REPORT ON GEOLOGICAL EVALUATION

OF

SOMBRIO POINT PLACER PROPERTY

Placer Mining Leases Nos. 1109 to 1116, 1132, 1133, 1137, 1138, 1517 to 1519, 3161, 5878, 9948, 10172, 10309, 10310, 10472, 10473, 10486 to 10489, 10836, 10837, 11111 and 11112.

Located in: Victoria Mining Division
NTS 92C/8 and 9
Latitude 48°30',
Longitude 124°15'

Owners: Ian Sherwin and Triangle Ventures Ltd.

Operators: Triangle Ventures Ltd.

Consultant: Reimchen Urlich Geological Engineering

Authors: C.M. Urlich, T.H.F. Reimchen and E. Bakker

Dates Work Done: Sept. 2, 1983 to Jan. 16, 1984.

June 15, 1984
File 105-07

Ministry of Energy, Mines and Petroleum Resources
The Gold Commissioner
Province of British Columbia
Victoria, B.C.

Dear Sir,

Please find enclosed:

(1) Two copies of an assessment report on Triangle Ventures Ltd's placer leases at Sombrio Point on Vancouver Island;

(2) Two sets of affidavits on application to record work on the leases;

(3) Two sets of notice to group forms for the leases; and

(4) Cheques of $310.00 for grouping and $3100.00 for recording work.

If you have any questions or comments regarding this work, please contact either Ebo Bakker or me. Thank you for your assistance.

Yours truly
REIMCHEN URLICH GEOLOGICAL ENGINEERING

Pat Whiting, Geologist

Nuspar Resources Ltd.,
305 - 535 Thurlow Street
Vancouver, B.C.
V6E 3L2

January 16, 1984
File 118-02/03

Attention: Mr. H.S. Aikins, President

Dear Sirs:

Please find enclosed our "Report on Bulk Sample Concentration Testing, Particle Mineralogy Analyses, and Gold Recovery Chemistry Studies, Sombrio Point Placer Property, for Nuspar Resources Ltd., pursuant to Option Agreement between Triangle Ventures Ltd. and Nuspar Resources Ltd.".

This report follows up on our earlier reports on "Precious Metal Potential" and "Preliminary Evaluation of Mine Equipment and Process Technology" that were completed for Triangle Ventures Ltd. in May and November 1983, respectively.

The present report summarizes analyses performed on ten bulk samples that were collected to represent a wide geological and geographical coverage of the lease area at Sombrio Point held by Triangle. Seven of the sample locations occur in or near an area that is of current interest to Nuspar.

Test work was conducted in laboratories in Vancouver, Edmonton, Pennsylvania and California under the direction of chemists and scientists experienced in placer gold recovery. Concentration work was performed on a compound water cyclone plant which is regularly used for coal testing. Economic reasons dictated the use of this particular test plant. Gold recovery and chemistry analyses were completed by several chemical separation techniques with gravimetric and spectroscopic finishing.

The results presented and discussed in this report are very encouraging and at a minimum support data presented in our May 1983 report. Based on these results, we recommend that the next phase of work consist of more accurately establishing the geology and depositional history of the property, better resolving the complex chemistry and gold recovery potential of the deposit, and operating a compound water cyclone concentrating system for pilot testing on site.

...... page 2

If you have any questions or comments concerning this report, or if additional information is required, please contact us. In the mean-time, we look forward to the results of our ongoing work and to the implementation and operation of the pilot plant.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
C. M. URLICH

Yours very truly

REIMCHEN URLICH GEOLOGICAL ENGINEERING

Cecil M. Urlich, P.Eng.,
Partner

Ted H.F. Reimchen, P.Geol.,
Partner

Ebo Bakker,
Geologist ~~and Chemist~~

/ar
Encl.

cc: Mr. Ian M. Sherwin,
President
Triangle Ventures Ltd.

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INTRODUCTION

Purpose

Through an "Option Agreement" contract between Triangle Ventures Ltd. of Victoria and Nuspar Resources Ltd. of Vancouver, Reimchen Urlich Geological Engineering (RUGE) was retained pursuant to the contract to continue work on Triangle's 250 million cubic yard placer property at Sombrio Point, Vancouver Island, British Columbia. This work includes ongoing geological exploration and precious metal recovery studies of the property, and ultimate comprehensive engineering and development of the proposed mine.

For this report, RUGE conducted Phase 1 and part of Phase 2 of a proposed exploration program on the property. The original purpose of the Phase 1 work was to establish whether the compound water cyclone (CW cyclone) could be used to recover the required values of precious metals from exposures within the 3.0 km by 2.0 km (1.9 mile by 1.3 mile) property where values have been established. For reasons of economy, CW cyclone testing was completed at an existing coal test plant in Edmonton.

As the Phase 1 work progressed, it increased in scope, encroached on and then encompassed parts of the originally proposed Phase 2 scope of work. Bulk samples three times as large as those originally anticipated were tested. The components of Phase 2 that shifted to Phase 1 were the construction of a geology exploration road and a detailed study of the gold recovery potential and chemistry of the deposit.

Phase 2 and future work would comprise the detailed exploration and testing of a centralized 500 m by 500 m (1640 ft by 1640 ft) square area with a CW cyclone on site. The objective of this work would be to prove out 8 million cubic yards of economically recoverable precious metals.

Scope

To accomplish this purpose, the following scope of work was performed:

1. construction of a geology exploration road down the Mine Creek valley to near the proposed operating pond area;
2. collection of ten bulk samples representing a geological and geographical coverage of the entire property;
3. processing of the minus No. 4 mesh fraction of the bulk samples through a CW cyclone coal concentrator test plant;
4. completion of a mineralogical analysis on free and chemically bound gold and other heavy particles recovered from the cyclone;
5. analyses of gold potential and chemistry of the deposit by chemical separation techniques with gravimetric and spectroscopic finishing;
6. preparation of progress letter reports during the project, and of this report which summarizes all the work described above.

1.3 Terms of Reference

The completed scope of work was performed in accordance with our "Proposed Scope of Work" dated August 18, 1983, our "Revised Scope of Work" dated October 27, 1983 and numerous conversations and communications with appropriate officers of Triangle and Nuspar. This scope fits within the framework of the "Option Agreement" contract dated September 21, 1983 between Triangle and Nuspar.

This work is a follow-up of earlier studies which are summarized in our reports to Triangle titled "Precious Metal Potential, Sombrio Placer Property, Vancouver Island, British Columbia" dated May 4, 1983, and "Preliminary Evaluation of Mine Equipment and Process Technology Proposed for Precious Metal Recovery, Sombrio Point Placer Property", dated November 18, 1983. Background information on the project is contained within these reports.

Continual communications were maintained with Triangle and Nuspar during the project. Progress letter reports were submitted to Nuspar and Triangle on October 27, November 18 and December 16 and 23, 1983, and January 3, 1984. The contents of these letters are incorporated into this report.

Responsibilities

Ted Reimchen, P.Geol., was responsible for the overall project planning and economic feasibility of the work initially completed for Triangle. He introduced Drs. Jan Visman and Larry Manziek, along with their CW cyclone and Amborane bead technologies, to the project. Mr. Reimchen is presently concerned with the geology and long term planning aspects of the property. For this report he completed mineralogy studies and reviewed the completed scope of work.

Project management is now under the coordination and execution of Cecil Urlich, P.Eng., who was responsible for the administration and completion of all work reported herein. He participated in all aspects of this work and maintained communications with client, owner, consultants and contractors. He directed the road building, sample collection, and cyclone testing work, delegated the gold recovery and chemistry studies to laboratories and consultants, introduced Dr. Joe Thomas and Mr. Jim Humble with their precious metal recovery technologies to the project, organized this report, and attended to all other matters required by the "Option Agreement" contract.

Mr. Ebo Bakker, geologist and chemist, provided back-up to Mr. Urlich during the entire project, directed the gold recovery and chemistry studies, maintained technical communications with chemists and scientists knowledgeable in precious metal recovery, and prepared the section of the report dealing with the gold recovery potential and chemistry of the property.

Dr. Jan Visman, P.Eng., scientist of Vortek Systems Ltd., Edmonton, former head of the Energy Mines and Resources Canada (EMR) research laboratory in Edmonton, and developer of the CW cyclone, continued to be retained as a consultant. He directed the cyclone testing, completed an optical analysis of gold and other heavy particles recovered with the help of present EMR staff, prepared progress reports on his findings, and advised on pilot plant cyclone design and testing.

Acknowledgements

We extend thanks to the several testing companies and staff that performed various tasks during the project. These include Rohm and Haas Company of Philadelphia, Precious Metal Analysis & Extraction of California, Action Mining Company of California, Cyclone Engineering Sales Ltd. of Edmonton, Energy Mines and Resources Canada of Edmonton, and Bacon Donaldson & Associates Ltd., General Testing Laboratories, Chemex Labs Ltd. and Quanta Trace Laboratories Inc. of Vancouver.

We greatly acknowledge the cooperation of Dr. Larry Manziek, Dr. Joseph Thomas, Mr. Jim Humble, Mr. Patrick Dea, P.Eng., Mr. N.E. Andersen, Dr. Gordon Bacon, P.Eng., and Messrs. Larry Wong, Lloyd Twaites and Derrel Dixon, respectively of the above listed companies. These scientists, chemists and engineers all generously passed on knowledge of their areas of expertise, and directed testing programs where more effort and detail was often required than in their normal course of work. Special thanks are extended to Drs. John D'Auria of Simon Fraser University and Hassan Hamza of EMR for their assistance and for allowing us the use of their laboratory and research facilities.

Acknowledgements are extended to Ian Sherwin, President, and Buzz Sawyer of Triangle, owners of the property, who generously parted with their knowledge of chemistry and gold recovery obtained from several years of research and labour on the property. Triangle Ventures Ltd. and Armside Mining Company, owners of adjoining claims, have had a mutual exchange of information for some time. This exchange became greatly accelerated after Dr. Visman first identified telluride compounds in the property during earlier work for RUGE. Consequently, the contribution of Mr. H.S. Kamil, President of Armside, is particularly noted.

The contribution of all the above listed companies and their scientists, engineers, chemists and officers, has greatly facilitated the team approach to the solution of the complex chemistry of the Sombrio property. This chemistry has become the object of a large part of the work reported herein.

We also extend thanks to members of our permanent and contract staff who assisted with the execution of the project. These included David Stone (field supervision), Meheram Sugrim (sample preparation), Colin Jones and Mike Cackett (chemical testing), David Hawes (environmental considerations), Alma Relkie (typing), Jack Scrivner (drafting) and Pat Whiting (report collating).

GEOLOGY EXPLORATION ROAD

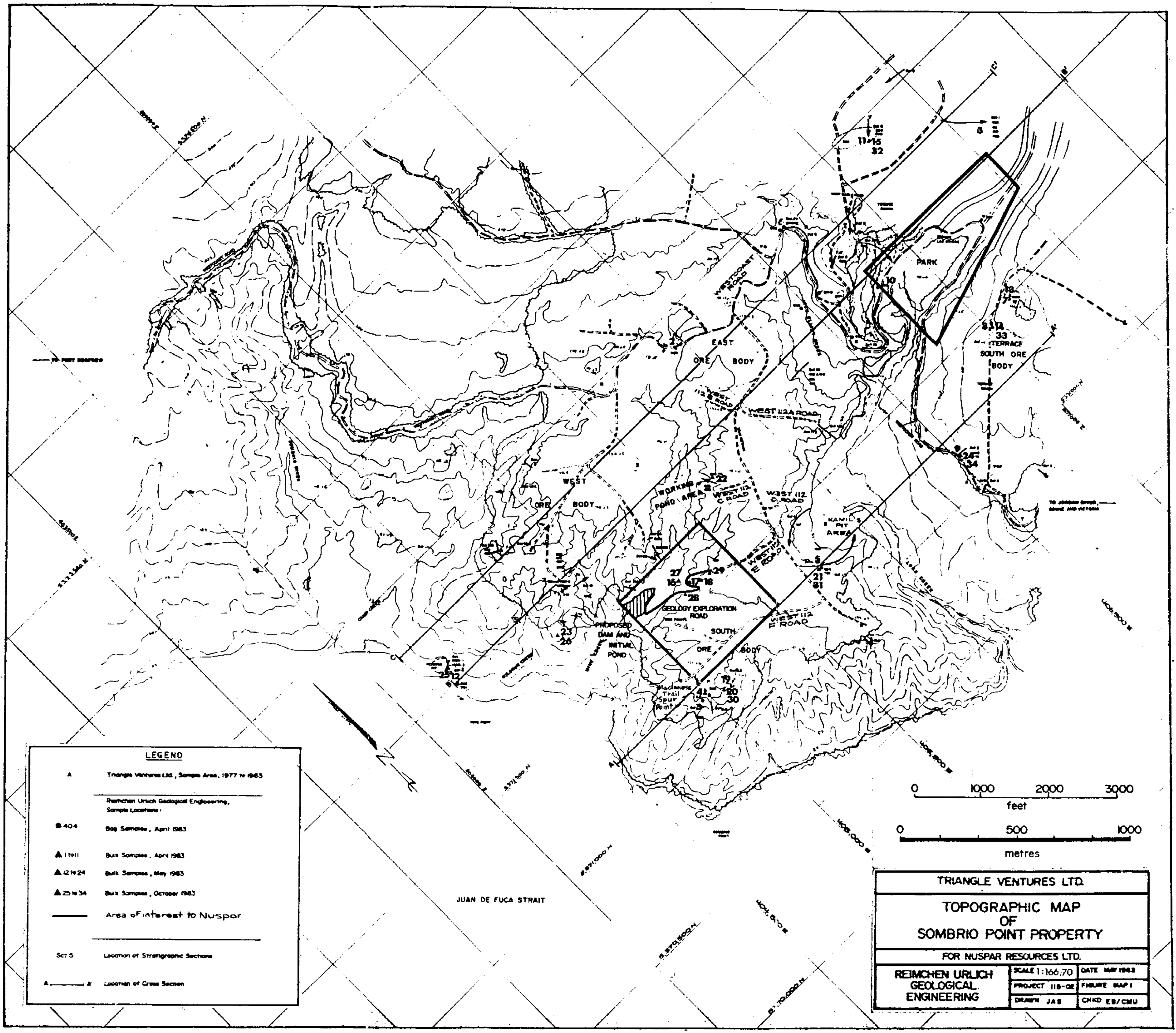
Organization

A geology exploration road was constructed from October 4 to 30, 1983 in a previously logged off area as an extension of West 112 E Road (Figure 1). Construction permits followed consultations in September between Mr. Sherwin and the Regional Manager's office of The Ministry of Forestry, the engineers, foresters and superintendents of a local forestry company, and the District Mines Inspector. The road's exact starting location and alignment were determined in the field on October 4 following reconnaissance bushwhacking and discussions between Messrs. Aikins, Sherwin, Stone, Urlich and Peter Davies, the bulldozer operator.

Road construction was originally proposed as part of the Phase 2 scope of work. However, in order to take advantage of excellent weather in early October, to facilitate bulk sample handling, to provide a continuous exposure through the various geologic strata of the property, and to facilitate future exploration programs, it was agreed by all parties to switch the road construction to Phase 1.

Cecil Urlich was on site from October 4 to 8, and October 16, 20 and 30 to direct field activities. A camper parked at the top of the geology road served as field office and living quarters up to October 8. David Stone was present at the site daily to bushwhack ahead of the road and provide safety back-up during construction. Regular communications were maintained between Urlich and Stone on day-to-day field activies, and between Urlich, Aikins and Sherwin on project administration and road progress.

Ted Reimchen reconnoitered the geology road on October 23. Our present Phase 2 plans call for detailed geological mapping and sampling by Mr. Reimchen of the road so that the geology and depositional history of the property can be better established.



EAST
ORE BODY
WEST ORE BODY
SOUTH ORE BODY
TERRACE SOUTH ORE BODY
PARK
WESTCOAST ROAD
WEST 112A ROAD
WORKING POND AREA
WEST 112 C ROAD
WEST 112 D ROAD
KAMIL'S PIT AREA
WEST 112 E ROAD
WEST 112 F ROAD
GEOLOGY EXPLORATION ROAD
PROPOSED DAM AND INITIAL POND
JUAN DE FUCA STRAIT
0 1000 2000 3000
feet
0 500 1000
metres
LEGEND
A Triangle Ventures Ltd., Sample Area, 1977 to 1983
Reimchen Urlich Geological Engineering, Sample Locations:
404 Bag Samples, April 1983
1 to 11 Bulk Samples, April 1983
12 to 24 Bulk Samples, May 1983
25 to 34 Bulk Samples, October 1983
Area of interest to Nuspar
Sct 5 Location of Stratigraphic Sections
A — A' Location of Cross Section
TRIANGLE VENTURES LTD.
TOPOGRAPHIC MAP OF SOMBRIO POINT PROPERTY
FOR NUSPAR RESOURCES LTD.
REIMCHEN URLICH GEOLOGICAL ENGINEERING
SCALE 1:166.70
DATE MAY 1983
PROJECT 118-02
FIGURE MAP 1
DRAWN JAS
CHKD EB/CMU

Layout

The road traverses the south slope of the Mine Creek valley in a westerly direction, switches back below Red Point, and terminated above the proposed operating pond area. Heavy rain in late October caused the termination of road building 15 m (50 ft) above the valley bottom. The completed road measures 490 m (1600 ft) in length, ranges in grade from 7 to 22%, and exposes a vertical geologic profile of about 60 m (200 ft).

The road was staked and labelled with red flagging at 25 m (82 ft.) intervals along its surface to the 300 m (984 ft) location. Henceforth, points along the road would be designated as Station X where X corresponds to the distance in meters from the end of West 112E Road.

