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REPORT
ON THE
SONIC DRILLING PROGRAM
CAC 1, J1 MINERAL CLAIM, PL 29
J-2 CLAIM GROUP
KEITHLEY CREEK AREA

Cariboo Mining Division
Latitude 52° 50'N / Longitude 121° 26' 18" W
NTS 93A / 14 W

for

NOBLE METAL GROUP INCORPORATED
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by

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July 25, 1991

Fieldwork completed between July 12 and July 25, 1991
GEOLOGICAL BRANCH
ASSESSMENT REPORT

22,544

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SUMMARY

- (1) A drilling program utilizing a Sonic drill was completed between July 12 and July 20, 1991 totalling 246.5 feet (75.13) of core in three holes. The Sonic Drill is relatively new technology that employs drill penetration of surficial deposits using high frequency vibrations, very low RPM and carbide button or chopping bits. The result is largely undisturbed core.
- (2) The Keithley Creek claims are located 35 km northeast of the small community of Likely, which is about 80 km east of the main highway at 150 Mile House.
- (3) The claims are situated immediately east of the junction of Keithley Creek and Snowshoe Creeks. Both creeks have supported placer gold production since 1860.
- (4) The drill program intersected a variety of clay-rich till sections which were separated by a narrow rusty-brown weathering interglacial sand-gravel sequence. The interglacial sequence is known to carry commercial quantities of placer gold on PL 29 which have been mined in previous years. Bedrock is dark green siliceous quartzite.
- (5) From a review of previous Becker and percussion drilling in 1981/1986 and in light of the 1991 drilling, it is apparent that several, narrow "pay" channels containing placer gold exist along the lower part of PL 29.
- (6) A systematic series of drill holes are proposed along the central stripped area between drill holes Sonic 91-1 and 91-2 consisting of no less than 6 holes at a spacing of 100 feet to outline the surficial stratigraphy, placer gold values and relative bedrock elevations along the line of holes.

INTRODUCTION

The surficial stratigraphy and placer gold content of a glacial and interglacial sequence and associated bedrock, near the confluence of historic Keithley and Snowshoe Creeks, was investigated by a short Sonic drill program between July 12 and July 20, 1991.

