend that crossed the central part of the Sadim 4 claim area may have been due to either an unrecognized fault, the southwestern contact of a microdiorite body with metasedimentary rocks, or both. The most westerly trend passed just west of the Sadim gold zone where I.M. Watson (1988A) proposed that the plane of a shallow northeasterly dipping thrust fault would be exposed. Watson determined that the thrust fault was the main conduit for the gold-bearing fluids that were responsible for mineralization in the Sadim gold-quartz zone.

David Mehner (1980) conducted a magnetic survey for Cominco, over the soil grid that was constructed for the same program (Figures 8 and 14). That area is now covered by the Rum claim.

Cominco's magnetic survey tested the area from the KR copper showing southward to the Rum showings area. It extended the southeastern boundary of AMAX's 1971 magnetic survey. Magnetic anomalies were concurrent with the 1980 and 1981 soil copper anomalies and in similar locations to those of Ruskin Developments's 1976 soil survey (Figures 7 and 8).

D.T. Mehner described the results of the 1980 Cominco magnetic survey as follows:

> The survey was conducted with a Scintrex MP-2 proton precession magnetometer ... Diurnal variation was checked for by establishing three base stations and taking readings at these stations, usually twice a day. Little change in value was observed at the base stations and no corrections were made. The results of the survey indicate a fairly strong N-S magnetic fabric to the property that does not appear related solely to rock type. However, the linear arrangement of the magnetic highs and lows is parallel to bedding of the volcaniclastic rocks and to major structures on the property that are related to the Summers Creek fault. It is likely that some of these structures and some of the more permeable rock units have acted as aquifers for fluids that have either precipitated magnetite or removed it (altered to hematite) from the country rocks.
>
> In the southern part of the property a fairly large magnetic high is present on

> the west side of the baseline and a magnetic low on the east side (Figure 14). This correlates well with the geology which shows a small monzonitic plug underlying the magnetic high and andesite flows and volcaniclastics underlying the low.
>
> Mehner, D.T.; 1980: p. 3.

Mehner was the only one to report on diurnal variation in the earth's magnetic field with regard to a magnetic survey conducted on the current Sadim property area. It is unknown to the writer if adjustments for diurnal magnetic drift were made in any of the other magnetic surveys.

Upon the discovery of the Sadim gold-quartz area, magnetic and electromagnetic surveys were conducted over the showings areas (Watson, 1988A) (Figures 15 and 17).

Magnetic and electromagnetic readings were taken at 25-m (82-ft) intervals on east-west lines that were 50 m (164 ft) apart.

The northwesterly trend that was identified in the 1972 Sheba Copper magnetic survey (Figure 12) was confirmed just west of the showings area. The Main and East zones of the Sadim gold-quartz area were coincident with magnetic highs within a generally northwesterly trending magnetic pattern. The northern margin of the 1987 grid covered the southern edge of the Sadim circular feature. There, the northwestern magnetic pattern was overprinted by an east-west one.

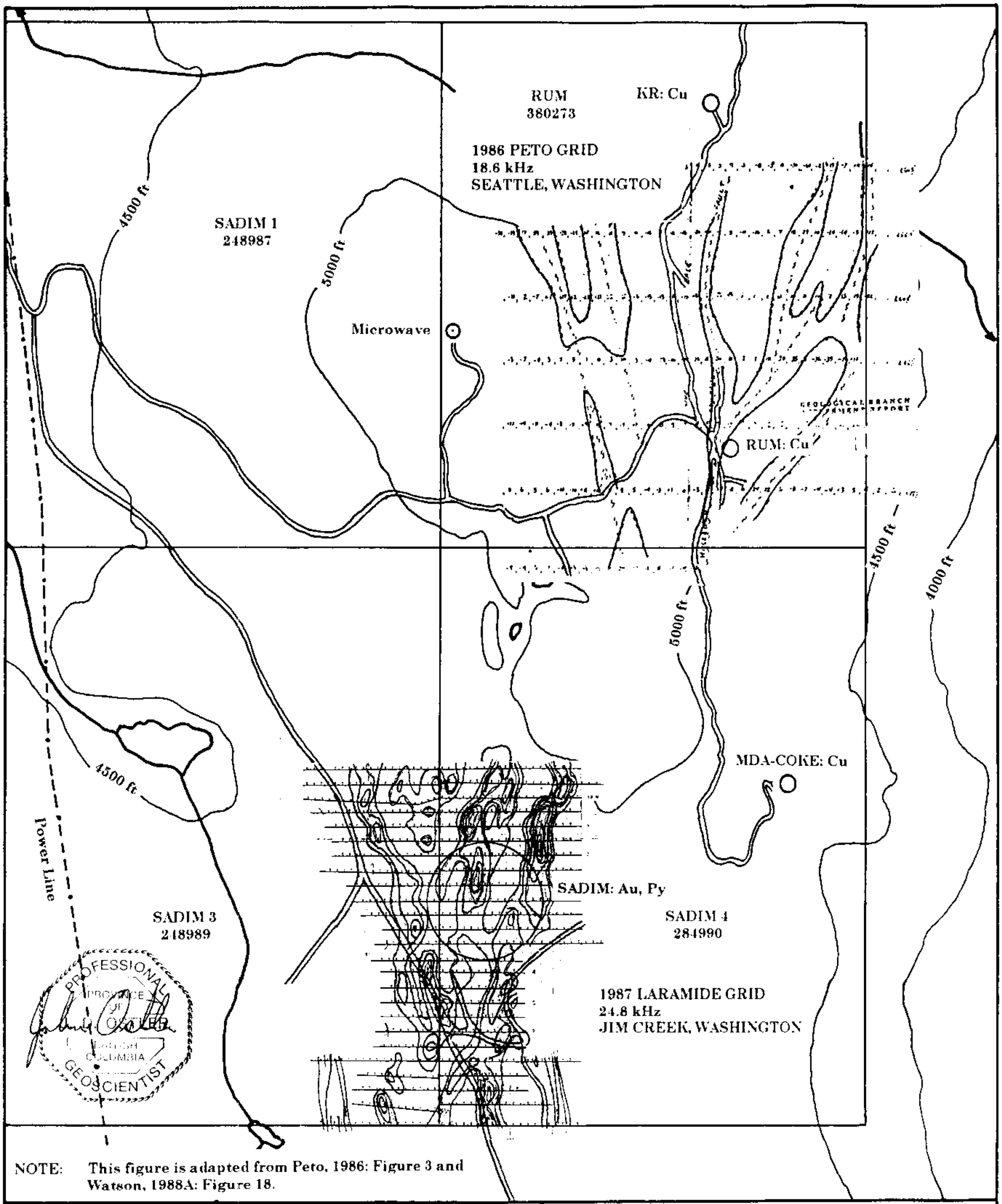
During 1994, Harlow Ventures Inc. gained control of both the Sadim gold-quartz area and the KR-Rum copper-gold area. Magnetic and VLF electromagnetic surveys were conducted over two contiguous grid areas (Presunka in: McDougall, 1994). The southern grid encompassed a 1,000 X 1,400 m (3,280 X 4,592 ft) area. It straddled the Sadim 3-4 claim boundary to cover the Main and East zones of the Sadim gold-quartz area. The northern grid adjoined the northeastern corner of southern grid. The northern grid contained a 550 X 2,700 m (1,804 X 8,856 ft) area that covered the copper showings on the northeastern part of the property (Figure 16).

That magnetic survey resulted in the identification of a magnetic low over the metasedimentary rocks in the central part of the southern grid. The volcanic and intrusive rocks in the rest of the survey area hosted numerous mild magnetic highs that seemed to be related to the general northwesterly trend of the stratigraphy. In general, the features that were identified in the previous magnetic surveys in the Sadim, KR and Rum areas were reconfirmed by the 1994 Harlow survey.

2.2.4 Very Low Frequency Electromagnetic Surveys

Peter Peto (1986) conducted a VLF electromagnetic survey on his Coke claim group which, at that time, covered the KR and Rum copper showings. That survey covered a 600 X 400 m (1,968 X 1,312 ft) part of the Cominco grid. Readings were taken at 25-m (82-ft) intervals along east-west lines spaced 152.4 m (500 ft) apart. The signal used was 18.6 kHz which was broadcast from Seattle, Washington. He identified a series of weak, discontinuous, north-south trending conductors, that he believed to be related to local drainage (Figure 17).

A VLF electromagnetic survey was conducted over the Sadim showings area in conjunction with magnetic soil and rock surveys by Laramide Resources Ltd. During 1987 (Watson, 1988A) (Figures 9, 11, 15, and 17). The same grid was used for both the magnetic and electromagnetic surveys. Electromagnetic readings were taken using a 24.8 kHz signal broadcast from Jim Creek, Washington.



PROFESSIONAL GEOSCIENTIST
PROVINCE OF BRITISH COLUMBIA
J. OSTLER

NOTE: This figure is adapted from Peto, 1986: Figure 3 and Watson, 1988A: Figure 18.

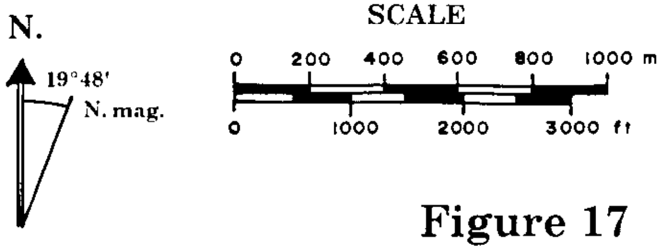


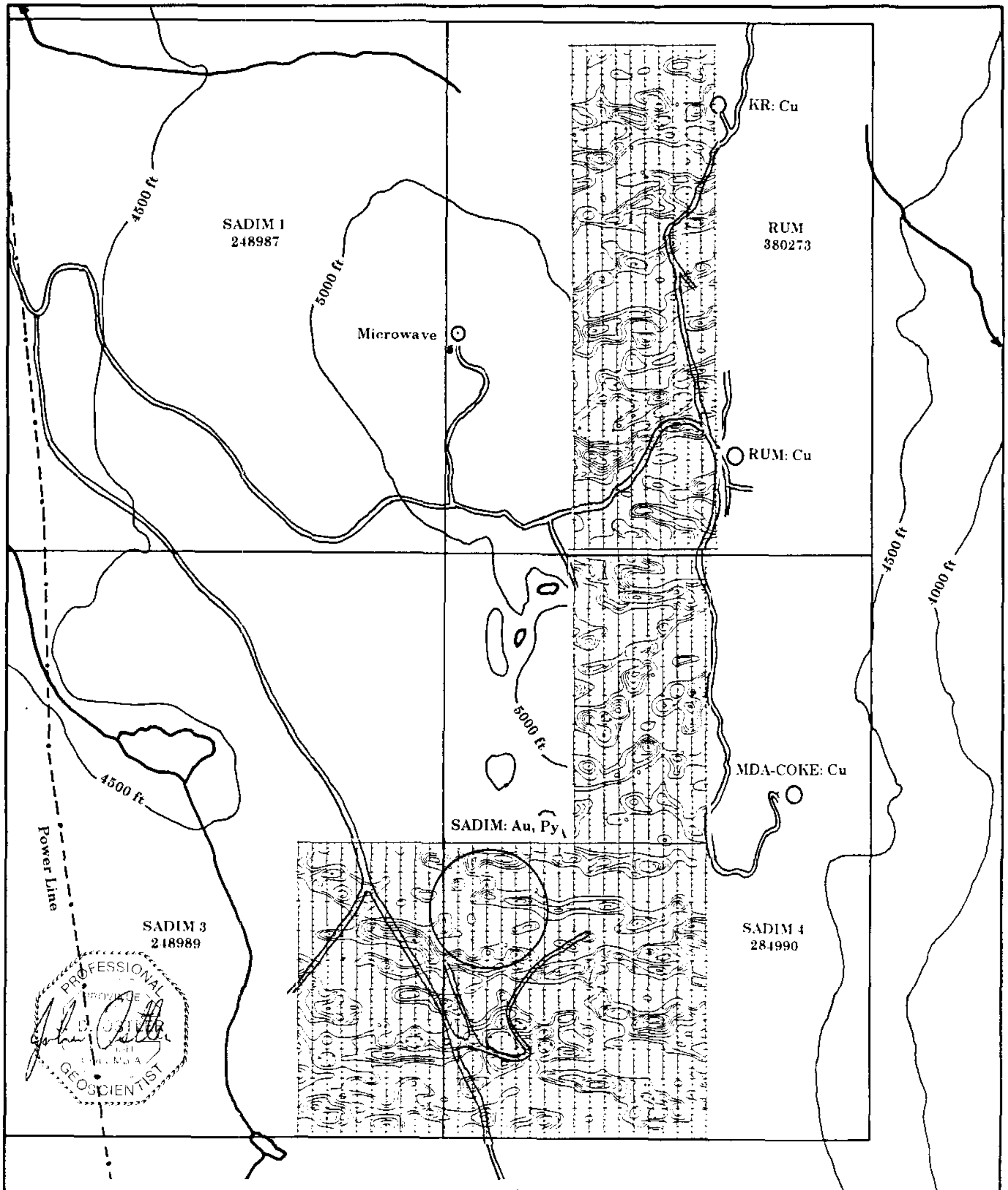
Figure 17

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1986 PETO and 1987 LARAMIDE
VLF ELECTROMAGNETIC SURVEYS

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from McDougall, 1994: Figures 8 and 11.

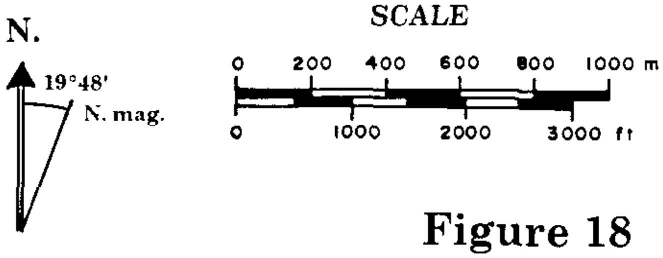
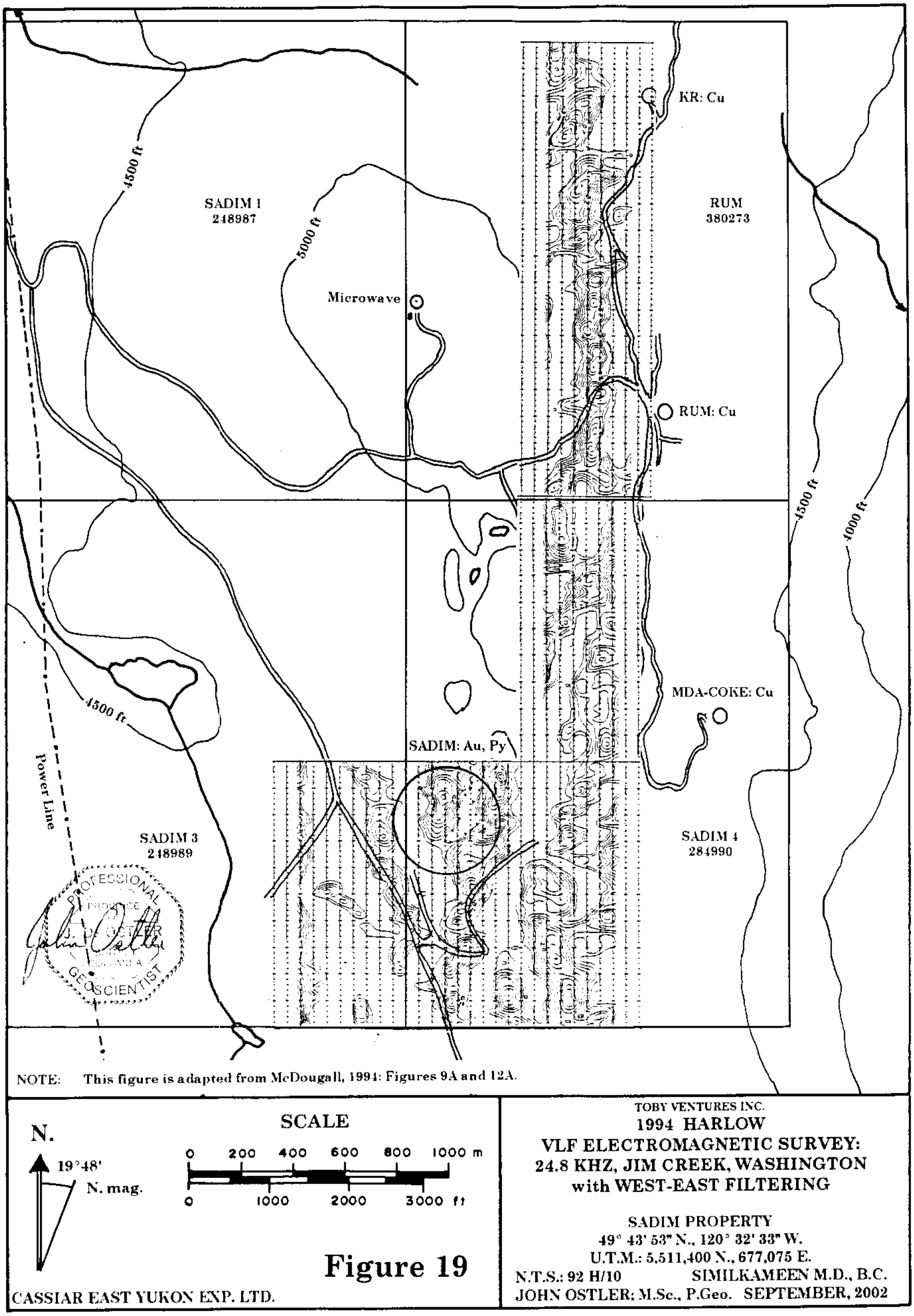


Figure 18

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.
1994 HARLOW
VLF ELECTROMAGNETIC SURVEY:
24.0 KHZ, CUTLER, MAINE

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



J. D. OSTLER

John Ostler

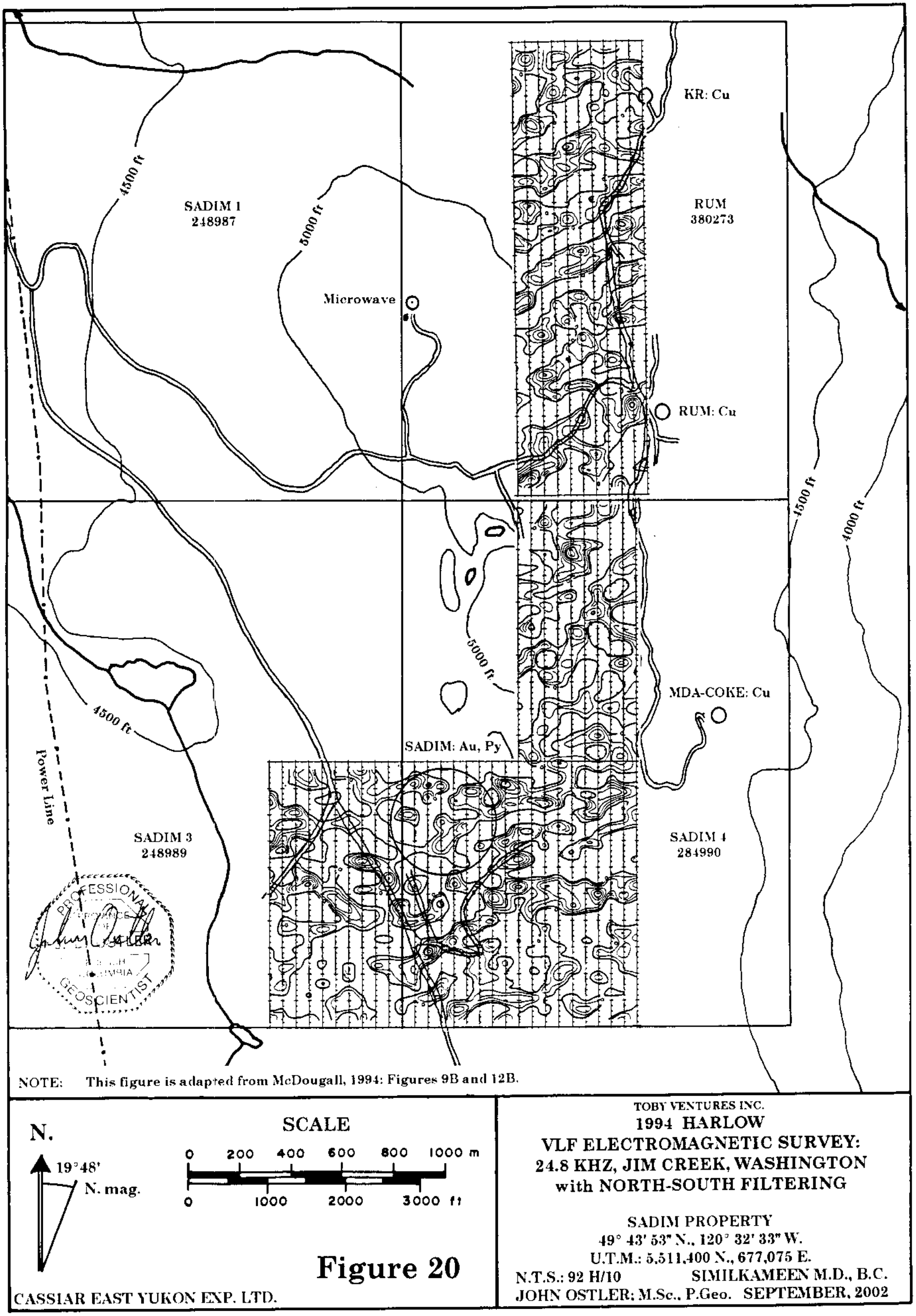
NOTE: This figure is adapted from McDougall, 1994: Figures 9A and 12A.

Figure 19

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.
1994 HARLOW
VLF ELECTROMAGNETIC SURVEY:
24.8 KHZ, JIM CREEK, WASHINGTON
with WEST-EAST FILTERING

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: This figure is adapted from McDougall, 1994: Figures 9B and 12B.

Figure 20

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.
1994 HARLOW
VLF ELECTROMAGNETIC SURVEY:
24.8 KHZ, JIM CREEK, WASHINGTON
with NORTH-SOUTH FILTERING

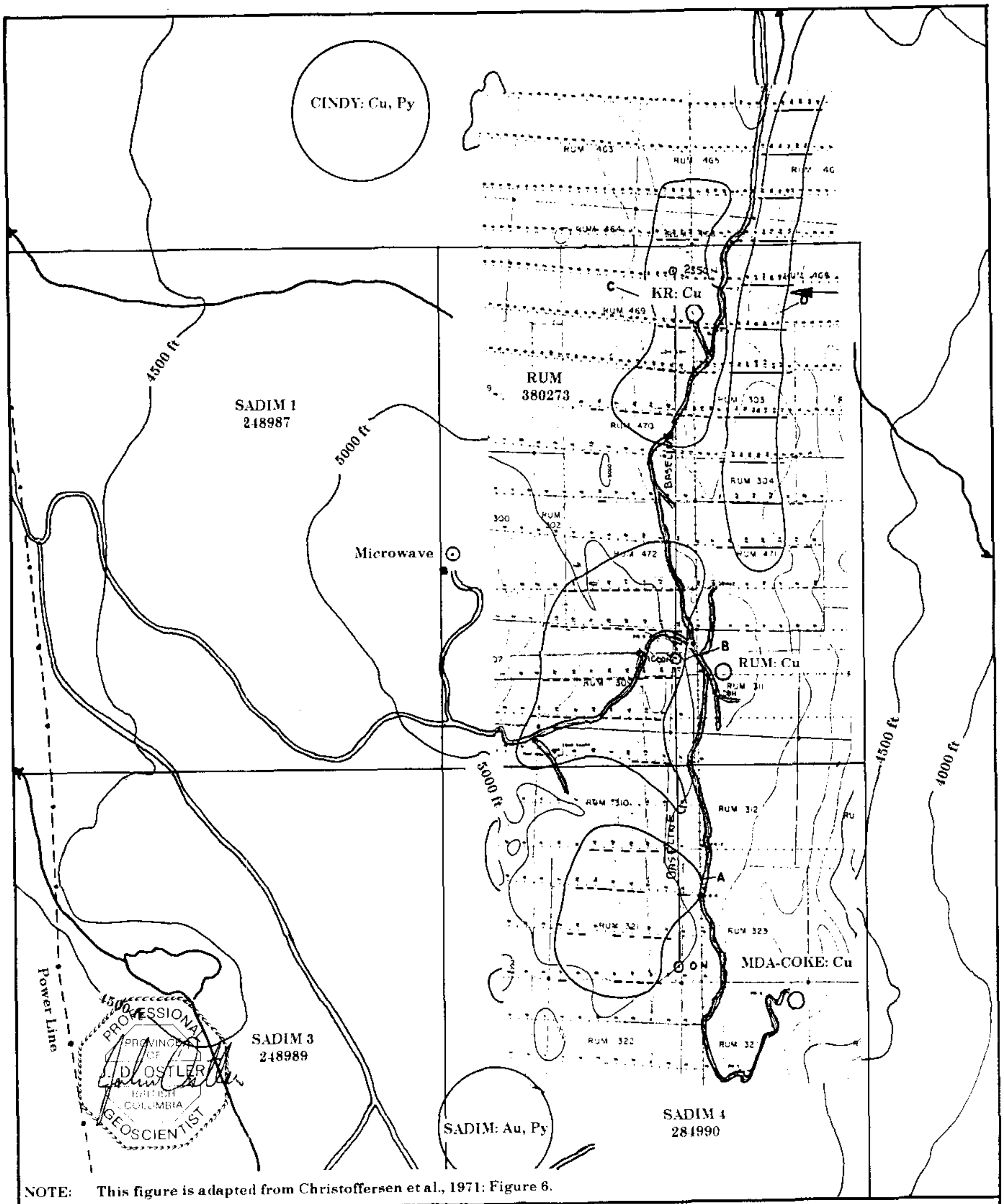
SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

I.M. Watson found the 1987 VLF electromagnetic survey to be of little use as an exploration tool in the southern Sadim property area. His comments about that survey were as follow:

> The VLF-EM survey ... provides few useful correlations with either mineralized zones or other geological features. An anomaly correlates with the major northerly striking shear that dips east below the host rocks of the Main zone .... but the strongest alteration containing the mineralized veins and pyritized host tuffs, is characterized by a relatively broad featureless area of low readings. The strongest VLF-EM anomaly, in the northeastern corner of the grid, correlates with an area of complex and poorly defined lithology involving interfingering units of limestone, volcanic breccia and diorite.
>
> Watson, I.M.; 1988A: p. 14.

The most recent VLF electromagnetic surveys were conducted by Harlow Ventures Inc. in 1994. They were done in conjunction with the 1994 magnetic survey on the same grid (Presunka in; McDougall, 1994). Readings were taken using both the 24.0 kHz signal broadcast from Cutler, Maine (Figure 18) and the 24.8 kHz signal broadcast from Jim Creek, Washington (Figures 19 and 20). Readings taken using the Jim Creek, Washington signal were Fraser-filtered in both east-west and north-south directions for comparison.

S. Presunka (in, McDougall, 1994) concluded that VLF electromagnetic anomalies were produced primarily by water-laden fault gouge. One exception, was an anomaly located beneath the bend in the road about 500 m (1,640 ft) south of the KR showing. Presunka believed that the rocks that generated that anomaly were mineralized. He was correct. Drill Holes 02-10 and 02-12 of the current exploration penetrated a 15-m (49.2-ft) thick shallow-dipping zone of disseminated copper and gold mineralization in that area (Section 5.2.2. this report).



NOTE: This figure is adapted from Christoffersen et al., 1971: Figure 6.

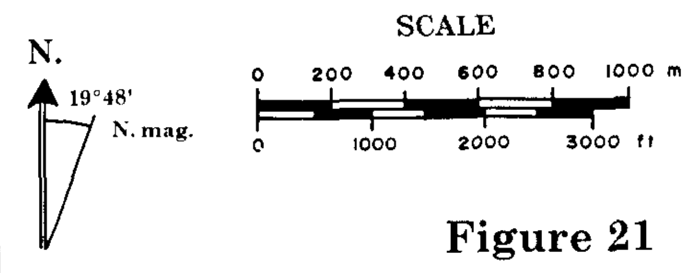


Figure 21

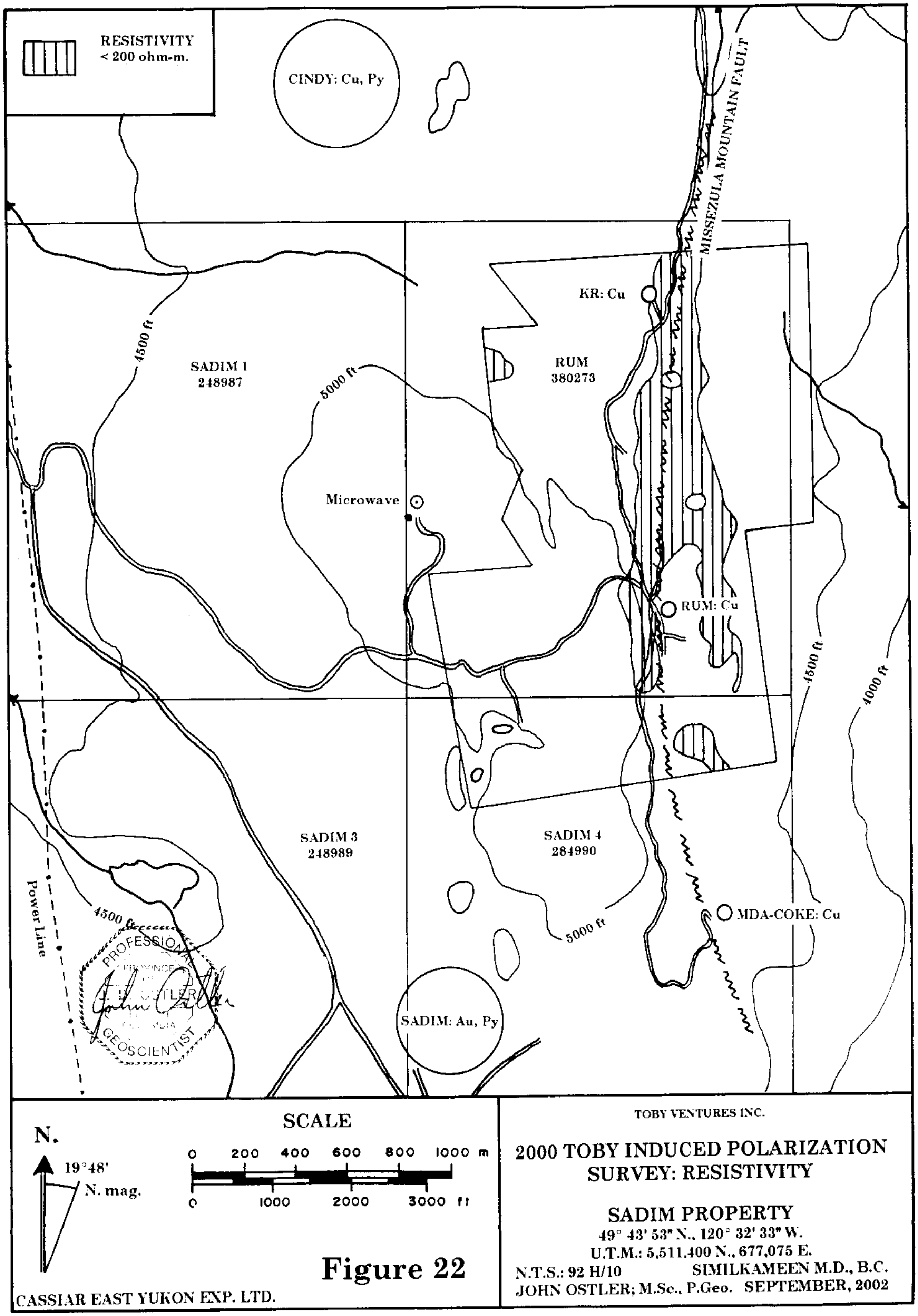
CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1971 AMAX
INDUCED POLARIZATION SURVEY

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



J. OSTLER

John Ostler

Figure 22

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

2000 TOBY INDUCED POLARIZATION SURVEY: RESISTIVITY

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

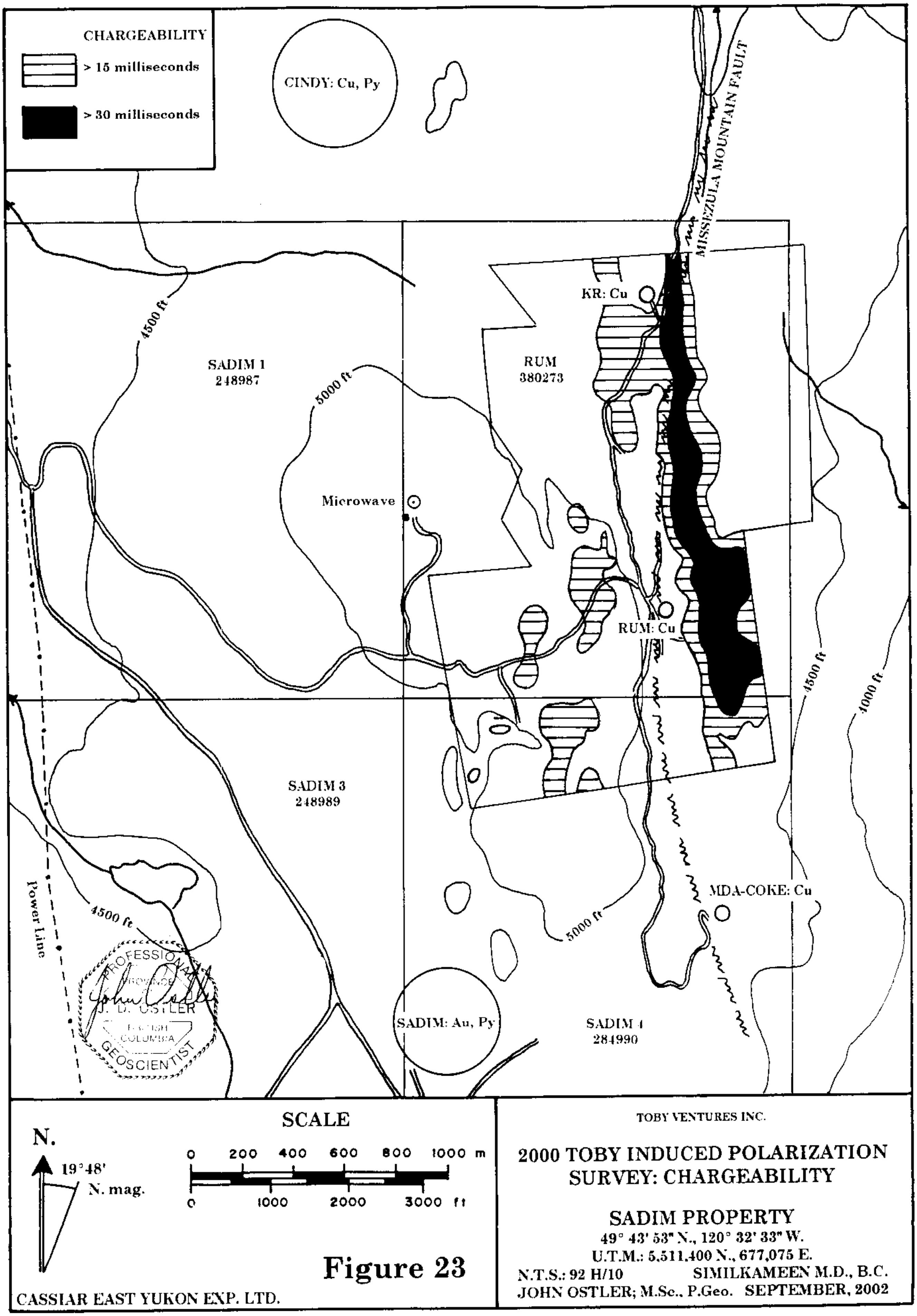


Figure 23

TOBY VENTURES INC.

2000 TOBY INDUCED POLARIZATION SURVEY: CHARGEABILITY

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

J. D. OSTLER

2.2.5 Induced Polarization Surveys

AMAX conducted the first induced polarization survey in the current Sadim property area during 1971 (Christoffersen et al., 1971) (Figure 21). A total of 35.3 line-km (21.3 line-mi) of survey was done in a 4.9 km^2 (1.9 mi^2) area using a dipole-dipole array. Part of the survey was done with an 'a' spacing of 30.4 m (100 ft) with n = 2. The rest of the grid was covered with an 'a' spacing of 60.9 m (200 ft) with n = 1.

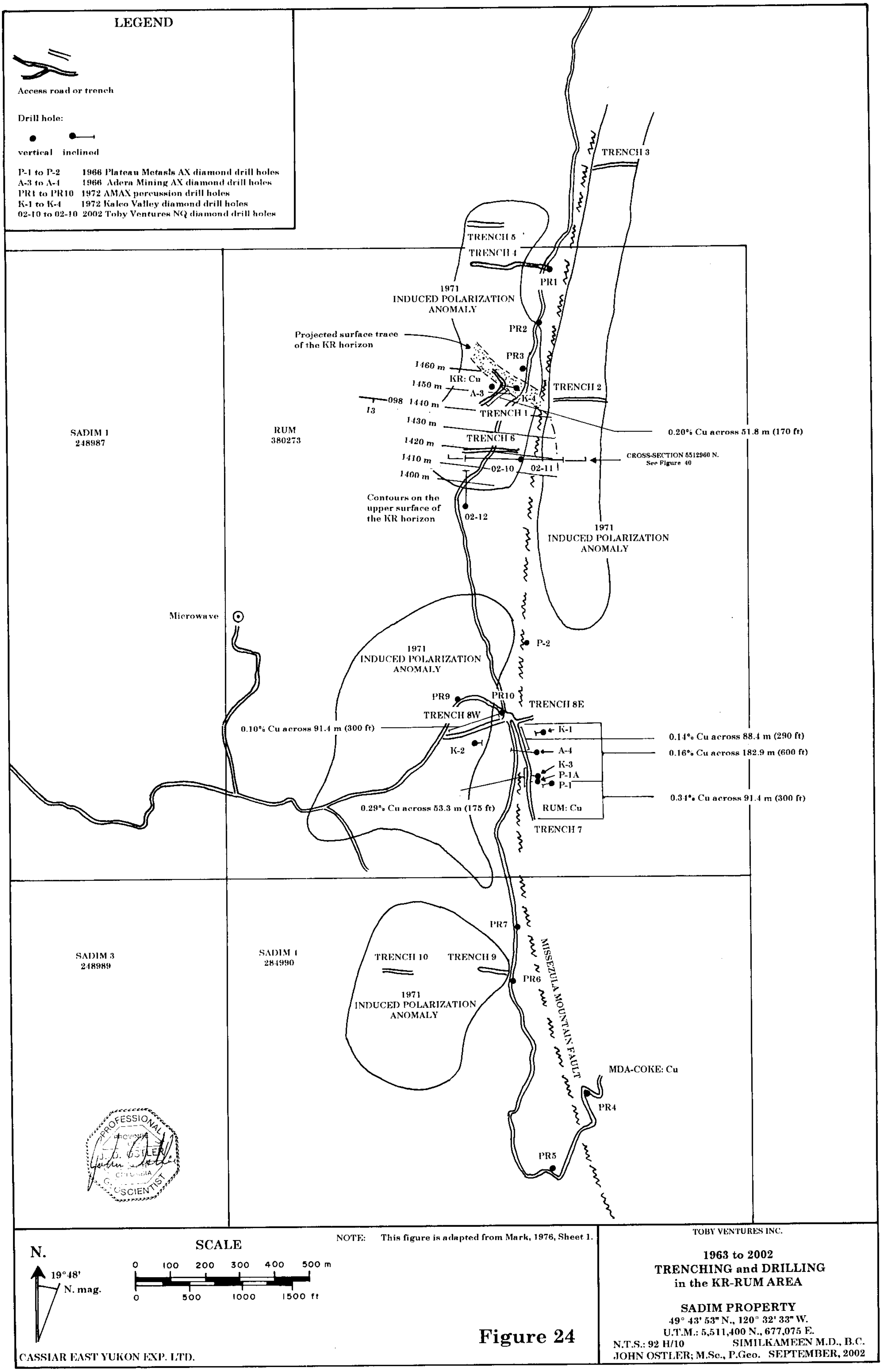
Four induced polarization anomalies were identified. A linear anomaly was located just east of the trace of the Missezula Mountain fault north of the Rum showings area. Anomalies were found in both the KR and Rum showings area, and an anomaly was located over the microdiorite south of the Rum showings area.

No other induced polarization survey was conducted in the Sadim property area until 2000. During that year, Toby Ventures Inc. commissioned SJV Geophysics to conduct an induced polarization survey over an irregularly shaped grid that covered most of the Rum claim (Pezzot, 2000) (Figures 22 and 23).

The 2000 survey was conducted using dipole-dipole array with a 50-m (164-ft) 'a'spacing and n = 3.

A resistivity low as defined by the 200 ohm-m contour flanks the trace of the Missezula Mountain fault through volcanic stratigraphy north of the Rum showings area. In the southern part of the 2000 grid area, the resistivity low becomes less apparent, possibly due to the very resistant microdiorite intrusion located there (Figure 22). Chargeability highs as defined by a minimum 15,000 millisecond delay have two trends: one is along the eastern flank of the Missezula Mountain fault and the other is a northeasterly trending arc located to the west of the fault (Figure 23). That arcuate trend may be a reflection of the eastern margin of the Sadim circular feature, which has already been mentioned, is reflected in soil, rock-chip, and magnetic survey results.

The chargeability high on the eastern flank of the fault is the most intense of the two. It has a high-chargeability core where response delays exceed 30,000 milliseconds.



NOTE: This figure is adapted from Mark, 1976, Sheet 1.

Figure 24

TOBY VENTURES INC.

1963 to 2002
TRENCHING and DRILLING
in the KR-RUM AREA

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

2.2.6 Trenching and Drilling in the KR-Rum Copper-gold Area

Upon the discovery of the KR copper showing in 1963, Plateau Metals Limited put a bulldozer onto the property to build an access road from the road to the microwave tower northeastward to the showing area. Branches were extended southward to what would later become known as the Rum showings area. From 1963 to 1966, Plateau Metals excavated around the discovery outcrops and in at least nine places along the access roads between the KR and Rum showings areas (Lammle, 1966; Maps 2 and 3) (Figure 24).

The results of the Plateau Metals trenching program are unknown to the writer. Presumably, the best results were obtained around the KR and Rum showings areas; that was where subsequent drilling was done.

L.W. Saleken (1972) reported that AMAX had conducted a trenching program on their Rum claims. Although there is no record of that program in the assessment report of Christoffersen et al. (1971), the trench locations were recorded by D.G. Mark (1976) in a subsequent report filed on behalf of Ruskin Developments Ltd.

The writer assumes that the AMAX bulldozing program occurred after sufficient assessment work had been filed on its Rum claim group, and the company did not bother to report upon it.

Mark's maps show that AMAX extended the KR-Rum access road northward, presumably to connect with the Dillard logging road about 2 km (1.2 mi) north of the current Sadim property area. AMAX excavated at least 11 long bulldozer trenches, the placement of which, seems to have been designed to test the induced polarization anomalies identified by the 1971 survey (Figures 21 and 24).

Reportedly, Kalco Valley Mines Ltd. mapped and sampled eight of AMAX's trenches in the KR-Rum area during November and December, 1972 (Mark, 1976). A report of their work was not available to the writer. However, D.G. Mark (1976; Sheet 1) (Figure 24) recorded that a sample containing 0.34% copper over a length of 91.4 m (300 ft) was taken from the southern part of AMAX Trench No. 7, located in the central part of the Rum showings area, presumably by Kalco Valley's exploration crew. Another sample containing 0.16% copper over a length of 182.9 m (600 ft) was obtained from the adjoining northern part of the same trench.

That intersection included an area in the central part of the trench that contained 0.29% copper over 53.3 m (175 ft) and another section near the trench's northern end that contained 0.14% copper across 88.4 m (290 ft). Trench 8W was excavated east-west, at almost a right angle to Trench No.7 and intersected it at its northern end. That trench hosted a 91.4-m (300-ft) long intersection that graded 0.10% copper.

The writer presumes that these were the best intersections that Kalco Valley's geologists found in the AMAX trenches.

AMAX Trench No.7 was inspected by the writer during the current exploration program. Although the rock in the trench wall had sloughed in and weathered, the general character of the mineral occurrence could still be ascertained.