Construction

Clearing of West 112E Road and intial construction of the geology road to Station 75 were completed during October 4 and 5 by a D6 bull-dozer supplied by Western A.R.P. Services Ltd. of Duncan. Difficulties were encountered in maintaining a firm footing for the D6 while pushing material off the road edge. The bulldozer was demobilized on October 6 and replaced with an excavator which could remain on firm ground at all times.

Road building continued from October 7 to 30 by a JCB Finning 805 B excavator with a 0.5 m^3 (5/8 yd^3) digging bucket and 0.77 m^3 (1 yd^3) loading bucket. It was supplied by Benson Excavating of Sooke, operated by Murray Benson, and worked continually through October 30 except for four days of rain and two days of progress evaluation. Unlike the D6, the Finning tracks were able to remain on firm ground while material was excavated from the hillside and dumped over the road edge.

Road construction was slow and difficult through the Upper and Lower Jack Elliot units, but progressed rapidly through the Quadra zone. Overburden topsoil and tree stumps were removed from the exposure crests by reaching up with the bucket and dumping over the edge. Log bridging was required to help span a wet gully at Station 180.

Rain in late 1983 rendered the road unsafe for vehicle use but adequate for foot inspection. Rivulets formed along the surface and triggered some slumping of material from the road edge. Regrading of the road and perhaps a culvert at Station 180 will be required before drilling and testing equipment can safely use the road.

Other Property Improvement

Other earthwork and property improvement activities completed during the field program included clearing of the access roads to Kamil's Pit by the D6 and to Red Point by a Bobcat. The Red Point road now permits easy access to a panoramic ground view of the Mine Creek valley. Several foot trails were cut by hand and branches slashed to facilitate sample handling. Permits for clearing of these woods were obtained by Mr. Sherwin following additional consultation with the Government and Forestry offices listed earlier.

BULK SAMPLING PROGRAM

Sample Collection

Ten bulk 450 to 900 kg (1000 to 2000 lb) samples were collected from exposures widely distributed horizontally and vertically over the entire property for geographical and geological coverage (Figure 1, Table 1). They were labelled 25 to 34 to follow the sequence adopted during earlier field programs, and are considered to be representative of the entire property.

Apart from the three Geology Road locations, samples were collected from the exact spots where earlier samples had been collected for Triangle and values established. Sampling was performed under the on-site direction of Cecil Urlich and supervision of David Stone. Stone organized the work crew, transported them daily from Victoria, and handled the logistics of moving materials and crew around the property.

Samples were obtained from 1 to 2 m (3 to 6 ft) channels excavated in undisturbed material. Quadra Sand and Gravel samples 26, 30 and 31 were collected by shovel from existing exposures, and 28 was dug out by the excavator from Geology Road. Jack Elliot samples 25, 27 and 29, and Terrace Sand and Gravel samples 32, 33 and 34, were collected by pick and shovel labour. The Jack Elliot materials were very difficult to sample and had to be literally chipped out.

Material Handling

A work force of up to eight men per day was mobilized. Sample 25 took nearly two days of exhaustive labour to collect because the material had to be back packed down from the Old Monitor Pit, along the beach, and up the steep Sombrio Beach Trail. Considerable footwork was also required to collect Sample 26 from Sombrio Beach Trail, 27 from off Geology Road, and 31 from near the start of MacInness Trail. All other sample sites were accessible by vehicle.

Bulk Sample	Earlier Sample	Geographic Location	Geologic Origin
1	301	Squatters Parking Lot	Upper Jack Elliot
2	403	Beach Trail Turnoff	Quadra Sand
3	426	North Terrace	Quadra Sand
4	305	MacInness Trail	Upper Jack Elliot
5	404	Kamil's Pit Road	Quadra Sand
6	303	Bailey Bridge Crossing	Upper Jack Elliot
7	205	West 90 Road	Terrace Gravel
8	203	West 90 Road	Terrace Sand
9	405	Westcoast/West Main	Terrace Sand
10	409	Loss Creek Park	Quadra Sand
11	408	West Main Pit	Terrace Gravel
12	601	Old Monitor Pit	Lower Jack Elliot
13	205,7	West 90 Pit	Terrace Gravel
14	203,8	West 90 Road	Terrace Sand
15	408,11	West Main Pit	Terrace Gravel
16	-	Mine Creek Trail	Lower Jack Elliot
17	-	Mine Creek Trail	Quadra Sand
18	-	Mine Creek Trail	Upper Jack Elliot
19	305,4	MacInness Trail	Upper Jack Elliot
20	-	MacInness Trail	Quadra Sand
21	404,5	Kamil's Pit Road	Quadra Sand
22	423	West 102C Road	Quadra Gravel
23	-	Sombrio Beach Trail	Quadra Sand
24	405,9	Westcoast/West Main	Terrace Sand
25	601,12	Old Monitor Pit	Lower Jack Elliot
26	23	Sombrio Beach Trail	Quadra Sand
27	-	Mine Creek Trail	Lower Jack Elliot
28	-	Geology Exploration Road	Quadra Sand
29	-	Geology Exploration Road	Upper Jack Elliot
30	20	MacInness Trail	Quadra Sand
31	404,5,21	Kamil's Pit Road	Quadra Sand
32	408,11,15	West Main Pit	Terrace Gravel
33	203,8,14	West 90 Road	Terrace Sand
34	405,9,24	Westcoast/West Main	Terrace Sand

Samples 1 to 12 were collected during the April 1983 field program.
Samples 12 to 24 were collected during the May 1983 field program.
Samples 25 to 34 were collected during the October 1983 field program.

TABLE 1. BULK SAMPLE GEOGRAPHIC LOCATIONS AND GEOLOGIC ORIGIN

Each bulk sample was collected in two 45-gallon drums. Four men were required to handle the heavier drums. All samples except for 27 and 28 were collected during October 4 to 8, transported to Victoria in two loads by rental truck with hydraulic tailgate, and shipped to Vancouver by commercial carrier. Samples 28 and 27 were collected on October 16 and 19 respectively, loaded on to our pickup truck by the excavator, and delivered to Vancouver.

Sample Descriptions

Sample sites were described, photographed and labelled for record keeping and future reference. They are briefly described in the following paragraphs.

Sample 25 was chipped with great difficulty from two 1 m (3 ft) channels in a 5 m (16 ft) high vertical face of the Lower Jack Elliot formation at the Old Monitor Pit about 30 m (100 ft) above Sombrio Beach. Seepage water which emerged from above the face continually ran down it and made working conditiions wet and uncomfortable. The material was hard to excavate and contained 45% gravel, 50% sand, 5% silt, and 14.2% moisture content.

Sample 26 was scraped by shovel from a 0.7 m (2.3 ft) channel in a Quadra sand exposure on a new part of the trail between the squatter's parking lot and Sombrio Beach. Its location is 5.5 m (18 ft) below the top of and close to the west end of a narrow spur, and 15 m (50 ft) below the parking lot and terrace level. The sample consisted of fine grained grey and greyish-brown sand rich in mica with less than 5% silt and no gravel.

Sample 27 was chipped with great difficulty by pick from a 1.5 m (5 ft) exposure in the Lower Jack Elliot unit about 9 m (30 ft) below Station 125 of Geology Road and 18 m (60 ft) above Mine Creek. The material was hard to excavate and contained 30% gravel, 50% sand, 20% silt, a trace of clay, and 7.2% moisture content.

Sample 28 was excavated by the Finning from a 2 m (7 ft) hole in Quadra sand at Station 250 of Geology Road and 30 m (100 ft) below the terrace level. Material consisted of fine to medium grained grey sand with less than 5% silt, no gravel and 8.1% moisture content. The sand contained occasional dark fine grained sand, but overall is coarser grained than Sample 26.

Sample 29 was chipped by pick from a 3 m (10 ft) exposed face in Upper Jack Elliot material at Station 62 of Geology Road and 10 m (33 ft) below the terrace level. The material was hard to excavate, but lumps shattered easily when agitated. The sample comprised 10% gravel, 55% sand, 35% silt and clay, and 12.7% moisture contents. It contained more sand and silt, and less gravel than Samples 25 and 27 of the Lower Jack Elliot material.

Sample 30 was scraped by shovel from Quadra sand of the South Ore Body in the centre of a 10 m (33 ft) exposure about 70 m (230 ft) east of the MacInness Trail parking area. The sample was taken from a 2 m (7 ft) channel. The material is fine to medium grey and brown banded sand with a 0.4 m (1.3 ft) layer of coarse sand and gravel underlain by fine silty sand. The sample contained 20% gravel, 80% sand, a trace of silt and 13.4% moisture content.

Sample 31 was scraped by shovel from a Quadra sand exposure along the access road on the southwest edge of Kamil's Pit. A 1.25 m (4.1 ft) channel sample was obtained about 100 m (330 ft) down the road and 5 m (16 ft) below the terrace level. The material is a fine grained sand comprising no gravel, 90% sand, 10% silt and 9.7% moisture content. It is similar in gradation to Sample 26.

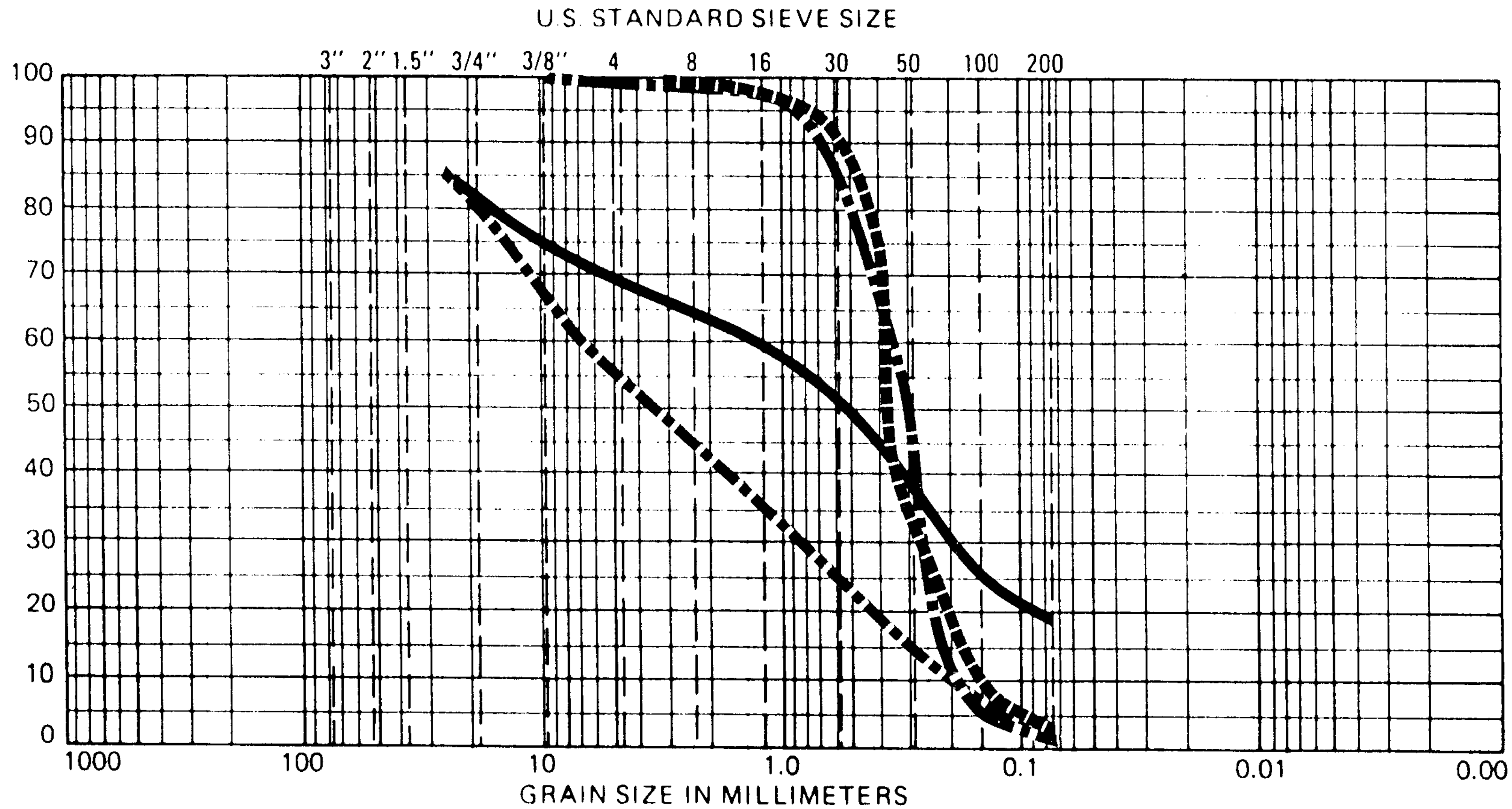
Sample 32 was chipped by pick from the south corner of the Terrace North gravel pit, 5 m (16 ft) above the pit base. This material is presently used for local road construction. The pit walls expose interlayered sand and gravel with good foreset beds flowing to the northwest. The sample contained 40% gravel, 60% sand, a trace of silt and 4.7% moisture content.

Sample 33 was scraped by shovel in Terrace South from a 2 m (7 ft) exposure on West 90 Road, 0.75 km (0.47 miles) from Westcoast Road. A 1 m (3 ft) channel was sampled in grey sand with silt lenses and occasional gravel. Overlying weathered brown sand was removed. The sample contained 11% gravel, 58% sand, 31% silt, a trace of clay and 22.7% moisture content.

Sample 34 was scraped by shovel from a 3 m (10 ft) exposure on Westcoast Road, 146 m (480 ft) north of the West 90 turnoff. A 1.5 m (5.0 ft) channel was sampled after removal of the weathered surface horizon. Material comprised clean fine grained sand with a trace of silt and 7.4% moisture content.

Geotechnical Testing

From each bulk sample, 1 to 2 kg (2.2 to 4.4 lb) representative samples were retained for moisture content determinations and gradation testing. Particle size distributions were determined in our Vancouver laboratory by washing these samples through the No. 200 sieve (0.075 mm) and then drying and shaking the oversize material through standard sieve sizes from 2.54 cm (1 inch) to No. 200. (Figures 2 to 4)



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

DEPTH		CLASSIFICATION	NAT. W C	LL	PL	PI
▬ ▪ ▬ ▪	25	Lower Jack Elliot, Monitor Pit	14.2			
▪ ▪ ▬ ▪	26	Quadra Sand, Sombrio Beach Trail	9.7			
━━━	27	Lower Jack Elliot, Geology Road	7.2			
▪▪▪▪▪	28	Quadra Sand, Geology Road	8.1			

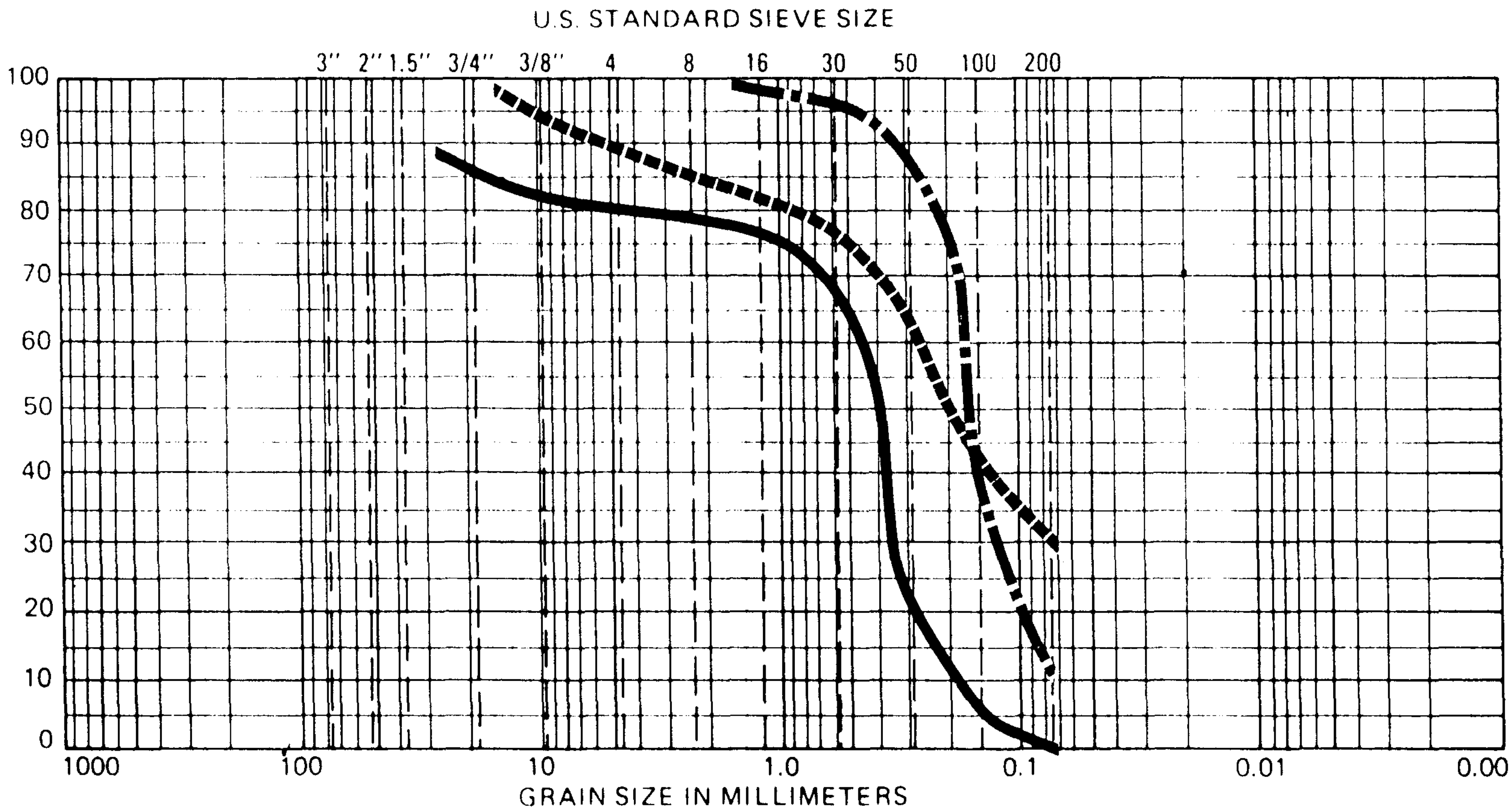
TRIANGLE VENTURES LTD

GRAIN SIZE DISTRIBUTION OF BULK SAMPLES
25, 26, 27 & 28

~~TO ACCOMPANY REPORT BY~~ FOR NUSPAR RESOURCES LTD

REIMCHEN URLICH
GEOLOGICAL
ENGINEERING

SCALE	DATE Jan 84
FILE 118-02	FIGURE 2
DRAWN MS	CHKD CU



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

DEPTH		CLASSIFICATION	NAT. W C	LL	PL	PI
▬ ▬ ▬ ▬ (dashed)	29	Upper Jack Elliot, Geology Road	12.7			
▬▬▬ (solid)	30	Quadra Sand, MacInnes Trail	13.43			
▪ ▪ ▬ ▪ ▪ (dash-dot)	31	Quadra Sand, Kamil's Pit	9.7			