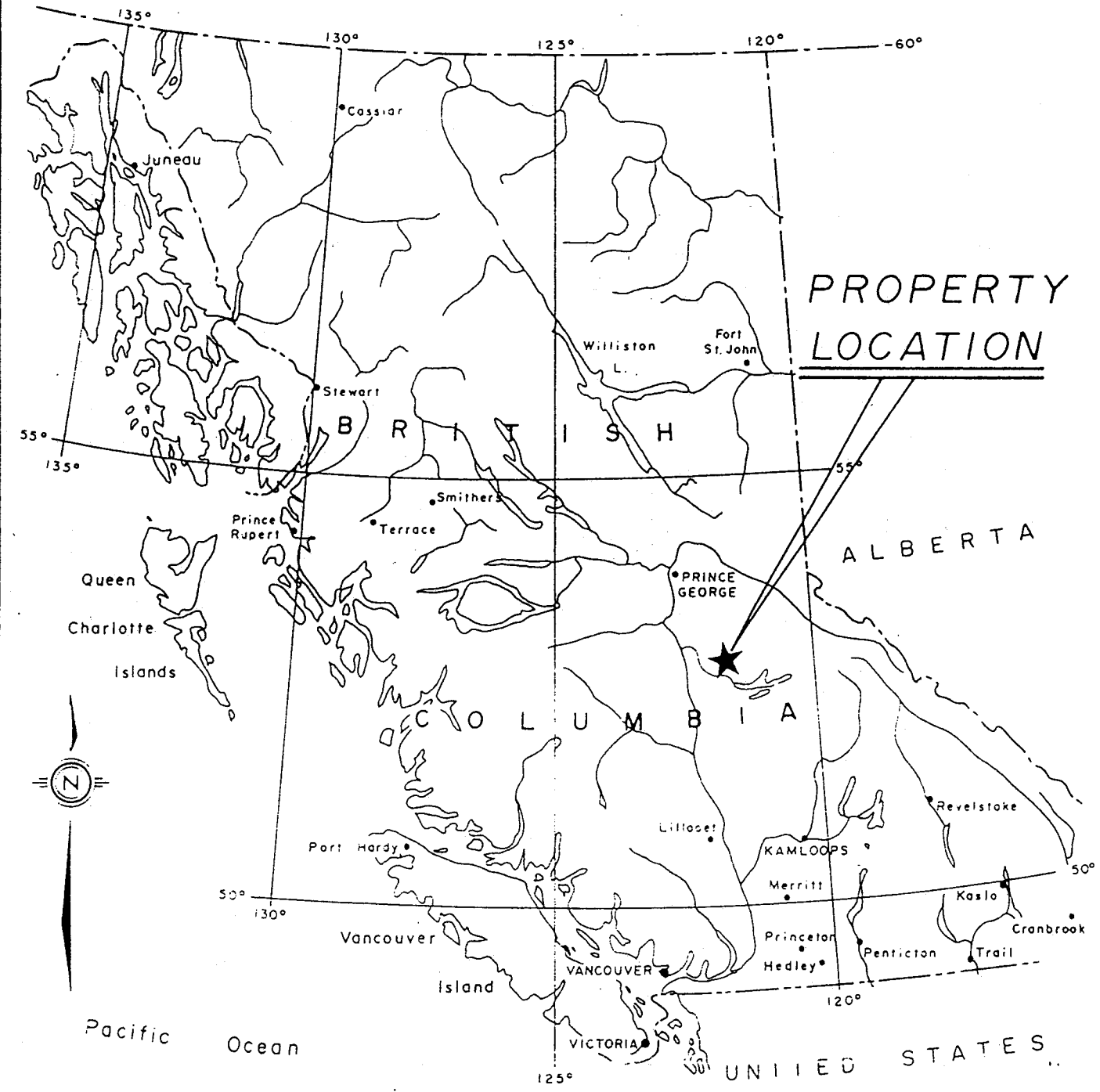
Drill targets and detailed location of drill holes were selected in close consultation with D. Dennis, President of Noble Metal Group Incorporated. Targets for drill hole Sonic 91-1 included investigation of Tertiary gravels under a possible "false bedrock" delineated by a seismic survey and associated nearby gold placer channels. Drill hole Sonic 91-2 was selected to test the occurrence of a postulated major high-level channel between lower Snowshoe and Keithley Creeks. Hole Sonic 91-3 was located adjacent to the modern stream.

Noble Metal Group Incorporated (and predecessor company Cascadia Mines and Resources Limited) has carried out exploratory work and limited placer gold production on its mineral and placer claims in the Keithley Creek area since 1978.

Keithley Creek and major tributaries have since 1860 produced considerable placer gold. Estimates of gold production range up to 6 million dollars (Pre 1933 dollars). A notable feature of Keithley Creek is the presence of a major high-level placer channel well above the present level of the modern stream. Above 1,000 m elevation, the Pleistocene ice sheets in the Cariboo were at times relatively stationary and produce thick sections of stony, clay-rich tills.

These till deposits appear to have covered in places, a series of older, Tertiary-age placer gold channels which contain a series of inter-glacial pay channels. Standard geochemical and geophysical survey results must be interpreted very carefully due to the presence of these clay layers.

This report discusses the results of the 1991 Sonic drilling and proposes a follow-up program for future work.



CASCA CLAIM GROUP

FIGURE 1
BRAD'S DRAFTING SERVICES

LOCATION AND ACCESS

The claims are centered around the junction of Snowshoe and Keithley Creeks about 8 km northwest of Cariboo Lake.

Access is by well maintained gravel roads from Likely, B.C., a distance of 35 km to the west. This road is part of the original trail between Likely and Barkerville. Likely is 80 km by paved road east of 150 Mile House.

Most of the property area has been logged, providing good access and some new rock exposures. The north side of Keithley Creek is accessible by the old Likely-Barkerville trail and numerous secondary logging roads. The south side of Keithley Creek and the Rabbit Creek area are accessible by logging roads starting from the shore of Cariboo Lake or by rough 4x4 trail across French Snowshoe Creek. Natural vegetation is predominantly coniferous forest consisting of Englemann Spruce, subalpine fir and Western Red Cedar. The logged off areas have a mixture of young conifers, willows, alder and shrubs.

The topography varies from relatively steep slopes along the creek valleys to gentle rolling terrain in the northern section of STU 1 and CAC 6 claims. Elevations range from 1,250 meters to 1,400 meters.