Most of the rock in the trench wall is light tan, oxidized and silicified volcanic. Red, orange, and black limonite is ubiquitous. The black limonite, presumably related to the oxidation of chalcopyrite. occurs as small blebs and smears on the numerous fracture surfaces. In less oxidized parts of the trench, the original andesitic composition of the country rock can be seen. There. malachite occurs on fracture surfaces and the rock looks much like the malachite-stained rock at the KR showing farther north. A small amount of the rubble in the trench bottom is a black and white. highly silicified breccia with a tourmaline-rich matrix.

Alteration and mineralization in the AMAX No.7 trench looks very similar to some of that at the Axe deposit (for details. see Section 4.2 of this report). also located near the trace of the Missezula Mountain fault about 9 km (5.5 mi) south of the Sadim property (Figure 31).

AMAX Trench No.1 cut the KR discovery outcrop area on its southern and eastern sides. There. a 51.8-m (170-ft) long section on the southern side of the KR outcrop graded 0.20% copper.

The KR showing is much less oxidized than those in the Rum area. At the KR outcrop, pyritized andesite contains malachite and minor amounts of chalcopyrite in a plethora of intersecting fracture planes.

Peter Peto (1985 and 1986) staked the Coke claim group around the KR and Rum copper showings. During that year he took a few rock samples from old Plateau Metals and AMAX trenches. Sampling was too sparse to be of much interpretive value. Peto's work was the last work conducted in the trenches around the KR and RUM showings areas.

Three drill programs were conducted in the KR-Rum area from 1966 to 1972. The first was a 5-hole program of AX diamond drilling commenced by Plateau Metals Ltd. and completed by Adera Mining Limited (Lammle, 1966) (Figure 24).

Plateau Metals's 3 drill holes, P1, P1a, and P2 were drilled in the Rum area. P1 and P1a were drilled in the trench that would later become known as AMAX Trench No.7. P1 was drilled in a westerly direction beneath the tench and P1a went straight down into it.

P1 cut through what was described in the drill log (Lammle, 1966) as fine-grained grey to white talc-chlorite-kaolinite rock. In the lower part of the hole, hematitic and pyritic seams were encountered. Hole P1 was lost in mud seams at a depth of 30.5 m (100ft). Hole P1a encountered similar rock throughout its 42.7-m (140-ft) length. The rock described in the P1 and P1a drill logs was very similar to that exposed in the walls of the AMAX No.7 trench.

P2 was an 84.1-m (276-ft) long vertical hole that was drilled into the surface-trace area of the Missezula Mountain fault, about 457 m (1500 ft) north of the other two holes. That hole cut through variably brecciated andesitic rocks throughout its length. The most interesting rock unit was encountered below 41.8 m (137 ft) where light grey-green porphyritic andesite contained about 5% pyrite.

Plateau drilled a total of 157.3 m (516 ft) of core, and unfortunately, none of it seems to have been sampled for metal content.

Adera Mining Ltd. drilled a total of 200.3 m (657 ft) in two AX diamond drill holes, A-3 and A-4. Adera's A-3 drill hole was drilled east-southeastward beneath the KR discovery outcrop from its western side (Lammle, 1966) (Figure 24). That hole penetrated 93 m (305 ft) beneath the discovery outcrop. An 18.3-m (60-ft) intersection of andesite lightly mineralized with pyrite and chalcopyrite, encountered from 42.7 to 61 m (140 to 200 ft) down the hole, contained an average of 0.265% copper. Mineralization was reportedly accompanied by pervasive propylitic (calcite-epidote) alteration.

Adera's A-4 hole was drilled beneath the northern part of the predecessor to the AMAX No.7 trench from its eastern side. The upper 59.5 m (198 ft) of the hole cut intensely oxidized rock similar to that visible in the No.7 trench wall. Beneath that, the hole transected variably oxidized andesite. A 9.1-m (30-ft) section between 73.2 and 82.3 m (240 and 270 ft) was sampled. It contained an average of 0.10% copper. The rock in that interval was described as varicoloured, grey-green-white, dense brittle rock with talcose, carbonate seams containing about 10% pyrite and perhaps some chalcopyrite.

Sampled drill intersections from the 1966 Adera program were reported by Lammle (1966) as follow:

The mineralized drill intersections that exceeded generally exceded 0.10% copper were as follow:

1966 ADERA MINERALIZED DRILL INTERSECTIONS

HOLE No.	INTERVAL m	ft	COPPER %	REPORTED LENGTH m	ft
A-3	42.7-45.7	140-150	0.32	3.3	10
A-3	45.7-48.8	150-160	0.22	3.3	10
A-3	48.8-51.8	160-170	0.22	3.3	10
A-3	51.8-54.9	170-180	0.26	3.3	10
A-3	54.9-57.9	180-190	0.26	3.3	10
A-3	57.9-61.0	190-200	0.31	3.3	10
A-4	73.2-76.2	240-250	0.14	3.3	10
A-4	76.2-79.2	250-260	0.06	3.3	10
A-4	79.2-82.3	260-270	0.10	3.3	10

Unfortunately a very interesting section in drill hole A-4 was not sampled. That section was from 45.1 to 59.4 m (148 to 195 ft) down the hole. It hosted a black. non-magnetic material with minor sulphides. What was that black mineral? Was it black limonite, like that exposed in the walls of Trench No.7 above the hole, or perhaps, was it chalcocite that had been deposited at the base of a weathered profile? Another drill hole near A-4 beneath AMAX Trench No.7 would be required to answer those questions.

During late 1971 or 1972 AMAX conducted a 10-hole percussion drill program in the KR-Rum area. Drill sites were spread out along the access road near the projected trace of the Missezula Mountain fault from the MDA-Coke showings area, northward to about 304.8 m (1000 ft) north of the KR showing (Figure 24). Most of those percussion drill holes were either north of the KR showings area or along the road between the Rum and MDA-Coke showings areas. Generally, the holes were spaced at 152.4-m 500-ft) intervals. It seems to the writer that AMAX was prospecting with a drill in the hope of stumbling upon something unforseen. The results of that program are unknown to the writer.

During 1972, Kalco Valley Mines Ltd. drilled four diamond drill holes in the KR and Rum showings areas (Figure 24). Holes K-1 and K-2 were drilled into the projected trace of the Missezula Mountain fault east of AMAX Trench No.7. Hole K-3 was drilled eastward from a location 20 m (65.6 ft) south of AMAX Trench No.8W and 120 m (393.6 ft) west of AMAX Trench No.7. Hole K-4 was drilled into the KR discovery outcrop from its southeastern side. The results of that work are not known to the writer.

2.2.7 Trenching and Drilling in the Sadim Gold-quartz Area

Laramide Resources Limited conducted the first trenching program on its recently discovered and yet poorly exposed Sadim gold-quartz area in the autumn and winter of 1986. That year, a total of 11 trenches were excavated across the Main Sadim gold showing area and its adjacent extensions to the north and south (Figure 25). Three additional trenches tested an area west of the swamp that flanked the main showings. A total length of 775 m (2,542 ft) of trenching was excavated, mapped and sampled during that first trenching program (Watson, 1987).

Laramide was exploring for a gold-bearing quartz stockwork system of which most of the parameters were still unknown because of extremely poor exposure in the mineralized area.

The trenches that tested what would become known as the Main zone were excavated east-west across the main showings area and were spaced 25 m (82 ft) apart. The east-west trenching direction was at a high angle to the trend of the local volcanic stratigraphy. Possibly, it was thought that the most prominent veins in the stockwork system would be sub-parallel with the stratigraphy and would be transected by the trenches. Later, it was learned that most of the larger veins in the Sadim system had east-west strikes and dipped steeply southward, sub-parallel with the trenches. Some of those veins were not intersected by the 1986 trenches.

Watson (1987) described the results of the 1986 trenching program on the Sadim gold-quartz area as follows:

> Significant precious metal contents have been obtained from trench sampling over an area approximately 200 metres by 60 metres (656 X 197 ft). The gold content of chip samples ranges from 50 to 4,350 ppb (4.35 gm/mt, or 0.127 oz/ton). A 1.1-m (3.6-ft) vein in Trench No.2 ran 6,390 ppb (6.39 gm/mt , or 0.19 oz/ton) gold.
>
> Watson, I.M.;1987: p. 9.

Laramide resumed trenching on the Sadim gold-quartz area during 1987. That year a total of 28 additional trenches had been excavated for a total of 42 trenches in all.

I.M. Watson (1988A) described the rationale and design of that program as follows:

> Initial efforts were intended to uncover strike extensions of the host altered tuffs to the south and north investigated by the 1985-1986 work. Targets for the trenches were selected on the basis of geology (outcrops and/or float of host rock and vein quartz) and geochemical soil anomalies detected by the 1985 mapping and soil sampling programmes.
>
> Most trenches are oriented east-west across the general strike of the host altered tuffs; a few (19A, 41, 39, and 40) were cut in a north-south direction in an attempt to cross the veins, which tend to form an irregular ladder pattern across the host tuffs.
>
> Parallel zones of shear controlled alteration and quartz veining were discovered to the north and east of the 'Main' zone, and these were also investigated by trenching (Trenches 17-21, 35-37, 41, and 42 - East Zone). A narrow zone of altered tuff containing gold-bearing quartz, 650 metres (2,132 ft) north-west of the Main Zone, was explored by trenches 28, 29, and 33 (North Zone).
>
> Watson, I.M.; 1988A: p. 6.

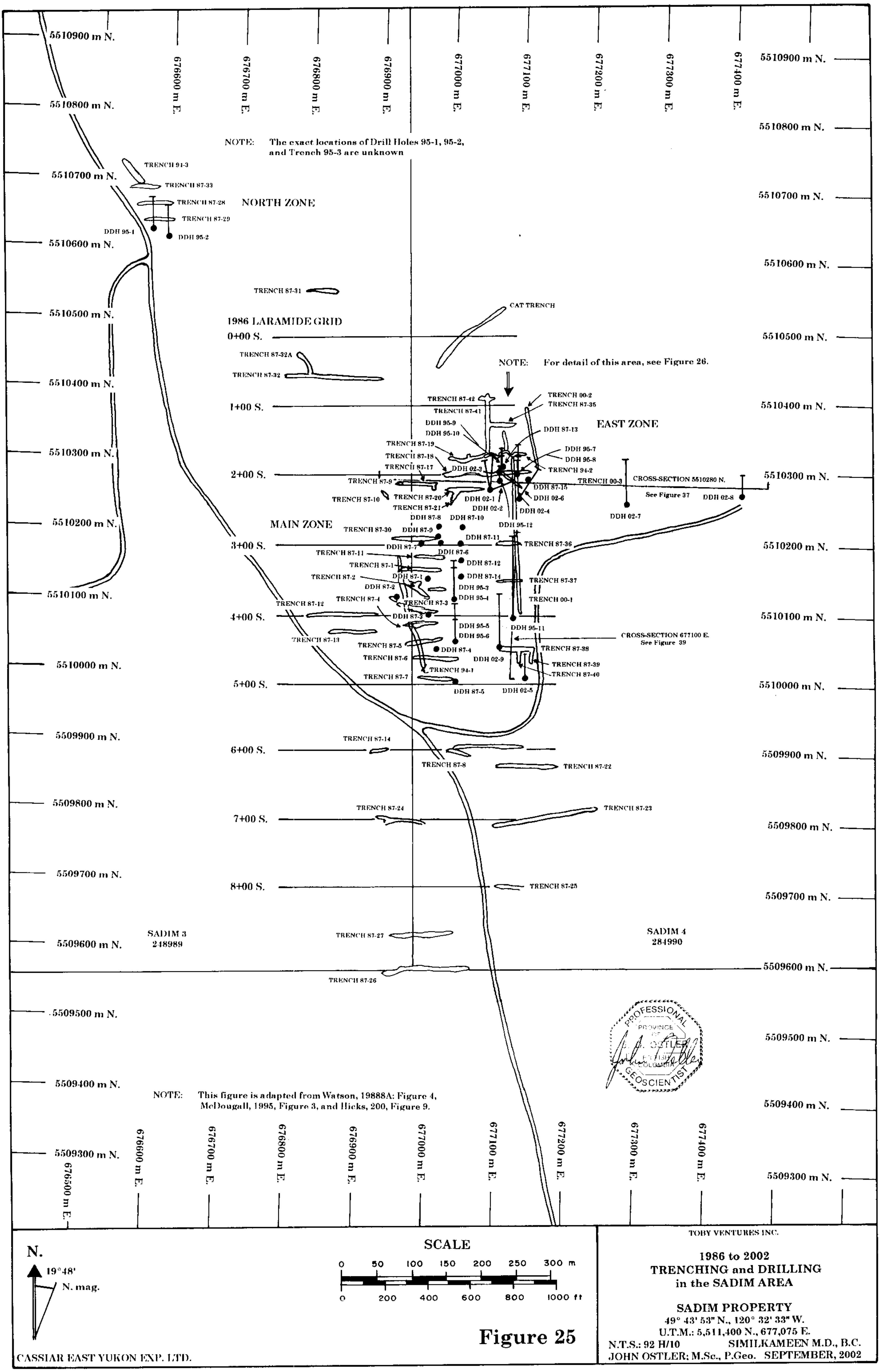
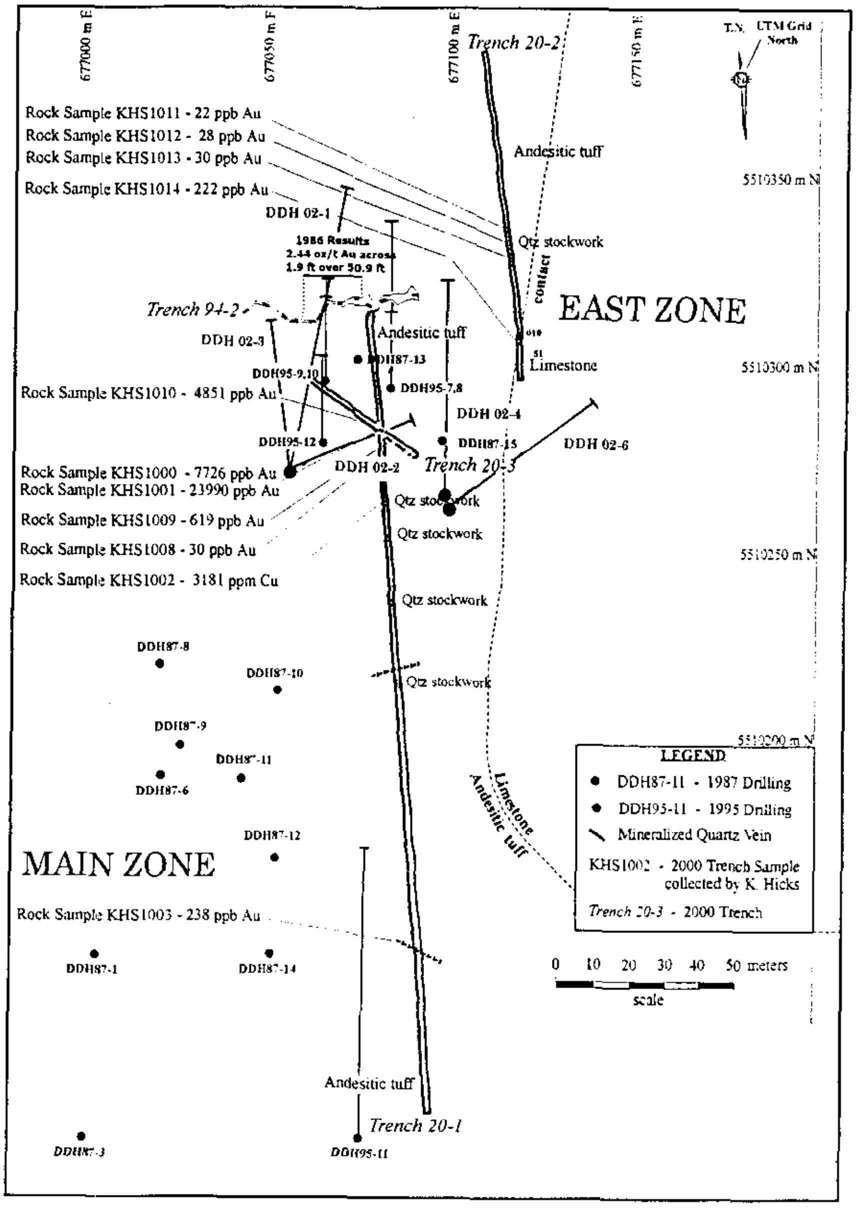


Figure 25

TOBY VENTURES INC.

1986 to 2002
TRENCHING and DRILLING
in the SADIM AREA

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002



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NOTES: This figure is adapted from Hicks, 2001: Figure 9.

For 1986 to 2002 trenching and drilling in the rest of the Sadim gold zone, see Figure 25.

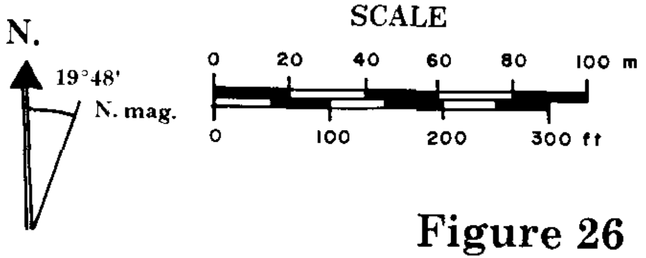


Figure 26

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1987 to 2002 DRILLING around TRENCH 94-2

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Figure 27

TRENCH 94-1
SAMPLING COMPILATION

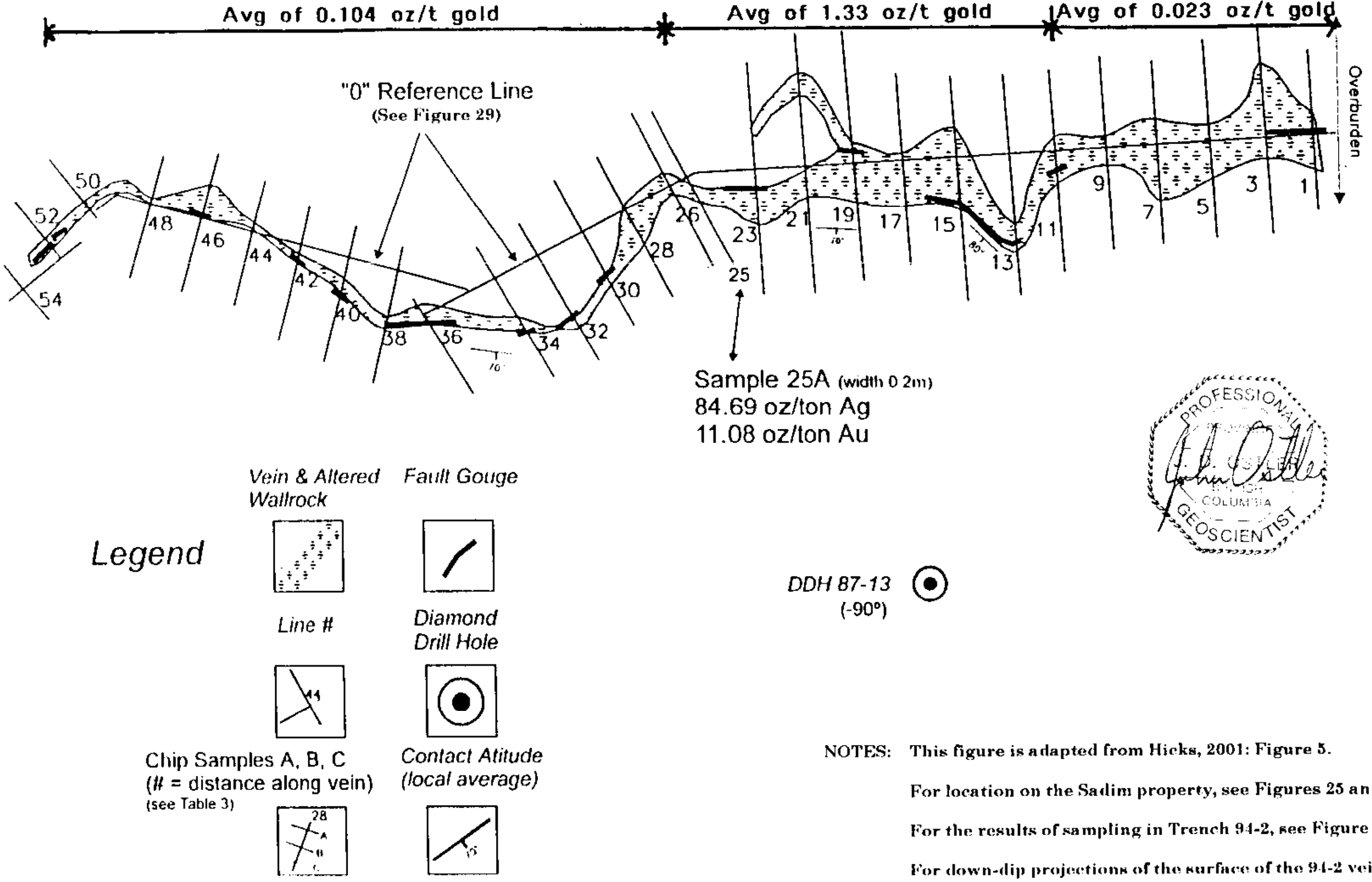
SAMPLE NO.	DIST. ALONG TRENCH N.TO S. (metres)	SAMPLE LENGTH (metres)	REMARKS (ALL SAMPLING EAST SIDE TRENCH)	PPM Ag	PPB Au	OZ PER TON Ag	OZ PER TON Au
JC-1-94	10	2.00	7 veins, 2-6 cm			.23	.033
JC-2-94	12	2.00	6 veins, 4-20 cm			1.22	.132
JC-3-94	14	2.00	7 veins, 2-8 cm			.27	.030
JC-4-94	27	.52	12 cm vein & 40 cm weathered qtz sand vein			.70	.079
JC-5-94	28	.08	2 cm & 6 cm veins			2.36	.333
JC-6-94	29	.07	2 cm & 5 cm parallel veins			.78	.094
JC-7-94	32	.03	3 cm broken qtz vein			.37	.047
JC-8-94	34	.08	gash vein			.42	.094
JC-9-94	39	.35	qtz vein			1.29	.143
JC-10-94	42	.03	3 cm vein cutting dyke			.23	.026
JC-11-94	58	.80	qtz veinlets			.28	.033
JC-12-94	62	.40	solid vein			1.02	.135
JC-13-94	83	.40	qtz eye swarms to 6 cm in buff; massive tuff			.96	.111
JC-14-94	85	.05	rusty vein			.28	.027
JC-15-94	90	.10	2 veins, 3 & 7 cm			.03	.008
JC-16-94	93	.09	vein, rust streaked			.75	.092
JC-17-94	111	.40	rusty qtz/gossan			.50	.062
JC-18-94	127	.20	clay gouge with qtz gravel			1.86	.192
JC-19-94	138	.12	broken qtz vein			.20	.020
JC-20-94	142	.30	broken qtz vein			.21	.030
JC-21-94	148	.10	2 qtz veins on hard calcarous tuff;trench ridge 6&3cm-1/2 m apart	3.8	450		.010
JC-22-94	152	.06	vein, rusty soft wall rock	12.3	2,240		.054
JC-23-94	158	.04	3 cm qtz vein on trench ridge, calcarous tuff	4.0	1,180		
JC-24-94	165	.05	3 cm qtz vein adhering to resty wall rock	4.4	810		
JC-26-94	183	.30	broken qts vein 20 cm in clay gouge	4.6	790		
JC-28-94	192	.30	clay gouge with qtz sand	7.4	380		
JC-29-94	195	.20	broken qtz vein, rusty	12.2	1,190		
JC-30-94	202	.20	dark brown, broken qtz	7.0	1,010		
JC-31-94	205	.20	light brown, broken qtz rock	1.5	160		
JC-32-94	209	.50	rusty weathered tuff, no vis. qtz	.2	38		
JC-33-94	213	.20	lt. weathered tuff, minor qtz	1.0	180		

NOTES: This figure is adapted from Hicks, 2001: Appendix B, Table 2.

For location on the Sadim property, see Figure 25.

D. OSTLER

John Ostler

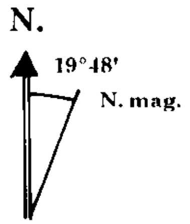


NOTES: This figure is adapted from Hicks, 2001: Figure 5.

For location on the Sadim property, see Figures 25 and 26.

For the results of sampling in Trench 94-2, see Figure 29.

For down-dip projections of the surface of the 94-2 vein, see Figure 30.



CASSIAR EAST YUKON EXP. LTD.

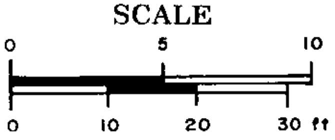


Figure 28

TOBY VENTURES INC.

TRENCH 94-2

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Figure 29

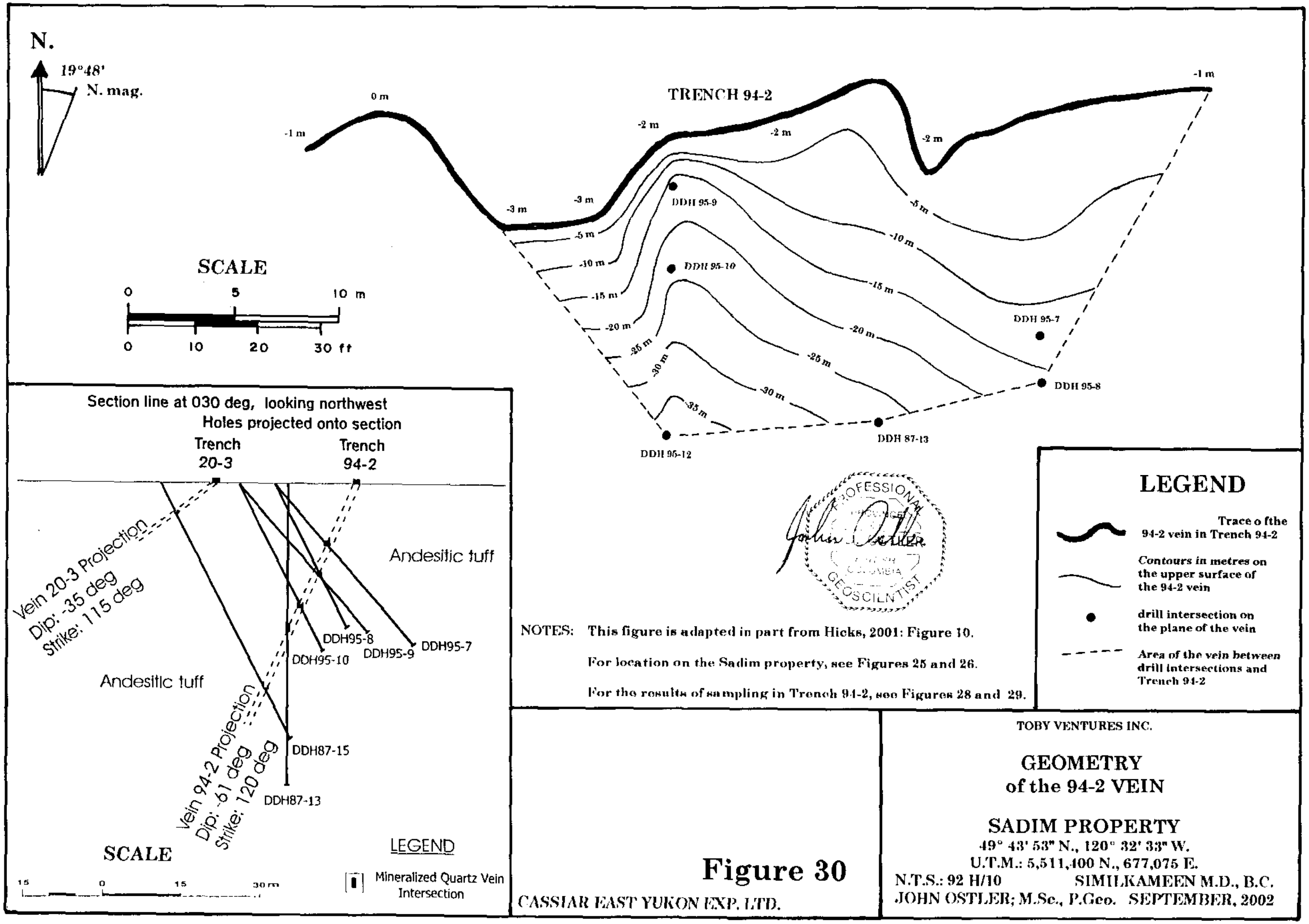
TRENCH 94-2
SAMPLING COMPILATION

SAMPLE NO. & DISTANCE ALONG TRENCH (metres)	SAMPLE WIDTH ACROSS TRENCH (metres)	REMARKS	(ICP) PPM Ag	(ICP) PPB Au	(Fire) OZ. PER TON Ag	(Fire) OZ. PER TON Au
1A	.65	.25 N - .4 S gouge - tuff qtz fragments	0.9	120		
3A	.30	0 - .3 S rsty gouge & tuff	1.0	170		
3B	1.00	0 - 1 N 10% brkn qtz in tuff	0.8	160		
3C	.40	1 - 1.4 N 20% qtz in tuff	0.8	140		
5A	.70	0 - .7 S minor qtz in tuff & gouge	7.4	1,130		
5B	.30	0 - .3 N qtz in tuff	11.0	1,540		
5C	.23	sampled E - W direction, 3 cm qtz vein w/20 cm gouge	0.2	42		
7A	.30	1.3 S - 1.6 S wall	16.3	2,100		
7B	.90	.3 S - 1.2 S	10.9	1,480		
7C	.80	.3 S - .5 N wall	5.6	1,040		
9A	.50	.3 S - .2 N brkn qtz in tuff	6.2	1,010		
11A	.80	.5 S - .3 N gouge w/minor qtz	1.1	260		
13A	.20	1.3 S - 1.5 S footwall gouge	455.5	67,400		2.075
13B	.30	1.5 S - 1.8 S qtz vein	353.2	49,800		1.459
13C	.20	1.8 S - 2.0 S footwall gouge	18.4	1,940		.056
14	GRAB	4 m N of base line,qtz in gouge	7.9	1,120		.032
15	GRAB	brkn qtz in tuff	18.2	1,970		.067
15A	1.30	0.5 N to 0.8 S qtz vein	28.3	3,730		.113
15B	.50	0.8 S to 1.3 S wall gouge in qtz stringers	475.4	78,800		2.221
17A	.50	0.3 S - 0.8 S qtz vein	585.7	99,700		2.853
17B	.40	0.3 S to 0.1 N footwall	128.2	15,700		.383
19A	.60	0.6 S - 0 S qtz vein	263.5	30,800		.878
19B	.40	0.0 - 0.4 N footwall gouge	18.0	2,010		.065
21A	.50	0.1 S - 0.6 S qtz vein	516.9	100,000		3.306
21B	.40	1.3 N - 1.7 N qtz veins to 5 cm	7.9	1,380		.033
23A	.10	0.6 N - 0.7 N qtz vein w/gouge	341.8	41,200		1.312
23B	.70	0.3 S - 1.0 S qtz vein w/qtz breccia	94.3	12,730		.450
25A	.20	.4 S - .6 S qtz vein brkn			84.69	11.080
26A	.40	.2 S - .2 N rsty brkn qtz vein			12.55	1.570
28A	.20	0 - .2 S qtz vein			1.34	.180
28B	.50	.2 S - .7 S wall w/tuff			0.55	.070
28C	.15	.7 S - .85 S qtz vein			2.41	.290
30A	.10	1.0 S - 1.1 S brkn qtz vein w/gouge			3.31	.570
32A	.15	1.4 S - 1.55 S brkn qtz vein w/gouge			1.52	.200
34A	.15	1.1 S - 1.25 S brkn qtz vein w/gouge			0.62	.100
36A	.40	.2 S - .2 N brkn qtz in gouge			0.58	.049
38A	.20	1.0 S - 1.2 S tuff wall, qtz brkn malachite			0.13	.020
40A	.15	.4 S - .55 S qtz & gouge (4 cm vein)			0.58	.110
42A	.15	.2 S - .35 S gouge in vein, minor brkn qtz			0.44	.080
44A	.10	0 - .1 N qtz vein			1.15	.019
46A	.20	0 - .2 N wall rock grey tuff			0.34	.010
46B	.20	.2 - .4 N qtz vein broken			0.38	.060
46C	.20	.4 N - .6 N clay gouge			0.37	.010
48A	.10	0 - .1 N qtz vein			0.48	.070
50A	.20	.1 N - .3 N brkn qtz vein			0.40	.060
52A	.10	.4 N - .5 N narrow wall gouge, minor qtz stringer			0.29	.050

NOTES: This figure is adapted from Hicks, 2001: Appendix B, Table 3.

For the geometry of the 94-2 vein and its location on the Sadim property, see Figures 25 to 28 and 30.

J. D. OSTLER



J. OSTLER

LEGEND

Trace o fthe 94-2 vein in Trench 94-2	
Contours in metres on the upper surface of the 94-2 vein	
●	**drill intersection on the plane of the vein**
- - - -	**Area of the vein between drill intersections and Trench 94-2**

NOTES: This figure is adapted in part from Hicks, 2001: Figure 10.

For location on the Sadim property, see Figures 25 and 26.

For the results of sampling in Trench 94-2, see Figures 28 and 29.

Figure 30

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

GEOMETRY of the 94-2 VEIN

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Laramide Resources Ltd. Drilled a total of 15 NQ diamond drill holes into the Sadim gold-quartz area during 1987 (Holes 87-1 to 15).

During January and February, 1987, a six-hole reconnaissance diamond drilling program was conducted across the Main zone. The holes were drilled vertically at roughly even spacings along a 200 m (356 ft) long north-south cord in the central part of the Sadim showing area. A total of 292 m (957.8 ft) of NQ drilling was done. Five of the six holes were lost in squeezing ground in what was assumed to be a gently dipping shear zone beneath the mineralized area. The most northerly hole in the program 87-6, cut a 9-m (29.5-ft) section that contained 3.09 gm/mt (0.09 oz/ton) gold and 25.4 gm/mt (0.74 oz/ton) silver. Within that was a 1-m (3.3-ft) section that contained 19.8 gm/mt (0.58 oz/ton) gold and 159.1 gm/mt (4.6 oz/ton) silver. Mineralization was thought to intensify northward.

I.M. Watson (1987) commented on the results of the preliminary drill program in the Sadim gold-quartz area as follows:

> ... A major easterly dipping shear zone was intersected in all the drill holes (87-1 to 6) and projects to surface along the north trending swamp in the middle of the map area ... The fault, probably a thrust, separates essentially andesitic flows and tuffs on the west side from mixed tuffs on the east. The fault zone, which is about 15 metres (49.2 ft) thick, occurs along a dark grey carbonaceous limestone ... , but also contains thick sections of quartz-rich gouge.
>
> The shear has caused intense and extensive fracturing and alteration (silicification and pyritisation) in the adjacent rocks, particularly the tuffs above and to the east of the fault.
>
> The silicified tuffs ... appear to be altered equivalents of the green and grey tuffs ... Contacts in core and outcrop are irregular and transitional, and veins within the darker tuffs have alteration 'haloes' along their contacts. The silicified tuffs are pale grey, fine-grained, and contain abundant small closely packed quartz eyes in a fine feldspathic groundmass. Pyrite occurs as fine disseminations, and is concentrated most heavily in zones in zones of veining and fracturing. Weathering has oxidised the pyrite and the tuffs are strongly and pervasively hematitesed to a depth of 10 metres (32.8 ft).
>
> An extensive fracture controlled quartz vein stockwork has developed in the altered tuffs. Veins range from hair fractures to greater that one metre (3.3 ft) in thickness. There appear to be two dominant strike directions, roughly 30° north and south of east-west. Dips are southerly; ... dips tend to flatten with depth as the veins close with the major shear zone.

> The quartz veins contain erratically disseminated sulphides, mainly pyrite, as well as chalcopyrite, and less commonly galena. In many cases, sulphides are concentrated along the vuggy margins or centres of a vein. Galena is usually present as very fine crystal clusters or linings along hair fractures in the quartz. Sulphide concentration is related to vein size and to density of fracturing of the host tuff. Trench and drill hole sampling results show a close relationship between precious metal content, quartz veining (and fracturing), and sulphide concentration. The presence of galena is a good indication of elevated gold and silver content.
>
> Watson, I.M.; 1987: pp. 8-9.

Later that year, Laramide Resources Ltd. tested both the Main and East zones with nine additional NQ diamond drill holes (87-7 to 15). A total of 943 m (3,093 ft) of drilling was done during that program. All but one of those holes was vertical (Figures 25 and 26).

Watson (1988A) summarized the results of Laramide Resources's 1987 trenching and drilling programs as follows:

> The Main Zone is the most extensive and strongest of the zones so far explored. Drilling and trenching show that alteration, development of quartz veins, and gold content are strongest in the area between 3 +00S and 4+00S immediately east of the 8+00W base line (Figure 25). To the north there is a transition to unaltered purple tuffs. (Drill holes 87-8 and 87-10, ...) The zone is open down dip to the east, and is untested at depth to the south.
>
> All the current series of Main Zone holes have intersected zones of gold enrichment ranging from a few hundred ppb to 4,600 ppb (4.6 gm/mt, 0.134 oz/ton) in hole 87-11.
>
> Gold mineralization occurs in vein clusters and stockworks ranging from 2 to 24 metres (6.6 to 78.7 ft) in thickness. Because of the steepness of the veins (50° to 70 °) there is little or no correlation of individual shoots from hole to hole; the strongest concentration of gold has been encountered by drill holes 87-11, 87-12, and 87-14 of the current series ...
>
> Mineralization in the East Zone occurs within a series of narrow shear controlled alteration zones. The style and nature of mineralized zones is similar to that of the Main Zone but faults and shears are less intense and the development of alteration and quartz veins is correspondingly confined. However, several larger (1-metre) quartz veins have been exposed by trenching, notably in trenches 38-40 ... and trench 19 (Figure 25). The vein in trench 19, strikes just south of east and dips steeply south. A 1.0 m (3.3-ft) chip sample across the vein assayed 151,000 ppb (151 gm/mt, 4.40 oz/ton) Au and 410.9 ppm (410.9 gm/mt, 11.99 oz/ton) Ag. The vein was intersected by vertical drill hole 87-13 at a depth of 26.5 metres (86.9 ft). The 2.0 m (6.56 ft) intersection assayed 2.265 ppb (2.27 gm/mt, 0.066 oz/ton) Au and 20.6 ppm (20.6 gm/mt, 0.6 oz/ton) Ag. An attempt to intersect the vein along strike 30 metres (98.4 ft) to the east was unsuccessful (Hole 87-15) ...

Trenching of the North Zone exposed an irregular north-westerly trending shear/alteration zone ... Steep terrain to the north and east and deep overburden to the south prevented further investigation by trenching. Gold contents of several hundred ppb are associated with fracture/quartz vein zones up to 6 metres (19.7 ft) wide.

Watson, I.M.; 1988A: pp. 15-16.

Drill intersections containing at least 1 gm/mt (0.03 oz/ton) gold identified by the 1987 Laramide Resources drill program are listed as follows:

1987 LARAMIDE DRILL INTERSECTIONS CONTAINING MORE THAN 1 gm/mt GOLD

HOLE No.	INTERVAL		GOLD		SILVER		REPORTED LENGTH	
	m	ft	gm/mt	oz/ton	gm/mt	oz/ton	m	ft
87-1	9.0-10.0	29.5-32.8	3.26	0.095	23.6	0.68	1.0	3.3
87-1	21.0-22.0	68.9-72.2	2.51	0.073	18.1	0.53	1.0	3.3
87-1	25.0-26.0	82.0-85.3	1.33	0.039	10.4	0.30	1.0	3.3
87-1	50.0-51.0	164.0-167.3	1.18	0.034	11.9	0.35	1.0	3.3
87-3	15.0-16.0	49.2-52.5	3.62	0.106	37.1	1.08	1.0	3.3
87-3	40.0-43.0	131.2-141.0	3.69	0.108	31.8	0.93	3.0	9.8
87-4	21.0-22.0	68.9-72.2	1.31	0.038	8.7	0.25	1.0	3.3
87-6	21.5-22.5	70.5-73.8	1.63	0.048	15.0	0.44	1.0	3.3
87-6	24.5-25.5	80.4-83.6	2.53	0.074	22.3	0.65	1.0	3.3
87-6	25.5-26.5	83.6-86.9	19.80	0.578	159.1	4.64	1.0	3.3
87-6	26.5-27.5	86.9-90.2	1.75	0.051	12.9	0.38	1.0	3.3
87-6	29.5-30.78	96.8-101.0	3.96	0.116	28.4	0.83	1.28	4.2
87-7	17.5-18.5	57.4-60.7	1.42	0.041	10.9	0.32	1.0	3.3
87-8	53.0-54.0	173.8-177.1	1.27	0.037	8.2	0.24	1.0	3.3
87-8	84.0-85.0	275.5-278.8	1.06	0.031	6.2	0.18	1.0	3.3
87-9	70.0-71.0	229.6-232.9	3.65	0.106	26.0	0.76	1.0	3.3
87-10	87.0-88.0	285.4-288.6	2.80	0.082	19.9	0.58	1.0	3.3
87-10	120.0-121.0	393.6-396.9	1.89	0.055	16.2	0.47	1.0	3.3
87-11	48.3-49.3	158.4-161.7	8.49	0.248	67.6	1.97	1.0	3.3
87-11	56.3-57.3	184.7-187.9	1.12	0.033	8.7	0.25	1.0	3.3
87-11	61.3-62.3	201.1-204.3	2.26	0.066	20.3	0.59	1.0	3.3
87-11	62.3-63.3	204.3-207.6	1.47	0.043	15.8	0.46	1.0	3.3
87-11	110.3-111.3	361.8-365.1	2.97	0.087	39.0	1.14	1.0	3.3

1987 LARAMIDE DRILL INTERSECTIONS CONTAINING MORE THAN 1 gm/mt GOLD *(continued)*

87-12	18.0-19.0	59.0-62.3	3.74	0.109	24.5	0.72	1.0	3.3
87-12	20.0-21.0	65.6-68.9	1.28	0.037	7.3	0.21	1.0	3.3
87-12	22.0-23.0	72.2-75.4	1.59	0.046	14.4	0.42	1.0	3.3
87-12	26.0-27.0	85.3-88.6	5.52	0.161	40.5	1.18	1.0	3.3
87-12	29.0-30.0	95.1-98.4	1.88	0.055	13.2	0.39	1.0	3.3
87-12	37.0-38.0	121.4-124.6	1.87	0.054	13.2	0.39	1.0	3.3
87-12	38.0-39.0	124.6-127.9	1.94	0.057	18.0	0.53	1.0	3.3
87-13	26.5-27.5	86.9-90.2	3.02	0.088	31.7	0.93	1.0	3.3
87-13	27.5-28.5	90.2-93.5	1.51	0.044	9.5	0.28	1.0	3.3
87-14	22.5-23.5	73.8-77.1	1.92	0.056	16.7	0.49	1.0	3.3
87-14	46.5-47.5	152.5-155.8	1.30	0.039	8.6	0.25	1.0	3.3
87-14	50.5-51.5	165.6-168.9	1.92	0.056	16.4	0.48	1.0	3.3
87-14	51.5-52.5	168.9-172.2	1.62	0.047	15.7	0.46	1.0	3.3
87-14	52.5-53.5	172.2-175.5	1.36	0.040	15.2	0.44	1.0	3.3
87-14	53.5-54.5	175.5-178.8	1.29	0.038	13.9	0.41	1.0	3.3
87-14	55.5-56.5	182.0-185.3	1.10	0.032	9.1	0.27	1.0	3.3
87-14	57.5-58.5	188.6-191.9	1.12	0.033	9.0	0.26	1.0	3.3
87-14	58.5-59.5	191.4-195.2	2.10	0.061	13.7	0.40	1.0	3.3
87-14	59.5-60.5	195.2-198.4	1.07	0.031	6.8	0.20	1.0	3.3

The erratic veins and gold concentrations throughout the Sadim gold-quartz area frustrated Laramide's attempts to define a minable resource in any of the veins there. Its exploration of the property ceased in 1987.

In 1994, the Sadim property was optioned to Harlow Ventures Inc. which intended to explore the Sadim gold-quartz area for its bulk mining potential.