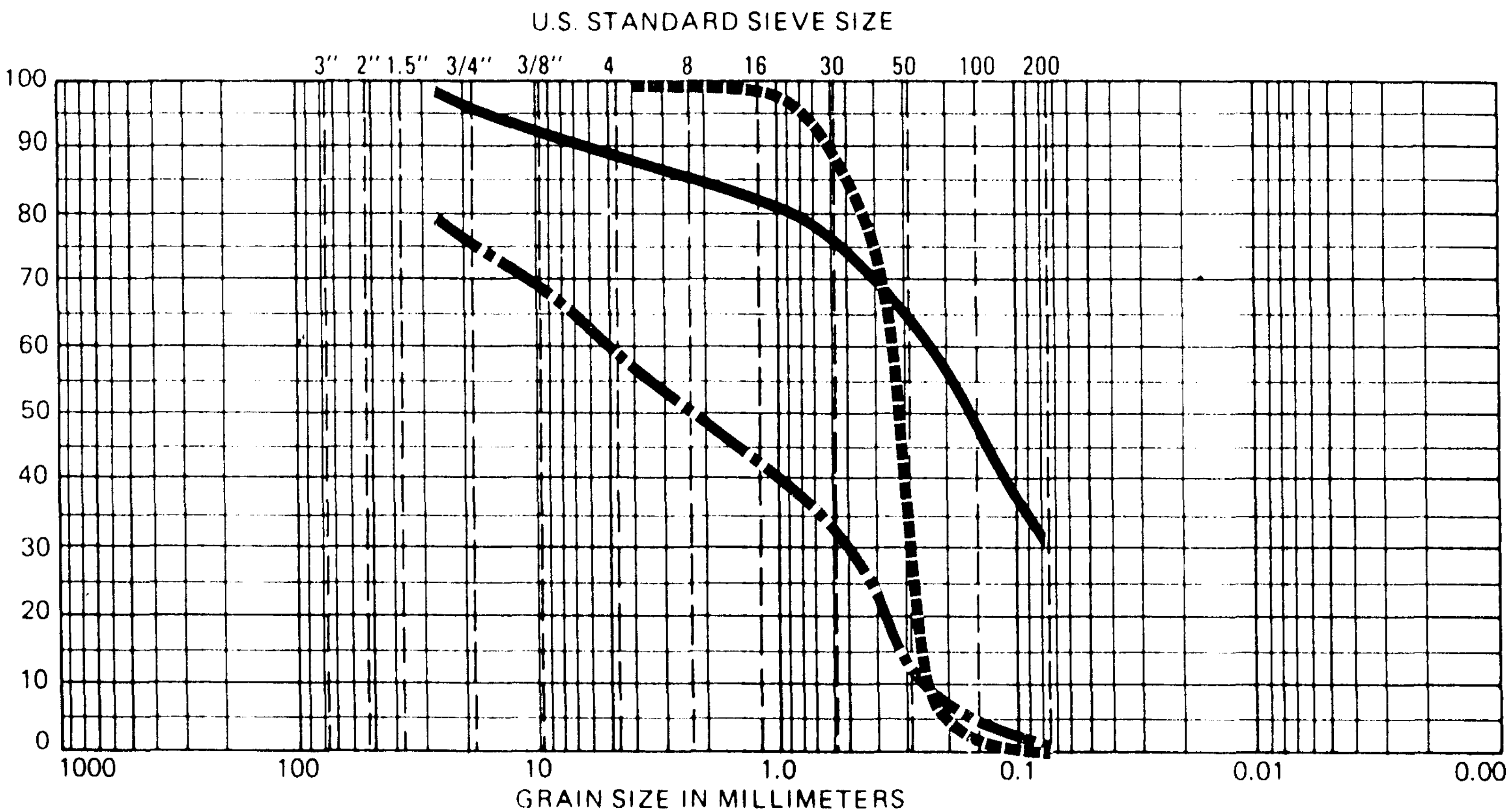
TRIANGLE VENTURES LTD.

GRAIN SIZE DISTRIBUTION OF BULK SAMPLES
29, 30 & 31

~~TO ACCOMPANY REPORT BY~~ FOR NUSPAR RESOURCES LTD.

REIMCHEN URLICH
GEOLOGICAL
ENGINEERING

SCALE	DATE Jan 84
FILE 1118-02	FIGURE 3
DRAWN MS	CHKD CU



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

DEPTH		CLASSIFICATION	NAT. W C	LL	PL	PI
(dash-dot line)	32	Terrace Sands & Gravels	4.7			
(solid line)	33	Terrace Sands & Gravels	22.7			
(dashed line)	34	Terrace Sands & Gravels	7.4			

TRIANGLE VENTURES LTD.

GRAIN SIZE DISTRIBUTION OF BULK SAMPLES 32, 33 & 34

~~TO ACCOMPANY REPORT BY~~ FOR NUSPAR RESOURCES LTD

REIMCHEN URLICH GEOLOGICAL ENGINEERING

SCALE	DATE Jan 84
FILE T18-02	FIGURE 4
DRAWN MS	CHKD CU

COMPOUND WATER CYCLONE CONCENTRATION

General

The bulk samples were delivered to our laboratory in Vancouver for screening and drying before being shipped to Cyclone Engineering Sales Ltd. (CES) in Edmonton. Each sample was then processed through the CES 2-stage 10-cm (4-inch) CW cyclone coal test plant to obtain primary concentrates. These were combined on the basis of geologic origin and processed to yield four secondary concentrates and one tertiary concentrate. After fine tuning the test plant, a portion of one of the primary concentrates was processed in closed circuit so that a detailed mineralogic study of the concentrate could be completed.

Sample Preparation

Sample preparation for cyclone processing was conducted from October 13 to 31, 1983 in Vancouver by a crew of four under the direction of Cecil Urlich. The samples were shovelled from drums into a concrete mixer, broken up with minimal amounts of water, and washed through a 6.4 mm (1/4 inch) vibrating screen deck. Mixing times ranged from a few minutes for the Quadra materials to over 2 hours for the Jack Elliot units.

Oversize fractions were collected, piled into separate heaps, dried under room temperature, and weighed. Undersize fractions were collected in a large tub from which the solids were spread out on plastic sheeting and dried by continuous raking and exposure to a kerosene heater. Wash water was poured into drums, decanted off when clear, and the residual solids added to the drier undersize. The dried undersize was weighed, bagged, placed in 45-gallon drums, trucked to CES, and dry sieved through a 4.75 mm (No. 4 mesh) vibrating screen (Table 2) in preparation for concentration.

Raw Sample	Dry Wgt (lb)	+#4 Mesh (lb)	-#4 Mesh (lb)	CWC Feed (lb)	Feed Rate (tph)	Dry UU (lb)	Concentration Ratio (CR) from sieve	from CWC	combined
25	1,895	791	1104	1054	0.54	297	1.72	3.55	6.10
26	1,151	12	1139	1089	0.73	633	1.01	1.72	1.74
27	1,794	364	1430	1380	0.52	524	1.25	2.63	3.29
28	1,204	2	1202	1152	1.15	371	1.00	3.11	3.11
29	1,439	151	1288	1238	0.68	415	1.12	2.98	3.34
30	1,144	31	1113	1163	0.58	700	1.03	1.66	1.71
31	1,110	0	1110	1060	0.91	351	1.00	3.02	3.02
32	1,457	543	914	864	1.29	256	1.59	3.38	5.37
33	1,059	166	893	495	0.74	155	1.19	3.19	3.80
34	1,173	0	1173	1123	0.96	498	1.00	2.26	2.26

TABLE 2. PRIMARY CW CYCLONE CONCENTRATION OF BULK SAMPLES

Combined Concentrates	Geology Unit Origin	Sample Composition	CWC Feed (lb)	Total Feed (lb)	Feed Rate (tph)	Dry UU (lb)	Concentration ratio
E	Lower Jack Elliot	25 UU 27 UU	231 476	707	1.50	162	4.36
F	Quadra Sands and Gravels	26 UU 27 UU 30 UU 31 UU	590 329 659 300	1,878	1.61	352	5.33
G	Upper Jack Elliot	29 UU	368	368	1.84	76	5.07
H	Terrace Sands and Gravels	32 UU 33 UU 34 UU	197 117 447	761	1.34	217	3.51
F'	Quadra Sands and Gravels	F UU	302	302	1.81	85	3.55

TABLE 3. SECONDARY AND TERTIARY CW CYCLONE CONCENTRATION OF BULK SAMPLES

Test Plant Preparation

The CES test plant was designed and built for coal work. Except for preliminary tests on four 22.5 kg (50 lb) Sombrio samples in September, this plant has never before been used for placer work. Therefore, numerous modifications to the plant were required in preparation for processing the bulk samples. These were made during November through the recommendations and direct supervision of Dr. Visman on the basis of the September test results (November report to Triangle). All modifications were discussed between Messrs. Pat Dea, Visman and Urlich before being implemented.

Several labour saving innovations were made. A 2 tph Syntron vibratory feeder and hopper was set up to supply continual and uniform feed to the plant. A new dual mixing tank was fabricated with easily regulated stack and choke for control of dry feed and water rates, respectively. A set of four trays on a movable trolley was assembled to facilitate simultaneous sampling of stream products.

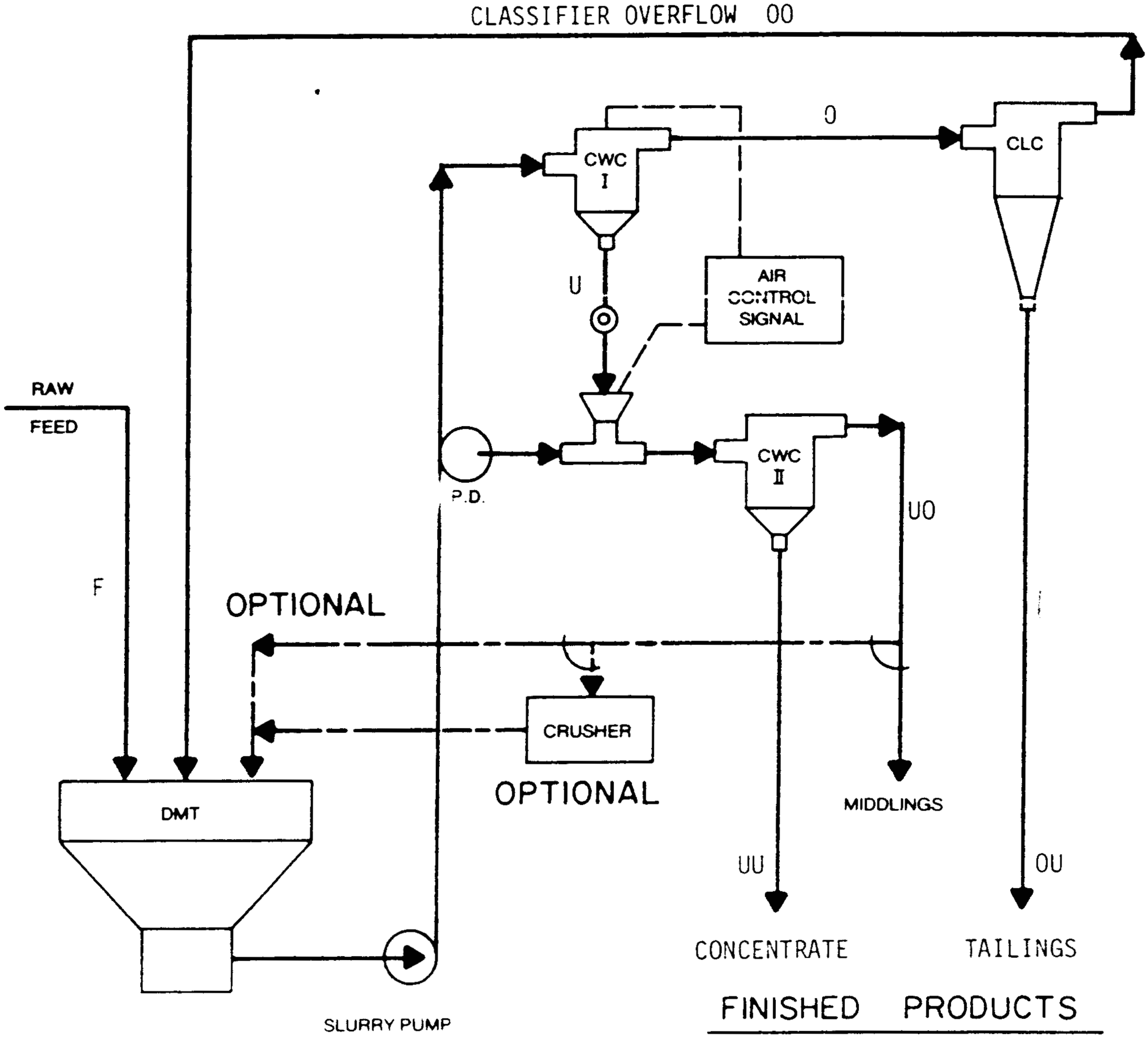
Major overhauling of the test plant was completed to ensure optimum efficiency during processing. The 5 horsepower SRL sand pump was re-built, lines and pipes cleaned out, pressure gauges replaced, Nullmatic relay system reconditioned and clamps and joints tightened so that the plant could operate under twice its normal operating pressures. Three test runs on Saskatchewan River sand were performed, and a mechanism of raising drums by forklift, tilting them by a chain pulldown, and emptying their contents into the Syntron hopper was developed.

Primary Concentration

Samples 25 to 34 were processed from November 28 to December 1, 1983 (Figure 5 and Table 2). The test plant was operated by a crew of four under the supervision and direction, and with the help of Messrs. Visman

Figure 5

TWO-STAGE C.W. CYCLONE CONCENTRATION WITH AUTOMATIC CONTROL



LEGEND

1 — D.M.T	Dual Mix Tank
2 — P.D.	Pulp Divider
3 — C.W.C. I	Primary Compound Water Cyclone
4 — C.W.C. II	Secondary Compound Water Cyclone
5 — CL.C	Classifier Cyclone

Reference: Cyclone Engineering Sales Ltd. brochure and Urlich. Cyclone component types and variable settings were selected by Dr. Visman to be the same as those used during his 1975 Burwash Creek study and the September tests. However, subsequent dismantling of the plant revealed that the vortex settings were greater than desired. Handling and treatment of the raw feed and cyclone products were carried out by the CES crew.

At the start of each test, 15 kg (34 lb) of sample were injected to prime the system in closed circuit so that beds could form. Raw feed (F) was then poured dry into the Syntron hopper, conveyed by a vibrating chute into the dual mixing tank, and slurry pumped through a pulp divider into the primary CW cyclone (CWC 1). Feed rates ranged from 0.52 tph for the silty Jack Elliot materials to 1.29 tph for the sandier Quadra and Terrace deposits. Feed pressures ranged from 15 to 25 psi.

Overflow (O) and underflow (U) products were respectively led into a classifier cyclone (CLC) for dewatering and into a secondary CW cyclone (CWC 2) for final cleaning. Diluted CLC overflow (OO) was recycled to the mixing tank to slurry the new feed. Dewatered CLC underflow (OU) was discharged from the system as tailings and collected in 45-gallon drums. Diluted CWC 2 overflow (UO) was recirculated as middlings to join the new feed. Dewatered CWC 2 underflow (UU) was removed from the system through a clear plastic pipe as concentrate and collected in 5-gallon buckets.

The test plant was considered to be working at optimum efficiency when the OU product discharged in the form of a "rope". During this condition, water recycling within the plant was maximised, and water discharge minimised. Whenever the feed rate and pressures dropped, the "rope" liquified. At this point the UU and OU products were recycled in closed circuit, the feed rate increased until the "rope" reappeared, and the UU and OU products discharged once again in open circuit.

For each test, simultaneous samples were obtained of the four stream products during "rope" situations by pulling the 4-tray trolley through the stream discharges for 2 to 3 seconds while maintaining the uniform feed rate. Representative samples of raw feed were collected by taking small incremental samples at regular intervals from the chute. The stream samples were collected so that a flow sheet could be outlined for each test and the internal workings of the plant understood for each geologic unit.

Stream products were oven dried after each test and concentration ratios calculated. Processed UU and OU products were respectively contained in buckets for secondary concentration and drums for storage. Water was siphoned and decanted from these containers regularly as it cleared.

Collection of the beds after each test was achieved by sequentially stopping, starting and stopping the pump while holding a pan below the CWC 2 apex. At the first stop, the CWC 2 and 1 beds were discharged into the pan and piping, respectively. Upon restart the CWC 1 bed transferred to CWC 2, and then discharged into the pan upon the following stoppage.