Annual snowfall is normally several feet in depth and often remains on the ground until May.

The camp facilities consist of one large bunk trailer and one kitchen-office trailer coupled with a 25 kw electric generator trailer and storage cabin.

REGIONAL GEOLOGY MAP

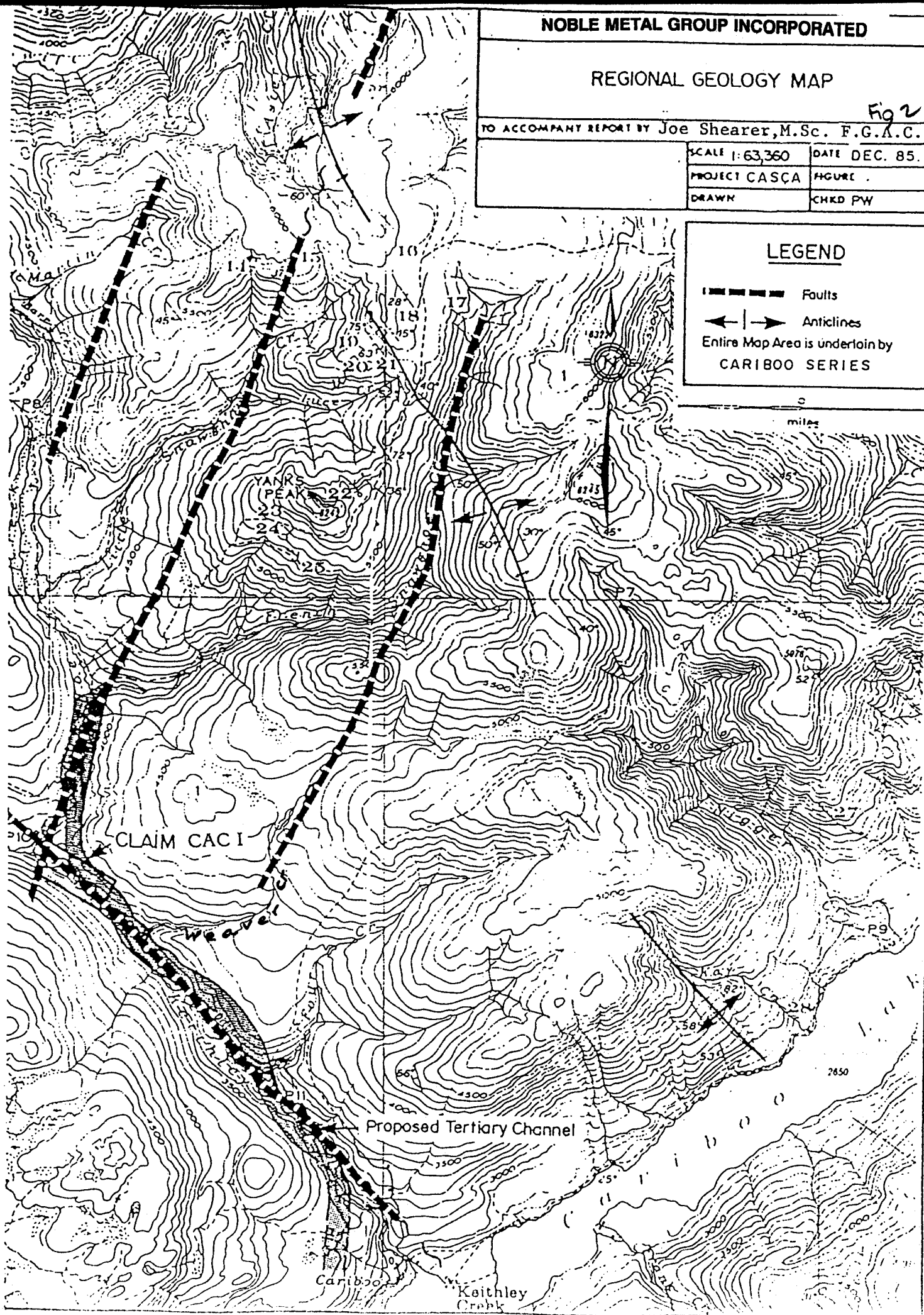
Fig 2

TO ACCOMPANY REPORT BY Joe Shearer, M.Sc. F.G.A.C.