During 1994, Harlow excavated two trenches in the Main zone. A third trench was dug in the North zone, about 600 m (1,968 ft) north northwest of the Main zone (Figure 25). Trench 94-1 was oriented north south to cut across the east-westerly striking quartz veins in the central part of the Main zone (Figure 25). It was located near the base of the slope near the eastern margin of the swamp beneath which Watson (1987) had assumed the surface trace of the basal mineralizing thrust fault was located. If Watson's assumption about the location of that fault was correct, then Trench 94-1 exposed mineralization near the base of the Sadim system just above the plane of the fault where fracture density and bulk mining potential would be greatest.

J.J. McDougall (1994) summarized results of sampling in Trench 94-1 (Figure 27) as follows:

> Harlow Ventures ... sampled selectively along the westermost exposure of the lode system (Trench 94-1) (31 chip samples of quartz across 55 veins ranging from 2 to 40 cm (0.8 to 15.7 inches) in width (Figures 25 and 26). Assay returns ranged up to 0.33 oz/ton (11.313 gm/mt) gold, 2.3 oz/ton (78.85 gm/mt) silver across a narrow width of 0.8 metres (2.62 ft). The most northerly concentration of veins 10-39 metres, 32.8-127.9 ft) averaged 0.072 oz/ton (2.468 gm/mt) gold across 7.13 metres (23.4 ft) or 0.018 oz/ton (0.616 gm/mt) calculated assuming a grade of zero for interstitial material not sampled. In the same manner a total of 12.17 metres (39.9 ft) of quartz within 203 metres (665.8 ft) of trench assayed 0.062 oz/ton (2.12 gm/mt) gold indicating a calculated overall grade of 0.0037 oz/ton (0.127 gm/mt) ...
>
> McDougall, J.J.; 1994: p. 19.

Trench 94-2 was an extension of Trench 87-19 which hosted the highest grade exposure of mineralization in the Sadim gold-quartz area. The vein in that trench was opened and sampled for a total length of 52 m (170 ft) (Figures 25, 26, 28, and 29). J.J. McDougall (1994) summarized the results of sampling in Trench 94-2 as follows:

> Uphill to the east of the north end of Trench 94-1 a more sulphide-rich but surface oxidized, much faulted quartz vein up to 1 metre (3.28 ft) wide was later discovered by Vanco (Laramide Resources) which returned gold assays of up to 4.3 oz/ton (147.41 gm/mt) over widths of from 0.3 - 1.0 metres (1 to 3.3 ft) (Figures 27 and 28). The vein was trenched by Vanco (Laramide) using a small backhoe revealing a length of about 15.5 metres (50.8 ft) averaging 2.44 oz (83.647 gm/mt) gold across 0.57 metres (1.9 ft). A northerly inclined drill hole (DDH 87-15) (Figure 26) indicated that the vein did not extend easterly toward an obviously North-South lineament probably marking a strike-slip fault (?) or erosion depression at or near the contact of a limestone bed. A second but vertical drill hole (DDH87-13), a short distance south of the vein. reportedly failed to intersect it but given the steep (-70°S) to near vertical dip, plus fault complexity revealed by trenching, an inclined hole would have been far more informative. However it did intersect 2 metres (6.6 ft) at 26 metres (85.3 ft) of depth assaying 0.067 oz/ton (2.297 gm/mt) gold.
>
> Investigation by Harlow using a heavier back hoe (Trench 94-2) showed that the sinuous vein was fault controlled and internally complexly faulted itself. It did not appear to dip southerly shallow enough for DDH 87-13 to have intersected it. The fault contacts are steep but in several locations a southerly dip component is present, but it seldom is shallower than -70°. In addition, the vein was shown not to terminate at its western "assumed extremity" but to slip northerly, thence westerly. thence southerly and to continue westerly along its initial course. The exposed length was now increased to 52 metres (170.6 ft), approximately double its earlier exposure. Although

> diminishing somewhat in width, the vein continues westerly but local steepening terrain prevented further excavation at this time. The total vein exposure was sampled more thoroughly by Harlow in 1994 (Figures 28 and 29).
>
> Forty four channel samples, restricted to a quartz component and associated gouge only, and several "grabs", were taken along the full exposure of the Trench 94-2 vein. Surface oxidized material was avoided as much as possible but greater depth of sample would be required to involve fresher mineralization only. Some secondary enrichment is presumably involved as is some possible leaching. Fault gouge is common. Due to increasing thickness of overburden the full width of the southerly portion of the irregularly trending vein was not totally uncovered.
>
> The central 15 metres (49.2 ft) of this vein averaged 1.33 oz/ton (45.595 gm/mt) gold, 9.2 oz/ton (315.39 gm/mt) silver (uncut). The extension to the east (11 m, 36.1 ft) averaged 0.023 oz/ton (0.788 gm/mt) gold while that to the west (26 m, 85.3 ft) averaged 0.104 oz/ton (3.565 gm/mt) gold. The average width of the whole vein, including unsampled internal alteration material, etc., is above 1 metre (3.3 ft) as mapped (Figure 28) although the defined portion of the western extension itself is less than half of this width. No free gold was seen and is believed to occupy small fractures in the pyrite or to be present as a telluride. Fourteen higher grade samples within the vein system returned a 7:1 silver to gold ratio.
>
> McDougall, J.J.; 1994; pp. 19-20.

Trench 94-3, which explored the North zone, uncovered some float that contained 16.28 gm/mt (0.475 oz/ton) gold the source of which was not found. Some of the 1987 trenches were resampled.

Harlow Ventures Inc. conducted a program comprising 729 m (2,393 ft) of NQ diamond drilling in the Main zone of the Sadim gold showings area (McDougall, 1995). The 12 1995 drill holes were located among Laramide's 1987 drill holes. Holes of the 1995 program were all oriented northward at dips of from -45° to -60° to intersect the steeply southward-dipping veins. The high-grade vein sampled in Trench 94-2 was encountered in drill holes 95-7, 8, and 9. Intersections in those holes were: DDH 95-7, 1.07 m of 5.86 gm/mt (3.5 ft of 0.171 oz/ton) gold, DDH 95-8, 0.3 m of 109.7 gm/mt (1 ft of 3.2 oz/ton) gold, and DDH 95-9, 0.3 m of 24.3 gm/mt (1 ft of 0.71 oz/ton) gold. Other veins exposed in the 1987 and 1994 trenches were encountered at depth.

All who drilled the Sadim gold veins remarked upon their anastomosing, intersecting and steep eastward dipping planes. These vein attributes were confirmed by J.J. McDougall's

(1994) mapping of the 94-2 trench (Figure 28), and K.H. Hicks's (2001) plotting of drill intersections with the plane of the 94-2 vein (Figure 30). Prior to the 2002 drill program, the writer produced a contour map of the plane of the upper surface of the 94-2 vein in the area of previous drill intersections south of Trench 94-2 (Figure 30). The anastomosing and steeply southward dipping attitude of the plane of the 94-2 vein is clearly evident south of the 94-2 trench.

The drill intersections that exceeded 1 gm/mt (0.03 oz/ton) in the 1995 drill program were as follow:

1995 HARLOW DRILL INTERSECTIONS CONTAINING MORE THAN 1 gm/mt GOLD

HOLE No.	INTERVAL		GOLD		SILVER		REPORTED LENGTH	
	m	ft	gm/mt	oz/ton	gm/mt	oz/ton	m	ft
95-3	18.9-20.4	62.0-67.0	1.04	0.030	8.4	0.24	1.5	5.0
95-3	35.4-36.0	116.0-118.0	2.34	0.068	16.5	0.48	0.6	2.0
95-3	42.7-43.3	140.0-142.0	2.48	0.074	19.4	0.57	0.6	2.0
95-3	46.3-48.8	152.0-160.0	2.14	0.062	15.7	0.46	2.4	8.0
95-4	23.2-24.7	76.0-81.0	1.01	0.030	11.0	0.32	1.5	5.0
95-6	18.3-18.4	60.0-60.5	3.14	0.092	20.5	0.60	0.2	0.5
95-6	25.3-25.4	83.0-83.25	19.78	0.577	162.6	4.74	0.07	0.25
95-6	28.3-28.5	93.0-93.5	6.79	0.200	82.0	2.39	0.2	0.5
95-7	15.4-16.5	50.5-54.0	5.86	0.171	43.5	1.27	1.1	3.5
95-8	19.5-19.8	64.0-65.0	103.96	3.033	200.7	5.85	0.3	1.0
95-9	24.4-24.7	80.0-81.0	22.33	0.651	184.3	5.38	0.3	1.0
95-10	26.5-26.8	87.0-88.0	1.20	0.035	9.6	0.28	0.3	1.0
95-10	26.8-27.1	88.0-89.0	1.91	0.056	16.8	0.49	0.3	1.0
95-10	27.1-27.4	89.0-90.0	3.83	0.112	29.3	0.85	0.3	1.0
95-11	111.3-112.8	365.0-370.0	1.08	0.032	4.6	0.13	1.5	5.0
95-11	137.8-138.1	452.0-453.0	25.60	0.747	192.7	5.62	0.3	1.0
95-11	142.0-143.1	466.0-469.5	15.50	0.452	134.9	3.93	1.1	3.5
95-11	143.7-144.0	471.5-472.5	22.70	0.662	186.9	5.45	0.3	1.0
95-12	6.1-6.4	20.0-21.0	14.30	0.417	82.1	2.39	0.3	1.0
95-12	45.6-46.0	149.5-151.0	15.00	0.438	111.2	3.24	0.4	1.5

Toby Ventures Inc. excavated three additional trenches around Trench 94-2 during 2000 (Figures 25 and 26). A total of 338 m (1,109 ft) of trench was dug during that program. K.E. Hicks (2001) described the results of the 2000 trench-sampling program as follows:

> A total of eleven rock samples were collected by the author from the current trenching program ... Discreet zones of resistant weathering quartz veinlet stockworks within the tuffaceous volcanics were found scattered along the length of Trenches 20-1 and 20-2 (Figure 26). Widely spaced hairline quartz veinlets at random orientations were usually barren but rarely contained specks of chalcopyrite and pyrite. None of the five rock grab samples taken from these stockwork zones returned significant economic gold values. One grab sample, KHS1002, taken along a narrow malachite-rich fracture, returned a value of 3181 ppm (0.32%) Cu. Also randomly scattered minor quartz and/or carbonate veins from 1 to 3 cm (0.4 to 1.2 inches) were found to be barren of mineralization. The only significant quartz vein mineralization encountered during the trenching program occurred at 32 meters (105 ft) south of Trench 94-2 within Trench 20-1 (Figure 26). This mineralization consisted of a strongly fractured and shattered quartz vein containing minor amounts of chalcopyrite, galena and sphalerite. Grab sample KHS1001 returned values of 23990 ppb (23.99 gm/mt, 0.69 oz/ton) Au from quartz vein material with up to 5% mixed sulphides. Sample KHS1000 was a chip sample across a true width of 40 cm (1.3 ft) and returned values of 7726 ppb (7.726 gm/mt, 0.225 oz/ton) Au. This intersection was followed up by Trench 20-3 which attempted to follow the mineralization along strike. Additional samples along strike of the main intersection taken in Trench 20-3 returned values of 4850, 619 and 30 ppb Au, respectively (Figure 26). A total of five samples were collected from this zone.
>
> Hicks, K.H.; 2001: pp. 30-31.

NOTES: This figure is from Hicks, 2001: Figure 4, an adaptation of G.S.C. Open File Map 2948a.

For legend, see Figure 31A

● Mineral Occurrence with Gold as the Principle Commodity

◎ Mineral Occurrence with Base Metal as Primary and Gold as a Secondary Commodity

D. OSTLER

Figure 31

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

REGIONAL GEOLOGY and MINERAL CAMPS

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Figure 31A

LEGEND
to Figure 31

LEGEND FOR CORDILLERAN TECTONIC ASSEMBLAGE, OPEN FILE 2948a

NEOGENE

NTc	CHILCOTIN: back-arc volcanics; basalt flows transitional between alkaline and tholeiitic types; nonmarine

PALEOGENE

PTk	KAMLOOPS: transtensional arc volcanics; alkalic-rich, calc-alkaline andesite, basaltic andesite, dacite, rhyolite and basalt flows, pyroclastics and epiclastic deposits. In south ans south-east, highly alkaline rhomb-porphyry flows and breccia; bi-modal basalt-rhyolite along Tintina fault; includes alkaline volcanics east of Foreland Belt; all non-marine
PTs	SIFTON: nonmarine fault-trough clastics (locally includes upper Cretaceous strata); shale, siltstone, sandstone, conglomerate, local lignite, marl and dacitic volcanics; nonmarine

UPPER CRETACEOUS

uKm	MIDKNIGHT PEAK; transpressional arc volcanics; green, grey, red and purple andesite, dacite, and basalt breccia and tuff; nonmarine

CRETACEOUS

Ks	SKEENA: easterly derived back-arc clastics; mostly easterly derived clastics; volcanic wacke, sandstone with detrital mica, siltstone, shale, conglomerate, with granitic clasts, chert-pebble conglomerate, ironstone lenses, coal; marine and nonmarine

MID-CRETACEOUS

mKs	SOUTH FORK: transtensional cauldron-subsidence and arc volcanics; calc-alkaline basaltic andesite, latite, rhyodacite and rhyolite flows, pyroclastics, ignimbrite, epiclastic rocks in calderas and fault troughs; non-marine

UPPER JURASSIC - LOWER CRETACEOUS

Jkr	RELAY MOUNTAIN:easterly derived clastics; shale and siltsone in central Tyaughton Trough; greywacke and conglomerate at trough margins; derived in part from volcanic terranes to the east; marine and metamorphic equivalents (Jkrm)

LOWER AND MIDDLE JURASSIC

Jl	LADNER: arc clastics and volcanics; argillite, subordinate siltstone, greywacke and conglomerate with basic and felsic volcanic clasts grading laterally eastward and upward into andesitic pyroclastics and flows; marine and nonmarine
Jha	HALL: Quesnellia arc-derived clastics; carbonaceous shale siltstone, greywacke and conglomerate derived from volcanic and granitic rocks of Quesnellia; marine

UPPER TRIASSIC - LOWER JURASSIC

TJn	NICOLA: arc volcanics in Quesnellia; Calc-alkaline andesite, dacite, rhyolite subaerial flows, ignimbrite minor limestone passing eastwards into augite and feldspar porphyry, andesite and dacite flows and volcanic clastics grading further eastward into relatively alkaline augite porphyry flows, analcite trachybasalt and trachyandesite, volcanic clastics and finally into shale, siltstone, limestone and minor quartzite; marine and nonmarine

MISSISSIPPIAN - UPPER TRIASSIC

MTc	CACHE CREEK: oceanic volcanics and sediments and local accretionary prism melange; mainly MORB-like thoeliitic to alkaline basalt, some alkalic-enriched seamount basalt, serpentinized peridotite and dunite, gabbro, trondhjemite and diabase; most subgreenschist, local blueschist; melange (Mtcm) with blocks of Upper Triassic Nicola Assemblage; radiolarian ribbon chert, argillite, volcanic sandstone, and limestone, locally as bank, reef and lagoon complexes

PLUTONIC ROCKS

EARLY TERTIARY

eTg	Undivided granodiorite and quartz diorite;

LATE CRETACEOUS

mKs	Undivided granodiorite, leucogranodiorite, quartz monzonite, quartz diorite, tonalite

MID-CRETACEOUS

mKg	Variable foliated hornblende quartz diorite, tonalite, and hornblende diorite
mKgc	Cascade: elongate syntectonic to post tectonic plutons of tonalite and quartx diorite with local cores of hypersthene-augite diorite and some foliated borders

LATE JURASSIC - EARLY CRETACEOUS

JKd	Gabbro-diorite-migmatic complex; hornblende-biotite quartz diorite

EARLY JURASSIC

eJgG	Undivided granodiorite, leucogranodiorite, quartz monzonite, quartz diorite, tonalite
eJg	Older partially foliated and altered hornblende granodiorite and quartz diorite
eJd	Undivided diorite, monzodiorite, gabbro, diabase, amphibolite

LATE TRIASSIC - EARLY JURASSIC

TJd	Undivided diorite, monzodiorite, gabbro, diabase, amphibolite

LATE TRIASSIC

lTg	Hornblende-biotite quartz diorite
lTd	Gabbro sills

PERMIAN

Pd	Undivided diorite monzodiorite, gabbro diabase, amphibole

NOTE: This figure is from Hicks, 2001: Figure 5.

NOTES: This figure is adapted from Preto, 1979: Map 2.

For legend, see Figure 32A.

J. D. OSTLER

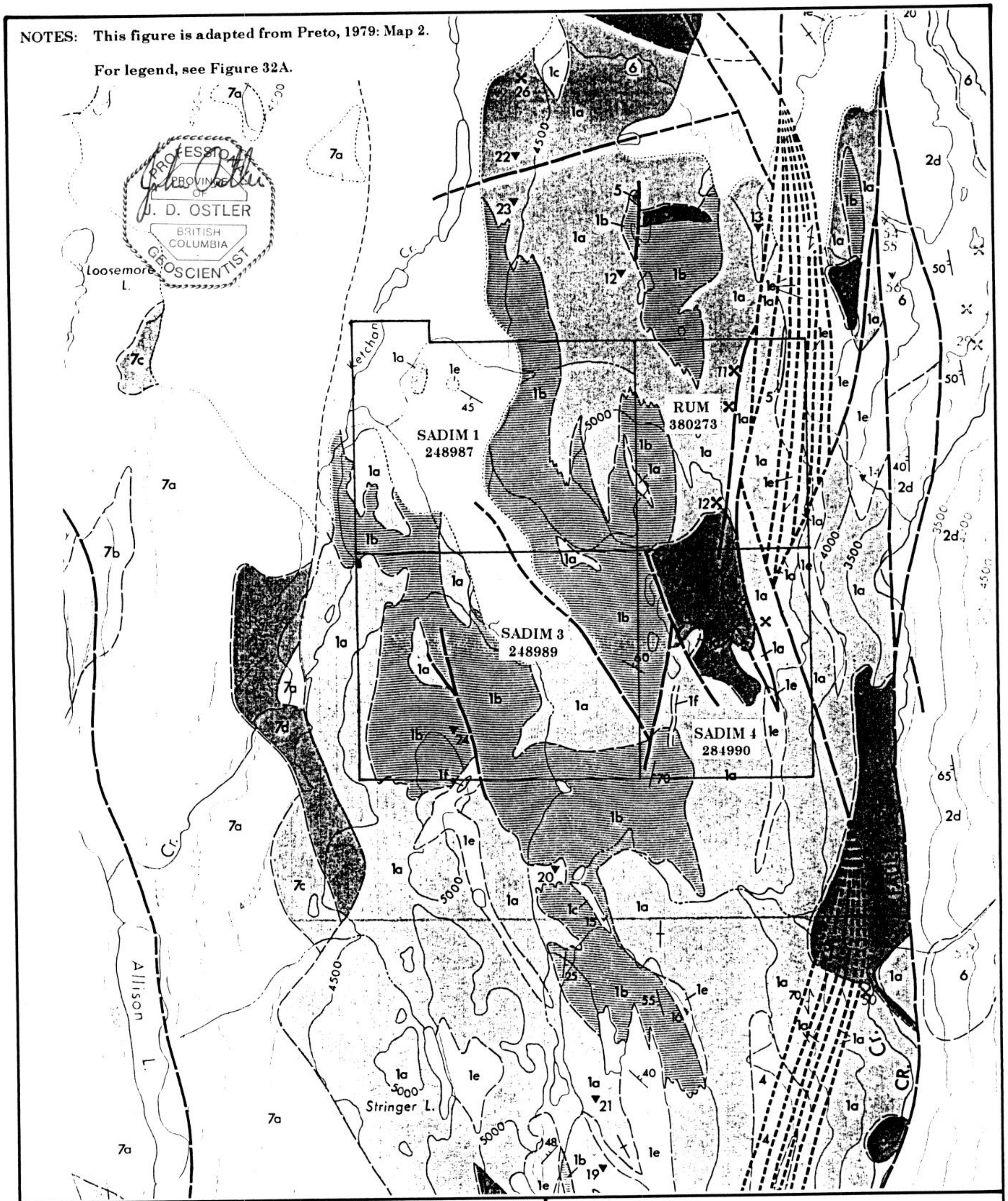


Figure 32

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

LOCAL GEOLOGY
of the NICOLA GROUP

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Figure 32A

LEGEND
to Figure 32

LOWER JURASSIC OR LATER

[8] PENNASK BATHOLITH BIOTITE-HORNBLENDE GRANODIORITE AND QUARTZ MONZONITE

UPPER TRIASSIC TO LOWER JURASSIC

7 ALLISON LAKE PLUTON

[7a] REDDISH TO REDDISH GREY BIOTITE-HORNBLENDE GRANITE AND QUARTZ MONZONITE

[7b] GREY HORNBLENDE GRANODIORITE

▨ GREY TO DARK GREY HORNBLENDE DIORITE, GABBRO, AND QUARTZ DIORITE

7d ■ METAVOLCANIC ROCKS WITHIN OR NEAR THE PLUTON

[6] PINK AND GREY MONZONITE AND SYENITE, MEDIUM-GRAINED AND GENERALLY PORPHYRITIC FINE-GRAINED GREY DACITE

[6a] MONZONITE AND SYENITE BRECCIA

5

■ DIORITE QUARTZ DIORITE MONZONITE, AND DIORITE BRECCIA MINOR FINE-GRAINED HORNBLENDE PORPHYRY

[4] LEUCOCRATIC, PYRITIC QUARTZ PORPHYRY, LOCALLY HIGHLY SHEARED AND MYLONITIZED

LOWER TO MIDDLE JURASSIC

CORRELATION UNCERTAIN

▨ BUFF-WEATHERING GREY, CALCAREOUS SILTSTONE, SANDSTONE, AND GRIT, WITH INTERLAYERED BUFF-WEATHERING SILTY LIMESTONE

UPPER TRIASSIC

1,2 3 NICOLA GROUP

WESTERN BELT

[3a] PLAGIOCLASE ANDESITE TO DACITE FLOWS, MINOR BRECCIA

[3b] ANDESITIC TO DACITIC BRECCIA AND TUFF

3c ▨ GREY, MASSIVE TO CHERTY LIMESTONE, COMMONLY FOSSILIFEROUS

[3d] CALCAREOUS VOLCANIC CONGLOMERATE, SANDSTONE, AND SILTSTONE MINOR TUFF AND BRECCIA

EASTERN BELT

▨ PURPLE AND GREY, LOCALLY ANALCITE-BEARING AUGITE PLAGIOCLASE TRACHYANDESITE AND TRACHYBASALT PORPHYRY FLOWS AND MINOR FLOW BRECCIA

[2b] REDDISH TO GREENISH GREY CRYSTAL LITHIC, AND LAPILLI TUFF

▨ VOLCANIC SANDSTONE AND SILTSTONE, MINOR TUFF

[2d] MASSIVE TO CRUDELY LAYERED LAHAR DEPOSITS MINOR CONGLOMERATE

CENTRAL BELT

1a ▨ REDDISH TO GREEN AUGITE-PLAGIOCLASE ANDESITE AND BASALT FLOWS, OCCASIONAL ANALCITE-BEARING TRACHYBASALT

1b ▨ AUTOBRECCIATED EQUIVALENTS OF 1a

[1c] RED VOLCANIC BRECCIA AND LAHAR DEPOSITS, MOSTLY MASSIVE

[1d] GREEN VOLCANIC BRECCIA AND LAHAR DEPOSITS, MOSTLY MASSIVE

[1e] CRYSTAL AND LITHIC TUFF GENERALLY WELL BEDDED

▨ BEDDED TO MASSIVE GREY FOSSILIFEROUS REEFOID LIMESTONE AND RELATED CALCAREOUS SEDIMENTARY ROCKS

[1g] WELL-BEDDED SILTSTONE SANDSTONE, AND ARGILLITE MINOR GRITSTONE AND PEBBLE CONGLOMERATE

SYMBOLS

AREA OF PREVALENT OUTCROP

GEOLOGICAL BOUNDARY DEFINED, APPROXIMATE

FAULT APPROXIMATE, ASSUMED

ZONE OF INTENSE SHEARING

THRUST FAULT

ATTITUDE OF BEDDING
TOPS KNOWN, TOPS UNKNOWN, VERTICAL

ATTITUDE OF SCHISTOSITY

PROSPECT AND/OR MINERAL OCCURRENCE
NUMBER REFERS TO PROSPECTS LISTED IN APPENDIX 8

LOCATION OF CHEMICALLY ANALYSED ROCKS
NUMBER REFERS TO ANALYSES C.I.P.W. NORMS, AND DESCRIPTIONS IN APPENDICES 1 TO 7

FOSSIL LOCALITY

NOTE: This figure is adapted from Preto, 1979: Figure 1.

3.0 GEOLOGICAL SETTING

3.1 Regional Geology

3.1.1 Regional Stratigraphy

Much of the area between Princeton and Merritt is underlain by mafic to intermediate volcanic and plutonic rocks of the Late Triassic-age Nicola Group. These rocks outcrop in south-central British Columbia. They are interpreted to be a constituent of the Quesnel terrane and correlate with the Takla and Stuhini volcanic assemblages in northern British Columbia and Yukon (Preto, 1979).

Nicola Group rocks and their equivalents extend as far east as the west Kootenay area of southeastern British Columbia. They are flanked to the west by the Mesozoic-age accretionary wedges of the Bridge River and Methow terranes, and the post accretionary intrusive rocks of the Coast Plutonic Complex (Figure 31).

W.H. Monger and J.M. Journeay (1994) described the rocks of the Quesnel terrane in the legend to their terrane map as follows:

> Quesnel terrane is characterized by a west-facing, Late Triassic-Early Jurassic arc (Nicola-Rossland volcanics). Comagmatic intrusions range from 212 to 193 Ma. The arc overlies an older assemblage of Late Palaeozoic island arc and oceanic rocks (Apex Mountain Complex and Harper Ranch Group) that was deformed and juxtaposed with parts of Kootenay terrane to the east, some time prior to the Late Triassic. It is unconformably overlain by non-volcanic clastic rocks of the Lower to Middle Jurassic (late Plensbachian to earliest Callovian; ca. 190-160 Ma) Ashcroft Formation. The early Mesozoic Quesnellian arc probably formed on the western edge of the North American plate, but was not emplaced on continental margin rocks to the east until late Early Jurassic time (ca. 185 Ma).
>
> Permian faunas of Quesnellia are a mixture of western Cordilleran forms similar to those in Stikinia, Chilliwack terrane and the eastern Klamaths, with some Tethyan elements. Pleinsbachian faunas of Quesnellia appear to be latitudinally comparable to those if Stikine, that is south of their present position with respect to cratonic North America. However, May and Butler (1986) conclude from their analysis of palaeomagnetic data that there is no evidence for northward displacement in the Triassic-Jurassic rocks. Plutonic rocks in southwestern Quesnellia include early Mesozoic arc-related magmatism (212-195 Ma), post-accretionary Late Jurassic (168-155 Ma) granitic rocks and mid Cretaceous (ca. 105-100 Ma) plutonics, probably related to the Spences Bridge arc.
>
> Monger, W.H. and Journeay, J.M.; 1994: Terrane Map

The Nicola Group is divided into three belts by two major north-south trending fault systems. These belts are named the Eastern, Central and Western belts (Preto, 1972 and 1979; and Monger, 1989).

The Eastern belt consists of a westerly facing sequence of volcanic siltstone, laharic deposits, conglomerate, and tuff. Included in this belt, are some alkaline flows near small micromonzonite porphyry stocks.

The Central belt contains the oldest rocks in the Nicola Group. They are mostly massive pyroxene and plagioclase-rich flows of andesitic and basaltic composition, coarse volcanic breccia, conglomerate, and lahar deposits, with lesser amounts of fine-grained pyroclastic and sedimentary rocks (Preto, 1979) (Figure 32). Stratigraphic relationships and local facies changes indicate that the Central Belt rocks were deposited between two active fault systems that now define the boundaries of the belt.

Intrusive rocks are common throughout the Central belt. They range in composition from gabbro and diorite to syenite and monzonite. At Copper Mountain which hosted the largest porphyry copper deposit in the southern part of the Nicola belt, these intrusions are subvolcanic phases of the Nicola volcanics (Rice, 1947; Preto, 1972). This opinion is confirmed by radiometric dating of both the volcanic and intrusive rocks at Copper Mountain by several researchers (Preto, 1972).

Dioritic rocks within the Nicola Group stratigraphy around the Sadim property area also are coeval with adjacent volcanic rocks (Figure 32).

Sinclair and White (1968) determined a mean age for biotites in the Copper Mountain stock of 193.5 million years.

Probably, the Nicola Group rocks in the Sadim property area are of similar age to those at Copper Mountain.

The Western belt of the Nicola Group differs from the Eastern and Central belts in that there is no obvious source area for the volcanics of that belt. Rocks of the Western belt are the youngest in the Nicola Group. They form an easterly facing sequence of flow and pyroclastic volcanics that pass upward to well-bedded limestone. The volcanic flows of the Western belt are commonly richer in plagioclase than those of the other belts and include a considerable amount of andesite, dacite and rhyolite with minor amounts of basalt. Many of these volcanic flows are subaerial (Preto, 1979).

The Late Triassic-age Allison Lake pluton intrudes Nicola Group volcanics about 5 km (3 mi) west of the Sadim property-area (Figure 32). This intrusion is mainly grey hornblende-granodiorite (Preto 1979). It is assigned to the Mount Lytton Complex which includes the Bromley and Cahill Creek plutons (Monger, 1989).

The Early Jurassic-age Guichon batholith is exposed about 5 km (3 mi) east of the Sadim property area (Figure 31). It is comprised mostly of grey, green and pink horneblende-biotite granodiorite.

Pleistocene-age unconsolidated till and glacio-fluvial sediments fill many of the valley bottoms and mantle gentler slopes throughout the Nicola belt in the Sadim property area.

3.1.2 Regional Metamorphism and Deformation

Volcanic and sedimentary rocks of the Nicola Group seem to have been deposited in an active rift zone defined by two regional-scale northerly trending normal fault systems. As has been mentioned previously, the Nicola Group was segregated into three belts by the two fault systems.

Near Kingsvale the Western and Central belts are separated by the Fig fault (Monger, 1989). Southward, the boundary follows a series of unnamed faults that pass east of the Tulameen Complex and are buried beneath Princeton Group volcanic rocks west of Copper Mountain. The Central and Eastern belts are separated by the Allison and Summers Creek faults north of Princeton. South of Princeton, the belts are separated by the Boundary fault which passes west of the Copper Mountain stock and the copper deposits. The Summers Creek fault system including the Missezula Mountain fault also lies adjacent to the eastern sides of the Axe deposit, located about 9 km (5.5 mi) south of the Sadim property (Figure 31) and the

KR-Rum areas on the Sadim property itself (Figures 24 and 32).

The Central Belt seems to have been deposited in the graben of the rift. It contains the oldest and thickest succession of Nicola volcanics which are associated with the most mafic to intermediate subvolcanic intrusions.

Most of the folding and faulting in the Nicola Group rocks seems to be related to local emplacement of the volcanic pile and subvolcanic intrusions and not regional deformation due to mountain building. North of Kingsvale, Shau (1968) mapped a series of upright to overturned folds that were later related to the emplacement of the Nicola batholith as they were confined to its southern terminus (Preto, 1979). The Meander Hills syncline, a large structure in Nicola Group rocks was proposed by Rice (1947) to extend from the Meander Hills to a point just west of Princeton. Later bedding plane studies indicated that the Nicola rocks were not folded but arranged in a series of roughly microclinal panels separated by faults (Preto, 1979).

Local folding and faulting occurred near the margins of the granitic plutons that intruded Nicola Group rocks from the Late Triassic to Late Cretaceous periods. Movement along the two main boundary fault systems within the Nicola Group rocks was probably due to compressive stresses at that time. Late Cretaceous folding in the Kingsvale and Spence's Bridge rocks between Princeton and Aspen Grove was oriented east-west due to north-south compression (Rice, 1947).

Early Tertiary-age fault movement seems to have been mainly due to crustal tension resulting in normal faulting on many of the regional breaks. Sediments and volcanic rocks of the Eocene-age Princeton Group were deposited in small fault-bounded basins at that time. Rice (1947) suggested that east-west folding of Princeton Group rocks was the result of north-south compression during the Miocene Age.

Rocks of the southern Nicola belt have undergone low-grade regional metamorphism resulting in lower greenschist facies mineral assemblages (Preto, 1972). Thermal aureoles of varying thicknesses and metamorphic grades have been mapped in sedimentary and volcanic rocks adjacent to intrusions.

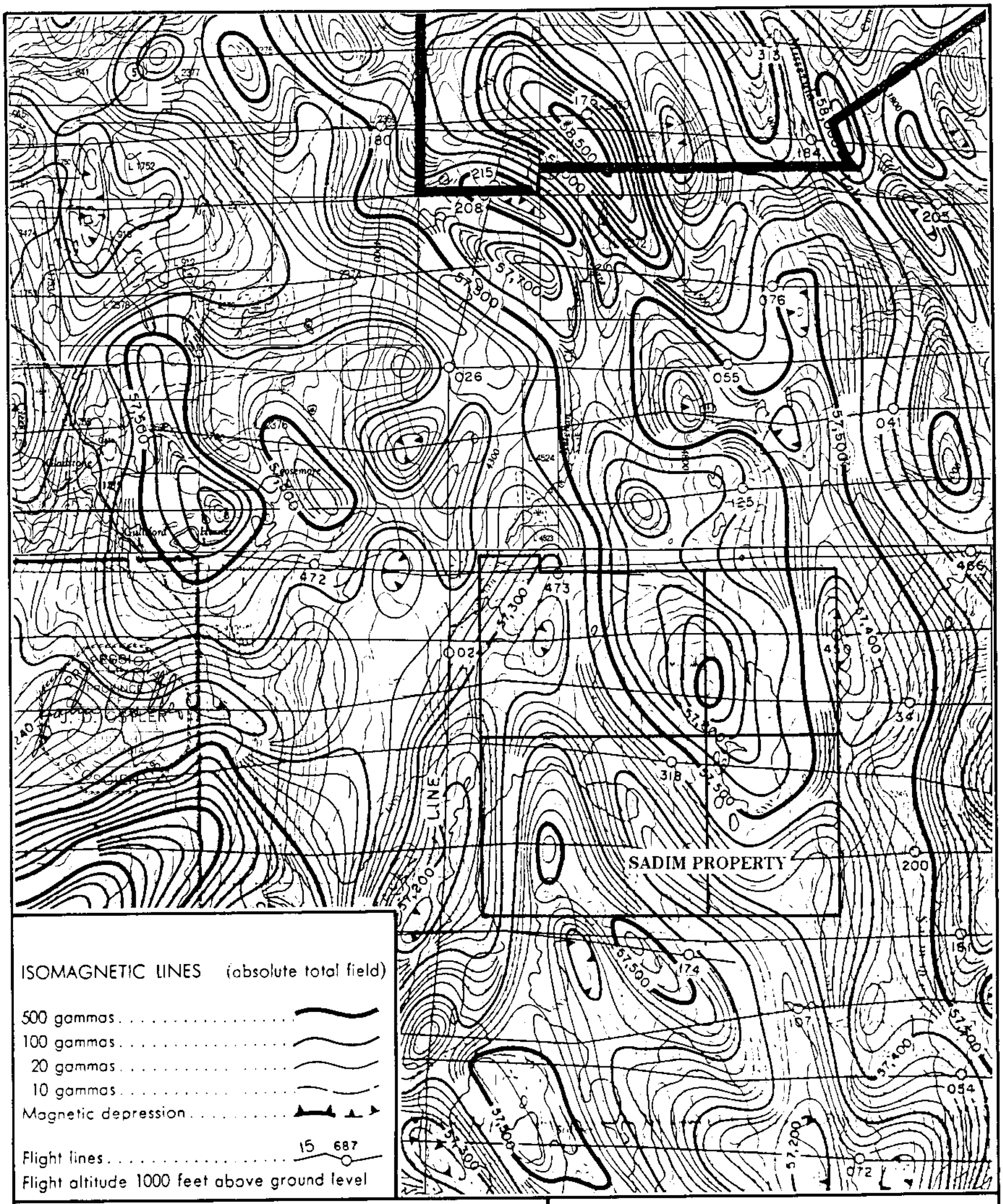
At Copper Mountain, pervasive metasomatism near fractures accompanies ore deposition (Preto, 1972; Rice 1947; Dolmage, 1934). In other mineralized areas of the region, metasomatism was found to be almost absent. For example Lefebure (1976) found metasomatism to be almost absent in mafic volcanic rocks near the Big Kid copper deposit at the Fairweather Hills near Aspen Grove, 21 km (12.8 mi) north of the Sadim property area.

A general table of geological events and lithological units in the southern Nicola belt is as follows:

FIGURE 33

TABLE OF GEOLOGICAL EVENTS AND LITHOLOGICAL UNITS IN THE SOUTHERN NICOLA BELT

Time	**Formation or Event**
Recent 0.01-0 m.y.	**valley rejuvenation**, down cutting of stream gullies through till, development of soil profiles
Pleistocene 1.6-0.01 my.	**glacial erosion and deposition:** deepening of major valleys, removal of Tertiary-age regolith, deposition of till and smoothing of the Tertiary-age land surfacce
Eocene to Pliocene 49-1.6 m.y.	**weathering, erosion, and incision of the land surface** **oxidation of near-surface rocks** **minor metal enrichment of copper at the base of the weathering profile at the KR-Rum and Sadim areas**
Eocene 49 m.y.	**tensional faulting** **deposition of the Princeton Group volcanics and sediments in brackish lake basins**
Early Tertiary 65-49 m.y.	**faulting, erosion and unroofing of the Nicola Group rocks**
Middle Jurassic to Cretaceous 160-65 m.y	**faulting and possibly mild deformation due to mountain building in adjacent terranes**
Early Jurassic 190-160 m.y.	**erosion and deposition of the unconformably overlying Ashcroft Formation sedimentary rocks** **accretion to the North American plate** **faulting and deposition of gold-bearing quartz-pyrite veins in the Sadim gold area**
Late Traiassic (Rhaetian) 203-193 m. y.	**deformation, regional metamorphism and juxtapostion of the Quesnel terrane with the Kootenay terrane to the east** **intrusion of the Allison Lake pluton** **alteration and copper-gold mineralization of the KR-Rum area**
Late Triassic (Norian to Carnian) 227-209 m.y.	**deposition of the Nicola Group:** mafic volcanics associated sediments, and coeval dioritic sub-volcanic intrusions
	m.y. = million years ago



N.

19°48'
N. mag.

SCALE

0 1 2 3 km

0 1 2 mi

Figure 34

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

AEROMAGNETISM
from EMR MAPS 8531G and 8532G

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002

3.2 Regional Geophysics

Aeromagnetic coverage of N.T.S. map sheet 92 H/10 and 92 H/15, which contains the area surrounding the Sadim property is displayed on E.M.R. Maps 8531G and 8532G respectively (Figure 34). The airborne magnetic survey for those maps was conducted by Geoterrex Limited from October, 1969 to April, 1972.

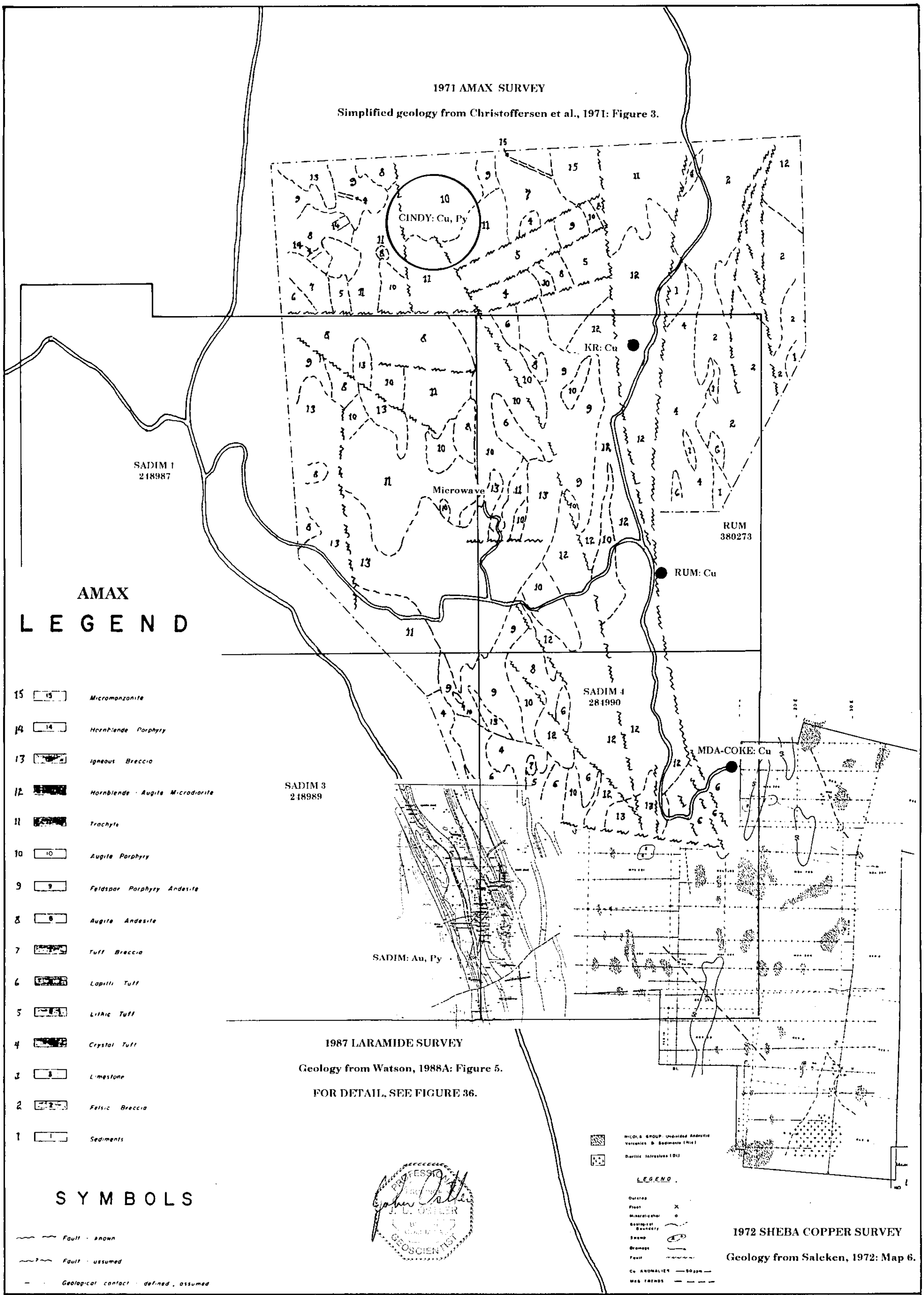
The general aeromagnetic trend in the area around the property is north-northwesterly, similar to that of the regional stratigraphy. A northerly trending magnetic low coincides with the Summers Creek valley just east of the property area. The most significant aeromagnetic feature in the Sadim property area is an ovular magnetic high that is centered on Microwave Hill near the centre of the claims. This feature is defined by a 400 gamma (nannotesla) increase of the field intensity.

3.3 Property Geology

The first and most extensive geological mapping in the area now covered by the Sadim property was conducted by AMAX Exploration Inc. in 1970 and 1971 (Christoffersen et al., 1971).

Unfortunately, a hand-coloured geological map was submitted for assessment by AMAX. Pencil-crayon smudges on it have rendered it difficult to read and almost unreproducible. The writer has redrafted the stratigraphy from AMAX's original map at a scale of 1: 20,000 in Figure 35.

Focus during the 1970-1971 mapping program was on stratigraphy and alteration. Structural mapping was sparse. A description by Christoffersen et al. (1971) of the geology of the area now covered by the Sadim property is as follows:



N.
19°48'
N. mag.

SCALE
0 200 400 600 800 1000 m
0 1000 2000 3000 ft

CASSIAR EAST YUKON EXP. LTD.