Secondary Concentration

After saving a representative bucket of 25 to 34 UU products, the remaining UU products were combined on the basis of geology to form Samples E, F, G and H for secondary concentration (Table 3). These labels sequentially follow the labelling of earlier composite samples (November report to Triangle). The composites represent the Lower Jack Elliot, Quadra, Upper Jack Elliot and Terrace deposits, respectively. The Syntron feeder was moved closer to the test plant and the stream sampling trolley removed so that a steeper chute and faster feed rate could be achieved.

On December 2, Samples E to H were fed by bucket into the hopper by workers stationed on an elevated forklift pallet. A work crew of six was used.

Dry feed was slurried into the plant at rates of 1.34 to 1.84 tph. Surging and pressure differentials occurred because of difficulties in maintaining uniform feed rates.

UU and OU products were collected and treated in the same manner as in primary processing. Stream products were not collected because the objective of secondary processing was to attempt to obtain a valuable concentrate and not to study the internal flow workings of the plant.

Tertiary Concentration

After saving one bucket of FUU, the remaining 135 kg (302 lb) were labelled F^1 and slurried into the plant at a rate of 1.81 dry tph. The resultant F^1UU tertiary concentrate was collected and treated in the same manner as in the secondary concentration phase.

Test Procedure Limitations

Because of complications involved in fine tuning the CES coal test plant for placer work, the CWC 1 and 2 vortex settings were erroneously maintained at 33.5 and 23.5 mm (1.32 and 0.93 ins), respectively. According to Dr. Visman's earlier placer studies these settings should have been 27 and 8 mm (1.06 and 0.315 ins), respectively. This discrepancy became evident after testing when the plant was dismantled. The critical CWC 2 setting significantly affects the plant's concentration performance.

Larger particles in Sample 25, 32 and H feed plugged piping on several occasions and interrupted testing. The piping had to be dismantled and cleaned out each time. Sample 25 was found to contain numerous elongated particles that passed through the No. 4 mesh, but measured over 1 cm along the longitudinal axis. Future placer testing on this plant should be limited to material passing the No. 10 mesh.

The feeding procedure caused variations in feed rates and pressures that appeared to be too large for the unit, in spite of the extra men who were hired to assist in controlling it. The 4-inch cyclone is sensitive to feed variations because of its relatively small volume. Its cutpoint depends on a constant feed rate, as proved by earlier testing of pilot plants in the closed-circuit mode with fixed feed rates.

After dismantling the plant, it was found that 2000 gm (4.5 lb) of sand had accumulated in the pipe leading from the pulp divider through a "T" under CWC 1 to CWC 2. An additional 95 gm (0.2 lb) of sand had lodged inside the Victaulic couplings that connect the pipes and cyclones. Visual inspection of these materials revealed 12 particles of gold ranging in size from 0.2 to 1.8 mm, 3 particles resembling gold tellurides, and about 15 gm (0.033 lb) of black sand. These misplaced materials were combined and saved.

The presence of the misplaced sand can be attributed to the irregular operation of the feed mechanism. The sand's accumulation inside the horizontal piping must have lowered the flow rate to CWC 2 as the pressure varied, with resulting reductions of its separating cutpoint and efficiency. It is probably primary concentrate released at moments of low pressure that, once settled in the horizontal pipe, needed more pressure to be refluidized than the system could provide. Hence, a gradual build-up occurred until the system reached an equilibrium at a lower separating efficiency.

It should be noted that these limitations encountered during the test program are largely due to the fact that the CES unit is designed and plumbed for coal testing. The heavy U stream in coal is reject and the light O stream is the desired coal end product. The reverse is true for gold and precious metal processing. In addition, Mr. Patrick Dea of CES stated that coal cyclones have shorter chambers than those required for gold recovery. Therefore, valid results can only be achieved on a unit built to gold test specifications, and preferably tested in the field where large volumes of material are available for processing.

Closed Circuit Concentration

Following an assessment of the test limitations encountered, 15 kg (33.6 lb) of EUU concentrate was processed through the test plant in closed circuit on December 29, 1983 under the direction of Dr. Visman and in the presence of Ted Reimchen. This feed material was labelled Sample I.

Vorticies were adjusted to the design settings of 27 and 8 mm (1.06 and 0.315 ins), respectively. A feed rate of 4.235 tph was maintained and pressures across the CWC 1, CLC and CWC 2 units measured 14, 14 and 8 psi, respectively. Simultaneous stream samples were obtained from which a performance flowsheet was generated (Figure 6).

Concentration Ratios

Concentration ratios of 1.0 to 1.72 were achieved during screening of the bulk samples through the No. 4 mesh (Table 2). The highest values occurred in the gravelly Monitor Pit and Terrace Gravel samples, while values of unity predominated in the Quadra sands.

Primary concentration ratios were calculated to range from 2.1 to 8.8 and 1.72 to 3.55 for the stream and processed UU products, respectively (Tables 2 and 5). When combined with the screen results, the processed UU concentration ratios ranged from 1.71 to 6.1

The primary processed product concentration ratios should be used for analyses because they represent average test conditions. Stream samples are collected for a very short time duration, and cannot be considered representative. Often an ideal "rope" condition existed during stream sampling when in fact the "rope" condition was intermittent during each complete test.

The overall secondary concentrations for the Lower Jack Elliot, Quadra, Upper Jack Elliot and Terrace materials were calculated to be 19.16, 11.44, 16.05 and 11.66, respectively (Table 4). These values reflect the presence

FLOWSHEET OF AUTOMATIC 2-STAGE AMC WITH PULP DIVIDER

Material Sample E-UU

Test No. Final test, 3 Jan. '84

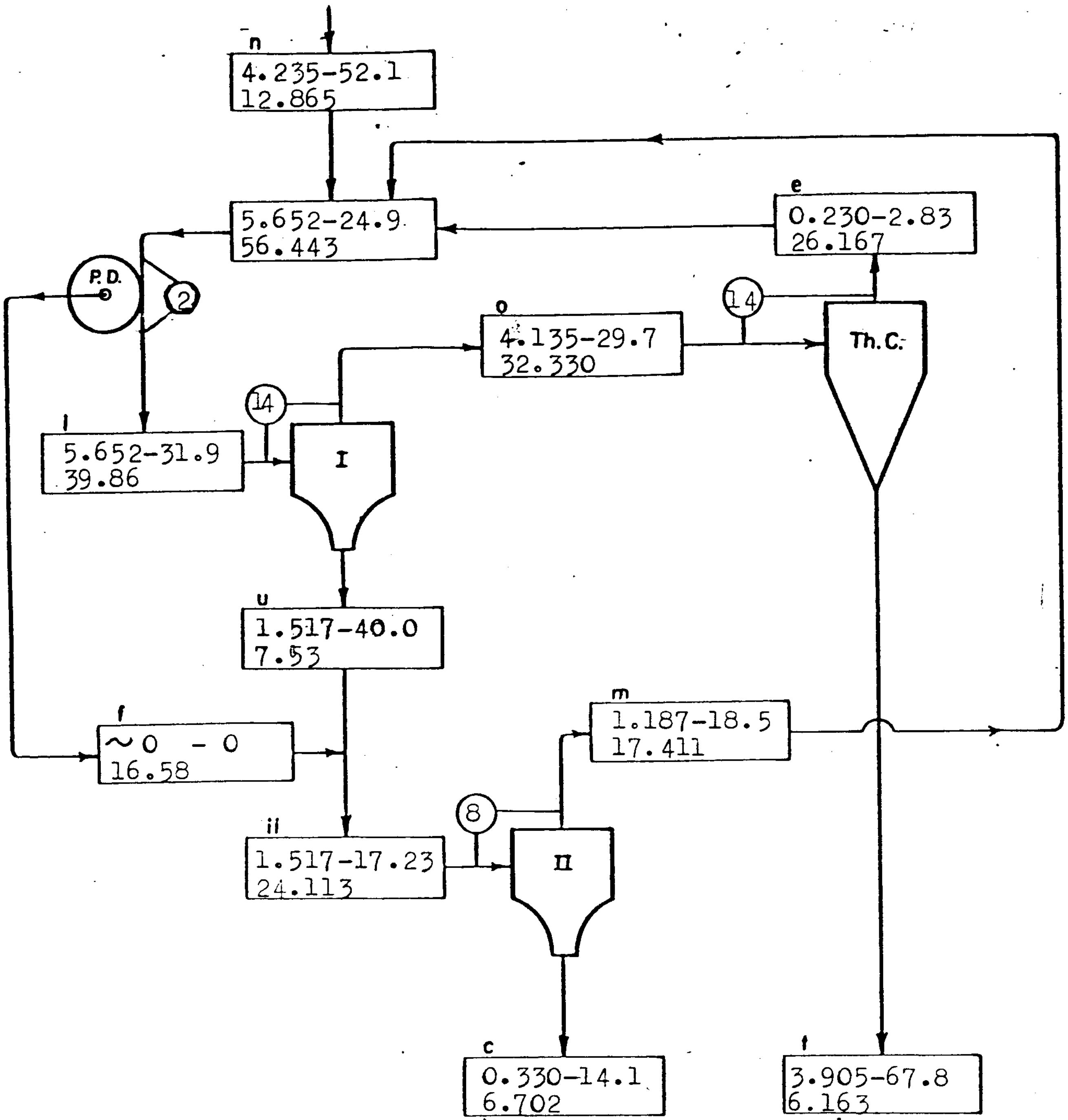


FIGURE 6

Legend

T, stph - % s
W, igpm

VORTEK SYSTEMS LTD.
EDMONTON ALBERTA CANADA

Concentration Stage	Combined Concentrate	Geology Unit Origin	Dry Wgt (lb)	-#4 Mesh (lb)	Raw Feed (lb)	Dry UU (lb)	Concentration Ratio from sieve	from CWC	combined
Secondary	E	Lower Jack Elliot	3689	2534	2125	162	1.46	13.12	19.16
Secondary	F	Quadra Sands and Gravels	4609	4564	3988	352	1.01	11.33	11.44
Secondary	G	Upper Jack Elliot	1439	1288	1089	76	1.12	14.33	16.05
Secondary	H	Terrace Sands and Gravels	3689	2980	2040	217	1.24	9.40	11.66
Tertiary	F'	Quadra Sands and Gravels	4609	4564	3721	85	1.01	43.77	44.21

TABLE 4. COMBINED CW CYCLONE PRIMARY, SECONDARY AND TERTIARY CONCENTRATION RATIOS

Raw Sample	Processed Product Concentration Ratio	Stream Product Concentration Ratio	Ratio of Stream to Processed Concentrations	Difference Between Concentration Ratios
25	3.55	7.03	1.98	3.48
26	1.72	4.73	2.75	3.01
27	2.63	2.50	0.95	0.13
28	3.11	5.50	1.77	2.39
29	2.98	4.30	1.44	1.32
30	1.66	2.10	1.27	0.44
31	3.02	8.80	2.91	5.78
32	3.38	3.49	1.03	0.11
33	3.19	3.07	0.96	0.12
34	2.26	4.14	1.83	1.88

TABLE 5. COMPARISON OF CW CYCLONE STREAM AND PROCESSED PRODUCT CONCENTRATIONS

of gravels greater than the No. 4 mesh size. It is noted that the highest pair of concentrations are for siltier Jack Elliot deposits, and the lowest for the sandier Terrace and Quadra units.

Tertiary processing of the Quadra materials yielded an overall concentration of 44.21, including screening out of the oversize gravels. If averaged out, each of the three stages of processing yielded concentration factors of about 3.54. This is considerably less than a factor of 12 to 16 which had been expected.

In view of the test limitations encountered, it is certain that the CW cyclone test plant did not function anywhere near its maximum efficiency. Processing of EUU in closed circuit produced a concentration ratio of 12.85, which appears reasonable for one run through the plant, and confirms the invalidity of the previous results.

Cyclone Product Dispersement

One bucket of each secondary and tertiary UU concentrate and all dried stream products were flown to Vancouver on December 3, 1983. Buckets of all remaining secondary and tertiary UU products, and bags of representative raw feed and primary concentrates were bussed the same day. Seventeen drums of processed OU products were trucked the following week. Cyclone bed materials were retained by Dr. Visman.

Conclusions

Results of analyses conducted on the raw feed and cyclone products are presented in 5.0 and 6.0. For the present it is sufficient to state that gold down to 2 microns in size and other heavy minerals were recovered in both the cyclone beds and misplaced material even though the test plant was limited in its capacity to process bulk placer samples. A test run in closed circuit with the correct settings produced a concentration ratio of 12.85. This concentrate contained a high particle content of specific gravity greater than 3.3.

These results provide very encouraging indications that a properly designed and operated CW cyclone will concentrate materials of the Sombrio deposit in the field to provide a gold enriched end product. With additional CW cyclones in series all properly designed and operated, a valuable multiple concentrate product is expected.

The recovery of very fine particles of free gold is known to be adversely affected by surface tension when these particles are exposed to air while being suspended in water. The forces that cause these small particles to float on the water-air interface are overcome by centrifugal acceleration imparted during their passage through a CW cyclone. It is obvious that further concentration of the fine gold recovered in the first 2-stage system must, again, go hand in hand with protection of the float gold in any second system. Conventional equipment such as a sluice box or shaking table would lose the float gold saved by the CW cyclone.

It has been shown by research at EMR that an 8-inch, 2-stage CW cyclone circuit can achieve a concentration ratio of 45. The closed circuit test of IUU on the 4-inch unit produced a concentration ratio of 12.85. A large diameter, 2-stage CW cyclone operated in series with a 4-inch, 2-stage CW cyclone is therefore expected to produce an overall concentration ratio of 578 (45 X 12.85). This is a sufficient enrichment even for a lean sand containing a high percentage of float gold. We expect with confidence the results of a 12-inch, 2-stage circuit which is presently being designed for the pilot plant.

PARTICLE MINERALOGICAL ANALYSES

Sample Preparation

After processing each of the bulk samples through the CW cyclone test plant, material from the CWC 1 and 2 beds were combined, screened through the No. 14 mesh and concentrated in an electric panner. Extreme care was taken to avoid losses of flake gold which has been observed in the past by RUGE and Triangle to float on water. Black sand concentrate at the edge of the panner was drawn off by a 2 mm pipette, stored in vials for inspection and testing, and placed on microscopic slides for analysis.

It should be noted here that a substantial portion of the material recovered from the cyclone beds is concentrate which would have ended up in the UU stream had the test continued. Hence, it is reasonable to analyse the beds for precious metal content.

Visual Observations of Gold and Tellurides

Several small gold flakes and particles resembling gold tellurides were observed during panning of the cyclone beds. The largest gold flake measured 1.25 mm by 0.75 mm in area and was estimated to be about 0.4 mm thick. Visual inspection of material misplaced in the pipes during cycloning revealed 12 particles of gold ranging in size from 0.2 to 1.8 mm and 3 particles resembling gold tellurides.

Optical Analysis of Gold and Tellurides

Optical analysis of the size, shape and relative abundance of free gold, gold bound in compounds, and other heavy particles are underway on the bed materials. These analyses are being performed by Dr. Visman and Mr. Andersen on the Quantimet 900 particle analyser at The Clover Bar Coal Research Laboratory of Energy Mines and Resources Canada in Edmonton.

Optical inspection of the EUU closed circuit test concentrate, IUU, was conducted on January 10, 1984. Free gold was found in each one of the six size fractions (14 X 28, 28 X 40, 40 X 60, 60 X 100, 100 X 325, and minus 325 mesh) showing the presence of gold over the entire particle size range (Figures 7 and 8).

A telluride compound with perfect 1-dimensional cleavage, and palladium were identified (Figure 7, Photo 1). This telluride is shown at the lower right of the particle scatter in Photo 3. Of special interest are the leaf-shaped gold flakes in this photo to the upper right of the telluride and at the centre in the upper part of the scatter. They were observed under microscope by Dr. Visman to have actually peeled off the telluride. This occurrence is similar to one reported earlier by Mr. Kamil to Mr. Sherwin.

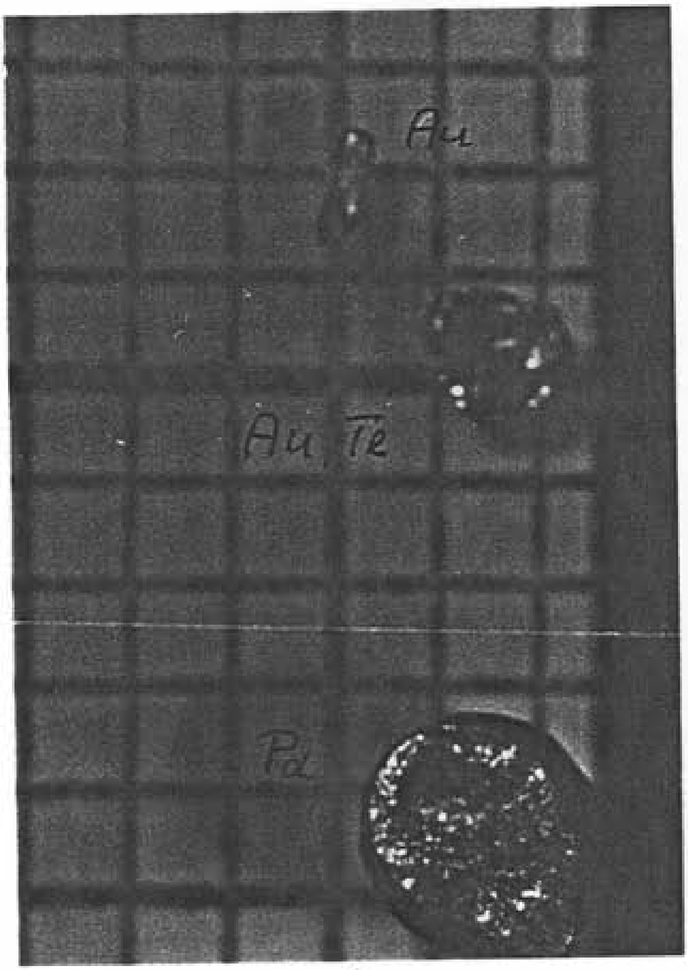
These identifications and observations reveal that tellurides do exist in very unstable states within the Sombrio deposit. To date, Dr. Visman has positively identified two tellurides, Sylvanite ($(Au,Ag)Te_4$) and Nagyagite ($PbsAu(Te,Sb)_4S_{5-8}$). Telluride analyses on the raw feed of Samples 27, 28 and 29 are presently being conducted by Chemex Labs Ltd.