SCALE 1:63,360	DATE DEC. 85.
PROJECT CASCA	FIGURE .
DRAWN	CHKD PW

LEGEND

- ▬▬▬▬ Faults
- ← | → Anticlines
- Entire Map Area is underlain by CARIBOO SERIES



CLAIM STATUS

Claims presently owned by Noble Metal Group Incorporated are listed in Table I and illustrated on Figure 3.

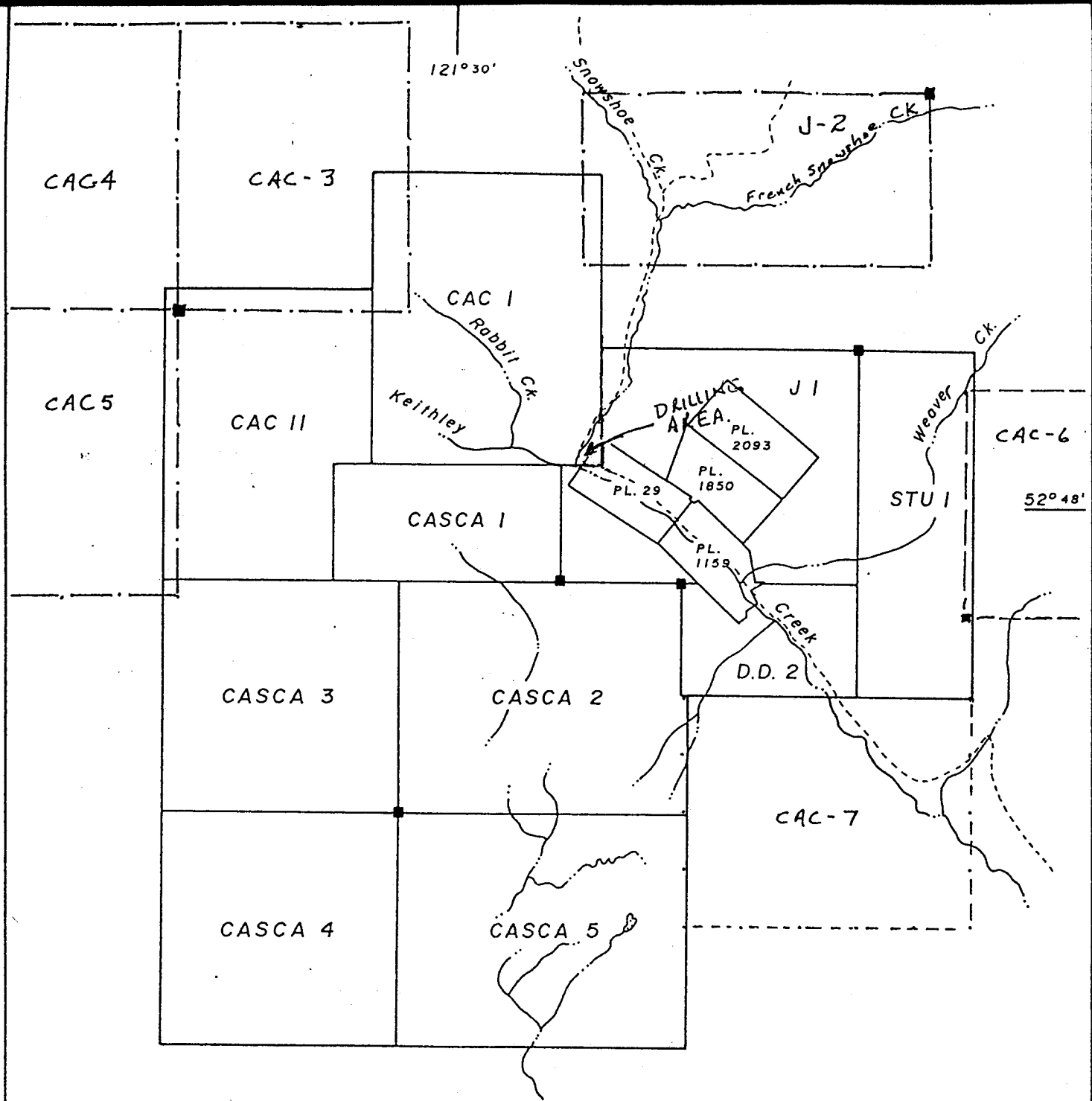
TABLE I
LIST OF CLAIMS

<u>Claim Name</u>	<u>Number of Units</u>	<u>Size</u>	<u>Record Number</u>	<u>Tenure Numbers</u>	<u>Record Date</u>	<u>Current Expiry Date</u>
J1	20	5W4N	865	204123	October 12, 1978	October 12, 1996
CAC I	20	5N4W	4968	204756	July 12, 1983	July 12, 1993
CAC II	20	5N4W	4969	204757	July 12, 1983	July 12, 1993
CAC 3	20	5N4E	7540	205123	April 16, 1986	April 16, 1993
CAC 4	20	5N4W	7541	205124	April 16, 1986	April 16, 1993
CAC 5	20	5S4W	7542	205125	April 16, 1986	April 16, 1993
CAC 6	20	4N5E	7543		April 16, 1986	April 16, 1992
CAC 7	20	4S5W	7544		April 16, 1986	April 16, 1992
CASCA 1	8	2N4W	2004	204351	October 2, 1980	October 2, 1997
CASCA 2	20	4S5W	2005	204352	October 2, 1980	October 2, 1997
CASCA 3	16	4N4W	2081	204363	October 23, 1980	October 23, 1996
CASCA 4	16	4S4W	2082	204364	October 23, 1980	October 23, 1994
CASCA 5	20	4S5E	2084	204365	October 23, 1980	October 23, 1994
STU 1	12	6S2E	1141	204184	August 17, 1979	August 17, 1995
DD2	6	2S3W	1142	204185	August 17, 1979	August 17, 1995
J-2	<u>18</u>	3S6W		302656	July 16, 1991	July 16, 1992*
276units total						

Notice to group filed August 22, 1986 for CAC 3, 4 and 5.

Notice to group filed July 10, 1991, J-1 Group for CAC I, II, STU 1 & DD2.

* Subject to assessment credits documented in this report.



NOBLE METAL GROUP INCORPORATED			
CASCA CLAIM GROUP			
KEITHLEY CREEK, CARIBOO LAKE ARM			
CARIBOO M. D., B. C.			
CLAIM MAP			
SCALE: 1:50,000	DATE: JULY 91 DEC. 85	FIG. 43	N.T.S. 93 A/14W,13E

FIELD PROCEDURES

(a) Drill Core Handling Procedures