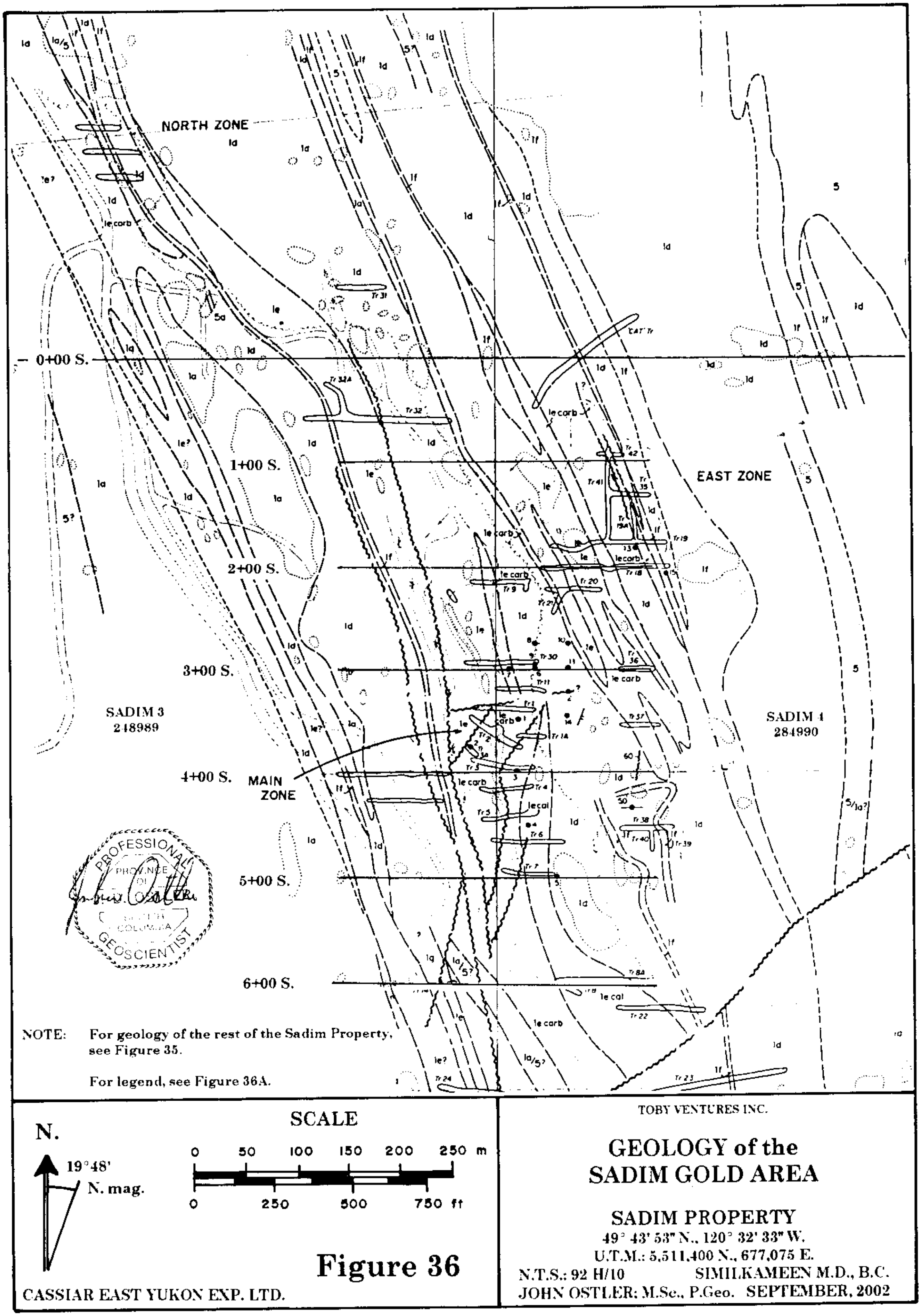
Figure 35

TOBY VENTURES INC.

PROPERTY GEOLOGY

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



NOTE: For geology of the rest of the Sadim Property, see Figure 35.

For legend, see Figure 36A.

CASSIAR EAST YUKON EXP. LTD.

Figure 36

TOBY VENTURES INC.

GEOLOGY of the SADIM GOLD AREA

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER: M.Sc., P.Geo. SEPTEMBER, 2002

Figure 36A

LEGEND
to Figure 36

1a	*Green-grey, green, fine- to medium-grained pyroxene andesite*
1d	*Green and purple andesitic breccias and tuffs*
1df	*Andesitic – limestone breccias*
1e	*Purple-grey tuffs and breccias*
1ecal	*Grey-purple limey tuffs containing narrow calcareous grit beds*
alt 1e carb	*Pale grey, rusty-weathering, fine-grained pyritic tuffs, moderately to strongly carbonatised (hosts sulphide-bearing quartz vein stockwork)*
1f	*Pale-grey, fine-grained, massive to finely-bedded limestone*
1g	*Dark grey, finely-bedded argillites, in part possibly tuffaceous*
5	*Grey to grey-green, fine- to medium-grained pyroxene diorite*
5a	*Green hornblende porphyry*

Qv 60	*Quartz veins, showing attitude*
▪	*Float*
▪	*Quartz float*
◌	*Outcrop*
50	*Bedding inclined, vertical*
—■—	*Joints (vertical)*
	Foliation (vertical)
— - -	*Geological contact, approximate, assumed*
Tr 20	*Trench location and number*
●4	*Diamond drill hole location and number*

NOTE: This figure is from Watson, 1988A: Figure 5.

> ... The property was mapped on east-west grid lines spaced at 500 ft (152.4 m). Overburden is not heavy and outcrop is generally good.
>
> The central and western parts of the property (the crest area of Microwave Hill) are underlain by a complex sequence of flow and/or hypabyssal volcanic rocks that include feldspar porphyry andesite (Unit 9) (Figure 35), augite porphyry (Unit 10), trachyte (Unit 11), and igneous breccia (Unit 13). A sill-like body of hornblende-augite microdiorite (Unit 12), probably related to flow rocks it has intruded, occupies the middle of the property (the KR-Rum area). The stock is truncated on its east side by the Missezula Mountain fault where microdiorite is in contact with a variety of steeply dipping sedimentary and pyroclastic rocks probably not related to, and older than, volcanic rocks west of the fault. Pyroclastic rocks, comprising tuff breccia, lapilli tuff, lithic and crystal tuff (Units 4-7), lie peripheral to igneous rocks and occur in the north and southwestern part of the property. Limestone forms small lenses, a few square feet in area, in pyroclastic rocks.
>
> The most prominent structures on the property are north-south trending faults of which the Missezula Mountain fault seems to be the most important. Adjacent to these faults, rocks are highly fractured and are usually pyritic, with traces of chalcopyrite, bornite and chalcocite. Less prominent fault directions are essentially southeasterly and northwesterly. Similarities between flow rocks, particularly trachyte, and microdiorite suggest the microdiorite underlies the central part of the claim group. Hence, if the microdiorite body is sill-like in form, the "sill" is relatively flat-lying of gently dipping to the west.
>
> Christoffersen et al.; 1971: pp. 3-4.

The area between the KR discovery outcrop and the Rum showings is almost entirely till covered. Christoffersen et al. (1971) assumed that it was mostly overlain by a sill-like microdiorite body (Unit 12) (Figure 35). Current 2002 drilling south of the KR discovery outcrop revealed that the area south of the KR showing was underlain by a gently dipping upright sequence of andesitic flows, tuffs, crystal tuffs, and agglomerates. During the 1971 mapping, those rocks probably would have been assigned to Units 4 to 6 (For details, see Section 5.2.2, this report) (Figure 40).

The microdiorite exposed around and south of the Rum showings may be much less extensive and sill like than was presumed by the mappers of Amax's 1971 survey.

Sheba Copper Mines Ltd. explored its MDA-RCS South claim group which covered part of the current Sadim 4 claim area in 1972 (Figure 35). L.W. Saleken (1972) reported that rock outcrop in that area was sparse, comprising less than 15% of his map area. He described the geology of that area as follows:

> The claims are underlain by volcanogenic Nicola Group and Coast Range intrusives. Several small dyke-like diorite intrusives cut the Nicola on the claims. The Nicola consists of undivided flows, pyroclastic and epiclastic sediments. The lavas are generally of andesitic composition and almost entirely comprise thee rocks of the area. Minor occurrences of sediments were noted.
>
> Coast Range intrusive occurs along the southeastern edge of the claims ... as an irregular tongue-like body trending northeasterly. The intrusive is a dioritic-granitic coarse grained rock. The magnetics along the eastern edge of the claims suggest that the intrusive irregularly underlies the Nicola rock and extends in a northeasterly direction.
>
> Several smaller dyke-like bodies of fine-grained dioritic intrusives occur on the northeastern part of the claims. The bodies contain magnetite and generally trend northwesterly. Copper mineralization was noted associated with the bodies. A feldspar porphyry was located at BL 39 + 50s and contained abnormally high magnetite ... The relation of the fine-grained dioritic dykes and the coarser grained intrusives is not clearly understood.
>
> A major north-south fault structure occurs on the claims along 8 E. Several other north-south faults were noted.
>
> Alteration and mineralization are controlled by fractures and are commonly associated with finer grained intrusives. Magnetite and epidote where observed, often carried with copper mineralization either as disseminations or fracture fillings. Mineralization on the property is spotty and sparsely distributed.
>
> Saleken L.W.; 1972: pp. 6-7.

The Coast Range intrusive to which L.W. Saleken referred, probably was an equivalent to the microdiorite (Unit 12) as mapped previously by the AMAX 1971 geological survey, and therefore, part of the Nicola Group.

I.M. Watson mapped the southern part of the current Sadim property during exploration on the Sadim gold area during 1986 and 1987 (Watson, 1988A) (Figures 35 and 36). Watson encountered mostly pyroclastics, lahar breccia deposits, and metasediments in the southern part of the property area. Preto's (1979) rock nomenclature was used by Watson in his survey (Figures 32, and 36). His description of the geology around the Sadim gold area was as follows:

> The Sadim claims lie immediately west of the Summers Creek fault, which marks the eastern boundary of Preto's Central Belt.
>
> The property is underlain by northerly striking intermediate to basic flows (1a), green monolithic and polylithic breccias (1d, 1df), tuffs (1e), and less abundant argillites (1g) and limestones (1f). These rocks have been intruded by irregular bodies of gabbroic to dioritic composition (5). Volcanics and sediments marginal to the intrusions have been variably propylitised (epidote-pyrite-chlorite-carbonate) and locally host erratically distributed copper-pyrite zones.
>
> Current (1986-1987) work on the property has been concentrated mainly in the southern parts of the Sadim 3 and 4 claims (Figures 35 and 36) where a fault related zone of carbonatised and pyritic tuffs (1e carb) hosts quartz-vein stockworks containing significant amounts of gold and silver.
>
> ...
>
> The general trend is slightly west of north; dips are steep to moderately easterly. 'Tops" have yet to be recognised.
>
> A major easterly dipping shear zone, intersected in all but drill holes 87-13 and 87-15, projects to surface along the north trending swamp in the middle of the map area (Figures 25 and 36). The fault, probably a thrust, separates essentially andesitic breccias (1d), flows (1a) and tuffs (1e) on the west from mixed tuffs (1e, 1e carb, 1e cal) on the east. The fault zone, which is about 15 metres (49.2 ft) thick, occurs along a dark grey carbonaceous limestone (1f).
>
> The shear has caused intense and extensive fracturing of the adjacent rocks, particularly the tuffs above and to the east of the fault. The fracturing has led to the development of quartz-vein stockworks. Veins range from hair fractures to greater that one metre (3.3 ft) in thickness. There appear to be two dominant strike directions, roughly 30° north and south of east-west (060° and 120°). Dips are moderate to steep southerly.
>
> Watson, I.M.; 1988A: pp. 10-11.

The current 2002 drilling program near the Sadim gold area resulted in the recognition that the quartz-vein stockworks were preferentially developed in a thick wedge of chaotically bedded lahar and mudflow deposits that were flanked by slough material deposited by turbidity currents. This epiclastic wedge was deposited within a sequence of tuffaceous volcanic rocks and deep-water greywackes (For more detail see Section 5.2.1, this report) (Figures 37 to 39).

4.0 DEPOSIT TYPES SOUGHT ON THE SADIM PROPERTY

4.1 Alkalic Porphyry Copper and Gold Mineralization and Gold-quartz Veins: the Primary Economic Targets on the Sadim Property

The Sadim property hosts two types of mineralization that represent two very different economic targets. Disseminated and fracture hosted copper and gold mineralization in the KR-Rum area in the northeastern part of the property may be related to a porphyry-type deposit, like those that have been mined at several locations throughout the Nicola volcanic belt. A gold-bearing quartz stockwork vein system explored in the southern part of the claim area may be the expression of a mesothermal gold-quartz vein mineralization.

Porphyry copper and gold deposits are the primary economic target in the Nicola volcanic belt. Such deposits were described by Andre Panteleyev in Lefebure and Ray ed. (1995) as follows:

PORPHYRY Cu-Au: ALKALIC L03

IDENTIFICATION

SYNONYMS: Porphyry copper, porphyry Cu-Au, diorite porphyry copper.

COMMODITIES (*BYPRODUCTS*): Cu, Au (*Ag*).

EXAMPLES (British Columbia-*Canada/International*):
Iron Mask batholith deposits - Afton (092INE023), Ajax (092INE012, 013), Mt. Polley Cariboo Bell, (093A008), Mt. Milligan (093N196,194), Copper Mountain/Ingerbelle (092HSE001, 004), Galore Creek (104G090), Lorraine? (093N002): *Ok Tedi (Papua New Guinea); Tai Parit and Marian? (Philippines).*

NOTE: **The bracketed number and letter designations in the above list are B.C. MINFILE deposit designations.**

GEOLOGICAL CHARACTERISTICS

CAPSULE DESCRIPTION:
Stockworks, veinlets and disseminations of pyrite, chalcopyrite, bornite and magnetite occur in large zones of economically bulk-minable mineralization in or adjoining porphyritic intrusions of diorite to syenite composition. Mineralization is spatially, temporaly and genetically associated with hydrothermal alteration of the intrusive bodies and hostrocks.

TECTONIC SETTING(S):

In orogenic belts at convergent plate boundaries, commonly oceanic volcanic island arcs overlying oceanic crust. Chemically distinct magmatism with alkalic intrusions varying in composition from gabbro, diorite and monzonite to nepheline syenite intrusions and coeval shoshonitic volcanic rocks, takes place at certain times in segments of some island arcs. The magmas are introduced along the axis of the arc or in cross-arc structures that coincide with deep-seated faults. The alkalic magmas appear to form where there is slow subduction in steeply dipping, tectonically thickened lithospheric slabs, possibly when polarity reversals (or 'flips') take place in the subduction zones. In British Columbia all known deposits are found in Quesnellia and Stikinia terranes.

DEPOSITIONAL ENVIRONMENT/GEOLOGICAL SETTING:

High-level (epizonal) stock emplacement levels in magmatic arcs, commonly oceanic volcanic island arcs with alkalic (shoshonitic) basic flows to intermediate and felsic pyroclastic rocks. Commonly the high-level stocks and related dikes intrude their coeval and cogenetic volcanic piles.

AGE OF MINERALIZATION:

Deposits in the Canadian Cordillera are restricted to the Late Triassic? Early Jurassic (215-180 Ma) with seemingly two clusters around 205-200 and ~ 185 Ma. In the southwest Pacific island arcs, deposits are Tertiary to Quaternary in age.

HOST/ASSOCIATED ROCK TYPES:

Intrusions range from fine through coarse-grained, equigranular to coarsely porphyritic and, locally, pegmatitic high-level stocks and dike complexes. Commonly there is multiple emplacement of successive intrusive phases and a wide variety of breccias. Compositions range from (alkalic) gabbro to syenite. The syenitic rocks vary from silica-undersaturated to saturated compositions. The most undersaturated nepheline normative rocks contain modal nepheline and , more commonly, pseudoleucite. The silica-undersaturated suites are referred to as nepheline alkalic whereas rocks with silica near-saturation, or slight silica oversaturation, are termed quartz alkalic (Lang et al., 1993). Coeval volcanic rocks are basic to intermediate alkalic varieties of the high-K basalt and shoshonite series and rarely phonolites.

DEPOSIT FORM:

Stockworks and veinlets, minor disseminations and replacements throughout large areas of hydrothermally altered rock, commonly coincident wholly or in part with hydrothermal or intrusion breccias. Deposit boundaries are determined by economic factors that outline ore zones within larger areas of low-grade, laterally zoned mineralization.

TEXTURE/STRUCTURE:

Veinlets and stockworks; breccia, sulphide and magnetite grains in fractures and along fracture selvages; disseminated sulphides as interstitial or grain and lithic clast replacements. Hydrothermally altered rocks can contain coarse-grained assemblages including feldspathic and calcsilicate replacements ('porphyroid' textures) and open space filling with fine to coarse, granular and rarely pegmatic textures.

ORE MINERALOGY (Principle and *subordinate*):

Chalcopyrite, pyrite and magnetite; bornite, chalcocite and *rare galena, sphalerite, tellurides, tetrahedrite, gold and silver*. Pyrite is less abundant than chalcopyrite on ore zones.

GANGUE MINERALOGY:

Biotite, K-feldspar and sericite; garnet, clinopyroxene (diopsidic) and anhydrite. Quartz veins are absent but hydrothermal magnetite veins are abundant.

ALTERATION MINERALOGY:

Biotite, K-feldspar, sericite, anhydrite/gypsum, magnetite, hematite, actinolite, chlorite, epidote and carbonate. Some alkalic systems contain abundant garnet including the Ti-rich andradite variety - melanite, diopside, plagioclase, scapolite, prehnite, pseudolucite and apatite; rare barite, fluorite, sodalite, rutile and late-stage quartz. Central and early formed potassic zones, with K-feldspar and generally abundant secondary biotite and anhydrite commonly coincide with ore. These rocks can contain zones with relatively high-temperature calcsilicate minerals diopside and garnet. Outward there can be flanking zones in basic volcanic rocks with abundant biotite that grades into extensive, marginal propylitic zones. The older alteration assemblages can be overprinted by phyllic sericite-pyrite and, less commonly, sericite-clay-carbonate-pyrite alteration. In some deposits, generally at depth in silica-saturated types, there can be either extensive or local zones of sodic alteration containing characteristic albite with epidote, pyrite, diopside, actinolite and rarer scapolite and prehnite.

ORE CONTROLS:

Igneous contacts, both internal between intrusive phases and external with wallrocks; cupolas and the uppermost bifurcating parts of stocks, dike swarms and volcanic vents. Breccias, mainly early formed intrusive and hydrothermal types. Zones of intensely developed fracturing give rise to ore-grade vein stockworks.

ASSOCIATED DEPOSIT TYPES:

Scarn copper (K01); Au-Ag and base metal bearing mantos (M01, M04), replacements and breccias in carbonate and non-carbonate rocks; magnetite-apatite breccias (D07); epithermal Au-Ag: both high and low sulphidation types (H04, H05) and alkalic, Te and F-rich epithermal deposits (H08); auriferous and polymetallic base metal and quartz-carbonate veins (01, I05); placer Au (C01, C02).

COMMENTS:

Subdivision of porphyry deposits is made on the basis of metal content, mainly ratios between Cu, Au and Mo. This is a purely arbitrary, economially based criterion; there are few differences in style of mineralization between the deposits. Differences in composition between the hostrock alkalic and calcalkalic intrusions and subtle, but significant, differences in alteration mineralogy and zoning patterns provide fundamental geologically based contrasts between deposit model types. Porphyry copper deposits associated with calcalkaline hostrocks are described in mineral deposit profile L04.

EXPLORATION GUIDES

GEOCHEMICAL SIGNATURE:

Alkalic cupriferous systems do not contain economically recoverable Mo (<100 ppm) but do contain elevated Au (> 0.3 gm/mt) and Ag (>2 gm/mt). Cu grades vary widely but commonly exceed 0.5% and rarely 1.0%. Many contain elevated Ti, V, P, F, Ba, Sr, Rb, Nb, Te, Pb, Zn, PGE and have high CO_2 content. Leaching and supergene enrichment effects are generally slight and surface outcroppings normally have little of the copper remobilized. Where present, secondary minerals are malachite, azurite, lesser copper oxide and rare sulphate minerals; in some deposits native copper is economically significant (e.g. Afton, Kemess).

GEOPHYSICAL SIGNATURE:

Ore zones, particularly those with high Au content, are frequently found in association with magnetite-rich rocks and can be located by magnetic surveys. Pyritic haloes surrounding cupriferous rocks respond well to induced polarization surveys. The more intensely hydrothermally altered rocks produce resistivity lows.

OTHER EXPLORATION GUIDES:

Porphyry deposits are marked by large-scale, markedly zoned metal and alteration assemblages. Central parts of mineralized zones appear to have higher Au/Cu ratios than the margins. Alkalic porphyry Cu deposits are found exclusively in Late Triassic and Early Jurassic volcanic arc terranes in which emergent subaerial rocks are present. The presence of hydrothermally altered clasts in coarse pyroclastic deposits can be used to locate mineralized intrusive centres.

ECONOMIC FACTORS

GRADE AND TONNAGE:

- Worldwide according to Cox and Singer (U.S. Geological Survey Open File Report 88-46. 1988) 20 typical porphyry Cu-Au deposits, including both calcalkaline and some alkalic types, contain on average:
  160 Mt with 0.55% Cu, 0.003% Mo, 0.38 g/t Au and 1.7 g/t Ag.
- British Columbia alkalic porphyry deposits range from < 10 to >300 Mt and contain from 0.2 to 1.5% Cu, 0.2 to 0.6 g/t Au and > 2 g/t Ag; Mo contents are negligible. Medial values for 22 British Columbia deposits with reported reserves (with a heavy weighting from a number of small deposits in the Iron Mask batholith) are: 15.5 Mt with 0.58% Cu, 0.3 g/t Au and >2 g/t Ag.

END USES:

Production of chalcopyrite or chalcopyrite-bornite concentrates with significant Au credits.

IMPORTANCE:

Porphyry deposits contain the largest reserves of Cu and close to 50% of the Au reserves in British Columbia; alkalic porphyry systems contain elevated Au values.

Panteleyev, Andre,
in:
Lefebure, D.V. and Ray, G.E.; 1995; pp. 83-86.

The gold-bearing vein structures like those occurring in the southern part of the Sadim property were described by Chris Ash and Dani Alldrick in; Lefebure Höy, ed. (1996) as follows:

Au-QUARTZ VEINS I01

IDENTIFICATION

SYNONYMS:

Mother Lode veins, greenstone gold, Archean lode gold, mesothermal gold-quartz veins, shear-hosted lode gold, low-sulphide gold-quartz veins, lode gold.

COMMODITIES (*BYPRODUCTS*): Au (Ag Cu, *Sb*)

EXAMPLES (British Columbia (MINFILE #)-*Canada/International*):

- <u>Phanerozoic:</u> Bralorne-Pioneer (092JNE001), Erickson (104P029), Taurus (104P012), Polaris-Taku (104K003), Mosquito Creek (093H010), Cariboo Gold Quartz (093H019), Midnight (082FSW119); *Carson Hill, Jackson-Plymouth, Mother Lode district; Empire Star and Idaho-Maryland, Grass Valley district (California, U.S.A.); Alaska-Juneau, Jualin, Kennsington (Alaska, U.S.A.), Ural Mountains (Russia).*

- <u>Archean:</u> *Hollinger, Dome, McIntyre and Pamour, Timmins camp; Lake Shore, Kirkland Lake camp; Campbell, Madsen, Red Lake camp; Kerr-Addison, Larder Lake camp (Ontario, Canada); Granny Smith, Kalgoorlie and Golden Mile (Western Australia); Kolar (Karnataka, India); Blanket-Vubachikwe (Zimbabwe, Africa).*

NOTE: **The bracketed number and letter designations in the above list are B.C. MINFILE deposit designations.**

GEOLOGICAL CHARACTERISTICS

CAPSULE DESCRIPTION:

Gold-bearing quartz veins and veinlets with minor sulphides crosscut a wide variety of hostrocks and are locallized along major regional faults and related splays. The wallrock is typically altered to silica, pyrite and muscovite within a broader carbonate alteration halo.

TECTONIC SETTINGS:

- <u>Phanerozoic:</u> Contained in moderate to gently dipping fault/suture zones related to continental margin collisional tectonism. Suture zones are major crustal breaks which are characterized dismembered ophiolitic remnants between diverse assemblages of island arcs. subduction complexes and continental-margin clastic wedges.

- <u>Archean:</u> Major transcrustal structural breaks within stable cratonic terranes. May represent remnant terrane collisional boundaries.

DEPOSITIONAL ENVIRONMENT / GEOLOGICAL SETTING:

Veins form within fault and joint systems produced by regional compression or transpression (terrane collision), including major listric reverse faults, second and third-order splays. Gold is deposited at crustal levels within and near the brittle-ductile transition zone at depths of 6-12 km, pressures between 1 to 3 kilobars and temperatures from 200° to 400° C. Deposits may have a vertical extent of up to 2 km, and lack pronounced zoning.

AGE OF MINERALIZATION:

Mineralization is post-peak metamorphism (i.e. late syncollisional) with gold-quartz veins particularly abundant in the late Archean and Mesozoic.

- Phanerozoic: In the North America Cordillerra gold veins are post-Middle Jurassic and appear to form immediately after accretion of oceanic terranes to the continental margin. In British Columbia deposits are mainly Middle Jurassic (~165-170 Ma and Late Cretaceous (~95 Ma). In the Mother lode belt they are Middle Jurassic (~150 Ma) and those along the Juneau belt in Alaska are of early Tertiary age (~56-55 Ma).

- Archean: Ages of mineralization for Archean deposits are well constrained for both the Superior Province, Canadian Shield (~2.68 to 2.67 Ga) and the Yilgarn Province, Western Australia (~2.64-2.63 Ga).

HOST/ASSOCIATED ROCK TYPES:

Lithologically highly varied, usually of greenschist metamorphic grade, ranging from virtually undeformed to totally schistose.

- Phanerozoic: Mafic volcanics, serpentinite, peridotite, dunite, gabbro, diorite, trondjemite/plagiographites, greywacke, argillite, chert, shale, limestone and quartzite, felsic and intermediate intrusions.

- Archean: Granite-greenstone belts - mafic, ultramafic (komaitiitic) and felsic volcanics, intermediate and felsic intrusive rocks, greywacke and shale.

DEPOSIT FORM:

Tabular fissure veins in more competent host lithologies, veinlets and stringers forming stockworks in less competent lithologies. Typically occur as a system of en echelon veins on all scales. Lower grade bulk-tonnage styles of mineralization may develop in areas marginal to veins with gold associated with disseminated sulphides. May also be related to broad areas of fracturing with gold and sulphides associated with quartz veinlet stockworks.

TEXTURE/STRUCTURE:

Veins usually have sharp contacts with wallrocks and exhibit a variety of textures, including massive, ribboned or banded and stockworks with anastomosing gashes and dilations. Textures may be modified or destroyed by subsequent deformation.

ORE MINERALOGY (Principal and *subordinate*):

Native Gold, pyrite, arsenopyrite, *galena, sphalerite, chalcopyrite, pyrrhotite, tellurides, scheelite, bismuth, cosalite, tetrahedrite, stibnite, molybdenite, gersdorffite* (*$NiAsS$*), *bismuthanite* (*Bi_2S_2*), *tetradymite* (*Bi_2Te_2S*).

GANGUE MINERALOGY (Principal and *subordinate*):

Quartz, carbonates (ferroan dolomite, ankerite, ferroan-magnesite, calcite siderite), *albite, mariposite (fuchsite), sericite, muscovite, chlorite, tourmaline, graphite.*

ALTERATION MINERALOGY:

Silicification, pyritization and potassium metasomatism generally occur adjacent to veins (usually within a metre) within broader zones of carbonate alteration, with or without ferroan dolomite veinlets, extending up to tens of metres from the veins. Type of carbonate alteration reflects the ferromagnesian content of the primary host lithology; ultramafic rocks-talc, Fe-magnesite; mafic volcanic rocks-ankerite, chlorite; sediments-graphite and pyrite; felsic to intermediate intrusions-sericite, albite, calcite, siderite, pyrite. Quartz-carbonate rock (listwanite) and pyrite are often the most prominent alteration minerals in the wallrock. Fuchsite, sericite, tourmaline and scheelite are common where veins are associated with felsic to intermediate intrusions.

WEATHERING:

Distinctive orange-brown limonite due to the oxidation of Fe-Mg carbonates cut by white veins and veinlets of quartz and ferroan dolomite. Distinctive green Cr-mica may also be present. Abundant quartz float in overburden.

ORE CONTROLS:

Gold-quartz veins are found within zones of intense and pervasive carbonate alteration along second order or later faults marginal to transcrustal breaks. They are commonly closely associated with, late syncollisional, structurally controlled intermediate to felsic magmatism. Gold veins are more commonly economic where hosted by relatively large, competent units, such as intrusions or blocks of obducted oceanic crust. Veins are usually at a high angle to the primary collisional fault zone.

- Phanerozoic: Secondary structures at a high angle to relatively flat-lying to moderately dipping collisional suture zones.
- Archean: Steep, transcrustal breaks; best deposits overall are inn areas of greenstone.

ASSOCIATED DEPOSIT TYPES:

Gold placers (C01,C02), sulphide manto Au (J04), silica veins (I07); iron formation Au (I04) in the Archean.

GENETIC MODEL:

Gold-quartz veins form in lithologically heterogeneous, deep transcrustal fault zones that develop in response to terrane collision. These faults act as conduits for CO_2-H_2O-rich (5-30 mol% CO_2), in low salinity (<3 wt % NaCl) aqueous fluids, with high Au, Ag, As, (+/-Sb, Te, W, Mo) and low Cu, Pb, Zn metal contents. These fluids are believed to be tectonically or seismically driven by a cycle of pressure build-up that is released by failure and pressure reduction followed by sealing and repetition of the process (Sibson et al., 1988). Gold is deposited at crustal levels within and near the brittle-ductile transition zone with deposition caused by sulphidation (the loss of H_2S due to pyrite deposition) primarily as the result of fluid-wallrock reactions, other significant factors may involve phase separation and fluid pressure reduction.

The origin of the mineralizing fluids remains controversial, with metamorphic, magmatic and mantle sources being suggested as possible candidates. Within an environment of tectonic crustal thickening in response to terrane collision, metamorphic devolitization or partial melting (anatexis) of either the lower crust or subducted slab may generate such fluids.

COMMENTS:

These deposits may be a difficult deposit to evaluate due to "nugget effect", hence the adage, "Drill for structure, drift for grade". These veins have also been mined in British Columbia as a source of silica for smelter flux.

EXPLORATION GUIDES

GEOCHEMICAL SIGNATURE:

Elevated values of Au, Ag, As, Sb, K, Li, Bi, W, Te, and B +/- Cd, Cu, Pb, Zn and Hg in rock and soil, Au in streams.

GEOPHYSICAL SIGNATURE:

Faults indicated by linear magnetic anomalies. Areas of alteration indicated by negative magnetic anomalies due to destruction of magnetite as a result of carbonate alteration.

OTHER EXPLORATION GUIDES:

Placer gold or elevated gold in stream sediment samples is an excellent regional and property-scale guide to gold-quartz veins. Investigate broad 'deformation envelopes' adjacent to regional listric faults where associated with carbonate alteration. Alteration and structural analysis can be used to delineate prospective ground. Within carbonate alteration zones, gold is typically only in areas containing quartz, with or without sulphides. Serpentinite bodies, if present, can be used to delineate favourable regional structures. Largest concentrations of free gold are commonly at, or near, the intersection of quartz veins with serpentinized and carbonate-altered ultramafic rocks.

ECONOMIC FACTORS

TYPICAL GRADE AND TONNAGE:

Individual deposits average 30,000 t with grades of 16 g/t Au and 2.5 g/t Ag (Berger, 1986) and may be as large as 40 Mt. Many major producers in the Canadian Shield range from 1 to 6 Mt at grades of 7 g/t Au (Thorpe and Franklin, 1984). The largest gold-quartz vein deposit in British Columbia is the Bralorne-Pioneer which produced in excess of 117, 800 kg of Au from ore with an average grade of 9.3 g/t.

ECONOMIC LIMITATIONS:

These veins are usually less than 2 metres wide and therefore, only amenable to underground mining.

IMPORTANCE:

These deposits are a major source of the world's gold production and account for approximately a quarter of Canada's output. They are the most prolific gold source after the ores of the Witwatersrand basin.

Ash, Chris and Alldrick, Dani,
in:
Lefebure, D.V. and Höy, Trygve ed.; 1996. pp. 53-56.

4.2 Copper and Gold Mineralization in the Nicola Volcanic Belt between Princeton and Merritt

The Nicola volcanic rocks between Princeton and Merritt are located between two very productive parts of the Nicola belt. To the south at Princeton the Copper Mountain intrusions and surrounding Nicola Group volcanic rocks host the Copper Mountain and Ingerbelle porphyry copper-gold deposits that were developed together as the Similco mine. To the north in the Merritt-Kamloops area, the Craigmont, Afton and Ajax deposits have been put into production.

As of yet, no porphyry copper-gold deposits located between Princeton and Merritt have been put into production, although copper-gold mineralization occurs throughout this part of the Nicola volcanic belt.

V.A. Preto (1979) discussed the part of the Nicola belt between Princeton and Merritt as follows:

> The map-area (Preto, 1979: Maps 1 and 2) covers virtually in its entirety, the region that for many years has been known as the Princeton-Merritt copper belt. Within this belt, copper prospects are numerous and range from mere occurrences of trivial size to large, though as yet uneconomical, porphyry-type deposits.
>
> The strong control of the distribution of copper occurrences along this belt by faults of the Allison Creek and Summers Creek systems was noted by Rice (1947, pp. 90-91) and by other early workers. Rice (1947) correctly recognized that these faults, if projected southward, would trend into the Copper Mountain area and wondered why, given this strong structural continuity, no member of the Copper Mountain intrusions had been found north of the Princeton basin ... In fact, this report and other recent work ... have shown that not only does the structural continuity extend from Copper Mountain at least as far as the Iron Mask batholith near Kamloops, but numerous intrusions of the same age and composition as those at Copper Mountain exist in this region. These intrusions are genetically related to the Nicola volcanic rocks, and host many of the copper deposits.
>
> Preto, V.A.; 1979: p. 69.

The Axe deposit (MINFILE No. 092HNE143) is the closest substantial copper-gold deposit to the Sadim property. It is located about 9 km (5.5 mi) south of the claims.

Some aspects of the Axe deposit and the copper-gold mineralization in the KR-Rum area on the northeastern part of the Sadim property are quite similar. Both are adjacent to the western flank of the Summers Creek fault system and the Missezula Mountain fault. Also, oxidation, mineralization and alteration in the trenches of the Rum showings area closely resemble that at the Axe deposit.

The "capsule geology" description of the Axe deposit in the British Columbia MINFILE is as follows:

> This area along Summers Creek is underlain by the Eastern volcanic facies of the Upper Triassic Nicola Group, comprising mafic, augite and hornblende porphyritic pyroclastics and flows, and associated alkaline intrusions. These rocks are intruded by granodiorite and quartz diorite of the Middle to Late Cretaceous Summers Creek pluton.
>
> This prospect is part of the Axe property, a large porphyry system some 3.2 kilometers in diameter, containing three significant zones of copper mineralization, including the Adit zone. The other two zones are the South (092HNE040) and West (092HNE142) zones. The Adit zone is 800 metres north of the South zone and 930 metres east-southeast of the West zone. This porphyry-copper hydrothermal system is related to the intrusion of small stocks and dykes of fine-grained diorite and monzonite through the West and Adit zones. These intrusions are interpreted to be part of the Nicola magmatic suite and may represent the deeper part of Nicola volcanoes.
>
> The Axe (Adit zone) is largely hosted in a stock of porphyritic micromonzonite, 1500 by 500 metres in area, intruding basaltic to andesitic flows and tuffs of the Nicola Group)Central belt, Preto, 1979). The micromonzonite is comprised of 25 to 45 per cent plagioclase crystals and up to 10 per cent hornblende crystals in a matrix of orthoclase. The stock is cut by a few coeval porphyritic diorite dykes. The northern one-quarter of the deposit is hosted in sericite schist derived from strongly sheared flows or tuffs. Minor andesitic to basaltic, granodioritic and rhyolitic dikes of Cretaceous or Tertiary age cut all other rock units.
>
> The hostrocks are strongly faulted, fractured and sheared in all orientations. One prevalent fracture set strikes 045 degrees. A major northeast-striking fault, dipping steeply northwest, traverses the area of copper mineralization. This structure is part of the north-striking Summers Creek fault system.
>
> The monzonite stock and surrounding volcanics are strongly chloritized pervasively along fractures. Epidote commonly accompanies the chlorite and also forms fracture fillings and irregular veins, usually with calcite. Strong zones of albitization are locally present. Fine-grained biotite often accompanies chlorite. Gypsum veins up to 1.5 centimeters wide occur at depth. Limonite and manganese staining are very common in the upper 30 metres of the zone. Malachite and azurite occur frequently in outcrop, usually along shears and fault zones. Surface exposures are intensely leached and clay altered. Clay is also developed along the numerous shears and fault zones.
>
> Sulphides form up to 20 per cent of the zone and consist of pyrite, chalcopyrite, minor molybdenite, chalcocite and bornite, and rare pyrrhotite. They are commonly disseminated and occur to a lesser extent in veins and fracture fillings. Chalcopyrite exceeds pyrite in areas of stronger mineralization. Chalcopyrite and pyrite tend to be

> disseminated in pervasive chlorite, epidote and albite, and along fractures with chlorite and epidote. Molybdenite occurs in chlorite-lined fractures, as irregular stingers and as disseminations in locally strong, pervasive epidote alteration. The bulk of the copper mineralization appears to be older than molybdenum mineralization, which may be associated with the Summers Creek stock.
>
> The numerous scattered copper occurrences comprising the Adit zone outcrop over a north-south distance of 1400 metres and an east-west distance of up to 800 metres. Diamond drilling has intersected significant copper mineralization in a 5090 by 400 metre area in the southwestern part of this zone. Drilling up to 1973 has defined indicated reserves of 14,513,600 tonnes grading 0.56 per cent copper ... Silver values are generally low. One drill hole analyzed 0.54 per cent copper and 3.3 grams per tonne silver over 53.6 metres ... A second hole graded 0.677 per cent copper, 0.420 grams per tonne gold, 35.6 grams per tonne silver and 0.551 per cent zinc over 3.05 metres ...
>
> B.C. MINFILE, 092HNE143

4.3 Copper and Gold Mineralization on the Sadim Property

There are four copper and gold showings areas in the Sadim property area. Three of them, the KR, Rum, and MDA-Coke, are copper-gold targets that are located along the trace of the Missezula Mountain fault on the Rum claim in the northeastern part of the property. The Sadim is a gold-quartz prospect that straddles the common boundary of the Sadim 3 and 4 claims in the southern part of the property (Figure 2). Another copper showing area, the Cindy, is located within 500 m (1,640 ft) of the northern boundary of the Sadim property.

These showings areas are recorded in the British Columbia mineral inventory (MINFILE) as follows:

Mineral Showing Name	**MINFILE Number**
KR and Rum	092HNE099
MDA-Coke	092HNE239
Sadim	092HNE095
Cindy	092HNE126

The KR showings area was discovered by prospectors in 1962. At that time it was comprised of a group of small outcrops that covered an area of about 0.4 ha (1 A). The discovery area has since been stripped and at present, a mineralized outcrop covering about 20 x 40 m (65.6 x 131.2 ft) is exposed among a group of old, partially sloughed-in trenches.

The KR outcrop is highly fractured andesite. Fractures have thin coatings of chalcopyrite, pyrite, malachite, and hematite.

Reportedly, 51.8-m (170-ft) long section on the southern side of the KR outcrop graded 0.20% copper (Mark, 1976). Adera Mining Ltd. drilled an AX diamond drill hole east-southeastward beneath the KR discovery outcrop from its western side (Lammle, 1966) (Figure 24). That hole penetrated an 18.3-m (60-ft) intersection of andesite lightly mineralized with pyrite and chalcopyrite containing an average of 0.265% copper. Mineralization was reportedly accompanied by pervasive propylitic (calcite-epidote) alteration (Section 2.2.6, this report).

Part of the current 2002 drill program explored the area south of the KR outcrop (Section 5.2.2, this report). Three drill holes, 02-10 to 12 penetrated the KR horizon. It was found to be a tabular body. The best intersection crossed an estimated true thickness of 16.8 m (55.1 ft) containing an average of 0.19% copper and 0.0711 gm/mt (0.012 oz/ton) gold (Figure 40).

The KR horizon strikes at an average of 098° and dips an average of 13° south-southwesterly. It is within an area of pervasive propylitic epidote-calcite-chlorite-pyrite alteration. Some K feldspar replacement of plagioclase occurs in alteration adjacent to chalcopyrite-bearing veins. This potassic alteration is visible only in the better-mineralized parts of the KR horizon.

The Rum showings area is comprised by a group of copper showings exposed in several trenches that were opened up during the late 1960s and early 1970s. D.G. Mark (1976; Sheet 1) (Figure 24) recorded that a sample containing 0.34% copper over a length of 91.4 m (300 ft) was taken from the southern part of AMAX Trench No. 7, located in the central part of the Rum showings area, presumably by Kalco Valley's exploration crew. Another sample containing 0.16% copper over a length of 182.9 m (600 ft) was obtained from the adjoining northern part of the same trench.

That intersection included an area in the central part of the trench that contained 0.29% copper over 53.3 m (175 ft) and another section near the trench's northern end that contained 0.14% copper across 88.4 m (290 ft). Trench 8W was excavated east-west, at almost a right angle to Trench No.7 and intersected it at its northern end. That trench hosted a 91.4-m (300-ft) long intersection that graded 0.10% copper.

AMAX Trench No.7 was inspected by the writer during the current exploration program.

Most of the rock in the trench wall is light tan, oxidized and silicified volcanic. Red, orange, and black limonite is ubiquitous. The black limonite, presumably related to the oxidation of chalcopyrite, occurs as small blebs and smears on the numerous fracture surfaces. In less oxidized parts of the trench, the original andesitic composition of the country rock can be seen. There, malachite occurs on fracture surfaces and the rock looks much like the malachite-stained rock at the KR showing farther north. A small amount of the rubble in the trench bottom is black and white, highly silicified breccia with a tourmaline-rich matrix.

Alteration and mineralization in the AMAX No.7 trench looks very similar to some of that at the Axe deposit, also located near the trace of the Missezula Mountain fault 9 km (5.5 mi) south of the Sadim property.

The MDA-Coke showings area was described in the B.C. MINFILE as a group of scattered copper showings lying in a 900 by 250 m (2,952 X 820 ft) area with mineralization consisting of disseminated and fracture controlled chalcopyrite in intrusives and volcanic rocks commonly associated with diorite. Chalcocite and malachite were also reported from this area. L.W. Saleken (1972) was unimpressed by the lack of intensity of mineralization in the MDA-Coke showings area. The writer assumes that it is far less intense than that at the Rum showings area farther north.

The Sadim gold-quartz area was discovered in 1985 during a regional exploration program. Three zones: the Main, East ,and North were discovered in the southern part of the current Sadim property area. This mineral showing has been intensively trenched and drilled since 1987. Part of the current 2002 exploration program focused on the Sadim gold-quartz area (for details, see Sections 2.2.7 and 5.2.1 of this report).

Mineralization is comprised of gold and silver-bearing minerals occurring in sparsely mineralized white quartz veins enveloped in pyritic, silicified alteration haloes within carbonatized epiclastic and tuffaceous volcanic rocks.

The best intersection found along a vein in the Sadim gold-quartz area was in Trench 94-2 where sampling established a grade-estimate of 47.65 gm/mt (1.39 oz/ton) gold across an average width of 0.78 m (2.56 ft) along a length of 15 m (49.2 ft) (McDougall, 1994).

The Sadim gold-quartz area is confined by a gently eastward dipping, basal thrust fault that is presumed to come to surface beneath a swamp just west of the Main and North zones. The eastern boundary of significant mineralization coincides with a sub-vertical north-south *trending carbonatized shear that probably is a splay off the basal thrust.* The gold-quartz area is open to the northwest and southeast.

There are spatial, temporal, and perhaps genetic relationships among the copper and gold showings in and near the Sadim property area.

The KR, Rum and MDA-Coke showings areas are all located along the Missezula Mountain fault, and they all have porphyry-style copper-gold mineralization contained within propylitic alteration. Both the Rum and MDA-Coke showings areas are closely related to fine-grained dioritic intrusions that are coeval with Nicola Group mafic volcanics. The KR is an horizon that dips gently toward the Rum area and may be structurally associated with it. These three copper-gold showings areas may be expressions of one, more extensive mineralizing system that is focused along the Missezula Mountain fault in a manner similar to the showings of the Axe porphyry copper-gold deposit located on the same fault system 9 km (5.5 mi) south of the Sadim property.