Heavy Mineral Analysis

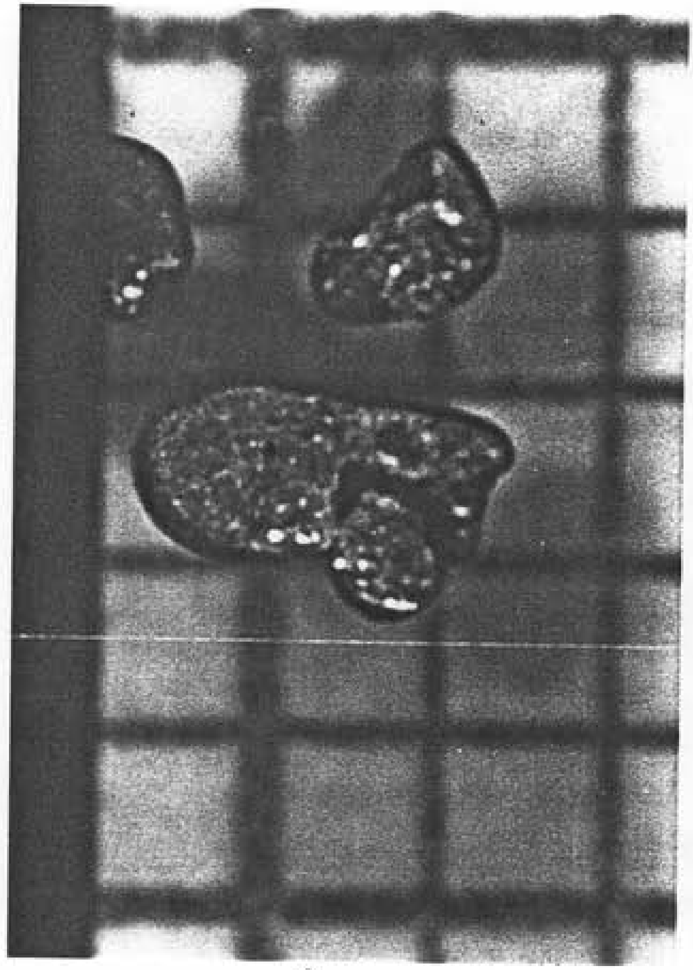
On December 30 and 31, 1983 Mr. Ted Reimchen performed a qualitative mineralogical study on CW cyclone concentrate at EMR with the assistance of Mr. N.E. Andersen. Andersen did the screening and heavy liquid and magnetic separation, and Reimchen performed the mineralogical analysis.

Concentrate IUU was screened to 0.25 mm (60 mesh), and demagnetized. Minerals with a density over 3.3 were separated with methylene iodide. Heavy minerals were studied under a 400X microscope.

The parent material was observed to contain a variety of heavy minerals in small amounts. The same minerals were identified in the concentrate in significantly greater amounts. Due to the predominance of pink garnet



1



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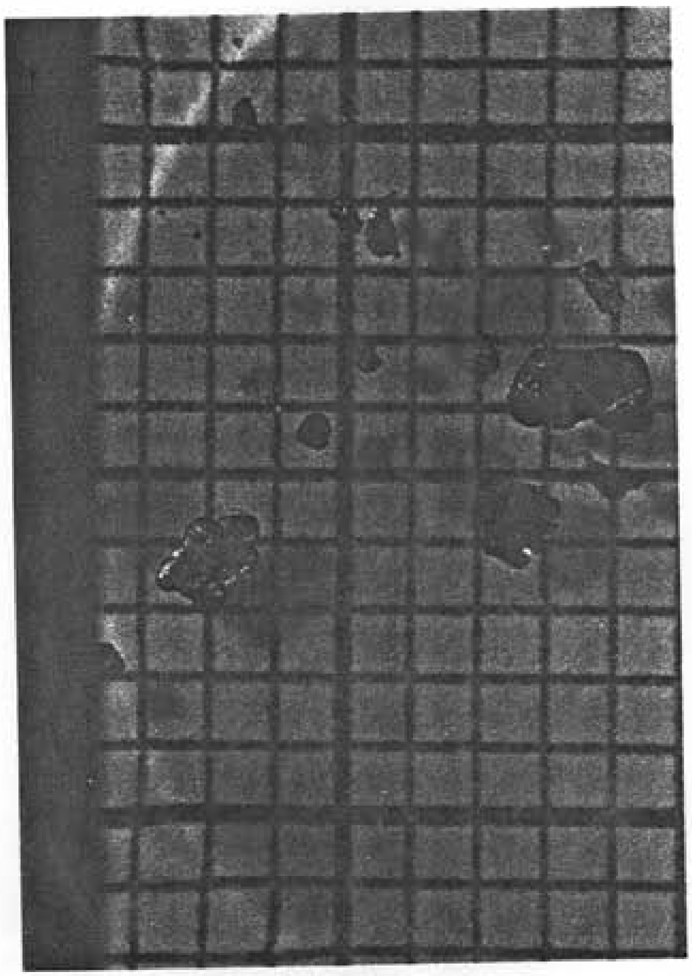


3

<u>Legend</u>

Scale: □ = 1 mm

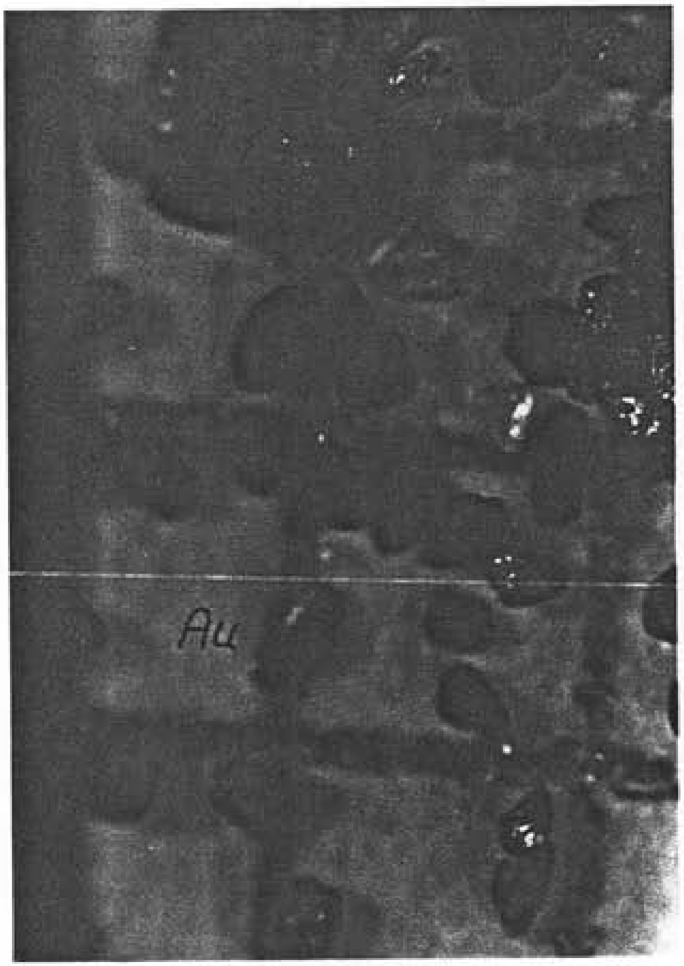
1. From top to bottom:

   Gold; gold telluride; palladium. Particles originate from the "bed" - through which concentrate passes to the CWC apex orifice.

2. Telluride nuggets from the coarse fraction (14 m X ¼ inc.) of the concentrate (to be confirmed by chemical analysis)

3. Particles of gold (g); gold telluride (lower right) and (unconfirmed) nugget of telluride originating from the plus 60 mesh fraction of the concentrate and bed material.

FIGURE 7



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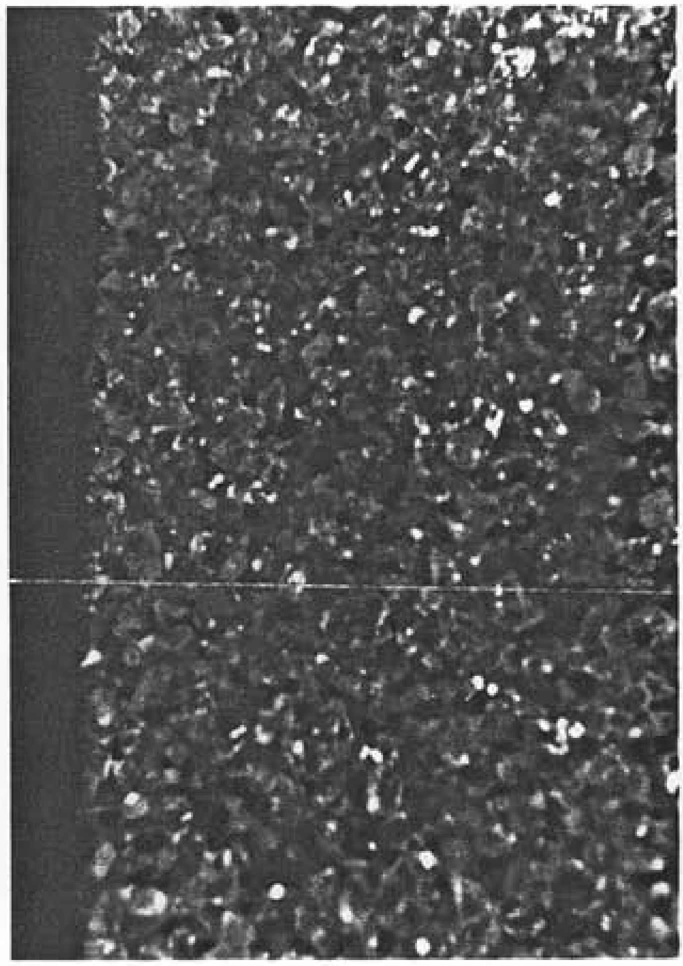

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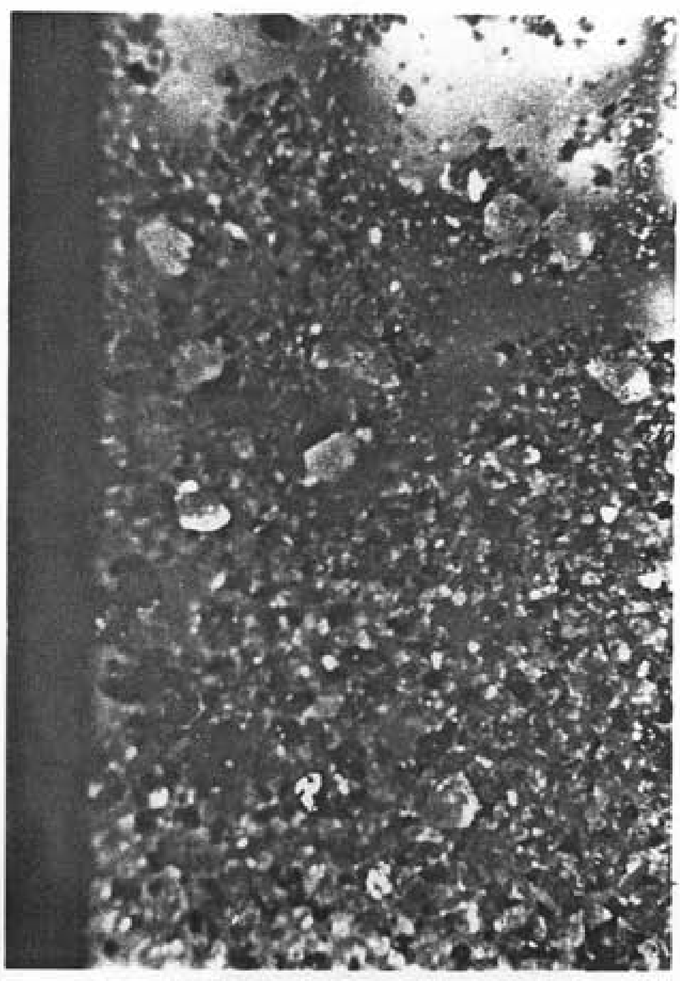

Legend

Scale: □ = 1 mm

4. Gold particle in the (60 X 100) fraction of the concentrate.

5. Gold particles in the (100 X 325) fraction of the concentrate

6. Gold particles in the minus 325 mesh fraction of the concentrate.

FIGURE 8

with a specific gravity of approximately 4, the concentrate took on a pinkish hue.

The following minerals were identified in the concentrate:

1. considerable pink garnet;
2. fair amounts of altered homblende, green and brown epidote, rutile, zircon and magnetite;
3. smaller amounts of almandine, green garnet, tourmaline, hematite-ilmenite, specular hematite and chlorite;
4. a gold particle; and
5. an unidentified particle of grey white metal.

In another study in our laboratory, heavy minerals were separated from raw feed 31F and its secondary concentrate IUU. Separation was done with a mixture of methylene iodide and bromoform with a density of 3.2. A heavy mineral concentration ratio of 5 was calculated.

Conclusions

The presence of tellurides may explain the discrepancies between test results presented in 6.0. Tellurium, like sulphur, interferes with gold recovery by amalgamation, smelting and cupellation. It tends to draw the gold bead into the cupel and at the same time makes it brittle, which may cause.disintegration on solidification. Both elements need to be driven off by roasting prior to amalgamation or smelting. In the wet-chemical treatment of concentrates containing tellurides of gold or platinum, digestion with nitric acid prior to dissolution in aqua regia may be required to attain complete ionization of these metals.

On the basis of the qualitative mineral analyses, the CW cyclone test plant did separate out heavy minerals and gold at a cut point of between 3 and 4. Further optical analyses of the microscopic slides and a 26-element spectral analysis of the IUU concentrate, are presently being completed by EMR and Chemex, respectively.

GOLD RECOVERY AND CHEMISTRY ANALYSES

Sampling, Concentration and Analysis Limitations

The content of a mineral in a sample submitted for analysis is ideally the same as the content of that mineral in the parent material. However, the smaller the number of particles of a mineral in a sample, the larger the chance that the content in the sample deviates from that in the parent material. The number of mineral particles decreases with a decrease of its content in the parent material, with the decrease in sample size, and with an increase of particle size.

Because of the extremely fine particle size of the Sombrio gold, any deviation in samples will be mainly due to content and sample size. Therefore, samples for analysis should be large enough to produce results which reflect the values in the parent material. In most analysis techniques, however, only a relatively small amount of material can be handled. Therefore, when analysing a large sample, gold content should be concentrated in a volume suitable for analysis.

Limitations in both concentration and analysis techniques can cause deviations of a test result from the gold content of the sample itself. Mechanical concentration normally results in losses of fine gold. During chemical digestion, gold bound up with other minerals may not be leached out. Therefore, all the gold in a sample often does not end up in its concentrate. Analysis techniques are subject to interferences from other metals and compounds, which normally produce inflated figures, but may produce suppressed values. All available techniques introduce uncertainties, and a proper understanding of the techniques is required so that their limitations, and the results that they produce, are clearly understood.

It is our opinion that the best way of establishing the gold content of a placer deposit is to collect large samples under geologic supervision and to analyse them in sufficient volumes so that gold can be extracted and weighed.

Sample Preparation

Representative 22.6 kg (50 lb) amounts of raw feed (25RF to 34RF) from the dried and screened bulk samples were collected during cycloning and retained for analysis. From these, small representative sub-samples suitable for precious metal testing were prepared by coning and quartering. Each sub-sample was thoroughly mixed into a cone, split into quarters, and opposite quarters combined into cones each half the size of the original cone. This process was repeated until combined quarters were of the desired size. Representative sub-samples were submitted by RUGE to several laboratories for testing.

Wet processed primary (25UU to 34UU), secondary (EUU to HUU) and tertiary (F^1UU) concentrates ranging from 27 to 125 kg (60 to 275 lb) were pipe sampled by pushing a 2.5 cm (1 inch) pipe through their whole homogenized mass, taking care to ensure that material did not fall out of the pipe bottom. This process was repeated randomly in the bulk sample until a combined weight of 2.3 to 4.0 kg (5 to 9 lb) was obtained. Wet pipe samples were dried and their moisture contents determined. Dried pipe samples were coned and quartered as described above.

Remaining portions of 26RF to 30RF were submitted in their entirety to Bacon Donaldson and Associates Ltd by RUGE staff for testing at Nuspar's request. The remaining part of EUU was sent to Dr. Visman for closed circuit CW cyclone concentration. Remaining portions of all other raw feed and concentrate samples were retained at our office. A 31RF bulk sample was collected by Armside Mining Company from the Sample 31 location and sent to Action Mining Company in California for testing.

Summary of Test Results

The sub-samples were distributed to laboratories in Pennsylvania, California and Vancouver for gold content testing by several chemical separation techniques with gravimetric and spectroscopic finishing. Special test procedures were implemented at our request, at several of the laboratories in an effort to ensure that all free gold and gold bound in coumpounds were accounted for. We believe that in several of the tests conducted, micron sized gold and bound gold was lost during processing, and possibly not fully extracted by the chemicals used.