The Sonic drill is a new technology that uses high frequency mechanical oscillations in order to achieve penetration. In surficial drilling the vibrating action causes the surrounding soil particles to fluidize at the tip of the drill bit and along the sides of the drill pipe. Drilling is done dry. Rotation speeds are in the 20 to 30 rpm range but no rotation is possible in some materials. Vibration range is continuous to 120 Hz, but normal penetration in till is done around 80 Hz. The resulting core, due to its largely undisturbed nature, is ideal for evaluating gold placer deposits and associated surficial stratigraphy.

After drilling a core, the core barrel is raised by breaking the drill stem in 10 ft. lengths. When the core barrel is brought to the surface the bit is removed (any core in the bit is placed immediately into a 5 gallon clean plastic pail). The core barrel is then covered with a flexible 5 mil thick clear plastic tube which is cut to length and knotted on the bottom end. The core is then vibrated into the plastic tube to form a sausage-like roll which is placed in a 10 ft. wooden-metal frame carrying tray. The core is then carried to a suitable logging position which was usually on the back of the rod trailer during the present program.

The plastic tube is cut to expose the core. Measurements were taken from the bottom of the core. Commonly at the top of the core is a short interval of cave from drilling down the casing with water. Careful measurements were made to ascertain recoveries and lithological contacts. Colour photographs were taken of most core runs. Samples were commonly based on lithological contacts. The samples were carefully placed in clean 5-gallon plastic buckets and transported to the processing facility located in the 1990 core shack.

(b) Sample Processing Procedures

The sample processing procedures was under the direct control of W.B. Lennan, B.Sc. (73) who has several years experience in operating a successful placer gold/tungsten mine in the Yukon and has also completed numerous large scale placer gold exploration programs.