Also, there is a hint of a larger system that may be located on the Sadim property. There is a circular or ovoid-shaped feature to which the writer refers as the Sadim circular feature on the property. It is about 3.5 km in diameter, and it extends westward from the trace of the Missezula Mountain fault. Its centre is just north of the microwave tower atop Microwave Hill.

This feature is most clearly illustrated by the 100 ppm copper contour in rocks sampled around Microwave Hill during Laramide's 1987 regional rock geochemical survey (Figure 11). The results of the 1971 AMAX soil survey conducted over the crest and the western slope of the hill (Figure 5), indicate that this feature may be comprised of as many as three rinds of copper enrichment around a central core. The results of the 1976 Ruskin soil survey on the eastern side of Microwave Hill (Figure 7) suggests that the Sadim circular feature adjoins the trace of the Missezula Mountain fault in the KR and Rum showings area, where coincidentally, the most intense copper mineralization has been found to date.

The distribution of copper in soils south and east of the Sadim circular feature (Figures 6 and 9) have patterns that are oriented north-northwesterly, sub-parallel with the local stratigraphy.

Although less definitive, some of the geophysical survey results, particularly those of the 1971 AMAX magnetic survey (Figure 13) and the 2000 Toby Ventures induced polarization survey (Figures 22 and 23) are similar to those of the soil and rock geochemical surveys.

The writer visited some of the rock outcrops across Microwave Hill during the current 2002 exploration program. It was observed that fractures containing epidote-calcite-chlorite propylitic alteration mineral assemblages were far more numerous and most intensely altered in areas of comparatively high copper contents as defined by previous soil and rock geochemical surveys.

Fracture sets bearing alteration were measured at several locations. However, any circular fracture sets that could have been related to the development of a circular feature around Microwave Hill were obscured by the north and northwesterly trending regional fractures. An intensive study of fractures around the hill would be required to find a definitive answer regarding the generation of altered fractures by a circular feature.

The existence of such a circular fracture system would enhance ground preparation and increase the size-potential of any porphyry copper-gold mineralization buried beneath the trace of the Missezula Mountain fault and the crest of Microwave Hill.

The many similarities among the KR, Rum and MDA-Coke mineral occurrences render it probable that they are all related to each other and to fluid migration along the plane of the Missezula Mountain fault.

The Nicola Group was deposited, intruded, deformed, and metamorphosed from 227 to 190 million years ago (Monger and Journeay, 1994). At Copper Mountain the volcanics, intrusives, and mineralized fractures have all been dated as Late Triassic-age, about 193 million years old (Preto, 1972). The writer believes that all of the copper-gold occurrences yet found in the northeastern Sadim property area are a similar age to the mineralization at Copper Mountain.

The gold-quartz veins explored in the southern part of the Sadim property are significantly younger than the copper-gold mineralization along the Missezula Mountain fault in the northeastern part of the property area.

During the current 2002 drill program, the writer found that there were five generations of veining and alteration in the Sadim property area (Section 5.2, this report). Mineralization at the KR and Rum showings was deposited with propylitic and potassic alteration during the first phase; the Sadim gold-quartz veins were deposited with silicification and pyritization during the fourth phase. Two generations of carbonitization and a change in regional principal stress orientations occurred between the time of deposition of the copper-gold mineralization along the Missezula Mountain fault and that of the Sadim gold-quartz veins.

The gold-quartz veins probably were related to thrust faulting during accretion of the Quesnel terrane containing the Nicola Group volcanic rocks onto the North American plate during the Early Jurassic Period, sometime from 190 to 160 million years ago. They are not related, either temporally or genetically, to the copper-gold mineralization that occurs along the Missezula Mountain fault in the northeastern part of the Sadim property.

5.0 EXPLORATION AND VERIFICATION OF MINERALIZATION

5.1 Summary of the Writer's Exploration on the Sadim Property

The writer's first involvement with exploration in the Sadim property area was in November 2001, during an abortive mobilization for the current drill program. Drilling was suspended until June, 2002 because of equipment failure, mostly due to freezing water lines.

During the current program, the writer has conducted work on the property during the following times: November 21 to 28, 2001, June 10-14, July 5 to 12, and August 6 to 8, 2002.

The writer was retained by Toby Ventures Inc. to log the drill core from the current program, to integrate those new data with data from previous work programs, and to produce a comprehensive summary of what currently is known of the geology, alteration, and mineralization in the Sadim property area.

Locations and orientations of Drill holes for the 2002 program were determined by a committee comprising company directors, J.J. McDougall, P.Eng. and the writer.

This report was commissioned by Toby Ventures Inc.

5.2 Current Exploration on the Sadim Property

The 2002 Toby Ventures Inc. drill program comprised a total of 1.385.4 m (4,544.1 ft) of NQ diamond drilling. The first nine drill holes comprising a total of 862.3 m (2,8218.3 ft), penetrated the Sadim gold-quartz area in the southern part of the Sadim property. The remaining three drill holes comprising 523.1 m (1,715.8 ft), penetrated the KR structure in the KR-Rum copper-gold area in the northeastern part of the Sadim property.

Core was logged using imperial measurements at the request of the directors of Toby Resources Inc. Metric equivalents have been stated together with imperial measurements throughout this report to facilitate data analysis.

Core from the Sadim gold-quartz area was sampled in two ways. Wherever a quartz vein of significant width (greater than 5.1 cm, of 2 inches) was present, it was sampled separately from the flanking intense pyritic alteration. Where the pyritic alteration contained narrow quartz stringers, both the stringers and the alteration was sampled together. Sample intervals depended entirely on highly irregular vein and alteration widths. Core from the KR horizon was sampled, with one exception, at 1.5-m (5-ft) intervals.

All samples were split in a dedicated core shack at the AP guest ranch and sealed in plastic sample bags. Samples were analyzed at Acme Analytical Laboratories in Vancouver, British Columbia. Methods and results of analyses and assays from the 2002 program comprise Appendix 'A' of this report.

Current exploration has confirmed that the Sadim property is underlain by andesitic meta-volcanic and meta-sedimentary rocks of the Triassic-age Nicola Group. The northern and central parts of the property are underlain by a succession of sub-marine flows and pyroclastics that have been intruded by several coeval dioritic stocks. The southern part of the property hosts pyroclastic, lahar (volcanic mud flow) and associated proximal (volcanic wacke) turbidite deposits that overprint background regional basin-floor turbidite (greywacke) sedimentation.

There are at least five generations of fracturing, alteration, and vein development in these rocks. Both the first and fourth generations are of economic interest.

The first generation is comprised of extensive propylitic (epidote-chlorite-calcite-quartz) alteration and vein filling that affected the whole property area. This alteration is most intense in the KR-Rum area in the northeastern part of the property. There, porphyry-style, disseminated, and fracture-hosted copper mineralization occurs with various amounts of potassic alteration and tourmaline-bearing breccia development. Mineralization is post-dated by some retrograde propylitic alteration.

During the second phase of alteration and vein development, white calcite-filled fractures and tension gashes formed in en echelon groups. These vein fillings range up to 1 cm (0.4 inch) thick and have no visible alteration haloes. Phase-2 veins and gash fillings are cut by subsequent (phase-3) calcite veins that may contain small amounts of chlorite and epidote, probably scavenged from local vein walls. The calcite that fills these two vein sets probably was produced locally as a result of the breakdown of calcium feldspar during regional metamorphism and deformation.

The fourth generation of alteration is comprised of silicification, pyritization, and sericitization surrounding white quartz veins that contain highly variable amounts of gold. This alteration is sparse over most of the property area. However, it is prevalent in the lahar and associated turbidite deposits (epiclastic sediments) in the southern part of the property. This generation of alteration hosts the gold-bearing quartz veins that comprise the Sadim gold-quartz area mineralization.

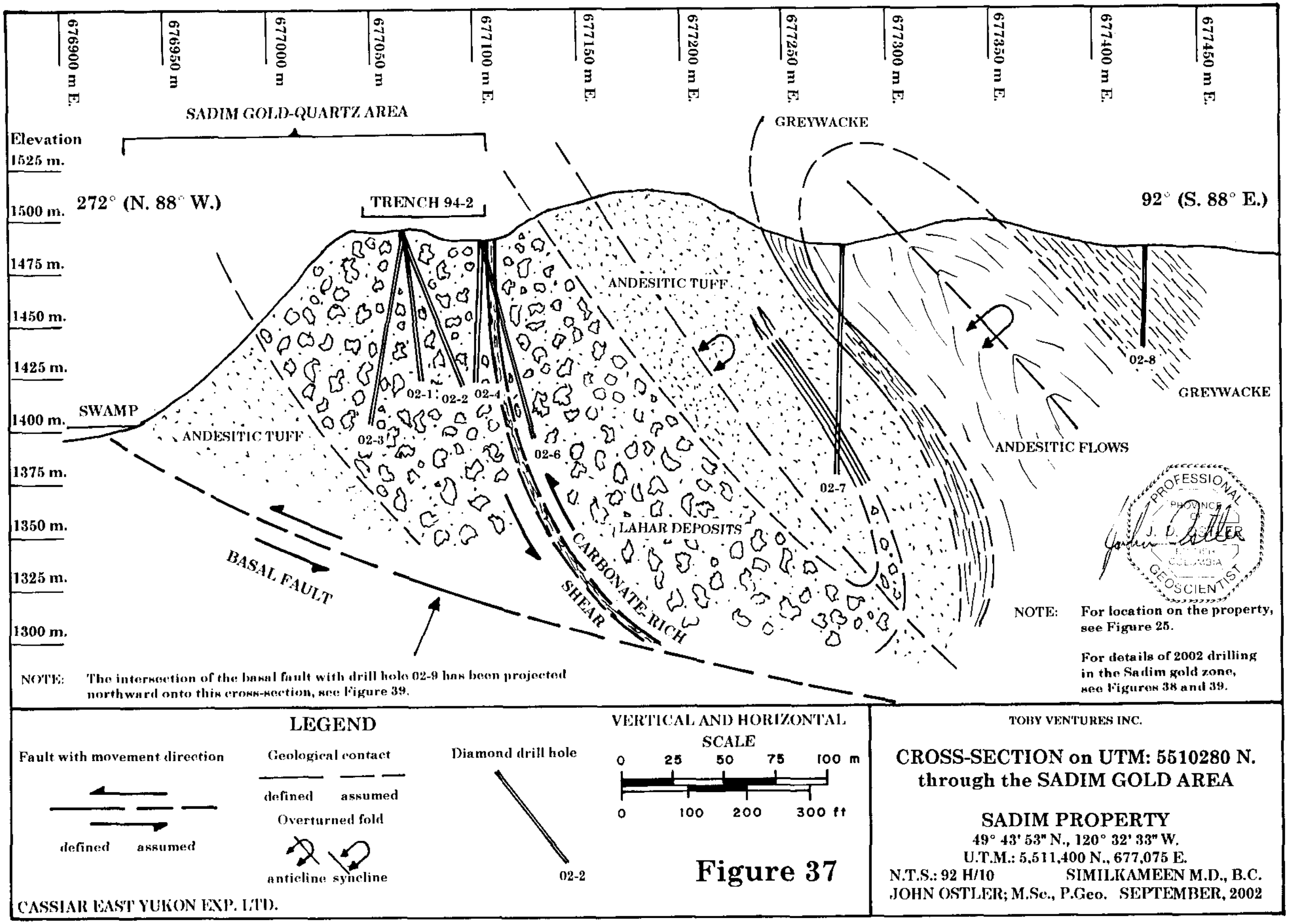
The fifth and last generation of alteration and vein development is associated with the development of the basal thrust fault and the eastern boundary shear of the Sadim gold-quartz area. This generation of fluid movement produces tan-coloured ankerite-siderite-calcite alteration and carbonate-gypsum (selenite) veins that contain traces of yellow barite. Veins of this generation are scarce except near the boundary faults and shears of the Sadim gold-quartz area.

The two areas of economic interest on the Sadim property are the Sadim gold-quartz area and the KR-Rum copper-gold area.

5.2.1 Sadim Gold-quartz area

The Sadim gold-quartz area has been intensively explored by methods including: mapping, geochemical and geophysical surveys, trenching and diamond drilling. Its dimensions and character are now moderately well known.

This area is bounded to the west-southwest and beneath, by a shallowly eastward dipping fault, probably a thrust. The eastern boundary of the Sadim gold-quartz area coincides with a nearly vertical, north-northwesterly trending carbonate-rich shear zone, that could be a splay off the basal fault (Figure 37). No significant mineralization has been found east of this structure. The Sadim gold-quartz zone is open to the northwest and southeast.



NOTE: The intersection of the basal fault with drill hole 02-9 has been projected northward onto this cross-section, see Figure 39.

NOTE: For location on the property, see Figure 25.

For details of 2002 drilling in the Sadim gold zone, see Figures 38 and 39.

J. D. OSTLER

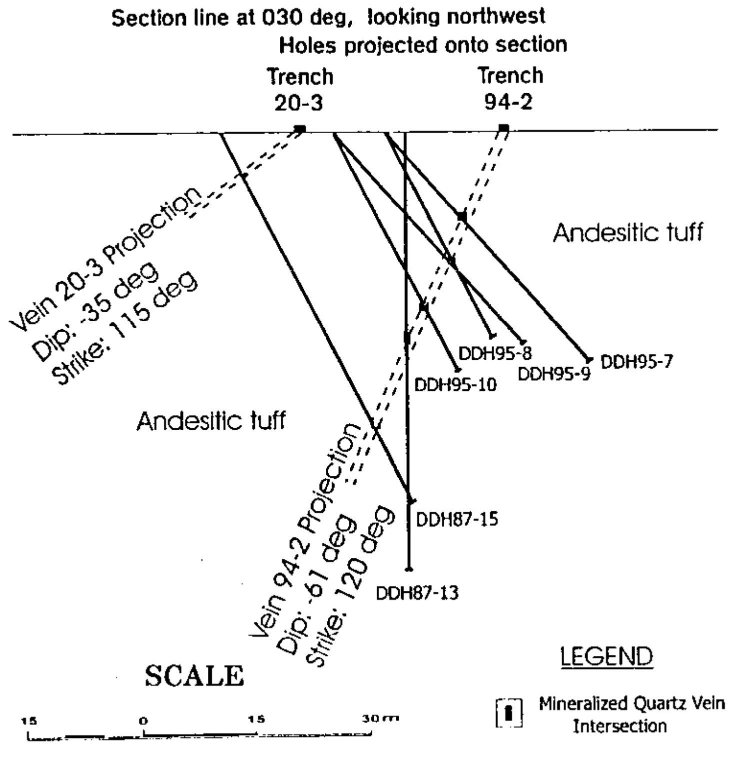
CASSIAR EAST YUKON EXP. LTD.

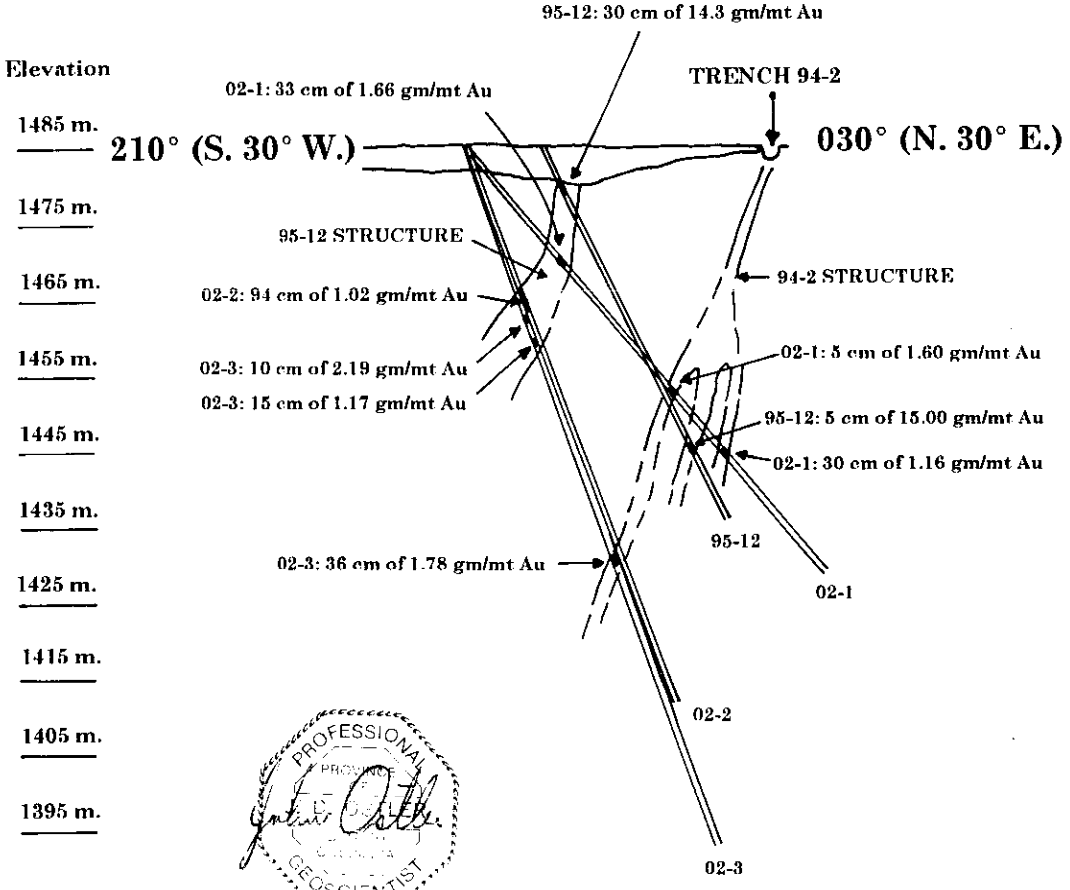
Figure 37

TOBY VENTURES INC.

CROSS-SECTION on UTM: 5510280 N.
through the SADIM GOLD AREA

SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002





NOTES: All assays reported in this figure are fire assays.
For complete results, see Appendix 'A'.

1995 drill intersections are from Hicks, 2001: Figure 10.

For location on the property, see Figures 25 and 37.

For details of the Trench 94-2 area, see figures 28 to 30.

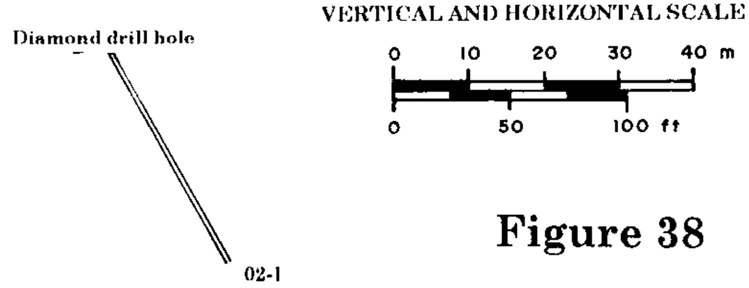


Figure 38

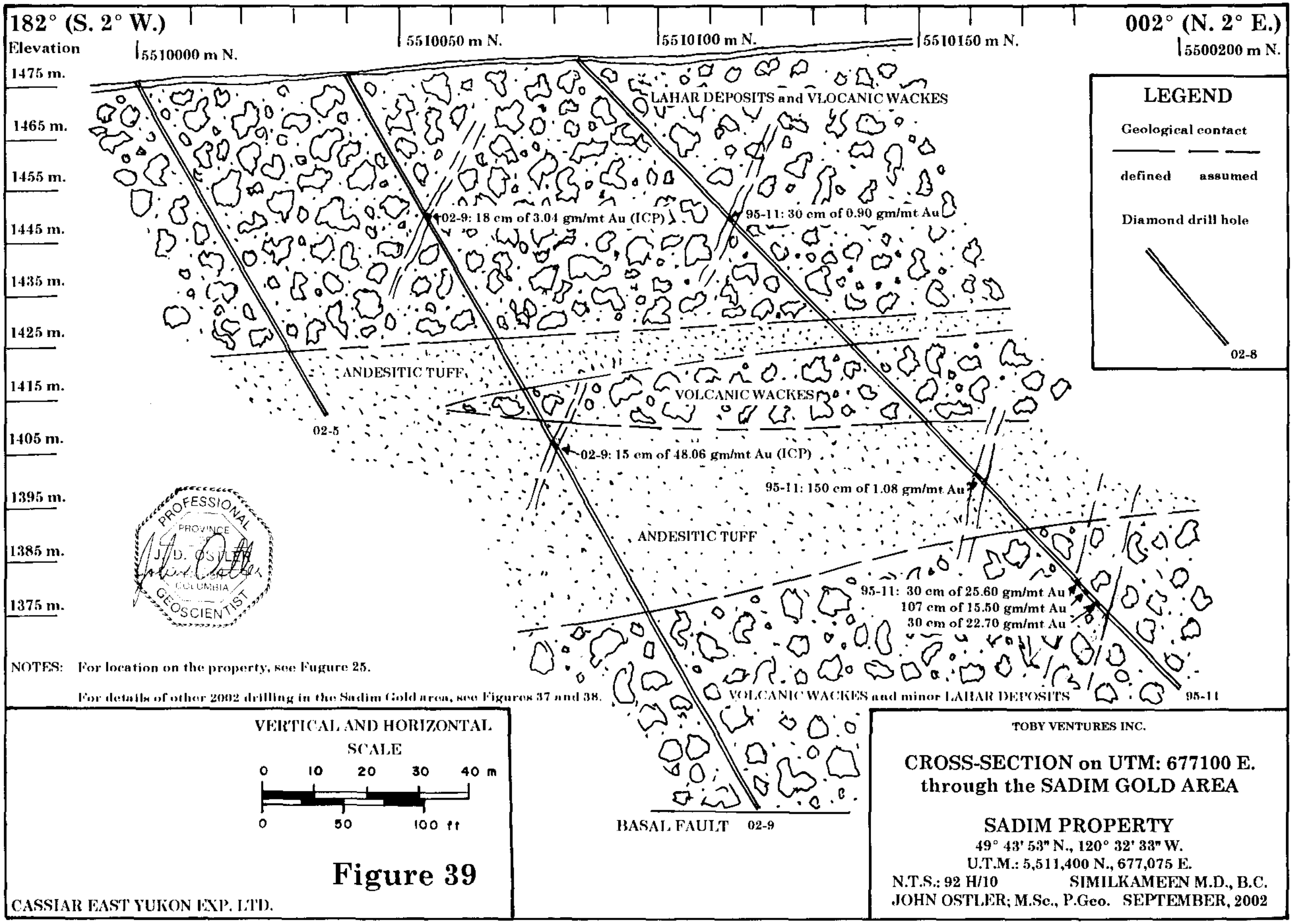
CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

1995 and 2002 DRILL INTERSECTIONS with the 94-2 STRUCTURE

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002



182° (S. 2° W.)
002° (N. 2° E.)
Elevation
5510000 m N.
5510050 m N.
5510100 m N.
5510150 m N.
5500200 m N.
1475 m.
1465 m.
1455 m.
1445 m.
1435 m.
1425 m.
1415 m.
1405 m.
1395 m.
1385 m.
1375 m.
LAHAR DEPOSITS and VLOCANIC WACKES
02-9: 18 cm of 3.04 gm/mt Au (ICP)
95-11: 30 cm of 0.90 gm/mt Au
ANDESITIC TUFF
VOLCANIC WACKES
02-5
02-9: 15 cm of 48.06 gm/mt Au (ICP)
95-11: 150 cm of 1.08 gm/mt Au
ANDESITIC TUFF
95-11: 30 cm of 25.60 gm/mt Au
107 cm of 15.50 gm/mt Au
30 cm of 22.70 gm/mt Au
VOLCANIC WACKES and minor LAHAR DEPOSITS
95-11
BASAL FAULT
02-9
LEGEND
Geological contact
defined
assumed
Diamond drill hole
02-8
J. D. OSTLER
NOTES: For location on the property, see Fugure 25.
For details of other 2002 drilling in the Sadim Gold area, see Figures 37 and 38.
VERTICAL AND HORIZONTAL SCALE
0
10
20
30
40 m
0
50
100 ft
CASSIAR EAST YUKON EXP. LTD.
TOBY VENTURES INC.
CROSS-SECTION on UTM: 677100 E. through the SADIM GOLD AREA
SADIM PROPERTY
49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10
SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo.
SEPTEMBER, 2002

Figure 39

Most of the rocks in the southern part of the Sadim property area were mud flow and volcanic ash deposits (and associated slump deposits) that have been deposited on a flank of a volcanic pile into a marine basin. The background sedimentation in that part of the basin comprises thinly bedded distal greywackes that were deposited by turbidity currents. The source terrain of those greywacke beds was volcanic.

The rocks in this area have been compressed into a series of folds that have northwesterly trending axial planes and are overturned to the southwest. Shearing of these folds has produced the boundary structures of the Sadim gold-quartz area (Figure 37).

Phase-4 alteration comprising: silicification, sericitization, and pyritization has penetrated along diverse paths through the host rock of this area, leaching out epidote, chlorite, carbonate and any copper minerals that may have been present. This alteration forms envelopes that contain tan-coloured pyritic zones of intense alteration that seem to be broad haloes around lightly pyritized quartz veins. Almost all of the gold in this area is in the quartz veins. About half of the lahar deposits, volcanic wackes, and tuff beds that host the Sadim gold-quartz zone are altered.

Near the basal fault, these veins are very narrow and form an extensive interlacing (broadly spaced stockwork) pattern. Higher in the section, the quartz veins are thicker, spaced farther apart, and have small gold-bearing mineral chutes. Locally, these chutes can have gold contents in excess of 34.3 gm/mt (1 oz/ton). For details, see section 2.2.7 of this report.

Intersections from the 2002 drilling that exceeded 0.08 gm/mt (0.0023 oz/ton) gold from ICP determinations were as follow:

2002 TOBY DRILL INTERSECTIONS CONTAINING MORE THAN 08 gm/mt GOLD (ICP)

HOLE No.	INTERVAL		LENGTH		GOLD (ICP)		GOLD (Fire.)		SILVER (ICP)	
	m	ft	cm	ft	gm/mt	oz/ton	gm/mt	oz/ton	gm/mt	oz/ton
02-1	18.6-18.9	61'1"-62'2"	33	1'1"	1.3155	0.0384	1.66	0.048	11.227	0.328
02-1	18.9-19.0	62'2"-62'4"	5	2"	0.9597	0.0280	1.13	0.033	6.947	0.203
02-1	41.0-41.1	134'8"-134'10"	5	2"	1.3393	0.0391	1.60	0.047	9.992	0.292
02-1	52.7-53.0	173'-174'	30	1'	0.9464	0.0276	1.16	0.034	6.864	0.200
02-2	21.0-22.1	68'9"-72'8"	94	3'11"	0.8546	0.0249	1.02	0.030	4.746	0.138
02-3	23.8-23.9	78'-78'4"	10	4"	1.9248	0.0561 Re.	2.19 2.34	0.064 0.068	11.637	0.340
02-3	27.6-27.7	90'6"-91'	15	6"	0.8765	0.0256	1.17	0.034	5.848	0.171
02-3	58.5-58.9	192'-193'2"	36	14"	1.4280	0.0417	1.78	0.052	15.077	0.440
02-4	51.7-52.0	169'8"-170'6"	25	10"	2.2123	0.0646			18.531	0.541
02-6	45.7-45.7	49'8"-149'10"	5	2"	5.8760	0.1714	6.49	0.189	51.207	1.494
02-6	57.8-58.2	189'7"-191'	43	1'5"	1.0337	0.0302	1.30	0.038	6.938	0.202
02-9	31.3-31.5	102'7"-103'4"	18	7"	3.0412	0.0887			23.949	0699
02-9	80.9-81.0	265'5-265'11"	15	6"	48.0558	1.4018			>99.999	>2.917

NOTES: **ICP (induced plasma coupling) gold determinations underestimate gold content compared with fire assay gold determinations by an amount determined by the following equation: Au (ICP) gm/mt = 0.86 Au (fire assay) - 0.04 gm/mt.**

For original data, see Appendix 'A'.

Most of the altered intersections sampled from the 2002 drill program had very low gold contents.

Drill holes 02-1 to 02-3 were designed to test the vein exposed in Trench 94-2 beneath the intersections of that vein with the 1995 drill holes (Figures 28 to 30 and 38). It was found that 40 m (131.2 ft) beneath the trench exposure, the 94-2 vein diffused into a complex interlacing group of narrow, poorly mineralized quartz veins and alteration haloes. The best intersection on that structure from the current program was 25 cm (10 inches) that contained 2.2123 gm/mt (0.0646 oz/ton) gold (ICP).

A mineralized vein that previously was encountered at the bedrock surface in drill hole 95-12 was intersected during the current program. Like the 94-2 structure, the 95-12 structure tended to diffuse into a complex system of narrow quartz veins and alteration zones with increased depth. The best intersection through the 95-12 structure during the current program was 94 cm (3.1 ft) in drill hole 02-2 that contained 1.02 gm/mt (0.030 oz/ton) gold (fire assay) (Figure 38).

Drill holes 02-4 and 02-6 tested the nature of the "limestone bed" that seemed to cut off the eastern end of the 94-2 structure. Drill hole 02-4 was drilled due north along the mysterious calcareous unit, and drill hole 02-6 went eastward through it (Figure 37).

It was found that the calcareous unit was a nearly vertical shear zone that was at least 10 m (32.8 ft) thick. Volcanic clasts in the lahar had been stretched out to long-short axis ratios of up to 15:1 in the shear. The whole shear was accompanied by ankerite-siderite-calcite alteration and flooding that turned the rock tan brown. This carbonate alteration post-dated the phase-4 silicification and gold deposition that produced the Sadim gold-quartz area.

Weathering of this alteration near surface makes it very difficult to identify the nature of this rock. The writer sympathizes with previous workers who were not sure how to map it.

The 94-2 structure persists to the western boundary of the shear, but could not be found on its eastern side.

East of the carbonate shear, phase-4 silicification, pyritization, and accompanying gold deposition is very mild. The stratigraphy east of the shear indicates that the Sadim gold-quartz area has been uplifted and eroded away in that area. Drill holes 02-7 and 02-8 confirmed the change in stratigraphy east of the shear (Figure 37).

Drill holes 02-5 and 02-9 penetrated the southern part of the Sadim gold-quartz area to test the contiguity of previously explored gold-bearing structures there (McDougall, 1995; Watson, 1987) (Figures 25 and 39).

Although the volcanosedimentary stratigraphy could be correlated among adjacent drill holes, significant gold-bearing quartz veins and their accompanying alteration haloes could not. Probably this is due to the anastomosing character of the veins. For example, the best intersection in this area from the 2002 drill program was in drill hole 02-9, where a 15 cm (0.5 ft) thick white quartz vein contained 48.0558 gm/mt (1.4018 oz/ton) gold (ICP) (Figure 39). Possibly it correlated with an intersection in drill hole 95-11 that contained 30 cm (1 ft) of 0.90

gm/mt (0.026 oz/ton) gold.

Very closely spaced drilling would be needed to identify the intricate relationships among the many alteration zones and quartz veins in the Sadim gold-quartz area.

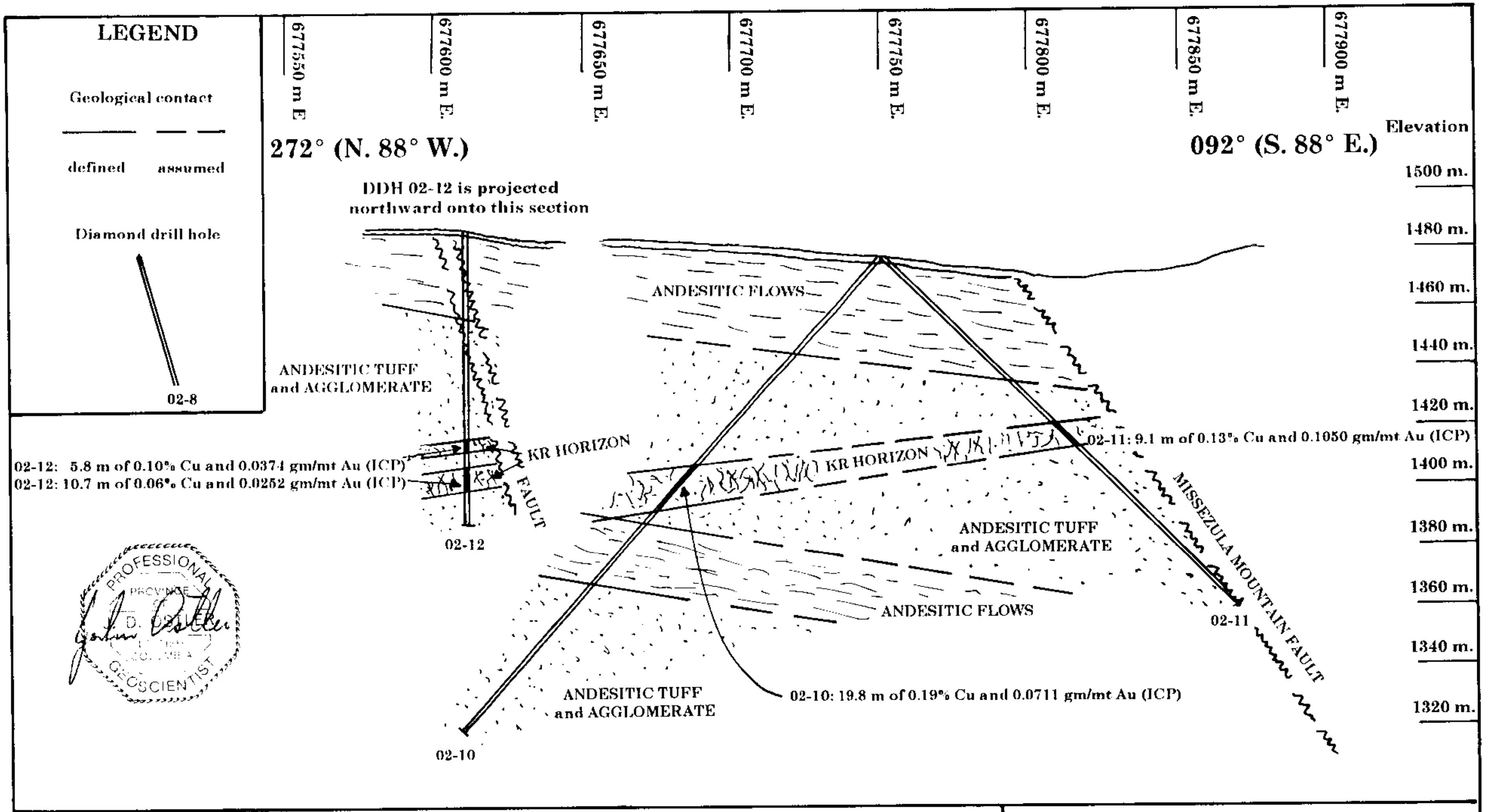
5.2.2 KR-Rum Copper-gold Area

The KR-Rum area is located int the northeastern part of the Sadim property which is underlain by a sequence of andesitic flows, tuffs, and agglomerates. These volcanic rocks probably formed part of the volcanic pile that produced the mud flows and associated slump sediments that were found in the Sadim gold-quartz area in the southern part of the property area.

Although the KR-Rum area has had a long history of surface exploration, it has not been adequately drilled. Part of the 2002 drilling program focused on commencing an extensive drill program across the whole KR-Rum copper-gold area.

The 2002 drilling explored mineralization associated with the KR discovery outcrop. That mineral showing was quite enigmatic to previous workers. Although its extensions were suggested by the results of several geophysical programs, trenching was unsuccessful at finding them.

It was presumed that trenching was unsuccessful because the KR mineralization was contained in a nearly flat-lying tabular body that dipped either southward or westward. The 2002 drill holes were oriented to intersect such a body. The theory was correct and all three drill holes: 02-10 to 12 intersected mineralization (Figures 24 and 40). It was calculated that the horizon containing the KR mineralization had a strike of about 098° and dipped about 13° to the south-southwest.



NOTES: For location on the property, see Fugure 24.

DDH 02-12 is oriented at 0000°/-45°.
Its top is projected northware 111 m
to this section. The bottom of 02-12
is only 12 m south of this cross-section.

VERTICAL AND HORIZONTAL SCALE

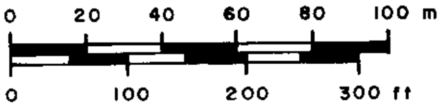


Figure 40

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

CROSS-SECTION on UTM: 5512960 N. through the KR HORIZON

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Intersections with the KR horizon were as follow:

2002 TOBY DRILL INTERSECTIONS THROUGH THE KR HORIZON BY DDH 02-10

HOLE No.	INTERVAL		LENGTH		COPPER	GOLD		SILVER	
	m	ft	m	ft	%	gm/mt	oz/ton	gm/mt	oz/ton
02-10	94.5-96.0	310-315	1.5	5	0.21	0.1905	0.0056	1.005	0.029
02-10	96.0-97.5	315-320	1.5	5	0.22	0.0888	0.0026	1.196	0.035
02-10	97.5-99.1	320-325	1.5	5	0.36	0.0902	0.0026	1.314	0.038
02-10	99.1-100.6	325-330	1.5	5	(Sample lost)				
02-10	100.6-102.1	330-335	1.5	5	0.19	0.0953	0.0027	0.948	0.028
02-10	102.1-103.6	335-340	1.5	5	0.24	0.0967	0.0028	1.118	0.033
02-10	103.6-105.2	340-345	1.5	5	0.20	0.0369	0.0011	0.704	0.021
02-10	105.2-106.7	345-350	1.5	5	0.18	0.0442	0.0013	0.560	0.016
02-10	106.7-108.2	350-355	1.5	5	0.12	0.0227	0.0007	0.428	0.012
02-10	108.2-109.7	355-360	1.5	5	0.16	0.0482	0.0014	0.590	0.017
02-10	109.7-111.3	360-365	1.5	5	0.13	0.1231	0.0036	0.631	0.018
02-10	111.3-112.8	365-370	1.5	5	0.11	0.0158	0.0005	0.446	0.013
02-10	112.8-114.3	370-375	1.5	5	0.11	0.0383	0.0011	0.565	0.016

2002 TOBY DRILL INTERSECTIONS THROUGH THE KR HORIZON BY DDH 02-11

HOLE No.	INTERVAL		LENGTH		COPPER	GOLD		SILVER	
	m	ft	m	ft	%	gm/mt	oz/ton	gm/mt	oz/ton
02-11	80.8-82.3	265-270	1.5	5	0.20	0.2028	0.0059	0.846	0.025
02-11	82.3-83.8	270-275	1.5	5	0.15	0.1081	0.0031	0.763	0.022
02-11	83.8-85.3	275-280	1.5	5	0.08	0.0630	0.0002	0.378	0.011
02-11	85.3-86.9	280-285	1.5	5	0.12	0.0976	0.0028	0.542	0.016
02-11	86.9-88.4	285-290	1.5	5	0.13	0.1150	0.0034	0.555	0.016
02-11	88.4-89.9	290-295	1.5	5	0.10	0.0437	0.0013	0.418	0.012

2002 TOBY DRILL INTERSECTIONS THROUGH THE KR HORIZON BY DDH 02-12

HOLE No.	INTERVAL m	INTERVAL ft	LENGTH m	LENGTH ft	COPPER %	GOLD gm/mt	GOLD oz/ton	SILVER gm/mt	SILVER oz/ton
	Upper Horizon								
02-12	100.9-102.1	331-335	1.2	4	0.11	0.0358	0.0010	0.771	0.021
02-12	102.1-103.6	335-340	1.5	5	0.09	0.0355	0.0010	0.845	0.025
02-12	103.6-105.2	340-345	1.5	5	0.09	0.0357	0.0010	0.658	0.019
02-12	105.2-106.7	345-350	1.5	5	0.09	0.0427	0.0012	2.155	0.063
	Lower Horizon								
02-12	114.3-115.8	375-380	1.5	5	0.08	0.0378	0.0011	0.480	0.014
02-12	115.8-117.3	380-385	1.5	5	0.03	0.0144	0.0004	0.141	0.004
02-12	117.3-118.9	385-390	1.5	5	0.06	0.0208	0.0006	0.292	0.009
02-12	118.9-120.4	390-395	1.5	5	0.07	0.0118	0.0003	0.277	0.008
02-12	120.4-121.9	395-400	1.5	5	0.07	0.0306	0.0009	0.620	0.018
02-12	121.9-123.4	400-405	1.5	5	0.07	0.0330	0.0009	0.320	0.009
02-12	123.4-125.0	405-410	1.5	5	0.05	0.0280	0.0008	0.681	0.020

Using the assumptions that the KR horizon is a generally planar feature that is disrupted only by minor faulting, and that the attitude of that plane is 098°/13, then with stereonet projections, estimates of the true thicknesses of the horizon have been calculated. These claculations, combined with the average copper and gold contents of the intersections are as follow:

TENOR OF MINERALIZATION near the 2002 DRILL INTERSECTIONS into the KR HORIZON

HOLE No.	INTERVAL m	INTERVAL ft	TRUE THICKNESS m	TRUE THICKNESS ft	AVERAGE COPPER CONTENT %	AVERAGE GOLD CONTENT gm/mt	AVERAGE GOLD CONTENT oz/ton	AVERAGE SILVER CONTENT gm/mt	AVERAGE SILVER CONTENT oz/ton
02-10	94.5-114.3	310-375	16.8	55.1	0.19	0.0711	0.0021	0.972	0.028
02-11	80.8-89.9	265-295	6.2	20.4	0.13	0.1050	0.0031	0.584	0.017
02-12	100.9-106.7	335-340	4.9	16.1	0.10	0.0374	0.0011	1.068	0.031
02-12	114.3-125.0	375-410	9.0	29.5	0.06	0.0252	0.0007	0.402	0.012

The intersection of drill hole 02-10 with the KR horizon was in a part of the horizon that was not affected by subsequent phase-4 alteration. The other intersections with this structure were in areas of mild pervasive phase-4 alteration. In all of the drill holes comprising the current program, it has been found that phase-4 alteration leached the mineral assemblage of phase-1 propylitic alteration. Possibly it leached away copper as well. Phase-4 leaching may have been responsible for the lower copper concentrations in in drill holes 02-11 and 02-12.

The KR horizon hosts pervasive propylitic epidote-chlorite-pyrite-calcite alteration. Mineralization is comprised of a stockwork of narrow chalcopyrite and pyrite-bearing veins that have cut through the earlier propylitic alteration. Some of these veins contain areas with elevated pyrite and quartz contents accompanied by sporadic concentrations of minute tourmaline blades. In more intensely mineralized areas minor potassic alteration acconpanies mineralized veins although it does not form distinct haloes around them. This potassic alteration is mostly due to K-feldspar replacement of plagioclase that imparts a pink blush to the otherwise green rock. A small amount of red-brown biotite is present with the K-feldspar alteration. Epidote-calcite veins and stringers cut the potassic alteration. Probably, they are a manifestation of retrograde propylitic alteration.

The propylitic alteration that hosts the KR horizon mineralization extends across the whole Sadim property area. However, it is most intense along the Missezula Mountain fault between the KR and Rum showings areas. This alteration is the earliest phase of alteration seen on the property.

5.3 Data Reliability and Verification

Although some early data has been lost, a fairly complete picture of the property's early development can be assembled. Most of the results of modern exploration in the property area have been filed for assessment with the British Columbia government. That information is available to the public. Consequently, it is easy for one to conduct a detailed review of it.

During the last 40 years, the Sadim property-area has been explored by more than 14 independent corporate entities including AMAX, ASARCO, and Cominco.

Verification of exploration results has taken two forms, one unintentional by the duplication of data through overlapping surveys, and the other intentional through the resampling and re-examination of previous work.

Geochemical and geophysical surveys have been conducted by more than a dozen companies. Where those programs overlap, generally the data is consistent (Figures 5 to 23), and composite maps can be produced.

In general, the writer is confident that the data that has been generated during exploration of the Sadim property is reliable. However, it must be noted that results of analyses from the 2002 drill program on the Sadim gold-quartz area had much lower gold contents than those of the 1987 and 1995 programs. This difference can not be explained by differences in lab technique.

All of the drill core samples from the current 2002 exploration program were analyzed using the induced plasma coupling (ICP) method to minimize laboratory costs. Those from the 1995 program were analyzed with fire assay. There was concern that not only would ICP analysis underestimate gold content, but it would also be an unreliable test for low gold concentrations.