A summary of all tests conducted on raw feed (RF) and cyclone concentrates (UU) are presented in oz/1000 ton on Tables 6 and 7, respectively, in columns in the chronological order of testing. Test results presented in our May and November reports to Triangle from geologic samples taken at the bulk sample location are also presented. Brief descriptions of the procedures used are presented on the Table legends and results which are now considered suspect or incorrect are identified. Detailed descriptions are provided in the following paragraphs, and an estimate of probable values is presented in 6.12.

The figures in Tables 6 and 7 should be divided by 1000 to obtain oz/ton, and then multiplied by 1.4 to obtain oz/yd^3. This assumes an insitu density of 1700 kg/m^3 (106 lb/ft^3). To obtain gold values in Canadian dollars based on a 1983 gold price of Can $500/oz, multiply the figures in Tables 6 and 7 by 0.5 to obtain Can$/ton. Similarly the oz/ton or oz/yd^3 values should be multiplied by 500 and 700, respectively, to yield Can$/ton and Can$/yd^3.

SAMPLE NUMBERS Bulk	Other	TRIANGLE VENTURES MAY 1983 REPORT A	B	C+	D+	TRIANGLE VENTURES NOV 1983 REPORT E+	F+	G*	PRESENT SCOPE OF WORK FOR NUSPAR RESOURCES JANUARY 1984 REPORT H1*	H2	I	J1*	J2+	J3+	K*	L+	M*	N1+	N2	N3	N4*
25	12 601	2		tr	tr		tr		45	6			2.7	0.4	<0.7	16	0.1				
26	23					0.03	tr		48	10			3.0	0.7	<0.8	10	0.3				
27	16					0.03	tr		80	0	4.3		2.2	<0.1	<0.9	<3	0.4	20			
28	17					0.1	tr	17	55	4	6.8		3.8	0.5	<0.8	<3	0.6	55	1		41 23
29	18					0.1	tr		50	9		29 to 87 (rows 27–30)	2.2	<0.1	<0.8	<3	0.2				
30	20					0.1	tr		71	0			2.4	<0.1	<0.7	<3	0.1				
31	5 404 21	3	5.7	tr	78	0.01	tr		63	4	1.1		1.8	<0.1	<0.8	<3		180 210	3 3	1 37	8 225
32	11 408 15	5	0.1			0.2	tr		65	7			< 0.03	<0.1	<0.7	<3					
33	8 203 14	tr	10.4		79	0.2 0.05	tr	43	90	0	0.5		1.8	<0.1	<0.8	<3		35			
34	9 405 24	5	2.6			tr	tr		61	6			0.2	1.5	<0.8	<3					

Column A: fire assay by Sabin on raw feed (May 1983)
B: fire assay by Sabin on Knelson concentrate (May 1983)
C: fire assay by Chemex on raw feed (May 1983)
D: fire assay by Chemex on Knelson concentrate (May 1983)

E: fire assay by Chemex on Knelson concentrate (July 1983)
F: amalgamation by RUGE and Triangle on Knelson concentrate (July 1983)
G: aqua regia and AA by Rohm & Haas on Knelson concentrate (Aug. 1983)

Note: values in columns B,D,E,F, and G are recalculated to raw feed

* results have been proven incorrect
\+ results are considered suspect

Column H1: aqua regia and AA by Rohm & Haas on raw feed (Dec.1983)
H2: aqua regia and AA by Rohm & Haas on raw feed (Jan. 1984)
I: chlorine and Amborane by Dr. Joe Thomas on raw feed (Dec.1983)
J1: aqua regia and XRF by RUGE on raw feed (Nov. 1983)
J2: aqua regia and XRF by RUGE on raw feed (Dec. 1983)
J3: aqua regia and XRF by RUGE on raw feed (Jan. 1984)
K: aqua regia and ICAP by Quanta Trace on raw feed (Dec. 1983)
L: fire assay by Chemex on raw feed (Jan. 1983)
M: shaking table and fire assay by Bacon Donaldson on raw feed (Dec. 1983)
N1: CLS-20 by Action Mining on raw feed (Dec. 1983)
N2: CLS-20 by Bacon Donaldson on raw feed (Jan. 1984)
N3: CLS-20 by RUGE on raw feed (Jan. 1984)
N4: CLS-20 by Bacon Donaldson and Action Mining on raw feed (Jan. 1984)

TABLE 6. SUMMARY OF GOLD ANALYSES ON RAW FEED BULK SAMPLE (OZ/1000 TON)

Sample	H1*	H2	J2+	J3+	K*	O	P+
25			0.7		<0.8		
26	61	16	2.1	0.5	<0.7		
27	66	9	2.9	<0.1	<0.6		
28	39	5	3.3	0.8	<0.7		
29	65	16	1.0	15.4	<0.8		
30	60	4	1.8	0.2	<0.7		
31	59	5	1.8	0.2	<0.8		
32	50	4	2.0	1.0	<0.6		
33	104	13	8.2	7.0	<0.7		
34	77	9	2.1	0.7	<0.8		
E	86	0	2.0	0.2	48	<3	<3
F	90	5	5.4	<0.1	<0.8	<3	<3
G	82	15	0.9	0.5	<0.8	3	<3
H	39	0	1.5	<0.1	<0.8	3	<3
F1	89	5	2.4	<0.1	<0.8	<3	<3

Column H1: aqua regia and AA by Rohm and Haas (Dec. 1983)
H2: aqua regia and AA by Rohm and Haas (Jan. 1984)
J2: aqua regia and XRF by RUGE (Dec. 1983)
J3: aqua regia and XRF by RUGE (Jan. 1984)
K: aqua regia and ICAP by Quanta Trace (Dec. 1983)
O: fire assay by Chemex (Dec. 1983)
P: aqua regia and AA by Chemex (Dec. 1983)

* results have been proven incorrect
\+ results are considered suspect

Table 7. SUMMARY OF GOLD ANALYSES ON CW CYCLONE UU PRODUCTS IN OZ/1000 TON

Aqua Regia Digestion

Aqua regia digestion of one complete set of sub-samples was completed under the direction of Ebo Bakker and chemistry technician Colin Jones at Simon Fraser University (SFU). Sub-samples ranging from 0.44 to 0.92 kg (1 to 2 lb) were each digested in 500 ml of 80% aqua regia for 6 to 10 hours at 70^{o}C with periodical agitation. The resultant slurry was then filtered, washed, and the obtained clear solution made to one litre.

Portions of these solutions were tested for gold content by other laboratories using atomic absorption and X-ray fluorescence spectroscopy with and without benefit of the Amborane 345 resin reducing agent. The remaining solution has been retained for future analyses such as other metal content that will be required for environmental purposes if aqua regia digestion would be considered on a production scale.

Ideally, the aqual regia solution contains all the precious metals from the sub-sample. However, precious metals enclosed in minerals which are not attacked by aqua regia will not be found in this liquid. Unfortunately, other metals such as iron are partly leached into the solution, and do interfere with analytical procedures.

Amborane Reduction and Atomic Absorption Spectroscopy

Following several telephone conversations between Dr. Larry Manziek of Rohm and Haas Company, and Cecil Urlich and Ebo Bakker of RUGE pertaining to Rohm and Haas results (November report to Triangle), Urlich and Bakker visited Manziek on December 27, 1983. Rohm and Haas is a worldwide chemical producer that developed Amborane 345 technology as a patented process which is gaining acceptance in the mineral industry for the treatment and recovery of precious metals. Their Spring House, Pennsylvania facility is a large chemical research complex in which nearly 500 PhD's are employed.

Portions of all aqua regia solutions were taken to Spring House and analysed by Dr. Manziek in the presence of Urlich and Bakker. Two 5 ml portions of each solution were equally diluted. One set of solutions were treated with 0.2 ml of Amborane 345 beads and agitated for 4 hours. Both sets of solution were then measured by atomic absorption (AA).

Absorbance readings taken on untreated solutions were corrected for iron interference for which Dr. Manziek had established correction curves. These values correspond to the combined presence of gold and other unknown interferences (Tables 6 and 7, Columns H1). Readings of the Amborane treated solutions correspond to the presence of these interferences. The difference between each pair of readings without iron interference correction and corrected to standard gold solutions, corresponds to the desired gold value with all interferences cancelling out (Tables 6 and 7, Columns H2).

The H1 and H2 values were different, implying that unknown interferences remained to inflate gold values even after iron correction. This observation rendered the earlier high Rohm and Haas results invalid (Table 6, Column G). Dr. Manziek had not before experienced these other interferences, and suggested that they could be due either to the complexity of the ore, or to lower grade values that he generally worked with.

We conclude that the Column H2 values are realistic for the bulk samples. Possible errors could still exist if the beads did not collect all the gold, or if they collected other metals such as iron in solution or in ion exchange. In the first case the analysis result will be low, and in the second case high if the reduced metals influence the absorbance readings. We consider, however, that both of these possible errors can be neglected.

Chlorine Lead and Amborane Extraction

Following an introduction from Dr. Manziek, Dr. Joseph Thomas, chemistry professor at California State University at Fullerton and co-owner and operator of the Hard-to-Find gold mine in California, was introduced to the project. Dr. Thomas has developed a proprietary chlorine gas digestion and Amborane extraction technology capable of treating complex and low grade precious metal ores. He has researched precious metal testing for five years and concludes that extraction is the only positive test for values.

Following several telephone communications between Manziek, Thomas, Urlich and Bakker, Urlich visited Thomas on December 29, 1983. Thomas visited RUGE staff on January 16, 1984. He reports that he has built his own laboratory and production vessels, that his technology has been successfully used at the Hard-to-Find mine, and that he is presently building a test unit capable of treating 45 kg (100 lb) samples. Drs. Thomas and Manziek have worked closely on Amborane technology for over two years. Both state that chlorine digestion is probably more efficient than that of aqua regia, and about 90% less expensive in chemical costs.

Totals of 1 to 5 kg (2 to 11 lb) of sub-samples 27RF, 28RF, 31RF and 33RF were submitted to Dr. Thomas for testing. Following chlorine digestion, excess chlorine was removed from the lead, gold collected on Amborane 345 beads, the resin burnt, and gold extracted and weighed (Table 6, Column 1).

Possible errors are similar to those outlined in 6.5. Gold enclosed in minerals that are not attacked by chlorine cannot be leached, and therefore not collected on the beads. Dr. Thomas believes that his digestion and extraction process should recover nearly 100% of the free and bound gold. Gold added to the samples was completely retrieved. However, this does not prove that bound gold was completely extracted.

We consider that the Column I results are the most reliable presently available for bulk samples.

Amborane Reduction and X-ray Fluorescence

Portions of all aqua regia solutions were analysed at Simon Fraser University (SFU) by Mike Cackett and Colin Jones using X-ray fluorescence spectroscopy (XRF) under the occasional supervision of Dr. John D'Auria. Results were continually reported to, and reviewed by Ebo Bakker. During XRF spectroscopy, inner electrons of atoms are excited by X-rays, other electrons, and radioactive sources. They are knocked out of their shells, and replaced by outer shell electrons which emit energy as continuous background radiation and characteristic line spectrum.

The SFU system utilized a Siemens X-ray tube with gold as primary and molybdenum as secondary target. The X-ray beam excites the sample, and the emitted radiation is processed in a multichannel analysis acquisition system; counted in narrow wavelength classes, and represented as a histogram showing the relation between wavelength and counts. Spectral lines show up as peaks. The area under each peak, minus the background, is proportional to the concentration of the characteristic peak for that element and to the counting time. The standard deviation of the measured area decreases with counting time. Instrument corrections are made by referring all measurements to one argon peak.

A fixed relation exists between different peaks of the same element. The largest gold peak was eventually found to overlap a secondary zinc peak, and the zinc interference was calculated from the largest zinc peak. Gold values were calculated by comparing the net peak areas with standard curves.

The original test procedure was to concentrate the sample solution until a measurable gold concentration was reached. From this concentrate a 50 ul drop was measured for up to 1 hour (Table 6, Column J1). However, the presence of iron was found to interfere with the results making them invalid.

Following discussions with Dr. Manziek and Thomas, Amborane beads were used to extract gold from the sample solutions. From one litre, 100 ml was diluted to a pH greater than 1.1 and agitated for 6 hours with 100 mg of beads at room temperature. The beads were then filtered, washed, air dried, and measured on the spectrometer assuming no other interferences (Tables 6 and 7, Column J2).

A standard curve was produced in the same way by adding known amounts of gold to the 31RF solution to ensure a similar environment. After eliminating the suspected amount of zinc interference, the curve fitted so closely to that of pure gold solutions that 31RF, and all the other samples, were measured to contain only traces of gold (Table 6, Column J3).

Aqua regia performance was tested by processing the leach residue of some samples again. Amborane performance was tested by adding more beads to an already processed sample. No gold was found in any these tests. It is known that the Column J1 results are not valid. However, the validity of the J2 and J3 results is being currently investigated as a research project by the chemistry department of SFU.

Aqua Regia Digestion and Plasma Emission Spectroscopy

One set of all sub-samples was sent to Quanta Trace Laboratories Inc. of Burnaby and analysed under the direction of Mr. Derrel Dixon by Plasma Emission Spectroscopy (ICAP, for Inductively Coupled Argon Plasma Flame Emission Spectroscopy). In the ICAP method, outer shell electrons are excited and an emission spectrum produced with characteristic peaks. The excitation is produced by a magnetic field in an ionized gas or plasma obtained by induction heating the sample to 9000 to 10,000^{0}K. Detection limits are similar to those of AA, but lower for some elements. Measured values for samples are compared with standard solutions to obtain metal concentrations.

The 0.44 to 0.86 kg (1 to 2 lb) sub-samples were split by riffler to 50 to 70 gm, digested overnight in 50 ml of concentrated aqua regia, and diluted to 150 ml. After settling of the insoluble material, 2 to 3 ml of clear solution were measured on the spectrometer (Table 6, Column K).

Very low results below detection limits were obtained, and appear to be caused by unknown interferences which suppressed values. This was proved by submitting sample liquids prepared at SFU with and without gold added. Two samples, each with 2.20 ug gold/ml added returned 1.07 and 1.52 ug/ml. One sample with 0.04 ug/ml added returned less than .01 ug/ml. A significant interference or equipment malfunction obviously exists. The Column K values should therefore be disregarded.

Fire Assay and Atomic Absorption

One set of all sub-samples ranging from 0.10 to 0.77 kg (0.25 to 1.7 lb) were submitted to Chemex Labs Ltd. of Vancouver. They were split by riffler, ground to 0.15 mm (100 mesh) and again split to a suitable size for analysis.

Conventional fire assays were done on 15 gm samples under the direction of Mr. Lloyd Twaites who was made aware of the presence of tellurides. Raw reed samples were roasted prior to the fire assay to accommodate the tellurides. All analyses were finished by gravimetrics (Table 6, Column L and Table 7, Column O).

From the concentrate sub-samples, 5 gm amounts were leached with 50 ml of concentrated aqua regia. The gold was extracted from the leach liquid with MIBK and measured with standard techniques (Table 7, Column P).

Because of the presence of tellurides and the small sample size tested, these values must be considered suspect. In properly completed fire assays, all free and bound gold should be retrieved. Loss of gold by volatilization is probably negligible at fire assay temperatures. Interference by tellurides during cupellation is well known qualitatively but not quantitatively. Some experts in fire assay techniques claim that telluride intereferences in assays are insignificant. Others maintain that these interferences can be considerable.

Shaking Table and Fire Assay

Raw feed samples 25RF to 30RF, ranging from 8 to 25 kg (18 to 56 lb) were submitted by Nuspar to Bacon Donaldson & Associates Ltd. in Vancouver for testing. They were screened to 0.4 mm (40 mesh) and concentrated on a Wilfley shaking table by Dr. Morris Vreugde. Concentration ratios of up to 1000 were achieved, and conventional fire assays completed on the concentrates only (Table 6, Column M).

From our practical experience of these types of placer materials, shaking tables have difficulty in recovering abraded gold particles below 50 microns in size. Dr. Gordon Bacon of Bacon Donaldson maintains that the lower limit of efficient recovery on a Wilfley table are 100 micron (150 mesh) for flat particles and 55 micron (270 mesh) for spherical particles. A particle analysis conducted on a composite sample of the property by Dr. Visman indicated that more than 50% of the gold within the sample is less than 37 microns in size (November report to Triangle). The presence of a significant proportion of fine flat gold known to exist in the Sombrio deposit, coupled with the shaking table limitations, explains the low values obtained.

CLS-20 Leach

CLS-20 is a proprietary chemical, believed to be iron thiosulfate, by Action Mining Company Ltd. of Trona, California, which reportedly is able to leach gold out of certain "non-assayable ores". Basically, the process consists of leaching the sample with CLS-20 in either hydrochloric or sulphuric acid, and ultimately filtrating and precipitating out the gold in a series of steps using more acid, and either zinc or sodium hydroxide and hydrazinc, with carefully controlled temperature, time and pH conditions. Gold, precipitated and mixed with other metals and hydroxides, is cupelled, the bead parted, and the gold residue weighed.

The Sombrio project was introduced to CLS products and Action Mining by Mr. H.S. Kamil who sent material from the Sample 31 location to Mr. Jim Humble of Action for testing. Following a series of tests, Action reported values of about 0.2 oz/ton (Table 6, Column N1). Conventional fire assays and cyanide leaching of this sample reportedly did not not detect any gold. Following discussions between Messrs. Humble, Kamil, Sherwin and Urlich, Urlich visited Humble in Trona on December 28, 1983, submitted raw feed samples 27RF, 28RF and 33RF for testing, and purchased some CLS-20. Action's test results were submitted by Telex the following week (Table 6, Column N1).

Portions of Armside's bulk sample, 31 RF, and raw feed sample 28RF were submitted to Bacon Donaldson and Associates for CLS-20 testing in accordance with Mr. Humble's instructions. Significantly lower results were obtained (Table 6, Column N2).