The equipment used for processing the Sonic drill core consisted of two main components: (a) an integrated washing tray with water manifold and (b) a 4 ft. long by 1 ft. wide Long Tom Sluice box. Each sample was carefully washed to produce concentrate of heavy minerals. The washing unit was collapsible for ease of transport. A 1 inch water line fed the water manifold located at the head of the washing tray. The washing tray is 2 ft. wide at the head end and narrows to the 1 ft. width of the sluice over a distance of 18 inches. The narrow end of 1 ft. wide end empties into the long Tom Sluice. A 1 inch flat expanded metal screen between the washing tray and sluice screens off all rock greater than 1" diameter thus keeping the sluice clear of coarse rock. The washing tray is set to a nearly horizontal position so that water can be pooled to facilitate the careful washing of the gravels so that material sticking to rocks would be freed before proceeding to the sluice box. A block of wood was used to block the narrow end of the washing tray so that water could be held back in the tray. Once the gravels were thoroughly worked and washed by hand in the tray, the wood block was slowly released to minimize water surges into the sluice. Once the water was drained from the washing tray, the stream flow from the water manifold carried the gravels over the classification screen and into the Long Tom Sluice. The sluice was set at an angle that gave a vertical drop of 1.25 inches for every 1 ft. of horizontal length. This angle is a little flatter than the normal 1.5 inches vertical drop per 1 ft. of horizontal length. This was done to address the concerns of management that fine gold might be lost at the steeper angle. The sluice was lined with a 1 ft. wide by 4 ft. long piece of indoor-outdoor carpeting. This material works very well as a gold trap. The carpeting was overlain with 1 inch diameter expanded metal. The expanded metal acts as small Hungarian Riffles and drives the fine gold particles into the underlying carpeting.

Once the sample has been washed through the sluice box, the sluice tails that collected in a tub placed at the end of the sluice box were washed into a sample bag and stored on site. The expanded metal is then removed and the carpeting is flushed into a collection tub. Water is sent down the empty sluice to wash any gold particles than may have collected under the carpet into the collection tub. The carpet is thoroughly washed in the collection tub. The material from the carpet is then panned down to where mainly heavy minerals and gold remain in the pan. Pyrite and black sand (magnetite) were the most common minerals found on the Keithley Creek property. The concentrate was logged and the presence or lack of gold including particles size was recorded. The pan concentrate was collected in zip lock bags for later processing. The pan tails were collected in sample bags and stored on site.

Several samples have been selected for further processing because of the presence of visible gold. The samples will be treated at a lab for gold extraction. A mercury amalgamation process will be used in the following manner; samples are treated with caustic oxalic acid and then exposed to a thin film of mercury (amalgamation) to facilitate total recovery of free gold. The oxalic acid removes rust coatings etc. from the gold particles. The amalgam is panned down to remove waste material. The amalgamated gold particles are then placed in a test tube to which concentrated nitric acid is added. The acid dissolves the mercury leaving gold particles as solid residue. The acid is decanted off and the particles are washed in water to remove remaining acid droplets. The gold particles are dried and weighed. The weights are recorded in milligrams of gold. As the weight of the gold recovered is related to a specific volume of material processed, the results can be adjusted to yield a weight of gold that might be reasonably expected to be recovered from 1 cubic yard of material.