A group of 23 samples from the 2002 program that contained in excess of 0.4 gm/mt (0.012 oz/ton) were re-assayed using the fire assay method. A lower cut-off concentration of 0.4 gm/mt was chosen because samples containing less than that concentration in a vein gold environment were considered to have conained trace concentrations and consequently were of no economic interest, thus, not worth the cost of reanalysis.

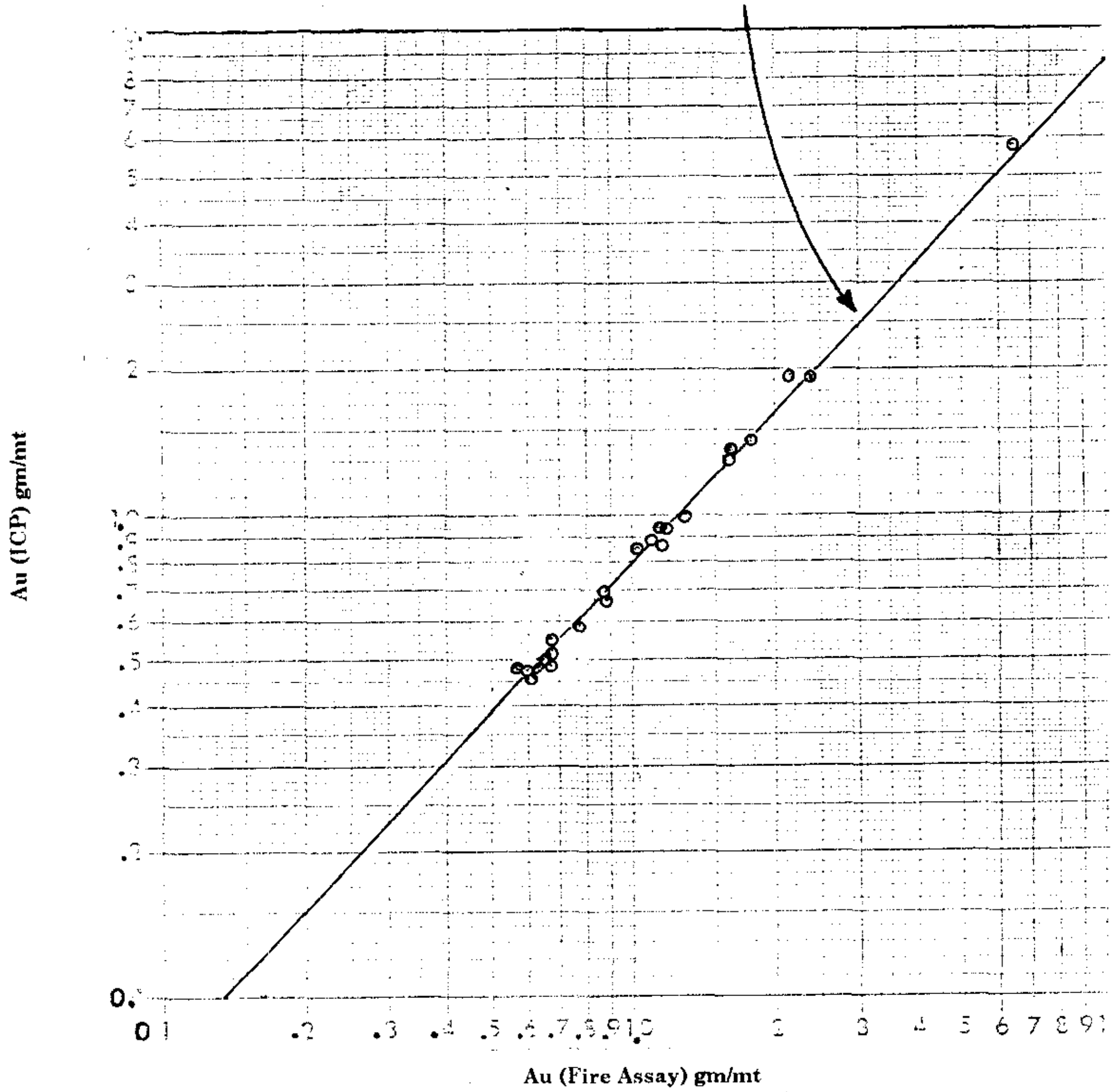
When gold determinationns from ICP analyses and fire assays were compared (Figure 41) it was found that the relationship between them was:

Au (ICP) gm/mt = 0.86 Au (fire assay) - 0.04 gm/mt   or conversely,

Au (fire assay) gm/mt = 1.163 Au (ICP) + 0.04 gm/mt

The writer calculated a Pearson 'r' correlation coefficient for these data to determine the predictability of a fire assay gold determination from one using ICP.

Au (ICP) gm/mt = 0.86 Au (Fire Assay) - 0.04 gm/mt or Au (Fire Assay) gm/mt = 1.163 Au (ICP) + 0.04 gm/mt



Pearson r Correlation Coefficient

$$r = \frac{\sum z_x z_y}{N} \quad \text{where} \quad z_x = \frac{(x-\bar{x})}{\sqrt{\frac{\sum (x-\bar{x})^2}{N}}} \quad \text{and} \quad z_y = \frac{(y-\bar{y})}{\sqrt{\frac{\sum (y-\bar{y})^2}{N}}}$$

$r = 0.9978$

NOTE: For original data, see Appendix 'A'.

Figure 41

CASSIAR EAST YUKON EXP. LTD.

TOBY VENTURES INC.

COMPARISON
of ICP and FIRE ASSAY RESULTS
from the SADIM GOLD-QUARTZ AREA

SADIM PROPERTY

49° 43' 53" N., 120° 32' 33" W.
U.T.M.: 5,511,400 N., 677,075 E.
N.T.S.: 92 H/10 SIMILKAMEEN M.D., B.C.
JOHN OSTLER; M.Sc., P.Geo. SEPTEMBER, 2002

Data distributions that are completely random with regard to each other, result in a Pearson 'r' coefficient of 0. In distributions where one of the data sets can be always predicted by the data of the other, a Pearson 'r' coefficient of 1.0 results from their comparison.

Thus, a Pearson 'r' coefficient can be used to determine how confident one can be at predicting one data set from the other. A Pearson 'r' correlation coefficient calculated for these data was 0.9978. In samples from the Sadim gold-quartz area with gold concentrations of at least 0.4 gm/mt (0.012 oz/ton), ICP results can be used at the 99.78% confidence level to make an economical estimation of corresponding fire assay results.

The writer believes that the differences in the gold concentrations from the 1987 to 1995 and 2002 drilling on the Sadim gold-quartz area is due in part to differences in design of those programs. The 1987 and 1995 programs were designed to explore for high-grade gold intersections close to vein exposures in trenches on surface. The 2002 drill program focused upon discerning the broad-scale contiguity of structures within the gold-quartz area and its geological setting, and not on duplicating previous high-grade gold assays. Consequently, it was decided that the cost of implementing stringent sample security measures was unwarrented.

6.0 ESTIMATION OF RESOURCES, MINERAL PROCESSING AND EXTRACTION STUDIES

Although the history of exploration of the current Sadim property area spans at least 40 years, it is still in a preliminary exploration stage. The writer believes that this is partly because the whole property area did not come under the control of a single corporate entity until the mid-1990s, and at that time, money for exploration in British Columbia was difficult to raise. Consequently, the pace of discovery in the Sadim property area has been slow, and some preliminary exploration programs have been duplicated.

As of yet:

- no reserve or resource calculations have been made on any of the mineral occurrences in the Sadim property area;
- no mineral processing studies have been conducted on mineralized material from the Sadim property area , and;
- no feasibility studies have been conducted nor have mining plans been made with regard to the Sadim property area.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Current exploration has confirmed that the Sadim property is underlain by andesitic meta-volcanic and meta-sedimentary rocks of the Triassic-age Nicola Group. The northern and central parts of the property are underlain by a succession of sub-marine flows and pyroclastics that have been intruded by several coeval dioritic stocks. The southern part of the property hosts pyroclastic, lahar (volcanic mud flow) and associated proximal (volcanic wacke) turbidite deopsits that overprint background regional basin-floor turbidite (greywacke) sedimentation.

There are at least five generations of fracturing, alteration and vein development in these rocks. Both the first and fourth generations are of economic interest.

The first generation is comprised of extensive propylitic (epidote-chlorite-calcite-quartz) alteration and vein filling that affected the whole property area. This alteration is most intense in the KR-Rum area in the northeastern part of the property. There, porphyry-style, disseminated and fracture-hosted copper mineralization occurs with various amounts of potassic alteration and tourmaline-bearing breccia development. Mineralization is post-dated by some retrograde propylitic alteration.

The fourth generation is comprised of silicification, pyritization, and sericitization surrounding white quartz veins that contain highly variable amounts of gold. This alteration is sparse over most of the property area. It is prevalent in the lahar and associated turbidite deposits (epiclastic sediments) in the southern part of it.

The two areas of economic interest on the Sadim property are the Sadim gold-guartz area and the KR-Rum copper-gold area.

Sadim Gold-quartz Area

The Sadim gold-quartz area has been intensively explored by methods including: mapping, geochemical and geophysical surveys, trenching and diamond driling. Its dimensoins and character are now fairly well known.

This area is bounded to the west-southwest and beneath, by a shallowly eastward dipping fault, probably a thrust. Its eastern boundary coincides with a nearly vertical, north-northwesterly trending carbonate-rich shear zone, that could be a splay off the basal fault. No significant mineralization has been found east of this structure. The Sadim gold-quartz zone is open to the northwest and southeast.

A mild but pervasive alteration comprised of silicification, sericitization, and pyritization has penetrated along diverse paths through the host rock of this area, leaching out epidote, chlorite, carbonate and any copper minerals that may have been present. Within this outer alteration envelope are tan-coloured pyritic zones of intense alteration that seem to be broad haloes around lightly pyritized quartz veins. Almost all of the gold in this area is in the quartz veins.

Near the basal fault, these veins are very narrow and form an extensive interlacing (broadly spaced stockwork) pattern. Higher in the section, the quartz veins are thicker, spaced farther apart, and have small gold-bearing mineral chutes. Locally, these chutes can have gold contents in excess of 34.3 gm/mt (1 oz/ton).

At current gold prices (about $US 320/oz), the lower stockwork veins in the Sadim gold-quartz area are too thin and widely spaced to justify bulk-tonnage open pit mining. The larger veins above the basal stockwork are too thin and irregular to support underground mining.

Further development of the Sadim gold-quartz area should await higher gold prices.

KR-Rum Copper-gold Area

The 2002 drilling explored mineralization associated with the the KR discovery outcrop located in the northern part of the KR-Rum copper-gold area. The KR horizon was intersected in all three drill holes that tested for it. It was estimated that the KR horizon had an attitude of 098°/13° SSW. It dipped gently toward the Rum showings area.

The the best intersection through the KR horizon was in drill hole 02-10 where an estimated true thickness of 16.8 m (55.1 ft) contained an average of 0.19% copper and 0.0711 gm/mt (0.012 oz/ton) gold.

The KR horizon hosts pervasive propylitic epidote-chlorite-pyrite-calcite alteration. Mineralization is comprised of a stockwork of narrow chalcopyrite and pyrite-bearing veins that have cut through the earlier propylitic alteration. Some of these veins contain areas with elevated pyrite and quartz contents accompanied by sporadic concentrations of minute tourmaline blades. In more intensely mineralized areas potassic alteration acconpanies mineralized veins although it does not form distinct haloes around them. This potassic alteration is cut by veins of retrograde propylitic alteration.

The propylitic alteration that hosts the KR horizon mineralization extends across the whole Sadim property area, and may form a circular pattern that extends westward from the Missezula Mountain fault and is centred on Microwave Hill. This alteration is most intense along the Missezula Mountain fault between the KR and Rum showings areas.

The most intense mineralization discovered in the KR-Rum area is in the Rum showings where a 91.4 m (300 ft) long trench intersection was found to contain an average of 0.34% copper.

All of the mineralization yet discovered in the KR-Rum copper-gold area is close to the surface trace of the Missezula Mountain fault. Current 2002 drilling confirmed that the Missezula Mountain fault was a steeply eastward dipping structure. An intense chargeability anomaly from the 2000 Toby Ventures induced polarization survey indicated that the plane of the fault may have been mineralized. It is assumed that this fault was the conduit for the copper an gold mineralization in the KR-Rum area.

KR horizon and Rum showings host copper and gold mineralization that has many of the attributes of porphyry-copper style mineralization. The writer believes that the KR horizon may be peripheral to a larger and more intensely mineralized body located along the Missezula Mountain fault somewhere in the KR-Rum area.

7.2 Recommendations

I recommend that a program of drilling be conducted throughout the KR-Rum copper-gold area. To facilitate financing of such a program, I recommend that it should be conducted in several phases.

The first phase should test the Rum showings area and the plane of the Missezula Mountain fault near it. Subsequent phases of drilling should extend drilling knowledge northward along the chargeability anomaly near the fault plane and outward from the Rum showings area following trends of mineralization.

7.3 Estimated Cost of the First Phase of the Recommended Program

Access development, drill site preparation and decommissioning	$ 10,000	$ 10,000
Drilling: 1000 m @ $90/m including crew, camp and mobilization	$ 90,000	$ 90,000
Analysis of 400 core samples @ $15 (inc. tspt.)	$ 6,000	$ 6,000
Program management, general transport, expediting government regulation compliance and communication Engineering, geology, and reporting	$ 35,000 $ 20,000 $ 55,000	$ 55,000
Environmental bond Contingency 12.6% (of other costs) G.S.T. 7.0% (of other costs)	$ 5,000 $ 20,920 $ 13,080 $ 39,000	$ 39,000
Total estimated cost of Phase 1 of Recommended Program		**$200,000**

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September 30, 2002

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PROFESSIONAL
PROVINCE OF
JOHN D. OSTLER
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APPENDIX 'A'

METHODS and RESULTS of ASSAYS and ANALYSES

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Max Investment Inc. File # A201730 Page 1
3750 West 49th Ave, Vancouver BC V6B 3T8

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Sample
	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	gm
S1	.30	2.27	.63	9.4	4	.8	.1	13	.04	.2	<1	.4	<.1	3.1	.02	.05	<.02	<2	.15	<.001	<.5	2.5	.01	4.0	<.001	2	.01	.557	.01	.5	.4	<.02	<.01	<5	1	<.02	<1	15
02-01 27-29/6 ft	.34	562.14	4.32	78.9	357	4.4	21.0	1538	3.12	6.9	.5	6.3	3.1	163.6	.19	.62	.08	76	4.49	.166	13.3	3.8	1.69	329.6	.026	1	1.10	034	33	6	5.0	04	02	<5	2	06	4.0	15
02-01 31-35 ft	.18	87.85	3.89	51.8	851	2.6	15.1	1521	2.56	4.9	.4	160.5	2.4	225.6	.52	.40	.04	53	4.69	.161	8.2	5.0	1.64	426.9	.026	3	1.23	036	48	6	5.5	06	20	15	3	71	2.9	15
02-01 55-60/8 ft	1.43	224.27	5.56	62.2	1608	2.8	14.8	1212	3.02	4.8	.2	226.4	1.3	158.9	1.60	.50	.03	34	3.77	.178	6.2	5.7	1.13	263.7	.012	3	.70	.026	33	3.2	4.3	04	54	54	7	1.74	1.5	15
02-01 60/8-61/1 ft	9.32	17.23	12.06	40.3	4237	3.9	6.4	816	1.67	1.4	.1	589.2	.4	54.6	.97	24	07	16	1.86	.051	1.4	57.1	.56	85.3	.007	2	32	.006	.16	3.9	2.3	02	50	99	4	3.89	8	15
02-01 61/1-62/2 ft	6.09	411.04	17.02	60.1	11227	6.6	21.7	1234	4.14	5.9	.2	1315.5	1.4	84.7	1.68	.60	.11	31	2.78	.157	4.0	14.9	.84	74.5	.017	3	.74	.007	.38	7.3	4.2	.04	2.57	261	2.2	8.41	1.7	15
02-01 62/2-62/4 ft	2.73	118.74	3.56	48.7	6947	5.5	9.6	1051	2.24	2.3	.1	959.7	.4	51.7	1.54	.53	.03	17	2.36	.046	1.7	99.6	.45	63.2	.007	3	.29	.006	.15	8.1	3.6	02	63	154	6	5.81	8	15
02-01 62/4-65 ft	.63	194.71	5.55	57.6	1518	2.9	19.6	1498	3.27	6.4	.4	220.5	1.6	180.2	.81	.79	.06	49	4.43	.169	6.4	3.9	1.96	201.2	.026	4	1.10	.020	.46	1.8	6.5	05	95	69	7	1.78	2.5	15
02-01 112-113 ft	.26	91.24	5.22	41.5	1906	2.4	15.9	1461	3.10	7.2	.4	284.1	1.7	158.4	57	54	.05	56	3.73	.149	5.7	10.3	1.48	170.7	.032	2	1.42	.032	.55	1.3	6.5	06	1.26	60	4	2.33	2.7	15
02-01 134/8-134/10 ft	2.20	171.43	7.02	73.3	6992	9.9	21.7	1432	4.25	4.3	.4	1339.3	.6	129.2	1.00	.81	.05	59	5.01	.139	4.4	10.3	1.75	112.8	.035	3	1.38	.012	.57	3.8	7.4	06	1.83	168	5	6.29	2.4	15
02-01 134/10-136/3 ft	.75	197.81	5.61	60.6	2719	6.6	23.3	1432	3.95	3.7	.2	473.8	.7	166.0	.84	.54	.05	56	5.61	.136	4.9	11.6	2.05	89.3	.030	3	1.10	.009	.46	2.4	7.5	.05	1.02	219	3	2.77	2.0	15
02-01 173-174 ft	3.07	405.21	65.31	90.0	6864	5.2	14.3	1141	3.06	6.8	.3	946.4	.5	115.9	4.52	1.20	.21	40	3.22	.102	3.0	17.0	1.29	82.4	.026	3	.97	.007	.38	8.7	5.1	04	1.56	186	1.7	5.94	1.5	15
02-02 35-36 ft	.74	178.69	8.30	25.8	3372	2.5	7.3	1069	1.64	1.8	.2	450.0	.4	104.7	.71	.27	.04	18	2.86	.058	2.4	48.5	.98	287.5	.008	1	.40	.039	.16	2.9	2.4	<02	57	109	3	2.85	7	15
02-02 67-68/3 ft	.84	293.38	7.44	77.4	3351	6.0	23.9	1615	4.61	5.6	.4	476.3	.7	163.1	2.43	.91	.08	46	5.57	.149	4.0	6.6	2.14	81.0	.033	2	1.07	.016	.36	3.2	7.9	04	2.13	240	5	4.91	1.5	15
RE 02-02 67-68/3 ft	.84	290.99	7.80	78.9	3316	6.2	24.9	1597	4.58	5.5	.5	468.8	.8	160.2	2.44	.91	.08	46	5.53	.149	4.2	7.5	2.13	83.5	.032	3	1.03	016	.36	3.4	7.9	04	2.14	254	5	5.13	1.5	15
RRE 02-02 67-68/3 ft	.26	298.40	7.39	77.6	3411	5.6	22.9	1583	4.54	5.7	5	467.8	.8	163.6	2.39	.94	.08	45	5.50	.151	4.1	12.9	2.12	87.3	.029	2	.99	.018	.37	1.4	7.2	04	2.16	269	6	5.31	1.7	15
02-02 68/3-68/9 ft	3.61	196.20	6.03	49.9	1613	5.7	5.0	686	1.44	3.1	<.1	224.0	.1	50.6	2.53	1.90	.02	7	1.98	.023	.8	25.4	.78	134.8	.002	2	.14	.006	.07	12.6	1.2	<.02	42	102	2	1.48	.3	15
02-02 68/9-72/8 ft	.64	53.56	8.52	68.9	4746	5.8	22.9	1560	4.45	3.8	.4	854.6	.7	161.1	1.27	.50	.06	61	4.98	.150	4.3	11.9	1.94	81.3	.042	4	1.54	.011	.51	2.0	8.0	.06	2.29	331	4	5.69	2.4	15
02-02 72/8-72/9 ft	3.12	19.56	5.63	41.8	3698	8.1	17.8	1169	3.66	3.6	.2	670.0	.2	95.1	.75	.42	.03	42	3.52	.061	1.9	22.2	1.40	74.6	.031	3	.94	.007	.35	11.8	6.2	04	2.06	269	3	4.42	1.5	15
02-02 72/9-76 ft	17	126.48	4.89	59.3	1269	5.2	21.6	1454	3.68	5.1	.2	226.9	1.0	171.3	.93	.61	.04	50	5.17	.146	4.7	5.8	2.03	187.6	.031	1	.95	.025	.34	.8	6.9	04	90	99	2	1.98	1.8	15
02-02 90/3-93 ft	.69	185.92	7.10	43.9	1693	3.5	18.1	1692	3.54	5.1	.3	284.2	1.1	176.8	1.06	.46	.05	56	4.54	.161	4.9	4.3	1.72	155.3	.042	3	1.39	.023	.57	2.4	6.3	06	1.30	59	4	2.20	2.2	15
02-02 93-94/3 ft	13.14	18.53	2.40	11.4	1233	4.0	3.2	308	.87	1.9	.1	186.0	.1	23.4	.20	.26	.02	5	.77	009	.6	65.9	.33	117.4	.001	2	.11	.007	.06	3.8	.7	<02	42	54	1	1.29	3	15
02-02 189/7-191 ft	.57	146.63	4.64	69.8	1123	4.1	20.2	1703	3.97	7.9	.4	173.8	.9	121.0	.89	4.09	.10	50	4.83	.158	4.9	3.6	1.82	67.5	.030	3	1.19	.014	.38	1.9	5.9	05	1.91	66	.4	2.23	2.0	15
02-02 191-191/3 ft	1.65	23.75	4.17	26.2	1100	3.9	4.0	629	1.08	1.6	.1	162.0	<.1	33.4	.41	.33	<.02	6	1.50	.014	.7	69.8	.64	129.2	.001	1	.06	.006	.04	4.7	7	<02	38	37	1	1.00	2	15
02-02 191/3-192/2 ft	.75	51.92	8.58	71.6	1733	5.1	22.4	1917	4.51	4.9	.6	221.8	1.1	120.4	1.01	.92	.06	59	4.99	.176	5.5	5.9	1.88	76.3	.042	3	1.52	.011	.51	3.6	7.1	05	2.63	84	5	3.01	2.5	15
02-02 192/2-193 ft	14.12	92.72	13.90	33.4	3226	4.5	8.5	699	1.97	3.1	.1	476.3	.3	40.6	.56	.57	.06	21	1.83	.054	1.6	61.1	.72	91.4	013	3	51	007	15	3.5	2.0	02	1.16	123	4	3.10	8	15
02-02 193-193/4 ft	.53	102.25	4.99	66.8	677	3.8	22.3	1596	3.76	4.4	.3	143.8	.9	142.5	.77	.76	.12	48	5.02	.167	4.5	4.0	1.82	166.1	.033	3	1.28	.007	.45	2.5	6.9	06	1.16	34	3	1.18	1.9	15
02-02 195-197 ft	.40	120.01	26.68	41.5	3524	5.2	21.1	1770	4.07	6.7	.3	485.8	.9	110.2	1.03	.78	.07	28	4.37	.154	3.9	12.3	1.82	60.6	.014	1	.65	.017	.27	1.2	4.8	.04	2.81	160	5	5.47	1.3	15
02-03 38-39 ft	.73	53.64	7.18	44.9	3131	5.9	24.4	1807	3.99	4.8	3	481.4	1.1	182.9	1.19	36	.06	42	4.93	.191	5.4	6.3	1.89	99.9	024	2	99	010	45	2.8	6.5	05	2.13	136	1.1	4.62	2.0	15
02-03 43-44 ft	.25	81.14	8.61	64.0	2754	23.2	29.5	1957	4.76	4.2	.3	498.0	1.1	256.4	1.23	40	06	56	6.51	166	5.3	22.5	2.40	119.4	041	3	1.19	010	49	1.4	9.6	05	1.93	274	4	6.10	2.4	15
02-03 70-73/6 ft	.97	129.04	5.38	40.9	4353	3.2	17.5	1519	3.81	4.9	.3	681.0	1.0	146.0	64	.50	04	34	4.12	169	4.7	4.4	1.62	79.1	019	2	88	019	37	2.5	5.0	04	2.32	168	5	5.18	1.7	15
02-03 76-78 ft	1.39	38.95	6.57	70.2	2902	2.9	20.1	1537	3.82	5.9	.2	551.8	9	137.3	.85	.90	.04	63	4.34	183	5.0	12.1	1.63	119.0	035	3	1.67	014	53	2.6	6.9	05	1.71	124	4	1.10	2.3	15
02-03 78-78/4 ft	4.45	60.14	4.23	13.1	11637	6.6	3.7	365	1.59	4.4	.1	1924.8	1	23.3	20	.78	.05	5	.79	028	1.0	30.8	30	118.1	002	1	.17	006	10	14.5	7	<02	1.09	410	1.1	7.58	3	15
02-03 78/4-81/6 ft	.26	90.18	4.48	50.9	1864	2.4	18.7	1468	3.46	6.8	.3	363.7	1.3	151.0	.48	.65	.08	51	4.38	.196	5.9	7.6	1.64	135.9	.030	3	1.14	.041	.41	1.0	5.7	04	1.52	101	4	2.66	2.0	15
STANDARD DS3	8.81	120.99	33.85	152.9	258	35.0	12.2	808	3.00	30.6	5.5	22.9	3.9	26.6	5.41	5.28	5.51	70	52	090	15.7	171.1	55	143.0	084	1	1.70	028	14	4.0	2.7	1.02	02	227	1.2	1.13	6.3	15

GROUP 1F15 - 15.00 GM SAMPLE LEACHED WITH 90 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 300 ML, ANALYSED BY ICP/ES & MS.
UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPM; MO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
- SAMPLE TYPE: CORE R150 Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUN 14 2002 DATE REPORT MAILED: June 25/02 SIGNED BY. C. L.......D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data F FA ____

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga	Sample
	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm	gm
02-03 89/6-90/6 ft	1.18	279.16	5.50	39.7	1571	2.5	17.7	1376	3.28	6.4	.3	229.4	1.2	173.6	.73	.81	.04	50	4.64	.173	6.4	3 2	1.66	145.5	.020	1	.83	.051	43	1 7	6 3	05	1 84	71	4	1 95	1 8	15
02-03 90/6-91 ft	16.66	48.93	16.77	25.6	5848	3.5	9.0	801	1 82	3.3	.2	876.5	.5	59.3	.50	.54	.04	21	2.21	.077	2.9	53.0	80	135.2	.006	2	46	.012	24	3 6	3 0	04	1 18	507	3	6 56	1 1	15
02-03 187-188 ft	.84	110.61	12.02	41.5	2409	4.2	18.5	1513	3.78	3.0	.3	334.7	.8	134.6	.83	.61	.05	36	4.50	.153	4.1	6.9	1.50	106.4	.025	3	.93	.021	.49	3.3	5 7	05	2 28	84	5	3 71	2 0	15
02-03 192-193/2 ft	1 04	372.56	345 43	187.8	15077	5 1	20.2	1468	4.41	24 1	4	1428.0	.8	152.8	11.86	2.17	.13	44	4.79	.128	2.8	23 7	1.69	96 0	.028	3	.90	010	47	2 9	8 2	06	2 46	632	1 4	11 36	2 0	15
02-06 149-149/8 ft	62	139.36	5 88	60.0	1384	3.9	19.6	1474	3.75	4 7	5	159.4	1 7	140 1	.84	.58	.10	40	4 97	.166	5.5	2 8	1 78	104.6	.018	2	1 00	021	44	1 7	6 5	05	1 57	133	3	2 60	2 0	15
02-06 149/8-149/10 ft	.90	335.84	7.42	63.9	51207	4.9	13.6	1328	2.83	1.8	.3	5876.9	.3	133.0	1.64	.34	.06	24	4.76	.029	1.6	54.9	1.71	432.7	.006	2	.26	.007	14	3 3	3 5	<.02	44	2162	4	26 14	.7	15
02-06 149/10-150/7 ft	.41	96 37	6.63	71.9	1958	4.2	23.0	1728	4.48	3.3	.4	280.8	1.2	182.1	1.59	.43	.07	47	5.96	.163	4.4	3.0	2.16	135.3	.024	2	1.00	.009	.49	1 6	7 3	.05	1.76	117	4	2.89	2.3	15
02-06 154-157 ft	.24	104.35	5.23	63.0	2234	4.1	22.8	1543	3.95	6 2	.4	293.1	1.3	174.9	1.10	1.03	.06	50	5.12	.167	5.2	9 5	1.96	119.4	.021	3	1.06	.017	44	1 2	7 8	05	1 45	176	4	3 10	2 2	15
02-06 176-177 ft	1 04	141.06	5.49	44.0	2834	4.2	18.6	1655	3 98	2 8	.4	458.4	1.5	116.8	1.21	.29	.06	47	4 31	.149	5.2	6.7	1.54	112.0	.022	2	1 14	.029	46	4 2	5 9	05	2 30	151	6	3 99	2 4	15
RE 02-06 176-177 ft	1 02	142 60	5.59	43.3	2862	4.3	18.5	1680	4.04	2.9	.4	460.1	1.5	118.2	1.18	.28	.06	50	4 35	.155	5.2	6.5	1.56	111.1	.023	3	1.21	.031	.49	3.8	6 5	06	2 34	153	6	3 96	2 6	15
RRE 02-06 176-177 ft	.35	139.48	5.48	45.0	2638	3.5	18.4	1639	3.94	3.0	.4	428.6	1.5	117.6	1.24	.28	.06	50	4.27	.147	5.2	13.5	1.53	121.8	.024	3	1.22	.034	53	1.9	6.4	06	2 31	142	7	3 78	2 5	15
02-06 179/11-180/11 ft	.77	48.71	4.61	47.1	1253	4.3	21.4	1625	3.80	2.8	.4	209.6	1.2	161.1	1.22	.31	.04	55	4.96	.155	5 8	5.1	1.87	192.1	.025	2	1.41	.018	.56	2.8	7.3	06	1 44	31	3	1 57	2 9	15
02-06 189-189/4 ft	.44	194.65	5.66	54.7	3460	3.1	20.4	1804	4.03	3.7	.6	427.0	2.0	135.7	.96	.51	.10	47	4.80	.175	5.6	6.6	1.74	118.7	.025	3	1.24	.026	.57	1.4	5.8	.05	2 35	385	.6	4 90	3 0	15
02-06 189/4-189/7 ft	3.26	247.55	2.62	30.9	5149	4.7	5.6	1130	1.69	2.5	.1	700.0	.6	69.2	.75	.62	.02	16	2.63	.061	2.2	24.2	.94	185.2	.006	3	.43	.007	.21	11.2	2 2	02	75	307	.4	4.35	1 1	15
02-06 189/7-191 ft	.72	71.25	8.46	42.4	6938	3.9	19.8	1615	4.26	3.9	.5	1033.7	1.9	127.9	.86	.64	.09	46	4.29	.178	5.8	8.6	1.63	95.9	.027	4	1.20	.033	.53	1.5	6 6	05	3 13	452	9	9 05	2 7	15
02-06 246-251/8 ft	1.06	164.12	5.63	66.6	1477	6.3	23.1	1490	4.43	5.1	.5	248.8	1.1	188.1	1.08	1.19	.07	51	5.55	.189	4.9	5 8	1.83	164.6	.026	4	1.11	.012	.46	4 1	9 1	06	1 40	95	.5	2 42	2 1	15
02-06 251/8-252 ft	2.11	30.30	6.32	84.9	2029	5.5	14.5	1294	3.14	3.9	.2	293.0	.5	131.4	1.20	.84	.03	39	4.87	.087	2.3	40.0	1.67	210.2	.019	4	.76	.009	.33	3 5	4 9	.04	.89	82	3	1 84	1 5	15
02-06 252-253 ft	.51	84.10	4.01	55.2	262	5.7	20.0	1403	3.72	2.2	.3	36.0	1.1	176.4	.76	.73	.02	58	5.39	.129	4.8	7.2	1.97	147.0	.023	3	.87	.018	.39	2 0	8.3	04	43	33	2	71	1.8	15
02-06 253-253/8 ft	1.46	67.88	7.31	26.3	3135	5.7	11.4	757	2.37	3.1	.2	406.9	.4	72.4	.45	.54	.04	27	2.46	.065	2.0	53.1	.93	124.9	.013	3	.50	.013	24	3 3	4 5	.03	1 40	413	3	4 66	1.1	15
02-06 253/8-254/6 ft	.76	255 83	7.29	68.8	3636	9.8	23.2	1759	4.82	12.4	.5	513.8	.9	161.9	1.73	12.68	.07	41	5.50	.134	3.4	18.4	2 09	81.4	.022	3	.81	.017	.37	1.9	9 2	.04	2 84	930	8	6.81	1 8	15
STANDARD DS3	8.91	117.00	32 14	152.2	260	34.2	11.5	823	3.08	29 5	5.6	18.7	3 8	26 0	5 14	5 35	5.15	72	53	086	16 1	172.3	57	140 0	090	2	1 67	030	14	3 6	2 7	1 01	03	218	1 3	1 09	6 4	15

Sample type: CORE R150. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA ____

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

ASSAY CERTIFICATE

Max Investment Inc. File # A201730R
3750 West 49th Ave, Vancouver BC V6B 3T8

SAMPLE#	Au** gm/mt
02-01 60 8-61 1 ft	.76
02-01 61 1-62 2 ft	1.66
02-01 62 2-62 4 ft	1.13
02-01 134 8-134 10 ft	1.60
02-01 134 10-136 3 ft	.58
02-01 173-174 ft	1.16
02-02 67-68 3 ft	.57
02-02 68 9-72 8 ft	1.02
02-02 72 8-72 9 ft	.81
02-02 192 2-193 ft	.62
02-02 195-197 ft	.65
02-03 38-39 ft	.62
02-03 43-44 ft	.62
02-03 70-73 6 ft	.88
02-03 76-78 ft	.68
02-03 78-78 4 ft	2.19
RE 02-03 78-78 4 ft	2.34
02-03 90 6-91 ft	1.17
02-03 192-193 2 ft	1.78
02-06 149 8-149 10 ft	6.49
02-06 176 177 ft	.61
02-06 189 4-189 7 ft	.89
02-06 189 7-191 ft	1.30
02-06 253 8-254 6 ft	.67
STANDARD AU-1	3.34

GROUP 6 - PRECIOUS METALS BY FIRE ASSAY FROM 1 A.T. SAMPLE, ANALYSIS BY ICP-ES.
- SAMPLE TYPE: CORE PULP

Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 9 2002 **DATE REPORT MAILED:** July 12/02 **SIGNED BY**.......D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

ACME ANALYTICAL LABORATORIES LTD. 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716
(ISO 9002 Accredited Co.)

GEOCHEMICAL ANALYSIS CERTIFICATE

Max Investment Inc. File # A202274 Page 1
3750 West 49th Ave, Vancouver BC V6B 3T8

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
SI	.05	1.29	1.67	.7	2	.3	<.1	2	.01	<.1	<1	<.2	<.1	1.5	<.01	<.02	<.02	<2	.06	<.001	<.5	1.0	<.01	2.0	<.001	1	.01	294	<.01	<.1	1	<.02	.01	8	.1	<.02	<.1
02-10 222-227 ft	7.38	663.16	7.27	63.4	402	14.5	33.7	1520	5.10	19.8	.5	18.7	1.3	110.6	.24	.69	.06	91	4.73	.127	7.1	23.2	1.83	139.1	.096	3	2.18	.078	.28	.3	6.4	.05	.99	55	1.4	.01	5.7
02-10 310-315 ft	2.39	2108.92	8.95	58.9	1005	7.0	16.4	1499	4.59	31.9	.8	190.5	.8	97.9	.21	.51	.09	107	4.97	.124	5.8	11.1	1.31	114.1	.108	4	1.88	.050	.18	.8	7.1	.02	1.19	115	2.4	.02	6.5
02-10 315-320 ft	2.75	2205.63	17.27	64.8	1196	8.8	18.6	1277	5.16	47.6	1.2	88.8	.8	77.9	.21	.86	.11	132	3.79	.126	5.7	18.8	1.12	91.6	.116	3	1.59	.043	.16	.4	8.2	.02	1.36	208	3.5	.02	6.1
02-10 320-325 ft	3.25	3641.56	3.08	66.0	1314	9.0	21.6	1061	4.52	7.5	.7	90.2	.6	83.3	.19	.37	.03	127	3.02	.129	4.7	16.1	1.37	64.6	.105	4	1.62	.052	.09	.9	8.1	<.02	.39	105	3.6	.02	6.0
02-10 325-330 ft not rec.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
02-10 330-335 ft	6.68	1881.23	8.61	69.1	948	7.8	18.6	1543	5.21	14.8	.8	95.3	.8	109.8	.27	.43	.08	141	4.80	.115	6.3	14.0	1.58	153.5	.116	2	1.90	.047	.15	.5	8.8	.07	.73	186	1.6	.03	7.3
02-10 335-340 ft	6.11	2435.75	4.26	80.4	1118	7.6	16.3	1581	5.13	7.0	.8	96.7	1.0	82.2	.32	.24	.06	150	3.61	.118	5.3	10.4	1.58	65.3	.127	1	1.87	.033	.13	1.2	7.8	.07	.08	114	1.3	.01	8.1
02-10 340-345 ft	7.63	1985.26	3.88	116.6	704	9.7	21.1	1391	5.66	5.9	.5	36.9	.9	88.1	1.10	.22	<.02	175	3.33	.125	5.9	19.8	1.63	104.7	.147	3	1.79	.046	.14	.6	8.7	<.02	.18	62	1.4	.02	7.6
02-10 345-350 ft	7.20	1797.44	3.28	129.7	560	9.8	18.0	1008	4.37	10.0	.3	44.2	.9	115.5	.86	.35	.02	138	2.19	.127	5.1	18.1	1.26	72.5	.144	4	1.51	.050	.12	1.5	5.9	<.02	.16	45	1.4	<.02	6.8
02-10 350-355 ft	9.12	1158.56	5.09	117.5	428	9.7	17.5	1479	4.14	12.8	.2	22.7	.9	155.0	.36	.46	.02	118	5.31	.136	7.3	18.8	1.50	177.8	.114	4	1.76	.033	.14	.7	6.6	<.02	.25	92	1.0	<.02	7.5
02-10 355-360 ft	10.06	1568.83	2.32	135.5	590	9.6	16.0	1185	4.75	8.3	.2	48.2	.8	88.1	.78	.30	<.02	149	2.54	.124	5.5	17.6	1.58	73.3	.147	2	1.70	.051	.11	1.3	7.8	<.02	.18	60	1.0	<.02	7.9
02-10 360-365 ft	14.61	1314.91	7.44	114.5	631	10.3	19.5	1245	5.21	10.8	.4	123.1	.9	104.9	1.00	.33	.02	162	2.79	.131	6.2	18.7	1.69	84.9	.163	3	1.91	.074	.11	.9	9.0	<.02	.29	57	1.9	<.02	9.0
02-10 365-370 ft	10.50	1097.56	2.71	86.5	446	9.4	21.2	1308	5.15	10.0	.4	15.8	.9	110.6	.16	.37	<.02	164	3.24	.127	6.3	16.0	1.83	80.1	.184	3	1.95	.046	.12	1.3	9.2	<.02	.16	69	.8	<.02	8.5
02-10 370-375 ft	12.12	1093.01	10.25	131.2	565	8.4	23.5	1212	4.56	10.3	.6	38.3	1.0	141.2	.16	.56	.03	147	3.30	.128	6.8	16.4	1.85	76.6	.087	5	2.24	.043	.12	.4	8.6	<.02	.49	107	1.2	<.02	8.5
02-10 395-400 ft	16.28	775.78	4.39	102.4	353	11.6	31.4	1259	6.13	11.1	.5	16.6	1.0	74.0	.18	.29	.02	219	3.48	.141	6.4	21.9	2.44	64.1	.164	4	2.36	.054	.09	1.1	12.1	<.02	.51	61	1.3	<.02	10.1
02-10 425-430 ft	6.55	574.61	7.43	87.8	193	5.6	14.4	853	2.92	11.5	.7	10.4	1.0	203.9	.25	.91	.02	85	2.41	.146	6.6	14.0	1.47	84.4	.134	2	2.19	.053	.12	1.1	4.7	<.02	.22	9	.8	<.02	6.9
02-10 480-485 ft	10.51	385.79	5.00	102.8	173	11.2	22.7	985	4.97	15.2	.6	30.9	1.2	85.4	.17	.32	.06	161	1.98	.147	5.7	22.0	2.09	113.3	.147	2	2.25	.078	.08	1.8	9.6	.02	.90	20	2.8	<.02	8.6
02-10 490-495 ft	15.54	731.26	12.67	89.1	359	13.3	38.2	973	5.36	17.1	.6	34.9	1.0	73.5	.41	.35	.05	162	2.37	.138	5.7	28.8	2.14	109.5	.152	3	2.20	.078	.09	1.1	9.7	.02	1.70	31	3.3	<.02	9.0
02-10 510-515 ft	12.74	397.41	12.14	134.1	292	11.9	25.8	954	6.59	25.5	.7	27.5	1.0	74.9	.64	.52	.05	180	2.09	.140	6.1	20.9	2.36	66.2	.184	3	2.60	.057	.08	1.5	9.3	<.02	1.16	40	2.9	<.02	9.7
02-10 515-520 ft	17.30	606.27	28.35	247.1	366	11.6	30.2	900	5.39	29.6	.6	32.7	.9	72.1	2.74	.57	.05	161	1.79	.141	4.8	20.6	2.32	134.3	.161	1	2.73	.073	.09	1.3	8.0	<.02	1.06	96	3.6	.02	9.8
RE 02-10 515-520 ft	17.14	612.45	27.25	250.1	350	11.8	28.1	915	5.46	29.8	.6	28.6	.9	74.6	2.79	.61	.05	165	1.83	.140	5.0	21.4	2.36	150.2	.169	1	2.75	.069	.09	1.3	8.0	<.02	1.01	87	3.6	.02	9.9
RRE 02-10 515-520 ft	16.73	605.58	25.99	249.0	364	12.0	30.9	897	5.39	30.1	.6	31.9	.9	78.7	2.81	.62	.05	165	1.84	.137	5.1	18.6	2.31	164.4	.178	2	2.71	.064	.09	1.7	8.7	<.02	.98	109	3.6	.03	9.4
02-10 520-525 ft	8.35	593.00	8.13	83.9	335	8.6	27.0	740	4.90	67.4	.8	27.6	.9	70.1	.12	.71	.07	135	1.33	.137	5.7	15.2	2.14	66.6	.192	2	2.48	.058	.10	1.0	7.4	.02	1.80	17	4.6	.03	8.6
02-10 525-530 ft	5.31	485.62	6.28	111.3	205	8.7	22.5	697	5.06	33.5	.9	32.2	.8	87.7	.21	.67	.08	129	1.01	.139	5.3	13.2	2.16	65.5	.192	3	2.61	.059	.10	1.5	7.3	<.02	2.15	36	3.8	.03	8.7
02-10 530-535 ft	12.37	572.85	11.82	143.8	220	8.5	25.8	656	4.80	40.6	.7	43.6	.9	68.2	1.16	.71	.12	143	1.16	.142	5.1	18.3	2.18	46.7	.215	1	2.33	.049	.12	1.2	7.7	<.02	2.75	85	4.5	.02	8.3
02-10 545-550 ft	11.75	566.02	17.14	444.8	338	9.8	35.4	731	5.02	44.3	.5	46.2	.9	47.4	3.31	1.43	.11	114	2.27	.126	5.2	13.3	2.16	53.1	.169	1	2.35	.035	.15	1.3	5.9	.03	2.80	373	8.1	.03	7.6
02-11 65-70 ft	12.83	1122.41	5.22	31.9	651	10.2	36.4	715	4.88	22.7	.2	56.5	.5	91.8	.04	.92	.49	82	3.57	.118	4.1	12.9	1.29	15.3	.008	3	1.44	.043	.20	.5	4.3	.03	4.82	72	4.7	.12	4.4
02-11 130-135 ft	13.64	1185.43	35.86	89.1	322	9.9	27.1	498	4.30	79.8	.3	78.5	.7	40.4	.10	.98	.20	138	1.58	.131	5.1	10.2	2.13	32.9	.104	2	2.15	.047	.10	1.0	6.0	<.02	2.56	74	5.9	.03	9.0
02-11 205-210 ft	17.21	1144.68	9.05	263.5	883	8.6	28.0	728	4.20	33.5	.4	70.0	.6	58.0	2.50	.71	.35	92	4.06	.132	4.2	11.4	1.53	44.9	.116	2	1.77	.038	.19	1.4	5.1	.02	2.85	451	4.9	.11	5.5
02-11 265-270 ft	21.39	1992.05	23.01	192.4	846	10.1	28.8	649	3.28	37.5	.6	202.8	1.1	62.8	1.06	.65	.19	119	2.22	.180	5.7	23.7	1.78	82.7	.157	1	2.00	.061	.11	.8	7.9	<.02	1.57	133	3.9	.03	8.3
02-11 270-275 ft	16.93	1472.38	11.32	134.1	763	10.5	31.7	790	4.06	31.3	.4	108.1	.8	49.1	.22	.45	.16	138	1.99	.146	4.3	22.3	1.90	80.1	.133	2	1.90	.067	.09	1.2	8.8	.02	2.01	53	4.2	.03	8.1
02-11 275-280 ft	9.59	802.09	26.27	508.2	378	9.3	29.6	647	3.99	49.4	.3	63.0	.6	72.8	8.24	.59	.22	128	1.21	.145	4.5	16.2	1.80	65.9	.140	1	1.89	.083	.09	.8	7.1	<.02	2.21	778	5.4	.03	7.0
02-11 280-285 ft	13.82	1214.09	18.62	188.3	542	10.7	33.6	1194	4.81	27.9	.5	97.6	.7	94.5	.80	.66	.29	131	1.32	.130	4.9	16.5	1.70	73.0	.159	2	2.03	.077	.09	1.4	6.8	<.02	2.20	96	9.3	<.02	7.8
STANDARD DS3	9.53	131.02	34.01	158.0	262	38.9	12.2	800	3.11	31.4	6.1	20.9	4.3	30.8	6.13	5.67	6.00	78	.54	.088	20.0	184.4	.55	148.5	.083	2	1.83	.036	.15	3.8	3.7	1.20	<.01	257	1.2	1.02	5.8