Following discussions with Mr. Humble, and a meeting between Messrs. Kamil, Bakker, Sherwin and Sawyer in Victoria on January 6, 1983, raw samples 28RF and 31RF were tested with CLS-20 by Colin Jones and other RUGE staff at Simon Fraser University and General Testing Laboratories of Vancouver following Humble's procedures. Because of problems with hydrazinc precipitation, the SFU process was not finished, but a portion of the liquid before precipitation was dried and fire assayed returning a value of 0.001 oz/ton (Table 6, Column N3). Instead of reduction and cupellation, gold bearing liquid was measured by AA at General Testing using Amborane beads. Preliminary results showed that the leach was at its maximum efficiency 9 hours into the cycle with the sample containing 0.037 oz/ton of gold (Table 6, Column N3).

On January 11 and 12, 1983, duplicate CLS-20 tests were completed by Bacon Donaldson on one assay-ton amounts of 28RF and 31RF in the presence of Messrs. Humble, Urlich and Bakker, in accordance with Humble's instructions. Testing was done by Rein Randsepp, Dr. Gordon Bacon, and Patricia Allen, certified assayer. Erratic results were obtained (Table 6, Column N4).

Simultaneous tests on CLS-20 chemical returned significant gold values which make the results in Column N4 inconclusive.

Mr. Sherwin has reported that CLS-20 testing is presently being performed in Victoria by Triangle's Peter Nelson, Buzz Sawyer and Sherwin. Simultaneous leading and electroplating are reported to be extracting visible gold. Present results are promising and testing is continuing.

Other Reported Test Results

A sampling program was carried out by Mr. John Perry in November 1983 for Nuspar. Seven channel samples ranging from 1.9 to 11.3 kg (4.3 to 24.9 lb) were taken from Geology Road over a stratigraphic interval of 32 m (100 ft) vertical. Chemex completed testing by standard fire assay with finishing by AA. Three samples returned values of 0.002 to 0.008 oz/ton, and the others were 0.001 oz/ton and lower. Aqua regia leach on the three high assayed samples, followed by MIBK extraction and AA finishing, returned values of less than 0.003 oz/ton for all three.

In December, 1983 Mr. Sherwin reported that seven samples of 45 kg (100 lb) were taken by a reliable source and leached with aqua regia. Gold was recovered by electroplating in Calgary, and reported values ranged from 0.004 to 0.018 oz/ton. The samples reportedly came from:

1. Geology Road, Upper Jack Elliot, 2 samples (0.007 oz/ton);
2. Geology Road, selected Quadra sand, 1 sample (0.016 oz/ton);
3. Kamil's Pit, Quadra sand, 1 sample (0.007 oz/ton);
4. Spruce Log Bridge, Lower Jack Elliot, 1 sample (0.018 oz/ton);
5. MacInnes Trail, Upper Jack Elliot, 1 sample (0.004 oz/ton); and
6. Terrace South, Sand and Gravel, 1 sample (0.004 oz/ton).

Other Metals

Raw feed samples (27RF and 28RF) submitted to Dr. Joe Thomas in California were also analyzed for platinum. No platinum was found. However, Dr. Thomas did identify a trace of platinum in a composite sample of the Terrace sands and gravels.

All sub-samples were submitted to Quanta Trace Laboratories Inc. for analysis of gold and 17 other metals (Table 8). The tabulated values reflect the amounts leachable with aqua regia. Palladium, platinum and rodium are below the detection level for all samples. Silver averages 0.0051 oz/ton in the raw feed, 0.0063 oz/ton in the primary concentrate and 0.0071 oz/ton in the secondary concentrate. However, because the reported gold values are low as discussed in 6.8, the other values are also suspect.

Dr. Jan Visman identified palladium in concentrates obtained during the cyclone testing (Figure 4, Photo 1).

Conclusion

On the basis of the limitations of concentration and analysis techniques used, results presented in our earlier reports, and Tables 6 and 7 of this report, the analyses results of Table 6 have been divided into three groups.

The first group contains all values below 1 oz/1000 ton. The majority of these values are caused by limitations of concentration and analysis techniques and bear no relation to the actual values in the material. A few of these values, however, could reflect real values.

The second group contains all values above 17 oz/1000 ton ranging up to 96 oz/1000 ton. These values are considered real. However, they represent the occasional presence of a significant gold particle in an analysis sample. In certain deposits, however, the incidence of high values is

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1 Tel:(604)438-5226

ANALYSIS OF GEOLOGICAL SAMPLES

To: Reimchen Urlich Geological Eng.
4381 Gallant Avenue
North Vancouver, B.C.
V7G 1L1

Workorder: 925
Received : 08-Dec-83
Comoleted: 14-Dec-83

Attn: Cecil M. Urlich, P. Eng. Re: Testing of Placer Samoles

Samole tyoe		sand	sand	sand	sand	sand
Identification		25 RF 2	26 RF 2	27 RF 2	28 RF 2	29 RF 2
Lab Reference #		925-001	925-002	925-003	925-004	925-005
Analyzed by Plasma Emission Soectroscooy (ICAP)						
Method used		aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble
Amount analysed		59.3 g	56.5 g	51.4 g	54.2 g	57.5 g
Major Elements						
Aluminum	Al	7730	9510	9780	9030	13800
Barium	Ba	80.3	62.5	46.5	56.9	80.5
Calcium	Ca	2170	2790	4610	2070	3260
Iron	Fe	13000	13800	17300	15100	16500
Potassium	K	950	375	301	288	342
Lithium	Li	6	4	< 3	4	4
Magnesium	Mg	4760	5470	5340	5420	5110
Manganese	Mn	210	268	250	246	316
Sodium	Na	94	150	463	140	200
Phosphorus	P	407	379	367	336	397
Silicon	Si	10	120	220	160	367
Titanium	Ti	316	414	385	351	551
Zirconium	Zr	2	3.7	2	2.8	4.3
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.11	0.12	0.14	0.17	0.18
Gold	Au	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Palladium	Pd	< 0.05	< 0.05	< 0.06	< 0.06	< 0.05
Platinum	Pt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Rhodium	Rh	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.0032	0.0034	0.0041	0.0049	0.0052
Gold	Au	< 0.0007	< 0.0008	< 0.0009	< 0.0008	< 0.0008
Palladium	Pd	< 0.001	< 0.002	< 0.002	< 0.002	< 0.002
Platinum	Pt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Rhodium	Rh	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Results in		oz/T	oz/T	oz/T	oz/T	oz/T

Table 8 ..... continued

/2...

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#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1 Tel:(604)438-5226

To: Reimchen Urlich Geological Eng. W/O: 925 Page 2

Sample type		sand	sand	sand	sand	sand
identification		30 RF 2	31 RF 2	32 RF 2	33 RF 2	34 RF 2
Lab Reference #		925-006	925-007	925-008	925-009	925-010
Analyzed by Plasma Emission Spectroscopy (ICAP)						
Method used		aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble
Amount analysed		66.5 g	53.5 g	59.2 g	55.3 g	54.9 g
Major Elements						
Aluminum	Al	14400	11300	14600	19500	10800
Barium	Ba	91.6	82.7	140	91.1	58.8
Calcium	Ca	5120	2830	2590	2200	2470
Iron	Fe	19100	16600	22100	22600	18100
Potassium	K	354	283	1600	1140	488
Lithium	Li	4	5	10	10	6
Magnesium	Mg	6660	5330	8850	8280	6340
Manganese	Mn	338	245	373	333	290
Sodium	Na	351	210	150	140	120
Phosphorus	P	349	344	534	324	416
Silicon	Si	323	369	7	38	323
Titanium	Ti	650	609	499	1070	492
Zirconium	Zr	3.4	3.9	1	2	3.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.2	0.18	0.19	0.27	0.17
Gold	Au	< 0.02	< 0.03	< 0.03	< 0.03	< 0.03
Palladium	Pd	< 0.05	< 0.06	< 0.05	< 0.05	< 0.05
Platinum	Pt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Rhodium	Rh	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.0059	0.0054	0.0057	0.0078	0.0049
Gold	Au	< 0.0007	< 0.0008	< 0.0007	< 0.0008	< 0.0008
Palladium	Pd	< 0.001	< 0.002	< 0.001	< 0.002	< 0.002
Platinum	Pt	< 0.003	< 0.004	< 0.004	< 0.004	< 0.004
Rhodium	Rh	< 0.003	< 0.004	< 0.004	< 0.004	< 0.004
Results in		oz/T	oz/T	oz/T	oz/T	oz/T

Table 8 .... Continued

/3...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1 Tel:(604)438-5226

To: Reimchen Urlich Geological Eng. W/O: 925 Page 3

ample type		sand	sand	sand	sand	sand
dentification		25 UU 2	26 UU 2	27 UU 2	28 UU 2	29 UU 2
Lab Reference #		925-011	925-012	925-013	925-014	925-015
nalyzed by Plasma Emission Spectroscopy (ICAP)						
Method used		aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble
Amount analysed		58 g	62.4 g	69 g	58.7 g	55.5 g
ajor Elements						
Aluminum	Al	9960	10800	9750	10100	11600
Barium	Ba	85.4	62.7	45.2	57.8	58.4
Calcium	Ca	3180	3870	4570	3730	3810
Iron	Fe	18200	19300	17600	15700	21800
Potassium	K	1020	397	341	375	323
Lithium	Li	8	6	4	5	3
Magnesium	Mg	6390	6660	6440	6210	6520
Manganese	Mn	313	346	302	319	362
Sodium	Na	130	200	373	190	150
Phosphorus	P	495	475	579	385	414
Silicon	Si	10	71	40	96	55
Titanium	Ti	373	459	250	488	619
Zirconium	Zr	2	2.7	1	2.9	2.8
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.18	0.21	0.14	0.17	0.21
Gold	Au	< 0.03	< 0.02	< 0.02	< 0.03	< 0.03
Palladium	Pd	< 0.05	< 0.05	< 0.04	< 0.05	< 0.05
Platinum	Pt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Rhodium	Rh	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.0054	0.0061	0.0042	0.0051	0.006
Gold	Au	< 0.0008	< 0.0007	< 0.0006	< 0.0007	< 0.0008
Palladium	Pd	< 0.002	< 0.001	< 0.001	< 0.001	< 0.002
Platinum	Pt	< 0.004	< 0.004	< 0.003	< 0.004	< 0.004
Rhodium	Rh	< 0.004	< 0.004	< 0.003	< 0.004	< 0.004
Results in		oz/T	oz/T	oz/T	oz/T	oz/T

Table 8 ......Continued

/4...

quanta trace laboratories inc.
#401-3700 Gilmore Way, Burnaby, B.C., Canada V5G 4M1 Tel:(604)438-5226

To: Reimchen Urlich Geological Eng. W/O: 925 Page 4

Sample type Identification Lab Reference #		sand 30 UU 2 925-016	sand 31 UU 2 925-017	sand 32 UU 2 925-018	sand 33 UU 2 925-019	sand 34 UU 2 925-020
Analyzed by Plasma Emission Spectroscopy (ICAP)						
Method used		aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble
Amount analysed		65.8 g	52.9 g	71.2 g	58.7 g	54.1 g
Major Elements						
Aluminum	Al	9800	10800	14700	17500	11000
Barium	Ba	61.1	60.1	129	78.5	48.8
Calcium	Ca	2640	3510	2300	2430	2550
Iron	Fe	14800	19100	22400	24600	17000
Potassium	K	263	280	1620	1040	317
Lithium	Li	4	4	10	10	4
Magnesium	Mg	5590	5930	9210	9740	6460
Manganese	Mn	294	262	369	376	294
Sodium	Na	150	180	120	120	120
Phosphorus	P	367	334	629	250	429
Silicon	Si	210	315	71	250	506
Titanium	Ti	442	737	403	943	529
Zirconium	Zr	2.4	3.7	1	2	3.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.34	0.23	0.21	0.289	0.18
Gold	Au	< 0.02	< 0.03	< 0.02	< 0.03	< 0.03
Palladium	Pd	< 0.05	< 0.06	< 0.04	< 0.05	< 0.06
Platinum	Pt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Rhodium	Rh	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.00993	0.0066	0.0061	0.00842	0.0051
Gold	Au	< 0.0007	< 0.0008	< 0.0006	< 0.0007	< 0.0008
Palladium	Pd	< 0.001	< 0.002	< 0.001	< 0.001	< 0.002
Platinum	Pt	< 0.003	< 0.004	< 0.003	< 0.004	< 0.004
Rhodium	Rh	< 0.003	< 0.004	< 0.003	< 0.004	< 0.004
Results in		oz/T	oz/T	oz/T	oz/T	oz/T

Table 8 ..... Continued

/5...

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To: Reimchen Urlich Geological Eng. W/O: 925

Sample type		sand	sand	sand	sand	sand
Identification		E UU 2	F1 UU 2	F UU 2	G UU 2	H UU 2
Lab Reference #		925-021	925-022	925-023	925-024	925-025
Analyzed by Plasma Emission Spectroscopy (ICAP)						
Method used		aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble	aqua regia soluble
Amount analysed		52.5 g	56 g	56.5 g	51.8 g	56.2 g
Major Elements						
Aluminum	Al	7200	7140	8470	7280	8770
Barium	Ba	38.5	45	48	35.1	57.1
Calcium	Ca	2940	1720	2390	2020	1490
Iron	Fe	15800	15600	18400	17200	14900
Potassium	K	349	230	250	210	581
Lithium	Li	< 3	< 3	3	< 3	5
Magnesium	Mg	5080	4770	5620	5070	5020
Manganese	Mn	208	219	249	261	215
Sodium	Na	160	82	110	76	67
Phosphorus	P	445	404	451	422	474
Silicon	Si	120	140	240	49	240
Titanium	Ti	234	240	337	313	358
Zirconium	Zr	1	2	2	2	2
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.507	0.12	0.15	0.19	0.14
Gold	Au	1.7	< 0.03	< 0.03	< 0.03	< 0.03
Palladium	Pd	< 0.06	< 0.05	< 0.05	< 0.06	< 0.05
Platinum	Pt	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Rhodium	Rh	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Results in		ug/g	ug/g	ug/g	ug/g	ug/g
Precious Metals						
Silver	Ag	0.0148	0.0036	0.0043	0.0055	0.0039
Gold	Au	0.048	< 0.0008	< 0.0008	< 0.0008	< 0.0008
Palladium	Pd	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Platinum	Pt	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Rhodium	Rh	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004
Results in		oz/T	oz/T	oz/T	oz/T	oz/T

Analyst: [signature]

Table 8 .... Final Page

12-IN. TWO-STAGE CWC. UNIT (CAPACITY 20 STPH).

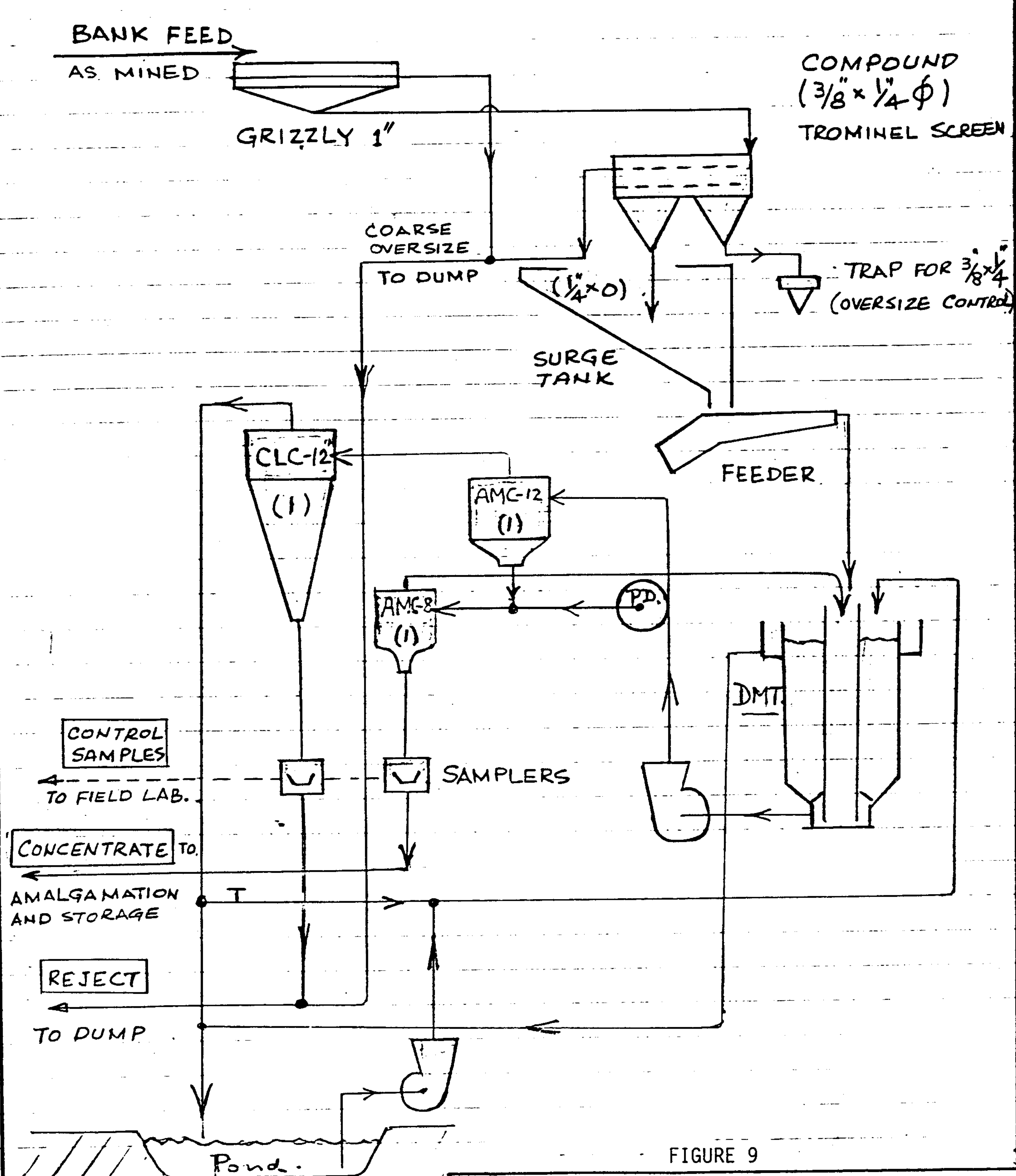


FIGURE 9

VORTEK SYSTEMS LTD.
EDMONTON ALBERTA CANADA

more common, such as in the Lower Jack Elliot deposit, in the Monitor Pit, and in the Quadra Sands in Kamil's Pit.