GROUP 1F15 - 15.00 GM SAMPLE LEACHED WITH 90 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 300 ML, ANALYSED BY ICP/ES & MS.
UPPER LIMITS - AG, AU, HG, W, SE, TE, TL, GA, SN = 100 PPM; MO, CO, CD, SB, BI, TH, U, B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
- SAMPLE TYPE: CORE R150 60C Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: JUL 15 2002 **DATE REPORT MAILED:** July 25/02 **SIGNED BY**.......... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

Data FA

SAMPLE#	Mo	Cu	Pb	Zn	Ag	Ni	Co	Mn	Fe	As	U	Au	Th	Sr	Cd	Sb	Bi	V	Ca	P	La	Cr	Mg	Ba	Ti	B	Al	Na	K	W	Sc	Tl	S	Hg	Se	Te	Ga
	ppm	ppm	ppm	ppm	ppb	ppm	ppm	ppm	%	ppm	ppm	ppb	ppm	ppm	ppm	ppm	ppm	ppm	%	%	ppm	ppm	%	ppm	%	ppm	%	%	%	ppm	ppm	ppm	%	ppb	ppm	ppm	ppm
02-11 285-290 ft	13 67	1256.15	9.98	164.4	555	11.2	27.1	1305	4.84	40.3	.5	115.0	.8	136.2	.32	1.13	.27	118	1.56	.148	4.9	16.7	1.59	99.7	.151	5	1 97	.072	09	9	6 4	< 02	1 91	18	4 6	07	7 5
02-11 290-295 ft	11.31	1005.32	10.76	146.4	418	11.0	25.4	868	4.51	50.8	.4	43.7	.7	121.4	.72	.80	.27	128	1 93	.153	4.5	16.0	1 69	81.8	.157	3	1 90	069	08	1 3	6 4	< 02	2 .11	48	4 8	06	7 3
02-11 320-325 ft	2.03	818.42	4.41	32.7	139	10 0	21.1	355	4.20	19.7	.4	71.2	.7	108.5	.17	.52	.15	115	1.89	.135	4.0	15.5	1.88	81.6	.158	3	1 99	.084	.10	7	7 0	< 02	2 01	12	3 6	.04	6 8
02-11 325-330 ft	3.26	590.15	5.71	82 7	140	11 0	18.8	394	4 61	21.1	.4	65 0	.8	86.0	.18	.43	.16	136	1.47	.146	4.3	15 4	2.12	67.2	.184	2	2 18	077	11	1 4	7 5	< 02	2 47	18	5 4	06	7 4
02-11 339-345 ft	2 03	394.46	14.51	451.6	339	8.0	22.2	423	4.69	45.3	.3	34.8	.8	81.6	3.62	.61	.13	128	1.88	134	3 5	15 5	1 82	52 5	.170	2	2 09	.059	.17	7	6.3	03	2 83	403	5 9	< 02	6 9
02-11 345-350 ft	1.04	318.51	19.04	60.9	233	10.0	20.0	506	5.01	19.8	.3	35.4	.8	72.4	.10	.45	.15	153	1.63	.153	3.5	17.1	2.42	63.3	.166	4	2 60	.055	20	4	7 1	.03	1 84	20	3 1	< 02	9.2
02-11 350-355 ft	2.73	424.68	82.57	455.0	429	12.3	22.3	561	5.51	47.6	.2	38.5	.9	76.5	3.36	.84	.16	176	2.27	.141	3.7	23.5	2.64	59.7	.160	1	2.48	067	.12	1.8	9.3	.02	2.96	342	4 9	<.02	9.2
02-09 46-48.9 ft	.43	33.51	5.47	27.4	1401	5.7	9.0	715	2.14	3.9	.2	229.1	1.2	148.0	.48	.59	.02	21	6.65	.066	4.1	16.4	.58	78.3	.014	2	.65	.050	.23	.8	4 2	03	67	165	3	1 88	.9
02-09 53-54 ft	1 21	22.14	7.62	40.3	1771	6.5	8.9	734	2.10	3.7	.2	257.4	1.0	228.0	2.03	.47	.03	12	10.36	.076	4.8	8.7	.29	226.9	.017	1	70	017	.29	2 4	3 8	07	71	70	4	2 73	8
02-09 100-101.4 ft	.60	24.96	92.03	55.0	4175	7.7	10.9	1146	3.16	5.0	.4	626.1	.7	148.5	2.11	.64	.03	27	8.23	.064	3 8	23.6	.85	112.3	.016	1	.71	023	.25	1.0	6 3	03	1 08	103	8	3 83	9
02-09 102.7-103.4 ft	2.73	36.78	84.52	45.3	23949	12.0	12.1	923	3.08	4.7	.4	3014.2	.9	139.0	1.35	1.02	.05	18	6.36	.080	4.0	12.9	.85	104.0	.017	2	.74	009	26	3 2	5.2	03	1 22	451	1 1	13 29	8
02-09 122-122.10 ft	1.11	129.92	6.03	25.7	1856	9.2	11.0	1155	2.43	5.0	.4	279.8	1.1	242.7	.64	.35	.04	23	10.57	.084	5.3	17.7	.69	111.5	.014	<1	.67	.019	.27	.9	4 0	03	.95	29	1 0	1.94	.8
02-09 265.5-265.11 ft	4.54	963.73	12405.90	9319.4	99999	8.6	6.5	563	2.95	11.5	.1	48055.8	.1	40.4	886.70	51.63	2.73	5	1.50	.025	.9	25.2	.55	52.4	.001	<1	.19	.018	.10	13.3	1.4	03	2.68	16723	21 0	248 75	.4
02-09 313-318 ft	.63	100.62	20.40	62.9	1544	11.5	23.1	1423	4.01	3.1	.3	189.8	.8	191.6	2.03	.57	.03	36	5.16	.106	4.1	13.7	2.04	216.3	.011	1	.97	.017	.37	.7	7.3	.05	.85	56	.1	1 62	1.4
RE 02-09 313-318 ft	.59	101.27	17.57	59.8	1473	10.6	21.7	1419	3.99	2.5	.3	193.7	.8	193.5	1.78	.57	.03	37	5.13	.106	3.9	13.4	2.04	206.4	.012	1	.99	.017	37	7	7.3	05	.90	58	2	1.45	1.3
RRE 02-09 313-318 ft	1.22	100.65	45.67	75.3	1909	10.4	21.6	1413	3.90	2.7	.3	262.0	.7	180.3	3.09	.62	.04	29	5.08	.101	3.7	6.6	2.03	189.4	.008	2	.77	.013	28	2 0	6.8	04	82	92	2	1.75	1.0
02-09 389-391 ft	.29	143.24	5.92	45.4	2149	7.5	25.2	1315	3.98	3.5	.2	312.6	.9	177.1	.89	1.00	.03	42	4.61	.111	4.6	11.2	1.99	207.7	.013	<1	.83	.030	.33	.6	7.0	.04	90	203	2	2.40	1 3
02-09 428-433.6 ft	3.21	33.11	56.44	27.0	2698	13.5	13.7	1003	2.90	2.4	.2	347.8	.7	62.1	1.08	.52	.07	10	2.69	.068	2.5	15.2	1.00	70.2	.004	1	37	.013	.20	4 7	4.8	.02	1 99	226	.7	3 67	.7
02-04 143.6-145.6 ft	.30	76.02	6.80	55.3	1908	4.4	22.7	1502	4.43	5.0	.4	305.6	1.5	171.4	.77	.46	.06	46	4.77	.154	5.2	8.5	2.01	116.4	.008	3	.78	.014	.32	.8	6.3	03	1.65	231	.4	2.64	1.2
02-04 169.8-170.6 ft	1.90	120.38	6.62	40.8	18531	4.8	16.6	1204	3.34	5.4	.3	2212.3	1.1	129.7	1.02	.69	.07	30	3.68	.119	4.7	12.7	1.42	79.8	.007	1	.55	.022	.24	5.6	4.9	03	1 51	801	.4	12.68	.9
02-04 206.6-207.8 ft	.22	59.26	6.65	44.8	1994	2.9	20.0	1569	3.93	5.5	.4	317.4	1.5	209.1	.96	.43	05	24	4.37	.148	5.6	7.2	1.75	78.3	.004	4	.54	.014	.27	7	6 2	03	1 91	72	6	2.64	.8
02-04 210.6-211.6 ft	4.54	57.85	7.48	30.6	2559	5.3	7.7	836	1.99	3.5	.2	387.9	.4	80.3	.86	.40	.03	11	2.24	.050	2.6	24.4	.86	166.8	.001	2	.22	.009	15	11 5	2 3	< 02	94	143	6	2.24	.5
02-04 211.6-212 ft	.18	73.58	5.36	56.5	1295	2.8	19.5	1522	3.79	6.8	.3	271.1	1.7	211.0	1.21	.54	06	33	4.56	.159	5.9	6.5	1.80	146.0	.007	2	.79	.007	36	7	6 8	03	1.29	93	6	1 73	1 0
02-05 37-45 ft	1.70	84.30	7.53	60.7	1042	5.3	17.8	1488	3.24	9.9	.5	181.2	.9	188.2	1.53	13.61	07	29	4.66	.126	4.6	8.6	1.71	232.0	.008	3	.63	.014	.28	3 6	5.1	06	72	170	2	1 22	1 0
02-05 82.6-83.7 ft	.31	142.92	5.93	39.7	2462	4.1	17.4	1312	3.57	3.8	.3	394.7	.6	206.3	1.06	.78	.03	27	4.49	.112	3.0	16.7	1.89	91.9	.010	2	.66	.013	.32	1 0	6.1	.04	1.67	169	3	2.48	8
02-05 84.3-85.6 ft	.49	141.21	5.74	55.1	883	8.9	23.3	1458	4.40	3.7	.3	147.5	.6	279.8	1.13	.56	.03	40	5.74	.119	3.4	5.0	2.50	181.7	.013	3	.89	.015	.42	1 1	8 4	06	1 03	130	.2	1.62	1 2
02-05 91-92.2 ft	.26	161.20	4.41	45.3	1800	10.6	23.2	1269	4.20	5.0	.3	311.3	.5	189.0	.99	.55	.03	37	4.86	.122	3.4	21.3	2.26	99.5	.008	<1	.84	.017	.39	.6	7.4	.05	1 66	208	2	2.15	1.3
02-05 96.6-97 ft	4.47	77.31	111.62	125.4	4420	6.2	1.0	240	.67	11.3	.1	536.9	<.1	35.5	11.24	29.71	.03	4	1.19	.003	<.5	29.5	.17	57.4	<.001	1	.08	.006	.05	15.4	.4	< 02	14	595	.3	3.19	.2
02-12 31-37 ft	11.27	111.89	11.28	100.5	384	18.4	38.5	422	4.74	91.6	.2	20.3	.4	104.1	.80	.63	.24	120	.86	.117	2.6	28.7	.91	31.1	.142	8	1.32	.071	.10	.9	6 0	< 02	4 72	51	11.3	.32	4 4
02-12 249-253 ft	9.60	150.82	100.17	285.1	674	13.9	41.2	1209	5.92	63.1	.3	21.8	.6	189.1	3.29	1.06	.15	145	4.78	.134	3.4	17.8	2.04	24.1	.031	3	1 92	.056	14	1 2	13 0	02	3.36	233	2.4	.28	6 5
02-12 331-335 ft	11 66	1078 28	16.73	176.3	771	18.6	62.0	1234	6 46	61.9	.8	35 8	.7	88 8	1.25	1.09	21	176	2.67	.131	4.8	30.2	2.32	50.5	.177	4	2 47	.050	10	.8	13 9	< 02	2 88	57	6 9	13	9 5
02-12 335-340 ft	18.67	854 26	21.78	187.3	845	13.9	42.0	1313	7.06	44.6	.5	35.5	.6	67.8	.45	9.88	.19	162	3.48	.142	4.1	23.8	1.83	43.5	.131	3	2.17	.039	24	1.5	10 5	02	4 37	114	6 0	.07	9.3
02-12 340-345 ft	15.39	805.42	17.26	139.2	658	14.1	39.6	1195	5.87	30.4	.5	35.7	.6	58.0	.28	2.38	.18	110	3.41	.144	3.6	20.6	1.47	32.2	.013	3	1.71	.034	.34	.7	8 5	05	4.34	43	6.1	.03	6 0
02-12 345-350 ft	18.32	890.66	24.07	608.8	2155	10.6	34.5	1031	4.97	79.7	.6	42.7	.5	48.4	5.27	82.91	.15	53	4.23	.137	1.9	8.2	.68	31.0	.005	1	.86	.041	.29	1 7	10 8	04	3 99	1401	6 6	.03	2.7
STANDARD DS3	9.68	130 54	33 28	158.3	264	38.6	13.4	802	3.22	33.2	6.4	22.2	3 9	30 8	5 89	5.46	6.02	81	58	.092	18 5	185 5	59	149 3	088	2	1 76	036	16	3 8	3 8	1 17	03	246	1 1	1 07	5 9

Sample type: CORE R150 60C. Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

Data FA

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppb	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppb	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Sc ppm	Tl ppm	S %	Hg ppb	Se ppm	Te ppm	Ga ppm
02-12 375-380 ft	9.74	766.10	19.56	228.7	480	9.0	22.2	1383	5.34	34.2	.6	37.8	.7	89.6	1.99	1.21	.13	145	3.54	.134	5.1	15.1	1.98	91.8	.104	3	2.01	.031	.19	.9	10 2	.03	1 48	84	2 3	.15	8 3
02-12 380-385 ft	4.38	275.16	4.76	218.2	141	9.8	14.2	1474	5.59	17.3	.7	14.4	.7	64.0	1.10	1.05	.05	207	2.71	.130	4.0	15.5	2.31	131.4	.154	2	2.24	.039	08	1.2	13.4	<.02	.57	52	.6	.02	10 3
02-12 385-390 ft	5.97	569.79	5.36	517.0	292	9.2	21.0	1576	5.36	19.8	.7	20.8	.7	52.3	5.88	.73	.09	196	1.83	.137	4.8	21.1	2.24	119.9	.137	2	2.35	.030	.11	.9	13.6	<.02	1.74	389	1.8	.03	11.5
02-12 390-395 ft	9.13	683.21	5.17	487.3	277	11.5	21.9	1661	5.79	24.2	.8	11.8	.6	60.1	4.62	.91	.07	187	2.42	.121	3.6	39.1	2.41	105.5	.141	2	2.46	.029	08	1 5	13.0	<.02	1 53	291	1.2	06	10 7
02-12 395-400 ft	10.53	714.27	6.08	286.2	260	10.0	20.1	1657	5.66	16.8	.6	30.6	.7	40.6	2.14	.67	.06	193	1.96	.125	4.5	20.9	2.54	129.7	.119	2	2.40	.029	.09	8	14 2	< 07	1 33	124	1 3	04	11 0
02-12 400-405 ft	12.68	733.10	7.70	110.6	320	10.9	20.5	1407	6.28	17.4	.6	33.0	.7	49.7	.14	.73	.12	175	2.09	.122	5.6	15.1	2.46	49.1	.093	2	2.48	.035	13	1.2	11.6	02	3 02	19	1 6	.08	11.3
02-12 405-410 ft	10.19	474.17	20.15	374.9	681	7.8	20.3	645	5.04	12.6	.3	28.0	.7	31.4	4.12	4.75	.09	83	2.77	.129	2.2	10.8	1.37	17.6	.007	2	1.24	.051	.18	.5	7.6	.03	4.60	418	4.1	.43	4 9
02-12 435-440 ft	10.33	857.92	8.92	42.1	357	9.5	35.9	294	5 84	39.0	1.5	118.0	1.0	24.1	.36	.62	.10	90	1.72	.129	4.3	7.9	.78	29.0	.110	1	1.06	.026	.17	2 0	4 6	.03	6 06	86	5 8	51	3 8
STANDARD DS3	8 91	125 41	33.00	153.7	252	37.0	11.6	807	3.35	29 1	5.8	19.5	3.6	25 9	5.74	4.90	5.23	83	.57	.084	15 6	179.7	.59	142.0	090	<1	1 75	032	15	3 6	4 0	1 74	03	219	1 3	1.02	6 1

Sample type: CORE R150 60C.

Data FA

APPENDIX 'B'

2002 DRILL LOGS

Appendix 'B'
DDH 02-1, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m)	Elevation (ft)	Bearing	Dip	Length (m)	Length (ft)
02-1	5510266 N. 677056 E.	1,485	4,870.8	005°	-48°	75.9	249

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
from m	**to m**	**from ft**	**to ft**					
0	3.7	0	12	Casing driven through overburden. NOTE: holes 02-1 to 02-3 were all drilled from the same location.				
3.7	9.4	12	31	Andesitic lahar (volcanic mud flow) This unit comprises a chaotic mixture of volcanic clasts ranging from fist-size down to sand in a mauve hematitic matrix. Clasts range from green to purple - original volcanic textures have been almost lost. Green Clasts- originally were mostly porphyritic andesite, Plagioclase crystals have been replaced by helicitic distributions of quartz, chlorite and calcite. Mauve Clasts- generally a fine-grained mix of hematite, limonite, quartz and probably some albite. Matrix- The matrix is mauve hematite, plagioclase, quartz, and chlorite with 1 mm calcite crystals throughout Fractures and Veins: (Oldest to Youngest) 1. Hairline epidote-chlorite-quartz veins at low angles to the core axis, these commonly have epidote alteration envelopes 2. Calcite-quartz veins about 2 mm thick cut core axis at 35-50° 3. Quartz-calcite veins about 3 mm thick carrying <0.1% malachite 4. Hairline quartz-filled fractures. Core recovery >95%				
9.4	10.7	31	35	Low-angle quartz veins are variably lined with hematite. The matrix is irregularly bleached from mauve to tan. Vertical carbonate-chlorite fractures that contained malachite higher up the hole are lined with limonite and are devoid of malachite here. Both the biotite and the copper have been leached out during this alteration event. The rock here is very silicified and sericitized. Quartz and sericite are very fine-grained.				

Appendix 'B'
DDH 02-1, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
10.7	14.0	31	46	Unaltered lahar: clasts are 5 cm across to sand-size in a silty matrix. There is no bedding and no welding. Clasts: 45% sub-angular red, hematitic clasts, 45% variably porphyritic green clasts, 5% rounded light green epidote-chlorite clasts Matrix: mostly epidote, chlorite, quartz, remnant plagioclase +/- sericite Veins: high-angle, 2 mm thick epidote-chlorite-quartz veins are displaced by later low-angle carbonate veins. In this part of the hole, the latest veins are low-angle (to the core Axis) calcite veins. Recovery: Box 2-3 >95%				
14.0	16.8	46	55	The matrix in the lahar is gradually becoming mauve and is quite hematitic and carbonate-rich.				
16.8	21.3	55	70	Alteration zone with quartz-pyrite veins. Here, the lahar fades to tan, calcite content drops to almost nil and everything is silicified, sericitized and pyritized. Quartz-pyrite veins in this section: 60'8"-61'1" 4" thick vein at 25° to core axis, white quartz with minor smokiness along hairline fractures that are associated with blebs and ribbons of pyrite. 62'2"-62'3.5" 1.25" thick quartz-pyrite vein from 65' to 70' the alteration fades out. Recovery: Box 4 >95%	02-01: 61/1-62/2 ft 62/2-62/4 ft (narrow, white, quartz + minor pyrite veins)	 1.3155 0.9597	 1.66 1.13	 11.227 6.947
21.3	22.9	70	75	Fresh lahar with carbonate-rich, hematitic matrix. All clasts are volcanic, about 35% were porphyritic andesite.				
22.9	26.8	75	88	Early epidote-bearing fractures become quite common. Some have epidote alteration spreading out into the lahar country rock. There are at least two sets of these, the major orientations being about 60° apart. Recovery: Box 5 about 90%				
26.8	32	88	105	Lahar slump deposit: matrix fades from mauve to light green by 90 ft (27.4 m) and the calcite content declines. There are more coarse-grained andesite clasts in this section.				

Appendix 'B'
DDH 02-1, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
32	36	105	118	Quartz-pyrite alteration zone: Bleached and silicified zone turning the rock from mauve to light tan. This zone seems to be fed by fractures oriented 70-90° to the core axis. This alteration is late and cuts across all other veins. Quartz-pyrite +/- calcite veins: these veins have <0.1% pyrite and very little dark smokiness in the white quartz. At 112'5" there is a 1.5" thick quartz vein with 1% disseminated pyrite flanking it. At 112'-113': quartz vein At 115'1"-115'2": quartz vein at 80% to core axis.				
36	40.5	118	133	Mauve andesitic lahar with minor silicification and bleaching throughout the matrix. Recovery: Box 7 80%				
40.5	43.3	133	142	Alteration zone with quartz-pyrite veins. Here, the lahar fades to tan, calcite content drops to almost nil and everything is silicified, sericitized and pyritized. This Si-Py alteration zone is the same as all of the rest in this hole. It postdates all other veins and alteration. Some fractures at 10-30° to core axis have slicken sides At 134'3"-136'3": pyritic section with narrow white quartz veins At 134'-134'10": white quartz vein with stringers of small subhedral pyrite crystals associated with light grey smokiness in quartz At 136'1"-136'3": more veinlets as above	02-01 134/8-134/10 ft	1.3393	1.60	9.992
43.3	52.4	142	172	Mauve andesitic lahar with common early fractures with epidote haloes. This section is comprised of up to 40% matrix. There is no bedding or welding. Clasts are mostly green *porphyritic andesite metamorphosed to chlorite-epidote-quartz-sericite-albite.* Recovery: Box 8 >90%, Box 9 >98%.				
52.4	53.2	172	174'7"	Quartz-pyrite alteration zone like 105-118 ft (32-36 m). At 173'-173'9": quartz-pyrite vein with flanking zone of disseminated pyrite about 3" thick	02-01 173-174 ft	0.9464	1.16	6.864
53.2	63.4	174'7"	208	Mauve andesitic lahar with minor silicification and bleaching throughout the matrix.				

Appendix ‘B’
DDH 02-1, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix ‘A’.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
63.4	66.1	208	217	Fresh andesitic lahar. NOTE: Throughout this hole, the fracture mineralization and alteration sequence has remained the same as is listed near the beginning of this log.				
66.1	75.9	217	249	Moderately fresh lahar with very mild silicification fading in and out. The late quartz veins are thin and contain almost no pyrite here. Also they don’t have well developed tan pyritic alteration haloes . The drill hole seems to be beneath the well mineralized part of the Sadim gold-quartz system here.				
75.9		249		END OF HOLE				

Appendix 'B'
DDH 02-2, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-2	5510266 N. 677056 E.	1,485 4,870.8	067°	-65°	80.5 264

Note: Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from m	to m	from ft	to ft					
0	3.7	0	12	Casing through overburden. NOTE: holes 02-1 to 02-3 were all drilled from the same location.				
3.7	8.8	12	29	Andesitic lahar (volcanic mud flow) This unit comprises a chaotic mixture of volcanic clasts ranging from fist-size down to sand in a mauve hematitic matrix. Clasts range from green to purple - original volcanic textures have been almost lost. Green Clasts- originally were mostly porphyritic andesite, Plagioclase crystals have been replaced by helicitic distributions of quartz, chlorite and calcite. Mauve Clasts- generally a fine-grained mix of hematite, limonite, quartz and probably some albite. Matrix- The matrix is mauve hematite, plagioclase, quartz, and chlorite with 1 mm calcite crystals throughout Fractures and Veins: (Oldest to Youngest) 1. Hairline epidote-chlorite-quartz veins at low angles to the core axis, these commonly have epidote alteration envelopes 2. Calcite-quartz veins about 2 mm thick cut core axis at 35-50° 3. Quartz-calcite veins about 3 mm thick 4. Hairline quartz-filled fractures.				
8.8	12.5	29	41	Quartz-pyrite-sericite alteration zone in lahar: quartz veins are variably lined with hematite. The matrix is irregularly bleached from mauve to tan. The rock here is very silicified and sericitized. Quartz and sericite are very fine-grained. At 35'-36': white quartz veins with minor pyrite.				

Appendix 'B'
DDH 02-2, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
12.5	18.9	41	62	Moderately fresh lahar with pervasive early epidotization, both in fractures and throughout the matrix. Epidote-bearing fractures are most commonly at 30-45° to the core axis. At 57': 1" thick epidote vein				
18.9	20.7	62	68	Marginal phase of a quartz-pyrite-sericite alteration zone where calcite and epidote is increasingly bleached out with depth and the mauve matrix of the lahar fades.				
20.7	23.1	68	76	Core zone of quartz-pyrite-sericite alteration zone containing light tan to pale pinkish green rock with up to 1% disseminated pyrite and small siliceous dilations oriented at about 20° to the core axis. Some of the pink cast may be due to K-feldspar development. Quartz veins lined with calcite oriented about 70° to the core axis are common. They are normally 0.1-0.5" thick. The most intense alteration forms envelopes up to 3" thick flanking these veins. Original laharic and clast textures have been almost obliterated in this area. At 68'3"-68'9": white quartz vein at 80° to core axis with traces of pyrite and minor grey smokiness at its margins. At 68'9"-72'8": intense quartz-pyrite alteration with numerous thin quartz veins. At 72'8"-72'9": another similar quartz vein	02-02 68/9-72/8 ft	0.8546	1.02	4.746
23.1	27.5	76	90'3"	Low-intensity quartz-pyrite-sericite alteration where the mauve laharic matrix and some of the clasts are variably faded				
27.5	28.8	90'3"	94'7"	Intense quartz-pyrite-sericite alteration like 68-76 ft (20.7-23.1 m). At 94'3"-94'7": White quartz vein with traces of chlorite and pyrite. Grey smokiness occurs in secondary dilations and fractures within the vein.				
28.8	29.9	94'7"	98	Low-intensity quartz-pyrite-sericite alteration where the mauve laharic matrix and some of the clasts are variably faded				
29.9	32.9	98	108	Fresh mauve lahar with some cobble-size andesitic clasts and a mauve hematite-calcite rich matrix. Recovery >95%				

Appendix 'B'
DDH 02-2, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
32.9	37.9	108	124'6"	Lahar with green calcite-chlorite rich matrix. This green matrix may originally have had a higher volcanic glass content than the mauve lahar matrix observed previously. Some glass shards are still discernable. At 115'-116': black mud seams At 121'-121'8": light green clay fault gouge Recovery: Boxes 7+8, = 98%				
37.9	46.3	124'6"	152	Lahar with volcanic clasts and mauve to green calcite-rich matrix (like the rest of the country rock in holes 02-1 and 02-2). In clasts, plagioclase is replaced by quartz-sericite-chlorite-calcite and all high-temperature phenocrysts have been replaced by greenschist metamorphic minerals. Veins: all sets are present: 1. Early calcite epidote quartz veins 2.3. 2 sets of hairline calcite veins 4. A few minor quartz veins with silicification haloes related to the tan coloured quartz-pyrite alteration event Matrix: the matrix fades in and out from mauve to green about every 10 ft (3.3 m). At 135'-140': some pebble-size clasts may be diorite				
46.3	52.4	152	172	Complex quartz-pyrite-sericite alteration zone where alteration fades in and out from mild bleaching and silicification to pervasive tan-coloured pyritic alteration surrounding narrow white quartz veins. Intense alteration occurs at: 154'-157'2', flanking a quartz vein at 155'-155'1" 159'3"-159'9", flanknig a 0.25" thick quartz vein 161'-161'8", no vein 162'6"-163', no vein 170'-170'6", weak fine-grained K feldspar-epidote alteration around a 0.25" vein				
52.4	56.4	172	185	Fresh lahar with sub-rounded volcanic clasts ranging up to pebble size. The matrix ranges from mauve to green but is mostly mauve and calcite-rich. There are lots of phase 2 +3 white hairline calcite veins here.				

Appendix 'B'
DDH 02-2, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
56.4	65.5	185	215	Complex quartz-pyrite-sericite alteration zone where alteration fades in and out from mild bleaching and silicification to pervasive tan-coloured pyritic alteration surrounding narrow white quartz veins. Intense alteration at: 187'7"-191'1", alteration 191'1"-191'3", quartz vein 191'8"-192'2, alteration 192'2"-193', quartz vein 193'-193'4", alteration 195'-197', alteration 201'-202' alteration with very narrow quartz veins				
65.5	68.3	215	224	Fresh lahar with sub-rounded volcanic clasts ranging up to pebble size. The matrix ranges from mauve to green but is mostly mauve and calcite-rich. There are lots of phase 2 +3 white hairline calcite veins here.				
68.3	69.5	224	228	Mauve lahar as above with mild pervasive silicification and bleaching.				
69.5	80.5	228	264	Fresh mauve lahar At 241'-250': matrix changes to green then back to mauve At 255'-256': green clay fault gouge (possibly montmorillonite)				
80.5		264		END OF HOLE				

Appendix 'B'
DDH 02-3, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-3	5510266 N. 677056 E.	1,485 4,870.8	352°	-65°	100.6 330

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
0	3.7	0	12	Casing through overburden. NOTE: holes 02-1 to 02-3 were all drilled from the same location.				
3.7	10.7	12	35	Andesitic lahar (volcanic mud flow) This unit comprises a chaotic mixture of volcanic clasts ranging from fist-size down to sand in a mauve hematitic matrix. Clasts range from green to purple - original volcanic textures have been almost lost. Green Clasts- originally were mostly porphyritic andesite, Plagioclase crystals have been replaced by helicitic distributions of quartz, chlorite and calcite. Mauve Clasts- generally a fine-grained mix of hematite, limonite, quartz and probably some albite. *Matrix- The matrix is mauve hematite, plagioclase, quartz, and chlorite with 1 mm calcite* crystals throughout Fractures and Veins: (Oldest to Youngest) 1. Hairline epidote-chlorite-quartz veins at low angles to the core axis, these commonly have epidote alteration envelopes 2. Calcite-quartz veins about 2 mm thick cut core axis at 35-50° 3. Quartz-calcite veins about 3 mm thick 4. Hairline quartz-filled fractures. At 14'-15' and 21'-23': malachite os sparsely disseminated on fracture planes of early epidote-bearing veins, possibly due to mild Tertiary enrichment from weathering.				
10.7	13.4	35	44	Quartz-pyrite-sericite alteration zone in lahar: quartz veins are variably lined with hematite. The matrix is irregularly bleached from mauve to tan. The rock here is very silicified and sericitized. Quartz and sericite are very fine-grained. .				

Appendix 'B'
DDH 02-3, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
				At 37'-44': lots of broken rock and fault gouge. Phase 4 alteration is accompanied by quartz flooding and lots of narrow quartz veins At 43'-44': tan pyritic alteration with 2 0.1-0.25" thick quartz-pyrite veins Recovery: box 1-3, >95%				
13.4	20.4	44	67	*Fresh mauve lahar with andesitic volcanic clasts and a mauve calcite-rich matrix.* There is no bedding or grading here. All 4 fracture and alteration generations are present. Phase-1 epidote-bearing veins and alteration is prevalent.				
20.4	24.8	67	81'6"	Quartz-pyrite-sericite alteration zone like 35-44 ft (10.7-13.4 m). At 70'-73'6": tan coloured pyritic alteration with narrow quartz veins at: *70'7", 71'10", 72', 72'1",76'1", 77'1", 78'-78'4".*	02-03 78-78/4 ft *Re-assayed:*	1.9248	2.19 2.34	11.637
24.8	27.3	81'6"	89'6"	Mild quartz-pyrite-sericite alteration in mauve lahar causing variable bleaching and silicification.				
27.3	28.9	89'6"	94'8"	Intense quartz-pyrite-sericite alteration zone, tan to light pink-green coloured with *disseminated pyrite.* At 90'6"-91': quartz vein with chloritic selveges At 91'-94'8": intense tan-coloured pyritic alteration with narrow bifurcating white quartz veins.	02-03 90/6-91 ft	0.8765	1.17	5.848
28.9	31.7	94'8"	104	Mild pervasive quartz-pyrite-sericite alteration in mauve lahar causing variable bleaching and silicification. At 95'-100': rock is badly broken.				
31.7	35.7	104	117	Fresh lahar with volcanic clasts . The matrix ranges from mauve to green but is mostly mauve and calcite-rich. At 110': 2"-thick calcite-quartz vein with no pyritic alteration at 45° to core axis.				
35.7	38.4	117	126	*Fresh lahar with volcanic clasts and green matrix.*				
38.4	42.7	126	140	Fresh lahar with volcanic clasts and mauve calcite-rich matrix. Early epidote bearing veins and alteration are sparse here. Phase 2 and 3 white calcite veins are quite common At 133'8"-134'8": narrow phase-4 quartz veins with silicification haloes occur at 75° to core axis.				

Appendix 'B'
DDH 02-3, Drill Log Summary
continued

Note: Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
42.7	47.9	140	157	Mild pervasive quartz-pyrite-sericite alteration in mauve lahar causing variable bleaching and silicification. Bands of intense tan-coloured alteration without significant quartz veins occur at: 145'-146' and 151'-152'.				
47.9	52.7	157	173	Fresh lahar with volcanic clasts and mauve calcite-rich matrix. Only phase 2 and 3 white calcite veins are visible here.				
52.7	56.1	173	184	*Lahar with green plagioclase-rich matrix.* At 177'6"-178': Late phase-5, calcite vein almost parallel with the core axis cuts across all other structures and veins. Recovery, .95%				
56.1	60.7	184	199	Mild, pervasive quartz-pyrite-sericite alteration zone that variably bleaches and silicifies the country rock. This zone contains bands of tan to pink-green coloured intense alteration. The intense alteration progresses along fractures within the mild silicification producing bifurcating core zones of quartz veins and surrounding intense alteration. At 188'6"-190': intense pyritic alteration containing a 0.75" thick quartz vein At 192'-193'2": intense pyritic alteration containing a quartz vein at about 192'6" (core all broken) This vein contains <0.1% pyrite and a metallic grey mineral with an acicular crystal habit. It is probably arsenopyrite (Note: the sample from this vein contained 24.1 ppm As).	02-03 192-193/2 ft	1.428	1.78	15.077
60.7	74.4	199	244	Lahar with andesitic volcanic clasts and mostly green matrix. Clasts are mostly a red fine-grained volcanic and less than 1" long. Beneath 240' (73.2 m) clasts are mostly plagioclase-rich and may have been porphyritic. There is very little phase-1 epidote-calcite veining or alteration in this section. At 209'-212': Late phase-5 very brittle fracturing healed with calcite and sheaves of white selenite and traces of yellowish tan coloured barite. At 220'-221' and 229'-231'6" fault gouge. Recovery, Box 13, down to 80%				

Appendix ‘B’
DDH 02-3, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix ‘A’.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
74.4	80.0	244	263	Mild, pervasive quartz-pyrite-sericite alteration zone that variably bleaches and silicifies the country rock. This zone contains bands of tan to pink-green coloured intense alteration. THIS ROCK IS BADLY BROKEN At 245'3"-246', 247'6"-248'3", 255'3"-255'6": intense Phase-4 pyritic alteration containing a 0.25" thick quartz vein in each alteration band. At 257'-260': Brittle phase-5 with calcite-quartz-gypsum (selenite) fillings at low angles to the core axis. This phase of fracturing shatters the rock.				
80.0	87.2	263	286	Fresh lahar with volcanic clasts and mauve calcite-rich matrix. At 280'-284': Badly broken rock with fault gouge and Phase-5 calcite-quartz-selenite vein at 35° to core axis some of the crystals in this vein are vuggy. Recovery: Box 15, 85%.				
87.2	94.2	286	309	Fresh lahar with volcanic clasts with matrix alternating from mauve to green.				
94.2	94.8	309	311	Intense, tan coloured quartz-sericite-low pyrite alteration. At 310'6": 0.5" thick quartz vein.				
94.8	95.1	311	312	Mild pervasive quartz-pyrite-sericite alteration. At 312': 0.5" thick quartz vein at 90° to core axis.				
95.1	100.6	312	330	Lahar with green matrix. There seems to be some crude layering defined by changes in clast size distributions. At 315'-320': very broken core with chlorite + brown limonite on fractures that are almost parallel with the core axis. At 322'-323': Phase-5 shatter-filled with quartz-calcite-selenite. This is cut by a 0.5 cm thick tan-yellow barite vein.				
100.6		330		END OF HOLE				

Appendix 'B'
DDH 02-4, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-4	5510258 N. 677111 E.	1,485 4,870.8	000°	-50°	91.7 301

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
0	9.5	0	31	Casing through overburden.				
31	15.2	31	50	Andesitic lahar (volcanic mud flow) This unit comprises a chaotic mixture of volcanic clasts ranging from fist-size down to sand in a mauve hematitic matrix. Clasts range from green to purple - original volcanic textures have been almost lost. Green clasts- originally were mostly porphyritic andesite, Plagioclase crystals have been *replaced by helicitic distributions of quartz, chlorite and calcite.* Mauve Clasts- generally a fine-grained mix of hematite, limonite, quartz and probably some albite. Matrix- The matrix is mauve hematite, plagioclase, quartz, and chlorite with 1 mm calcite crystals throughout Fractures and Veins: (Oldest to Youngest) 1. Hairline epidote-chlorite-quartz veins at low angles to the core axis, these commonly have epidote alteration envelopes 2. Calcite-quartz veins about 2 mm thick cut core axis at 35-50° 3. Quartz-calcite veins about 3 mm thick 4. Hairline quartz-filled fractures. At 31'-36': Tan-coloured oxidized zone (weathering)				
15.2	26.5	50	87	Light mauve bleached, silicified lahar with mostly white clasts. Pyrite content is low <0.1%. At 68'-75': Fine-grained phase-4 greenish tan coloured section. Still very little pyrite and no significant quartz veins.				
26.5	28.7	87	94	Fresh lahar with purple and green andesitic volcanic clasts and mauve calcite-rich matrix. At 88': Small amount of k feldspar alteration within an epidote-calcite bearing phase-1 quartz vein.				

Appendix 'B'
DDH 02-4, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
28.7	36.6	94	120	Bleached and silicified lahar with mauve matrix. Both the clasts and matrix are faded like in 50-87 ft (15.2-26.5 m).				
36.6	41.2	120	135	Light tan low-pyrite, highly calcified lahar. There is some shearing in the centre of this section.				
41.2	43.3	135	142	CROSSCUTTING RELATIONSHIPS SHOW THAT THE TAN CALCIFICATION IS YOUNGER THAN THE PHASE-4 QUARTZ-PYRITE-SERICITE ALTERATION AND QUARTZ VEINING. THE TAN CALCIFICATION IS RELATED TO PHASE-5 CALCITE-QUARTZ SELENITE VEINS. The tan carbonate probably is ankerite-siderite.				
43.3	54.9	142	180	Mild, pervasive phase-4 quartz-pyrite-sericite alteration zone that variably bleaches and silicifies the country rock. This zone contains bands of tan to pink-green coloured intense alteration. At 143'6"-145'6": Intense tan-coloured pyritic alteration containing a 0.5" thick quartz vein at 144'8". At 155': Phase-5 siderite-calcite seam with a narrow carbonate-rich alteration halo. At 166': Intense pyritic alteration. At 169'8"-170'6": intense phase-4 pyritic alteration with a 4"-thick quartz vein at 80° to core axis. This vein has traces of pyrite and chalcopyrite.	02-04 169/8-170/6 ft	2.2123		18.531
54.9	56.4	180	185	Fresh lahar with purple and green andesitic volcanic clasts and mauve calcite-rich matrix.				
56.4	67.1	185	220	Minor phase-4 fading and silicification of mauve lahar. At 199'-202': mild phase-5 siderite-calcite impregnation turning this section from faded mauve to tan. At 206'6"-207'8": intense tan-coloured phase-4 pyritic alteration containing a 0.75" thick quartz vein. At 210'6"-211'6": intense tan-coloured phase-4 pyritic alteration containing a 1-ft thick quartz vein with traces of pyrite.				
67.1	79.9	220	262	Moderately fresh mauve lahar with phase-2 and 3 white calcite stringers and scarce phase-1 epidote-calcite-quartz veins above 240 ft 9 (73.2 m). Below that, the phase-1 epidote-bearing fractures become more common. At 223': a 6" thick section of phase-5 siderite-calcite veining and alteration.				

Appendix 'B'
DDH 02-4, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth from (m)	to (m)	from (ft)	to (ft)	Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
79.9	81.7	262	268	Mildly silicified and bleached (phase-4) mauve lahar.				
81.7	91.6	268	301	Fresh lahar with volcanic clasts and mauve calcite-rich matrix.				
91.6	91.7	300'6"	301	Intense tan-coloured quartz-pyrite-sericite (phase-4) alteration containing a 0.5"-thick quartz vein.				
91.7		301		END OF HOLE				

Appendix 'B'
DDH 02-5, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-5	5510000 N. 677122 E.	1,476 4,841.3	000°	-60°	71.3 234

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth *from*	*to*	*from*	*to*	**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP)** *(gm/mt)*	**Au(Fire)** *(gm/mt)*	**Ag** *(gm/mt)*
m		**ft**						
0	9.5	0	31	Casing through overburden.				
9.5	16.5	31	54	Mild phase-4 quartz-pyrite-sericite alteration in mauve lahar with mostly andesitic volcanic clasts and a mauve matrix. Remnant phase-1 epidote-calcite-chlorite-quartz veins and alteration are common. There are about 5 phase-2 and 3 white calcite veins per foot of core. At 37'-45': intense tan-coloured pyritic alteration with narrow quartz stringers at 40 ft (12.2 m). This section is badly broken and partly gone to fault gouge. Recovery: above 45, 65%, below 45', 95%'.				
16.5	23.5	54	77	Moderately resh lahar with no bedding and a matrix that fades in and out from mauve to green.				
23.5	39.9	77	131	Mild phase-4 quartz-pyrite-sericite alteration in mauve lahar with mostly andesitic volcanic clasts and a mauve matrix. At 82'6"-83'7": intense phase-4 pyritic alteration containing a 2' thick quartz vein at 85 to core axis.. At 80'9"-81'6": intense phase-4 pyritic alteration containing a quartz stringer. At 84'3"-85'6": intense phase-4 pyritic alteration containing a 0.4' thick quartz vein. At 91'-92'2": intense phase-4 pyritic alteration containing 2 quartz stringers. At 95'5"-97': a 5"-thick quartz vein with small stringers of hematite after pyrite. At 127'6"-131': weak pervasive phase-4 alteration and silicification with a 0.5" thick quartz vein *at 85° to the core axis at 128'3".*				

Appendix 'B'
DDH 02-5, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
39.9	54.9	131	180	Mildly silicified and bleached lahar with a green matrix, mild remnant epidotization and lots of apparently resorbed volcanic or volcanisedimentary clasts. At 158'-164' remnant soft-sediment deformation in fine-grained part of the section. The volcanic mud wedge was moving and slumping after deposition. At 175'3": a 3"-thick phase-5 siderite layer.				
54.9	59.4	180	195	A mixture of fine ash layers at 45° to the core axis (BEDS ARE UPRIGHT) and thin green lahar layers (everything is green here)				
59.4	71.3	195	234	An assemblage of water-laid tuffs, thin lahar horizons with green matrix and mauve volcanic clasts slump deposits, and volcanic wackes (not greywackes). The volcanic wackes have compositions identical to the lahar including a carbonate-rich matrix, however, the volcanic wackes have crudely graded beds. They are epiclastic volcanogenic sediments that are interpreted to be the products of local turbidity currents due to rapid sloughing off of the lahar deposit. The only resemblance that these volcanic wackes bear to true sedimentary greywackes is their graded bedding.				
71.3		234		END OF HOLE				

Appendix 'B'
DDH 02-6, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-6	5510256 N. 677111 E.	1,485 4,870.8	035°	-60°	107.3 352

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
0	12.5	0	41	Casing through overburden.				
12.5	17.7	41	58	SHEAR ZONE in mauve lahar: The direction of shearing is 10 to 20° to the core axis. Lahar clasts are stretched to a 15:1 long axis:short axis ratio. Clasts are bleached to light pink and the matrix is a light mauve. At 44'6"-45'5": A narrow, phase-5 calcite-quartz vein cuts through the shear at 75° to the core axis. Thus this shear postdates phase-4 silicification and pyrite-gold deposition, and predates phase-5 carbonate-rich veins and shattering.				
17.7	18.3	58	60	Lahar with mauve to green volcanic clasts and a mauve iron and calcite-rich matrix				
18.3	21.6	60	71	Sheared lahar like at 41-58 ft (12.5-17.7 m).				
21.6	23.8	71	78	Sheared bedded tuff in which any original welding has been sheared out. Some layers may have been crystal tuff. This unit is very calcite-rich. At 78'-79': rotated block of tuff containing a phase-5 vein. Here, the shear postdates phase-5 vein development. It must have been active intermittently throughout phase 5 vein development.				
23.8	35.1	78	115	Sheared lahar like at 41-58 ft (12.5-17.7 m). At 97'9": Phase-5 carbonate-silicate vein cuts across the shear.				
35.1	36.9	115	121	Mauve lahar with both mauve and green volcanic clasts and a mauve calcite-rich matrix.				

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Appendix 'B'
DDH 02-6, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
36.9	59.1	121	194	Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in mauve lahar. This is associated with a typical loss of phase-1 propylitic alteration. At 121'3"-122'5": Intense phase-4 pyritic alteration with pyrite leached out due to proximity to phase-5 shear. This zone has gone to fault gouge in its centre. There are pieces of a very narrow phase-4 quartz vein in the gouge At 149'-150'7": Intense phase-4 pyritic alteration with a 2"-thick quartz vein at 149'8". At 154'-157': Intense phase-4 pyritic alteration with a quartz vein in fault gouge at 155'6"-155'7" *and a 1"-thick quartz vein at 156'10"*. At 172'2"-172'8": Intense phase-4 pyritic alteration flanking a 0.25"-thick quartz vein. At 173'10"-173'3": Intense phase-4 pyritic alteration flanking a 0.1"-thick quartz vein. At 173'10"-174'4": Intense phase-4 pyritic alteration flanking a 1"-thick quartz vein. At 179'11"-180'11": Intense phase-4 pyritic alteration flanking a 0.5"-thick quartz vein. At 189'-191': Intense phase-4 pyritic alteration flanking a 0.3"-thick quartz vein at 189'4". Recovery: Box 9, >90%	02-06 149/8-149/10 ft 02-06 189/7-191 ft	5.876 1.0337	6.49 1.30	51.207 6.938
59.1	61.3	194	201	Lahar with mauve to green volcanic clasts and a mauve iron and calcite-rich matrix. Mild phase-1 propylitic calcite-epidote-chlorite alteration is present.				
61.3	67.1	201	220	Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in mauve lahar. This is associated with a typical loss of phase-1 propylitic alteration. At 203'6"-204'6": Intense phase-4 pyritic alteration flanking 3 thin quartz stringers and fault gouge, pyrite content = >0.1%. 210'-213': Spotty intense phase-4 pyritic alteration flanking narrow quartz stringers.				
67.1	72.3	220	237	Mauve lahar like 194-201 ft (59.1-61.3 m) with sporadic very thin phase-4, quartz stringers. Recovery: Box 11, >98%.				
				Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in mauve lahar. This is associated with a typical loss of phase-1 propylitic alteration. At 246'-254'6":Intense phase-4 pyritic pinkish-green alteration, pyrite content = 0.5%. With quartz veins at: 251'8"-252'; white quartz-carbonate vein @ 45° to core axis 253'-253'8"; 2" vein @ 35° to core axis 254'1"-254'3": White quartz vein 1.5" thick At 257'8": 1"-thick quartz-calcite vein at 70° to core axis. At 266'10": 0.5" thick quartz-calcite vein at 70° to core axis.				

Appendix ‘B’
DDH 02-6, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix ‘A’.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
72.3	85.0	275	279	Lahar with mauve to green volcanic clasts and a mauve calcite-rich matrix.				
85.0	87.8	279	288	Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in mauve lahar. At 283'6"-284'6": Mildly intense phase-4 pyritic alteration flanking a 0.5"-thick quartz vein.				
87.8	89.6	288	294	Lahar with mauve to green, pebble to sand-size, volcanic clasts and a limonite and calcite-rich matrix. Recovery: Box 14, >98%.				
89.6	98.1	294	322	Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in mauve lahar. At 299'-300': moderately intense tan-coloured pyritic alteration partly gone to green fault gouge. At 301'-302': moderately intense tan-coloured pyritic alteration flanking 2 0.2"-thick quartz stringers. At 308'6"-309'6" and 313'6"-314': green fault gouge. At 318'9"-318'11": White quartz vein about 0.75" thick flanked by rinds of tan-coloured pyritic alteration.				
98.1	107.3	322	352	Lahar with mauve to green volcanic clasts and a mauve calcite-rich matrix. At 337'-339': Very mild phase-4 alteration hosting a 0.5" thick quartz vein with a trace of pyrite at 70° to core axis.				
107.3		352		END OF HOLE				
				NOTE: On the eastern side of the shear zone, the areas of phase-4 alteration and related intense tan-coloured pyritic alteration with core quartz veins seem to be wider and less intensely mineralized than those on the west side of it. Beneath 300 ft (91.4 m) in the hole, these zones become progressively narrower and less well-developed, perhaps indicating that the drill hole is penetrating a margin of the phase-4 system there.				

Appendix 'B'
DDH 02-7, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-7	5510251 N. 677258 E.	1,486 4,874.1	000°	-60°	125.9 413

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
0	6.4	0	21	Casing through overburden. NOTE: All of the stratigraphy in this hole is inverted.				
6.4	11.6	21	38	Mildly porphyritic andesitic flow. The rock is light greenish grey with stubby subhedral dark olive to grey hornblende and clinopyroxene phenocrysts. Hornblendes range up to 0.25" but are mostly 3 mm long (0.1"). Plagioclase crystals are zoned and white. They rarely exceed 3 mm (0.1"). Most of them are less than 1 mm. They are common throughout the matrix. Flow planes as defined by concentrations of phenocrysts are at about 45° to core axis. Hairline calcite and quartz veins fill tension gashes and shatters in the rock. These seem to be related to the phase-5 alteration and veining in the Sadim gold-quartz area farther west in Holes 02-1 to 3, 4 to 6. Limonite due to weathering coats fractures within 35 ft (10.7 m) of surface.				
11.6	20.1	38	66	Andesite flow-top facies: Hornblende and pyroxene phenocrysts are not present and plagioclase phenocrysts are less than 2 mm (0.1") long. The rock has a remnant cumuloid texture, similar to that of ropy lava. The cumuloids are defined by chloritic selveges. At 38'-46': the rock is badly broken up				
20.1	22.3	66	73	Andesitic flow, porphyritic interior facies like 21-38 ft (6.4-11.6 m).				
22.3	23.8	73	78	Andesite flow-top facies like 38-66 ft (11.6-20.1 m).				
23.8	25.3	78	83	Andesitic flow, porphyritic interior facies like 21-38 ft (6.4-11.6 m).				
25.3	28.0	83	92	Flow breccia.				
28.0		92		VOLCANIC-SEDIMENTARY CONTACT				

Appendix 'B'
DDH 02-7, Drill Log Summary
continued

Note: Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
28.0	42.7	92	140	Classic greywackes formed as turbidite beds: Sandy to silty graded beds passing upward to argillite layers. These are classic distal Bouma(1962) sequences. Most beds are less than 6" thick and have a large argillaceous component (E unit). Tops are inverted (down hole). Beds are at 45° to the core axis. Late generation phase-5 veins are present throughout this hole. By 132': the sand component of the turbidite beds is increasing. The water is euxinic, there is lots of pyrite in the fine-grained sediments. Clasts in lower graded 'A' units are all either quartz grains, rounded crystals, or volcanic rock fragments. This indicates a volcanic source terrain at the basin margin.				
42.7	47.9	140	157	Fine-grained, water-laid, non-welded tuff. Here, volcanic ash fall overwhelms background turbidite sedimentation. Tuff beds are massive to bedded light grey silty rocks. Between ash-fall pulses, turbidite input becomes comparatively more prevalent. Stratigraphy is still inverted.				
47.9	49.4	157	162	Porphyritic andesite flow like those near the top of the hole. Amphibole phenocrysts are 1-2 mm (0.3-0.6") long here.				
49.4	58.5	162	192	Mixed greywacke, tuff, and crystal tuff beds. Tops are still down, everything is inverted. At 186'-188': coarse-grained light tan to green, andesitic tuff with 0.25"-long fuami oriented at 45° to core axis. At 190'-191': Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration turns the tuffs to light green and bleaches greywacke beds.				
58.5	67.4	192	221	*Fine-grained tuffs:* Beds range from 0.1"-3 ft. Load casts at bed-bottoms and lack of welding confirms that these are water=laid, probably in deep quiet water. There is no evidence of current action. Tops are down, the sequence is still inverted. At 203-211: CALCAREOUS SHEAR THROUGH TUFFS about 50% of this rock is late calcite blebs and stringers oriented at 40° to core axis. Tuff beds are pulled out along the axis of the shear and bleached, chlorite is lost.				
67.4	68.6	221	225	Crystal tuff with abundant (60%) broken and sub-angular plagioclase crystals from sand-size up to 0.1" Volcanic rock fragments = 10%, Glass and pumice = 30%. This unit is tan-grey, bedding is at 45° to core axis. This rock is carbonate-poor but has common hairline calcite veins.				

Appendix 'B'
DDH 02-7, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from m	to	from ft	to					
68.6	70.4	225	231	Fine-grained tuff like at 192-221 ft (58.5-67.4 m). Recovery: Box 11 85%.				
70.4	70.7	231	232	Crystal tuff like at 221-225 ft (67.4-68.6 m) with 3" of inverse grading at the base. The core is badly broken all through the tuffs.				
70.7	81.1	232	266	Fine-grained grey to green tuffs with a slight reaction to 10% HCl indicating a moderate calcite content. At 254': There is some epidote alteration (phase-1) that precedes phase-2 and 3 calcite stringers.				
81.1	84.7	266	278	Crystal tuff like at 221-225 ft (67.4-68.6 m) with some soft-sediment deformation. At 272': abundant calcite veins.				
84.7	88.4	278	290	Fine-grained glassy tuff with abundant calcite.				
88.4	90.8	290	298	Medium-grained glassy crystal tuff with small volcanic clasts and a calcite-poor matrix. At 295': minor fault gouge, generally, the rock is becoming more competent.				
90.8	93.9	298	308	Fine-grained tuff with a few coarser-grained interbeds. Tops are down, beds are at 45° to core axis. This rock is mid-grey with the finest beds being the darkest colour. Recovery: Box 15, >98%.				
93.9	94.5	308	310	Medium-grained glassy tuff with 0.15"-long fuami and no welding.				
94.5	98.8	310	324	Fine-grained tuff like at 298-308 ft (90.8-93.9 m).				
98.8	99.7	324	327	Light tan-coloured crystal tuff.				
99.7	101.8	327	334	Fine-grained tuff altered partly to fault gouge clay. This rock produces purple fault gouge with a very low calcite content.				

Appendix 'B'
DDH 02-7, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
101.8	104.5	334	343	Lahar with mauve to green volcanic clasts up to 2" across in a mauve calcite-chlorite-epidote rich matrix. Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in mauve lahar.				
104.5	106.7	343	350	Silty interbeds in fresh mauve lahar. Beds are at 45° to core axis.				
106.7	107.9	350	354	Bleached lahar like at 334-343 ft (101.8-104.5 m).				
107.9	109.8	354	360	Fine grained tuff. Silicified and turned pink due to phase-4 alteration.				
109.8	110.3	360	362	Pink, silicified medium-grained tuff.				
110.3	110.9	362	364	Bleached lahar like at 334-343 ft (101.8-104.5 m).				
110.9	111.6	364	366	Fine grained tuff. Silicified and turned pink due to phase-4 alteration.				
111.6	114.9	366	377	Fine-grained green tuff.				
114.9	118.6	377	389	Fine-grained mauve lahar with Volcanic wacke interbeds. This looks like a distal facies of the lahar found in holes 02-1 to 6.				
118.6	122.2	389	401	Fine and medium-grained grey-green tuff.				
122.2	125.9	401	413	Fine-grained grey tuff. At 408'-409': fault gouge				
125.9		413		END OF HOLE				

Appendix 'B'
DDH 02-8, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-8	5510269 N. 677423 E.	1,485 4,870.8	000°	-60°	49.7 163

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth from m	**to m**	**from ft**	**to ft**	**Details of rock unit penetrated**	**Significant Sample No.**	**Au(ICP) (gm/mt)**	**Au(Fire) (gm/mt)**	**Ag (gm/mt)**
0	49.7	0	163	(Cursory examination) This hole cuts through an upright sequence of fine-grained, silty greywackes. The hole was shut down because the volcanic stratigraphy present in holes 02-1 to 7 was not present in this hole. Recovery: > 99%.				
49.7		163		END OF HOLE				

Appendix 'B'
DDH 02-9, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-9	5510041 N. 677084 E.	1,478 4,847.8	000°	-60°	159.4 523

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth from m	to m	from ft	to ft	Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
0	2.4	0	8	Casing through overburden				
2.4	13.7	8	45	Mauve volcanic wackes and lahars. This is the marginal facies of the lahar encountered in holes 02-1 to 4 and 6. These volcanic wackes have compositions identical to the lahar including a carbonate-rich matrix, however, the volcanic wackes have crudely graded beds. They are epiclastic volcanogenic sediments that are interpreted to be the products of local turbidity currents due to rapid sloughing off of the lahar deposit. The only resemblance that these volcanic wackes bear to true sedimentary greywackes is their graded bedding. Volcanic wacke beds are up to 5 ft (1.5 m) thick and are oriented at about 50° to the core axis. There is lots of soft sediment deformation visible in the fine-grained parts of the wacke beds. The whole mass seems to be slumping and creeping down-slope while it is being deposited. At 25'-26' brown-orange limonite in partly oxidized zone, probably due to weathering.				
13.7	14.8	45	48'8"	Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in fine-grained mauve laharic volcanic wacke. These finer grained beds are crudely graded and are about 3 ft thick. Phase-4 Quartz veins at: 45'5"-45'6", 46'10", 47'6", 48'4".				
14.8	31.4	48'8"	103	fine-grained mauve laharic volcanic wacke beds with lots of soft-sediment deformation structures. At 53'-54': Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in fine-grained mauve laharic volcanic wacke containing a 1" quartz vein. White quartz veins with traces of oxidized pyrite at: 67'5" (0.5"thick vein) 72' (0.5"thick vein) 77' 0.25"thick vein. Some of the silicified parts of this section are mildly oxidized causing pyrite replacement by limonite. At 95'3"-95'8": Phase-4 silicified section with a 0.1" thick quartz vein. At 100'-101'4": Phase-4 silicified section with 5 narrow quartz stringers. At 102'7"-103'4": Phase-4 silicified section with a 1" thick quartz vein	02-09 102/7-103/4 ft	3.0412		23.949

Appendix 'B'
DDH 02-9, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth from	to	from	to	Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
m		ft						
31.4	38.1	103	125	Transition between mauve lahar mudflow beds and marginal graded volcanic wackes. Clasts are up to cobble size.				
38.1	57.6	125	189	Assemblage of laharic volcanic wackes and arkosic wackes that may be redeposited tuffs and tuff breccias. The arkosic wackes have been so named because they have a greater abundance of plagioclase clasts than rock fragments all in a green chloritic (volcanic matrix). These are NOT classic arkosic wackes derived from a granitic terrain. At 122'-122'10": Phase-4 silicified section with a 0.5" thick quartz vein. At 163': 2" thick rusty fault gouge. Beneath 155': Phase-1 calcite-epidote-quartz veins occur at all angles to core axis averaging about 3 veins per foot. Here they have no pyrite. Phase-2 and 3 calcite veins are here in a similar abundance to phase-1 veins				
57.6	63.7	189	209	Variably reworked water-laid tuffs with a few laharic volcanic wackes (about 20% of the sequence here). At 193'-193'8': Broken rock and fault gouge.				
63.7	77.1	209	253	Sandy to pebbly volcanic wacke derived from lahar deposits. Beds are upright and about 5 ft thick. The matrix varies from mauve to light green. This colour does not seem to be related to original bed composition. These strata look as though they have a large fine-grained ash component and are quite calcareous. Recovery: >98%.				
77.1	86.3	253	283	Tuff and crystal tuff with slump structures throughout. At 253'-258': Bleaching and fault gouge. At 265'5"-265'11": GALENA AND PYRITE in a 4"-thick quartz vein at 80° to the core axis. At 273'-283': Phase-4 quartz veins ranging from 0.25-0.5" thick cut across the core at a 70-80° angle. There is about 1 vein per foot of core. At 268'-270': 3" thick sections of fault gouge.	02-09 265/5-265/11 ft	48.0558		>99.999
86.3	89.9	283	295	Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration in fine-grained mauve lahar. This section is badly broken Recovery = 80% .				

Appendix 'B'
DDH 02-9, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.8 gm/mt (ppm) gold (ICP). All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Au(ICP) (gm/mt)	Au(Fire) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
89.9	99.1	295	325	Tuff and crystal tuff like at 253-283 ft (77.1-86.3 m). At 313'-318': Phase-4 bleached and silicified section containing 2 quartz stringers. Recovery + >98%.				
99.1	119.8	325	393	Tuffs, tuff breccias and agglomerates mostly with a mauve matrix. At 350'-356': This section has pervasive phase-1 epidote alteration. At 365'-375' and 382'-392':Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration carrying some quartz-calcite-chlorite stringers.				
119.8	133.5	393	438	Volcanic wackes (marginal phase of lahar deposits) with crudely graded beds. By 400': Mild, pervasive silicification and bleaching due to phase-4 quartz-pyrite-sericite alteration turns the rock to light green to tan. Quartz veins and stringers are very poorly developed. At 413'-423': Light grey fault gouge, recovery here is 80%. At 422': More phase-4 alteration turning the rock to a light tan colour Pyrite content = 0.25%. At 428'-436': Some narrow quartz veins occur in this section but the rock is too broken up to measure them.				
133.5	160.3	438	526	Phase-5 shear zone in Volcanic wackes: Phase-4 silicification and pyritization has been overprinted by subsequent shearing that was sufficiently ductile to stretch clasts out to a 5:1 ratio, (long: short axis). By 464': Everything is stretched out at least 5:1. Recovery = 85% At 464'-470': grey green fault gouge. At 500'-523': tan to grey fault gouge, recovery = 30-40%. This may be the basal shear that Watson encountered in the 1987 drilling.				
160.3		526		END OF HOLE				

Appendix ‘B’
DDH 02-10, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-10	5512960 N. 677750 E.	1,479 4,851.1	270°	-48°	213.4 700

Note: Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu.
All sample results from this drill hole are recorded in Appendix ‘A’.

Depth				Details of rock unit penetrated	Significant Sample No.	Cu %	Au(ICP) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
0	6.1	0	20	Casing through overburden and weathered rock.				
6.1	13.1	20	43	Porphyritic andesite flows. This rock is very crumbly and in part weathered to clay (illite-montmorillonite). This unit has thin calcite veins (phase-2 and 3) with small local accumulations of marcasite and chlorite.				
13.1	21.6	43	71	Mid-green porphyritic andesite flows with zoned, lath-like plagioclase phenocrysts suspended in an intermediate matrix. Mafic minerals have been altered to minute, green biotite and chlorite crystals. Fractures: Phase-1: Thin epidote-chlorite-quartz =/- calcite fractures at many angles to the core axis. A late stage of these fractures is the development of hairline pyritic stringers that either are hosted within or crosscut the phase-1 veins. Phase 2: White calcite-filled fractures and tension gashes at moderate to low angles to the core axis. Phase-3: White calcite filled fractures that cut across the Phase-2 fractures and gashes. Phase-4: Silicification, sericitization and pyritization that bleaches the rock in its mild form and turns it to a tan colour in areas of intense alteration. This seems to be related to the mineralization in the Sadim gold area. Here, in the KR-Rum area, this phase of alteration is comparatively rare. By 61': Phase-1 fractures commonly contain 0.5% pyrite and have bleached alteration haloes up to 1 cm (0.4 ') across. Some phase-2 calcite veins have dark green chloritic margins. At 71': a 0.5" thick white quartz vein.				
21.6	22.3	71	73	Bleached porphyritic andesite with blebs and hairline stringers of pyrite oriented at 20° to the core axis.				

Appendix 'B'
DDH 02-10, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu.**
All sample results from this drill hole are recorded in Appendix 'A'.

Depth from (m)	Depth to (m)	Depth from (ft)	Depth to (ft)	Details of rock unit penetrated	Significant Sample No.	Cu %	Au(ICP) (gm/mt)	Ag (gm/mt)
22.3	30.8	73	101	More porphyritic andesite flows. Alteration envelopes of early epidote-rich veins widen to up to 1" in this part of the sequence. They are slightly more siliceous and contain small sporadic concentrations of minute tourmaline blades. It seems as though a quartz-pyrite-tourmaline phase of alteration is actually a late development from the initial epidote-quartz-chlorite alteration. At 101': A thin phase-4 quartz-chlorite vein crosses a phase-3 carbonate vein at 70° to core axis. The rock in this hole is quite broken. Recovery = 90-95%.				
30.8	39.6	101	130	More porphyritic andesite. Here, the rock is variably bleached throughout. Dark green chlorite porphyroblasts have grown up to 3 mm across in the matrix. Vein density has increased to 4 per inch. Most veins are epidote-rich.				
39.6	42.7	130	140	Fine-grained andesite (probably a tuff bed) . Alteration is mild but pervasive. Veins have very narrow bleached alteration haloes.. Hematite after pyrite is common on fracture planes. At 131'8": a 2"-thick epidote vein at 80° to the core axis. At 135'10": 0.5'-thick calcite-epidote vein.				
42.7	67.1	140	220	Andesitic tuffs and crystal tuffs. Veining and alteration is less obvious in these rocks than it was in the flows higher in this hole. At 157'6": a 2"-thick epidote vein with hematite blebs after pyrite. At 178': Graded bed top: THE SEQUENCE IS UPRIGHT HERE. Some cross-beds indicate that these tuffs are water-liad. Vein density of phase-1 epidote-rich veins is down. By 205': Calcite-epidote veins have sparsely disseminated blebs and wisps of fine-grained pyrite. A 0.25" thick vein occurs every 2 to 3" in the core. There are about 3 hairline, epidote-filled fractures per inch, generally at 50" to the core axis.				
67.1	69.2	220	227	Very fine-grained tuff. Pyrite occurs in anastomosing and throughout the matrix. The total pyrite content here is about 0.5% which is about 10 times the normal amount in this rock.				
69.2	72.8	227	239	Fine-grained, mildly altered andesitic tuffs like at 140'-220' (42.7-67.1 m).				
72.8	79.2	239	260	Fine-grained andesitic tuff. MILD POTASSIC ALTERATION: K-feldspar replaces about 10° of the plagioclase in this section imparting a variable pink-red blush to the andesite. Alteration is best-developed adjacent to phase-1 pyritic veins. K feldspar alteration declines to nil by 260' down the hole.				

Appendix 'B'
DDH 02-10, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu.**
All sample results from this drill hole are recorded in Appendix 'A'.

Depth				Details of rock unit penetrated	Significant Sample No.	Cu %	Au(ICP) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
79.2	82.9	260	272	Agglomerate and tuff breccia beds.				
82.9	89.3	272	293	Andesitic crystal tuffs and tuff breccias with crudely graded beds that are an average of 1' thick. There are very few quartz-pyrite-epidote veins here. There is almost no bleaching or alteration.				
89.3	94.5	293	310	Interlayered crystal tuffs, tuff breccias and agglomerate. Clasts are up to pebble-size, all are andesitic. The rock is all greyish green with lots of chlorite porphyroblasts in the matrix. There is no significant alteration or veining.				
94.5	114.3	310	375	More interlayered crystal tuffs, tuff breccias and agglomerate. KR HORIZON: Mild K-FELDSPAR REPLACEMENT OF PLAGIOCLASE gradually increases. QUARTZ-PYRITE+/- K FELDSPAR, TOURMALINE, AND TRACE CHALCOPYRITE occur about every 3-6" in the core. Most of these veins are very thin. By 331': MANY OF THE FRACTURES ARE PRIMARILY CHALCOPYRITE-FILLED. K-alteration is becoming slightly stronger around chalcopyrite-rich veins, howeverr, it does not form distinct haloes around them. Small amount of red-brown biotite is present with the k-feldspar alteration. Epidote-calcite veins and stringers cut the potassic alteration. May be they are retrograde propylitic alteration. Late (phase-5 related) chloritic fractures cut across everything.	02-10			
					310-315 ft	0.21	0.1905	1.005
					315-320 ft	0.22	0.0888	1.196
					320-325 ft	0.36	0.0902	1.314
					325-330 ft (lost)			
					330-335 ft	0.19	0.0953	0.948
					335-340 ft	0.24	0.0967	1.118
					340-345 ft	0.20	0.0369	0.704
					345-350 ft	0.18	0.0442	0.560
					350-355 ft	0.12	0.0227	0.428
					355-360 ft	0.16	0.0482	0.590
					360-365 ft	0.13	0.1231	0.631
					365-370 ft	0.11	0.0158	0.446
					370-375 ft	0.11	0.0383	0.565
114.3	125.0	375	410	More interlayered crystal tuffs, tuff breccias and agglomerate. The K alteration is dimishing. It is mostly in thin potassic veins. The viens and matrix is pyritic but there is no visible chalcopyrite at this level in the hole.				
125.0	155.5	410	510	Porphyritic andesitic flows with almost no K-feldspar alteration of plagioclase. However there are epidote-chlorite-calcite veins throughout this section and propylitic alteration in the matrix is pervasive. Propylitic alteration both pre-dates and post-dates K-feldspar growth. At 540': Flows are about 10' thick. At 490-495': Numerous blebs of PYRITE AND TRACE CHALCOPYRITE. At 500-503' K-feldspar replacement of plagioclase is significant here.				

Appendix 'B'
DDH 02-10, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu.**
All sample results from this drill hole are recorded in Appendix 'A'.

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Cu %**	**Au(ICP) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
155.5	160.9	510	528	These appear to be andesitic crystal tuffs with slump structures, however, they could be flows. Pyrite content is rising to about 0.25%. There are lots of pyritic blebs about the size of navy beans throughout this section.				
160.9	175.3	528	575	Silicification and bleaching becomes more intense as pyrite content declines to about 0.1%. By 560': Pyritic blebs and veins are scarse; however, there is still lots of pyrite throughout the matrix of this rock .				
175.3	184.7	575	606	Andesitic tuff breccias and agglomerates. All of this unit is bleached and silicified. Carbonate is present only in phase-2 and 3 veins. At 584'-589': Tuff breccia with bleached pebble-size clasts and a green chloritic matrix. Beneath 599': Bleaching is becoming less pervasive and is confined mostly to around hairline fractures. The rock is still quite pyritic.				
184.7	192.0	606	630	Bleached light crystal tuffs or flows with pyritic matrix (1% pyrite) silicification seems to post-date phase-2 and 3 calcite veins. Probably it is phase-4 bleaching. Phase-1 propylitic epidote mineralization survives in less bleached areas only				
192.0	213.4	630	700	Variably bleached and silicified tuffs and agglomerates.. Graded beds indicate that the stratigraphy here is upright. At 660'-695': area of weak K-feldspar replacement of plagioclase overprinted by bleaching				
213.4		700		END OF HOLE				

Appendix 'B'
DDH 02-11, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m)	Elevation (ft)	Bearing	Dip	Length (m)	Length (ft)
02-11	5512960 N. 677750 E.	1,479	4,851.1	090°	-45°	169.2	555

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu. All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Cu %**	**Au(ICP) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
0	6.7	0	22	Casing through overburden and weathered rock. This is the same location as hole 02-10.				
6.7	16.5	22	54	Mid-green porphyritic andesite flows with zoned, lath-like plagioclase phenocrysts suspended in an intermediate matrix. Mafic minerals have been altered to minute, green biotite and chlorite crystals. Fractures: Phase-1: Thin epidote-chlorite-quartz =/- calcite fractures at many angles to the core axis. A late stage of these fractures is the development of hairline pyritic stringers that either are hosted within or crosscut the phase-1 veins. Phase 2: White calcite-filled fractures and tension gashes at moderate to low angles to the core axis. Phase-3: White calcite filled fractures that cut across the Phase-2 fractures and gashes. Phase-4: Silicification, sericitization and pyritization that bleaches the rock in its mild form and turns it to a tan colour in areas of intense alteration. This seems to be related to the mineralization in the Sadim gold area. Here, in the KR-Rum area, this phase of alteration is comparitively rare. At 40'-45': 0.5"-thick epidote-calcite veins parallel with core axis.				
16.5	39.6	54	130	Porphyritic andesite flows that are mildly pervasively bleached to a light greenish tan colour. Pyrite segregations and blebs are disseminated throughout. *At 65'-65'3": White phase-4 quartz vein 0.5" thick. Bleaching is accompanied by sericitization.* At78'6"-78'10": Flow-top breccia with dark chloritic and pyritic matrix. Total pyrite content = <1%. At 101'-115': Phase-4 silicification, bleaching and alteration turns the andesite to a light greenish tan colour. At 101'-103': Quartz flooding in a flow top. At 115'-118': This section is bleached to an almost white colour. There is no remnant phase-1 propylitic alteration visible here. Some of the phase-2 to 3 calcite veins survive here. By 125': Bleaching becomes much less intense.	02-11 65-70 ft	0.11	0.0565	0.651

Appendix 'B'
DDH 02-11, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu.**
All sample results from this drill hole are recorded in Appendix 'A'.

Depth				Details of rock unit penetrated	Significant Sample No.	Cu %	Au(ICP) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
39.6	53.3	130	175	Light green andesitic flows. At 130'-135': Flow with abundand pyrite blebs throughout. Pyrite content =2%. By 145': Hairline chlorite-pyriote veinlets occur at all angles to the core axis. At 160'-165': Folw-top breccias with 2% pyrite in matrix among the pebble-size volcanic clasts.. At 168'-175': Area of mild phase-4 alteration and silicification. Here the flows are light green. There is some phase-1 propylitic epidote-calcite-pyrite-chlorite veins and stringers have survived the bleaching.	02-11 130-135 ft	0.12	0.0785	0.322
53.3	60.4	175	198	Highly silicified volcanic rock that has been bleached almost white. At 182'-193': mostly very light green fault gouge.				
60.4	75.0	198	246	Agglomerate and tuff-breccia beds containing up to 0.5% pyrite in blebs among the volcanic clasts. Phase-4 alteration and bleaching is mild. This rock is light green. At 223'-224': TRACES OF K-FELDSPAR REPLACING PLAGIOCLASE. At 236'-250': Traces of k-feldspar replaces plagioclase every few feet.	02-11 205-210 ft	0.11	0.0700	0.883
75.0	80.8	246	265	Very mildly bleached tuffs and agglomerates. Pahse-2 propylitic veins and later crosscutting phase-2 to 3 clacite vsins are common. Phase-1 veins have pyrite-epidote haloes and concentrations near them.				
80.8	89.9	265	295	KR HORIZON: Tuffs and agglomerates with remnant phase-1 potassic alteration in phase-4 silicification, bleaching and alteration. Traces of CHALCOPYRITE are visible in phase-1 veins. At 265'-273': The rock here is partly fault gouge.	02-11 265-270 ft 270-275 ft 275-280 ft 280-285 ft 285-290 ft 290-295 ft	0.20 0.15 0.08 0.12 0.13 0.10	0.2028 0.1081 0.0630 0.0976 0.1150 0.0437	0.846 0.763 0.378 0.542 0.555 0.418
89.9	100.6	295	330	Fine-grained green tuffs with about 1% pyrite. There is no significant phase-4 bleaching and alteration visible here. Early phase-1 propylitic epidote-calcite chlorite veins are overprinted to a minor degree by a pink blush due to K-feldspar replacement of plagioclase. This pre-dates phase-2 calcite gashes and phase-3 calcite veins. Chloritic fractures with slicken sides cut everything. At 324'6": there is a trace of chalcopyrite here. At 329'6": A 1"-thick phase-4 quartz-pyrite vein				

Appendix 'B'
DDH 02-11, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu. All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				**Details of rock unit penetrated**	**Significant Sample No.**	**Cu %**	**Au(ICP) (gm/mt)**	**Ag (gm/mt)**
from	**to**	**from**	**to**					
m		**ft**						
100.6	115.8	330	380	Mildly bleached agglomerate beds oriented at 45° to the core axis. Irregular phase-4 bleaching gives the rock a mottled grey-green colour. Pyrite content = 2%. A little remnant K-feldspar alteration remains in patches in less bleached parts of the rock. It seems that pyrite development occurred both during phase-1 and phase-4 alteration. By 370': Pyrite content has dropped to 0.5%. Bleaching is diminishing and phase-1 epidote-calcite-chlorite mineralization is confined to 0.1"-thick cross-cutting fractures.				
115.8	177.5	380	484	Crystal tuffs and tuff-breccias with graded beds that indicate that stratigraphy is upright here. Everything is andesitic. Pyrite content = 0.25%. Phase-4 bleaching is minor. Epidote-bearing fractures occur only every 2 ft (0.6 m). By 400': The rock is becoming increasingly broken up. At 435'-435'6": A phase-4 quartz-chlorite vein is at about 50-70° to the core axis. The core is too fragmented to measure the viein. By 440': The tuffs are becoming increasingly fine-grained. At 455'-481': The rock is mostly green fault gouge.				
177.5	153.9	484	505	Mild, pervasive phase-4 alteration, bleaching and silicification in andesitic tuffs turning them to a grey-tan colour. Any phase-1 propylitic alteration has been leached out.				
153.9	169.2	505	555	MISSEZULA MOUNTAIN FAULT: At 505'-545': Green fault gouge. At 545'-551': Black carbonaceous fault gouge, probably pyritic. At 551'-555': Green fault gouge.				
169.2		555		END OF HOLE				

Appendix 'B'
DDH 02-12, Drill Log Summary

Hole No.	U.T.M. Location	Elevation (m) (ft)	Bearing	Dip	Length (m) (ft)
02-12	5512841 N. 677613 E.	1,484 4,867.5	000°	-45°	140.5 461

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu.**
All sample results from this drill hole are recorded in Appendix 'A'.

Depth from (m)	Depth to (m)	Depth from (ft)	Depth to (ft)	Details of rock unit penetrated	Significant Sample No.	Cu %	Au(ICP) (gm/mt)	Ag (gm/mt)
0	6.1	0	20	Casing through overburden.				
6.1	9.5	20	31	Porphyritic andesite flows. Phenocrysts are 65% plagioclase, and about 35% chlorite+/-biotite (regional metamorphic assemblage) with, 0.1% pyrite. Beds are at about 45° to the core axis. At 20'-31': Fractures contain black, red-brown, and orange limonite. This section is very broken.				
9.5	11.9	31	39	Contorted, brecciated andesite with quartz flooding and 1% pyrite. Recovery 85%.				
11.9	18.3	39	60	More porphyritic andesite flows like at 20-31 ft (6.1-9.5 m). At 57'-59': Badly broken ground. Recovery = 30% here.				
18.3	21.0	60	69	Another brecciated pyritic section like at 31-39 ft (9.5-11.9 m). These seem to have been flow-top breccias.				
21.0	27.4	69	90	More porphyritic andesite flows like at 20-31 ft (6.1-9.5 m).				
27.4	63.1	90	207	MAJOR FAULT ZONE through porphyritic andesite flows or tuffs. This probably is one of the northwesterly trending offsets of the Missezula Mountain fault that were identified in earlier geophysical programs. At 90'-107': Broken rock and fault gouge. By 140': The condition of the rock becomes worse By 147': Drilling is slowed to a crawl by broken rock and fault gouge.				
63.1	66.1	207	217	Very fine-grained dacitic ash layer.				
66.1	67.4	217	221	The ash layer coarsens downward to an andesitic crystal tuff.				

Appendix 'B'
DDH 02-12, Drill Log Summary
continued

Note: **Significant Samples are arbitrarily defined as those that contain more than 0.1% Cu. All sample results from this drill hole are recorded in Appendix 'A'.**

Depth				Details of rock unit penetrated	Significant Sample No.	Cu %	Au(ICP) (gm/mt)	Ag (gm/mt)
from	to	from	to					
m		ft						
67.4	100.6	221	330	Crystal tuffs with abundant broken plagioclase phenocryst clasts. Some of the bed bottoms have load casts. These are water-laid tuffs. At 249'-253': Bed top with 3% pyrite is an olive to tan colour with a cumuloid texture. Beneath 259': Quartz-epidote veins occur in the core every 2 ft. They are increasing in abundance gradually. Phase-2 and 3 carbonate veins are similar all through this section. They cut across the propylitic veins and fill gashes. At 329'-329'6": Here, there are 2 quartz-epidote veins, each about 4" thick with 1 mm -thick pyrite stringers along their margins.				
100.6	106.7	330	350	KR HORIZON (UPPER PART): Olive-tan-light green zone that resembles a flow-top breccia or agglomerate. This whole section contains >2% pyrite	02-12 331-335 ft 335-340 ft 340-345 ft 345-350 ft	 0.11 0.09 0.09 0.09	 0.0358 0.0355 0.0357 0.0427	 0.771 0.845 0.658 2.155
106.7	112.8	350	370	Medium to fine-grained tuffs with graded beds 5 to 15 ft (1.5 to 4.6 m) thick. At 361':4"-thick section flooded with quartz and pyrite with a small amount of K-feldspar alteration in plagioclase.				
112.8	124.1	370	407	KR HORIZON (LOWER PART): Moderately bleached and silicified (phase-4) crystal tuffs with remnant phase-1 propylitic and minor K-feldspar alteration. The phase-4 alteration has leached out a lot of the horizon's original mineralization and alteration in this hole.	02-12 375-380 ft 380-385 ft 385-390 ft 390-395 ft 395-400 ft 400-405 ft 405-410 ft	 0.08 0.03 0.06 0.07 0.07 0.07 0.05	 0.0378 0.0144 0.0208 0.0118 0.0306 0.0330 0.0280	 0.480 0.141 0.292 0.277 0.260 0.320 0.681
124.1	140.5	407	461	Bleached, pyritized, and silicified tuffs with no K-feldspar alteration. By 430': 0.25" chlorite porphyroblasts are sparsely disseminated throughout the rock. By 450': Phase-4 aalteration, silicification, pyritization and bleaching are becoming less intense.				
140.5		461		END OF HOLE				

APPENDIX 'C'

CERTIFICATE OF QUALIFICATION

I, John Ostler, of 2224 Jefferson Avenue in the City of West Vancouver, Province of British Columbia do hereby certify:

That I am a consulting geologist with business address at 2224 Jefferson Avenue, West Vancouver, British Columbia;

That I am a graduate of the University of Guelph in Ontario where I obtained my Bachelor of Arts degree in Geography (Geomorphology) and Geology in 1973, and that I am a graduate of Carleton University of Ottawa, Ontario where I obtained my Master of Science degree in Geology in 1977;

That I am registered as a Professional Geoscientist with the Association of Professional Engineers and Geoscientists of British Columbia, that I am registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta, and that I am a Fellow of the Geological Association of Canada;

That I have been engaged in the study and practice of the geological profession for over 30 years, and as a result of my experience and qualification, I am a Qualified Person as defined in National Policy 43-101;

That I have conducted exploration on porphyry copper projects in Nevada and Washington state for Occidental Minerals Corp. (USA) in 1977, in the Nicola volcanic belt for Newmont Exploration (Canada) in 1978, and I developed a porphyry molybdenum project for Enfield Resources Inc. (one of my own public companies) from 1981 to 1982. During the 1980s and 1990s, I examined several porphyry copper prospects for a diverse group of clients. From 1997 to 2000, I explored an alkalic porphyry copper project in the Pelambres camp of north-central Chile for Rock Resources Inc;

That I have conducted exploration on mesothermal gold veins for Occidental Minerals Corp. (USA) from 1976 to 1977 in Washington state and Wyoming, in Yukon and NWT for Sovereign Metals and Logan Mines from 1979 to 1980, on the northern coast of British Columbia for Enfield Resources and Arnhem Explorations (my own public companies) from 1982 to 1984, and on the southern coast of British Columbia for Norwood Resources and Thurlow Resources from 1997 to present. I have examined mesothermal gold-vein prospects for a diverse group of clients since 1979;

That this report is based on data in the literature and exploration of the Sadim property personally conducted at the following dates, during which times I examined the property and logged drill core during the 2002 exploration program:

November 21 to 28, 2001
June 10-14, 2002
July 5 to 12, 2002
August 6 to 8, 2002.

That I am the sole author of this report and all sources of information not based on my personal knowledge of the Sadim property are referenced in a standard format. In my opinion, the record of previous exploration on the Sadim property are reasonably accurate and correct;

That in matters concerning legal title to the Sadim property and on economic, environmental, and legal aspects of developing a mine in British Columbia, I have relied upon information published by the governments of British Columbia and Canada. I am not licenced to practice law in British Columbia, and I disclaim responsibility for the opinions quoted upon the aforementioned matters;

That I have no interest in the Sadim property nor in the securities of Toby Ventures Inc., nor do I expect to receive any. I am independent of Toby Ventures Inc. as defined by Section 1.5 of National Instrument 43-101;

That I am unaware of any material fact or change with respect to the subject matter of this report that is not reflected within it. I have read National instruments 43-101 and 43-101F1 and I believe that this report is in a form that complies with them.

John Ostler

JOHN D. OSTLER

West Vancouver,
British Columbia
September 30, 2002

John Ostler; M.Sc., P.Geo.
Consulting Geologist

APPENDIX 'D'

Costs and Details of Work Performed during the 2002 Exploration Program

Wages:

C. Dyakowski, P. Geo, Project Manager	31 days @ 400/day	$12,800.00
John Ostler, M.Sc, P.Geo, Geologist	26.75 days @ $400/day	10,700.00
Mike Schmidt, Field Coordinator/ Core splitter	54.5 days @$200/day	10,900.00
Ken Hicks, BSc, P. Geo, Consultant	2.5 days@$400/day	1000.00
J.J. McDougall, M.Sc, P. Eng, Consultant	10 days @ $500/day	5000.00

Transportation:

Truck Rentals (2)	7229.76
Fuel	2250.40
Tolls	280.00

Meals and Accommodation:

105 man days @ $55/night	5775.00
Misc meals and groceries	569.27

Contractors

Guy Delorme Diamond Drilling	
Drilling of 2829 ft @ $20/ft	56,580.00
Beaupre Diamond Drilling Ltd	
Drilling of 1716 ft @ $20/ft	34,320.00
Reducing Time 15hrs @$95/hr	1425.00
Reclamation of drill sites and trenches	1540.00

Rentals:

Core splitter for 2 months @ $150/mo	300.00

Assays:

Acme Analytical Labs	$2833.77
Eco tech Laboratory Ltd	143.50

Report Preparation:	
John Ostler, MSc, P.Geo	11,400.00
Printing	528.52
TOTAL	**$165,575.22**