The third group has values ranging from 1 to 17 oz/1000 ton, values within this range have been established by Dr. Thomas (Table 6, Column I) and are backed by analyses performed by Sabin Corporation, Aurex and Triangle (May 1983 report to Triangle) and Rohm and Haas (Table 6, Columns A, B and H2). The majority of reliable tests fall within this group and consequently the majority of the materials will have values between 1 and 17 oz/1000 ton.

Based on geological considerations and the above groupings, we conclude that most of the materials in the Sombrio property have gold values ranging from 1 to 17 oz/1000 ton, or 0.001 to 0.017 oz/ton. This computes to 0.0014 to 0.024 oz/yd^3 assuming a dry density of 1700 kg (m^3) (106 pcf). Corresponding values would range from Can \$0.70 to $12.00/yd^3$ assuming a gold value of Can \$500/oz.

CONCLUSIONS AND RECOMMENDATIONS

Summary and Conclusions

Gold down to 2 microns in size and other heavy minerals were recovered in both the cyclone beds and misplaced material even though the CW cyclone coal test plant was limited in its capacity to process bulk placer samples. A test run in closed circuit with the correct settings produced a concentration ratio of 12.85. This concentrate contained a high particle content of specific gravity greater than 3.3.

These results provide very encouraging indications that a properly designed and operated CW cyclone will concentate materials of the Sombrio deposit in the field to provide a gold enriched end product (Figure 9). With additional CW cyclones in series all properly designed and operated, a valuable multiple concentrate product is expected.

Gold recovery and measurement test results were variable. Detailed studies were implemented to better understand the chemistry of the deposit and to resolve the limitations of the different test procedures used. This work is ongoing.

On the basis of geologic considerations and the test results obtained, we conclude that most of the material in the Sombrio property have gold values ranging from 0.001 to 0.017 oz/ton, or 0.0014 to 0.024 oz/yd^3. Corresponding dollar values would range from Can \$0.70 to 12.00/yd^3 assuming a gold value of Can \$500/oz.

Recommendations for the Next Phase of Work

On the basis of the results presented in this report, we consider that the next phase of work on the Sombrio property should be directed to:

(1) completing detailed chemistry and geology studies to better understand the complex composition of the geologic units and to more accurately define their precious metal potential;

ITEMIZED COST STATEMENT

Introduction

Development work done on the Sombrio Point Placer which is described in this report and is applied towards this assessment is tabulated as follows:

Lease	Bulk Sample Collected	Bulk Sample Analyzed	Road Built
PL 1109			
1110	34	yes	
10473			
10309	33	yes	
10310			
1112			
3161	32	yes	
11111			
1518			
1517			
1138	30	yes	
10172			
5878			
1113	26	yes	
1133			
9948			
1137	27, 28, 29	yes	yes
1519			
10472			
1111			
10487			
10486			
11112			
10488			
1114	25	yes	
1115			
1116			
10837			
10836			
10489			
1132			

Geological Field Costs

Of a total of ten bulk samples, three samples were collected from the Leases PL 1110, PL 10309 and PL 3161, two samples were collected from Leases PL 1138 and PL 1113, three samples were collected from the Lease PL 1137, one sample was collected from the Lease PL 1114, and one sample was collected from a lease not owned by Triangle Ventures Ltd.

Consequently, 30% of the geological field cost is assigned to the grouped leases which include Leases PL 1110, PL 10309 and PL 3161, 20% of the geological field cost is assigned to the grouped leases which include Leases PL 1138 and PL 1113, 30% of the geological field cost is assigned to the grouped leases which include PL 1137, and 10% of the geological field cost is assigned to the grouped leases which includes Lease PL 1114.

Chemical Research, Testing and Processing of Bulk Samples

Based on the number of samples collected from each lease as described in "Geological Sampling Costs", the costs of processing the bulk samples are assigned as follows: 30% of testing and processing cost is assigned to the grouped leases which include Leases PL 1110, PL 10309 and PL 3161, 20% of the testing and processing cost is assigned to the grouped leases which include Leases PL 1138 and PL 1113, 30% of the testing and processing cost is assigned to the grouped leases which include PL 1137 and 10% of the testing and processing cost is assigned to the grouped leases which includes Lease PL 1114.

Road Building

The road built will be used for placer as well as hardrock exploration programs. It is estimated that 40% of the benefit and use of the road will be for hardrock and 60% for placer exploration.

Consequently, 60% of the total road building costs are used for this assessment. The road built lies entirely within Lease PL 1137 and therefore 60% of the road building costs are assigned to the grouped leases which include Lease PL 1137.

Geological Sampling of Cyclone Processing

Jan Visman, Sample Processing Consultant					$ 1,500.00
Cecil Urlich, Sample Processing Supervisor	210.30	hr.	@	$55	11,566.50
Ted Reimchen, Geological Supervision	15	hr.	@	65	975.00
Geological Technician	249.25	hr.	@	15	3,738.75
Project Administration, bookkeeping	32.5	hr.	@	20	650.00
Freight, Storage & Handling of Bulk Samples					3,246.05
Vehicle Expenses, Fuel					1,360.85
Equipment					1,632.27
Accommodation & Travelling Expenses					2,327.09
Reproduction					122.21
Communication, telephone, courier					365.20
Bulldozer					122.92
Cyclone Engineering - Sample Processing					10,500.00
Report Costs					6,102.68
					$44,209.52

Chemical Testing and Research for Gold

Ted Reimchen, Geological Supervision	29	hr.	@	$65	1,885.00
Cecil Urlich, Project Supervision	162.40	hr.	@	65	10,556.00
Ebo Bakker, Gold recovery, research	251.60	hr.	@	45	11,322.00
Dave Hawes, Sample Processing	20	hr.	@	55	1,100.00
Pat Whiting, Geological & Lab Supervision	59	hr.	@	32.50	1,917.50
Jan Visman, Sample Processing Consultant					2,561.66
Joe Thomas & J. Humble, Chemical Analysis Consultants					3,605.83
Laboratory Technicians	57.3	hr.	@	15	859.50
	289	hr.	@	11	3,179.00
Project Administration, bookkeeping	14.25	hr.	@	20	285.00
Lab Equipment, supplies, rental					3,192.37
Assays					2,591.95
Communication					468.53
Travelling Expenses					592.93
Report Costs					838.45
					$44,955.72

Road Building

Cecil Urlich (overall supervisor)	46 hrs. @ $ 55	$ 2,530.00	
David Stone (field supervisor)	13 days @ 150	1,950.00	
Communications		210.48	
Western ARP Services Ltd. Duncan, B.C. (October 4-6, 1983) Crummy traveltime 3 days @ $40 = $120 Operator traveltime 3 days @ 40 = 120 Bulldozer 15 hrs. @ 65 = 975 Lowbed 10 hrs. @ 65 = 650		1,865.00	
Benson Excavating Sooke, B.C. (October 6-30, 1983) Mob and Demob 4 hrs. @ 55 = 220 Excavator 135 hrs. @ 65 = 8775 Bobcat 8 hrs. @ 30 = 240		9,235.00	
		15,790.48	
60% of $15,790.48 is applicable to placer assessment			9,474.29
	TOTAL		$98,639.53

C E R T I F I C A T E

I, Ted H.F. Reimchen, of 5571 Cove Cliff Road, North Vancouver, B.C. Canada, do hereby certify that:

I am a graduate of the University of Alberta, graduated with a B.Sc. Degree in Geology and Zoology in 1964, and with a M.Sc. Degree in Geology in 1966.

I have been registered as a professional geologist since 1971 by the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.

I am a member of Canadian Institute of Mining and Metallurgy, Socity of Quaternary Geologists, American Society of Photogrammetry, Canadian Remote Sensing Association, and Canada/United States Radar Satellite Study Team.

I have practised as a consulting geologist since 1968, and have been a partner of Reimchen Urlich Geological Engineering since 1982.

I have no interest in any claims or properties owned by Triangle Ventures Ltd. of Victoria.

I do not express any guarantee or warranty. The report is based on facts resulting from personal investigations and from investigations completed and reported by staff of Reimchen Urlich Geological Engineering, staff of commercial and research testing laboratories, and outside consultants.

I hereby consent to the use of the report by the Company in connection with a prospectus, or a statement of material facts relating to the raising of funds for the project.

Dated at the District of North Vancouver, in the Province of British Columbia, this 1 day of February, 1984.

Respectfully submitted,

Ted H.F. Reimchen, P.Geol.

CERTIFICATE

I, Cecil M. Urlich, of 1425 Jefferson Avenue, West Vancouver, B.C., Canada, do hereby certify that:

I am a 1972 graduate of the University of Calgary, Alberta, graduated with a M.Sc. Degree in Geotechnical Engineering, and a 1970 graduate of the University of Auckland, New Zealand, with a B.E. Degree in Engineering Science.

I have been registered as a professional engineer since 1977 by the Association of Professional Engineers of British Columbia, and since 1982 by the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.

I am a member of Canadian Geotechnical Society and American Society of Civil Engineers.

I have been involved in consulting geotechnical engineering since 1972, and have been a partner of Reimchen Urlich Geological Engineering since 1982.

I have no interest in any claims or properties owned by Triangle Ventures Ltd. of Victoria.

Conclusions obtained and reported during my work are based on facts resulting from personal investigation and from investigations completed and reported by staff of Reimchen Urlich Geological Engineering, staff of commercial and research testing laboratories, and outside consultants.

Dated at the District of North Vancouver in the Province of British Columbia, this 15th day of March, 1984.

PROFESSIONAL
PROVINCE OF
C. M. URLICH
BRITISH COLUMBIA
ENGINEER

Respectfully submitted,

Cecil M. Urlich, P.Eng.

C E R T I F I C A T E

I, Ebo Bakker, of 3738 Mount Seymour Parkway, North Vancouver, B.C., Canada, do hereby certify that:

I am a graduate of the Leiden University, Netherlands, graduated with a B.Sc. Honors Degree in Geology with Mathematics, Physics and Chemistry in 1973, and with a M.Sc. Degree in Geology in 1979.

I am a member of the Royal Dutch Geology and Mining Society, the Geological Society of Sweden, a fellow of the Geological Association of Canada and a Member-in-Training of The Association of Professional Engineers, Geologists and Geophysicists of Alberta.

I have been a practicing geologist since 1976 and have been an employee of Reimchen Urlich Geological Engineering since 1981.

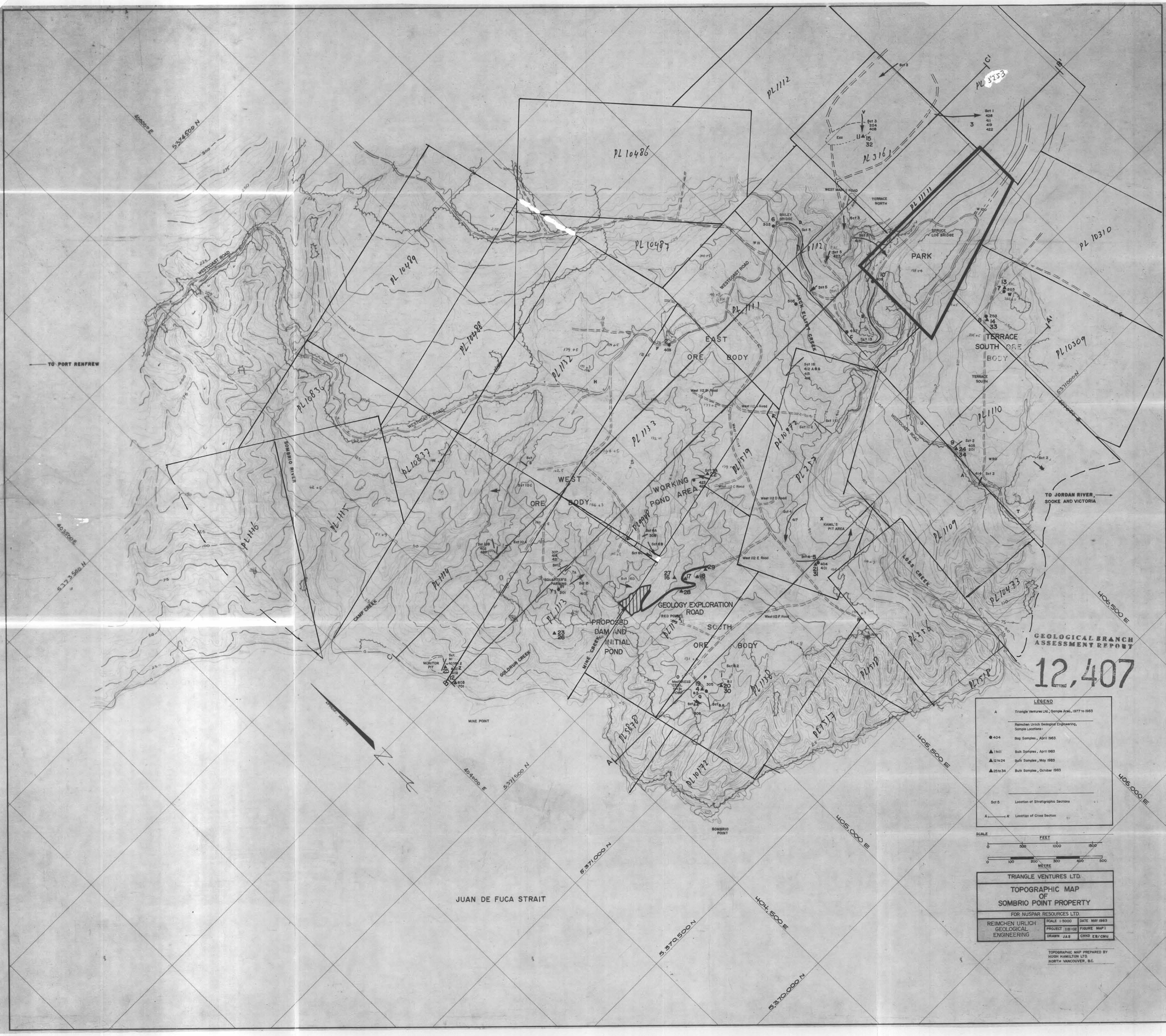
I have no interest in any claims or properties owned by Triangle Ventures Ltd. of Victoria.

Conclusions obtained and reported during my work are based on facts resulting from personal investigation and from investigations completed and reported by staff of Reimchen Urlich Geological Engineering, staff of commercial and research testing laboratories, and outside consultants.

Dated at the District of North Vancouver in the Province of British Columbia, this 15th day of March, 1984.

Respectfully submitted

Ebo Bakker, M.Sc.


GEOLOGICAL BRANCH
ASSESSMENT REPORT
12,407
LEGEND
A Triangle Ventures Ltd., Sample Area, 1977 to 1983
Reimchen Urlich Geological Engineering, Sample Locations:
404 Bag Samples, April 1983
1 to 11 Bulk Samples, April 1983
12 to 24 Bulk Samples, May 1983
25 to 34 Bulk Samples, October 1983
Sct 5 Location of Stratigraphic Sections
A — A' Location of Cross Section
SCALE
FEET
0 500 1000 1500
0 100 200 300 400 500
METRE
TRIANGLE VENTURES LTD.
TOPOGRAPHIC MAP
OF
SOMBRIO POINT PROPERTY
FOR NUSPAR RESOURCES LTD.
REIMCHEN URLICH
GEOLOGICAL
ENGINEERING
SCALE 1:5000
DATE MAY 1983
PROJECT 118-02
FIGURE MAP 1
DRAWN JAS
CHKD EB/CMU
TOPOGRAPHIC MAP PREPARED BY
HUGH HAMILTON LTD.
NORTH VANCOUVER, B.C.
TO PORT RENFREW
TO JORDAN RIVER, SOOKE AND VICTORIA
JUAN DE FUCA STRAIT
WESTCOAST ROAD
SOMBRIO RIVER
CAMP CREEK
GOLDRUN CREEK
MINE CREEK
LOSS CREEK
JACK ELLIOTT CREEK
MINE POINT
SOMBRIO POINT
MONITOR PIT
EAST ORE BODY
WEST ORE BODY
SOUTH ORE BODY
TERRACE SOUTH ORE BODY
TERRACE NORTH
TERRACE SOUTH
PARK
WORKING POND AREA
GEOLOGY EXPLORATION ROAD
PROPOSED DAM AND INITIAL POND
KAMIL'S PIT AREA
SQUATTER'S PARKING
BAILEY BRIDGE
SPRUCE LOG BRIDGE
RED POINT
West 112 E Road
West 112 F Road
PL 10486
PL 10487
PL 10489
PL 10488
PL 1112
PL 3253
PL 3161
PL 1111
PL 10310
PL 10309
PL 1110
PL 1109
PL 10473
PL 1132
PL 1133
PL 10836
PL 10837
PL 1115
PL 1116
PL 1114
PL 1113
PL 1519
PL 10772
PL 253
PL 256
PL 1518
PL 5878
PL 1517
404,000 E
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