HISTORY

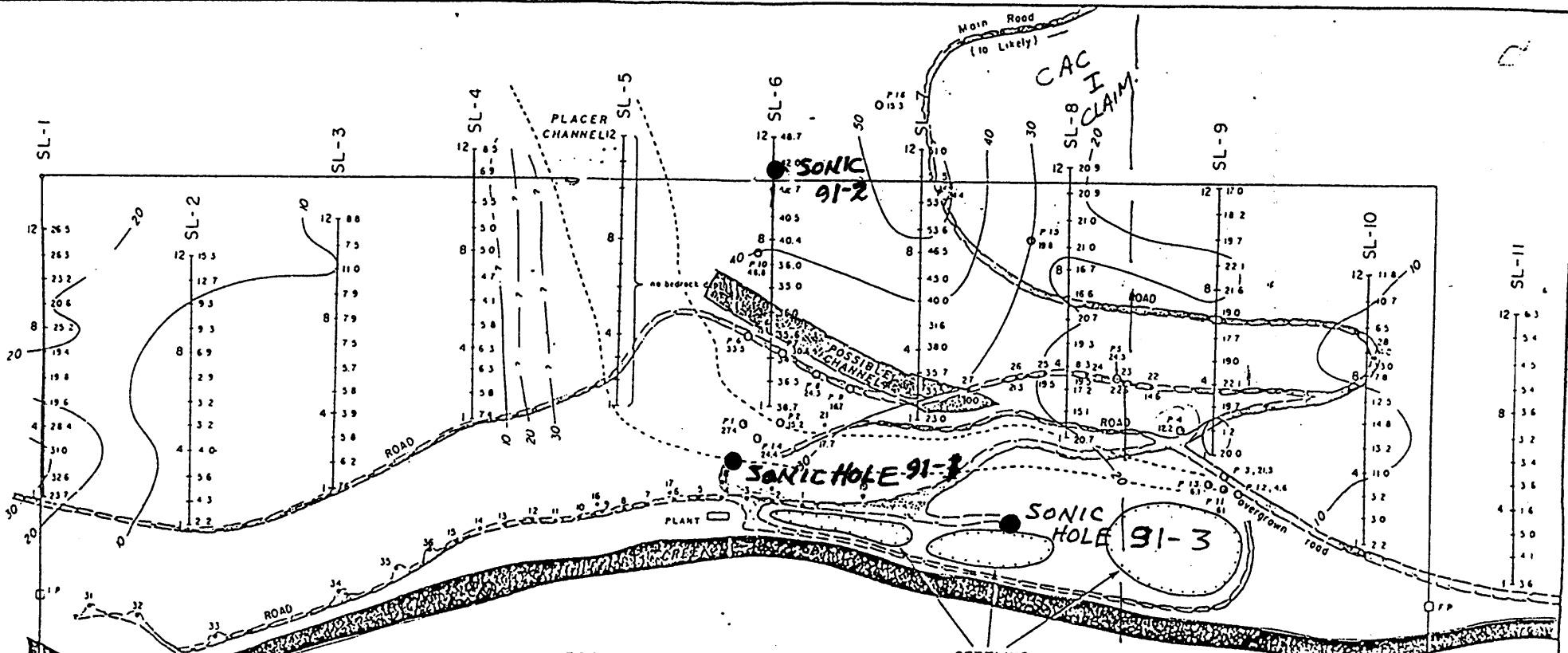
Placer Deposits

Gold was first discovered in surface placer deposits on Keithley Creek in the spring of 1860. A party of five men in June 1861 on Keithley Creek divided \$1,200 between them as the product of a single day's labour, and their daily average for some time was said to be 1 lb. weight of gold (Carmichael, 1930). Keithley is one of the famous placer-creeks of the early Cariboo gold rush and estimated to have a production of about \$6,000,000. (Report of the Minister of Mines, 1933; pg. K143). Most of this gold was taken along a distance of 8 miles starting at its mouth. From 1913 after the last hydraulic operation closed down there was sporadic placer mining on Little Snowshoe and Keithley Creeks (Holland, 1954; pages 48-49).

The pre-glacial channel of Snowshoe Creek is thought by many workers to emerge into Keithley Creek Valley just below the present mouth of Snowshoe Creek. This pre-glacial channel contains auriferous gravels along its exposed length. The channel drained the southwest flank of Yanks Peak which rises to 1,900 metres above sea level

Cascadia purchased the property in 1978 and initial sampling using test pits gave encouraging results. As a consequence access roads were built and a comfortable trailer camp was completed.

During 1980 a drilling program of 36 Becker drill holes, totalling 365 meters, was carried out and concentrates from 4 foot (1.2 m) samples were assayed. The assays from the 12 holes at the base of the bench gave a weighted average grade of between 0.02 and 0.03 oz. per cubic yard, over a distance of 530 feet (161.6 m). Records for the other 22 Becker holes apparently have been lost; however, Lorimer expected "the values of the holes drilled from the upper road to be higher since more free gold was seen during drilling" (Lorimer, 1982).



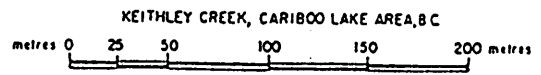
LEGEND

- SEISMIC LINE
- SEISMIC DEPTH TO BEDROCK IN METRES
- GEOPHONE NUMBER
- DEPTH TO BEDROCK CONTOUR
CONTOUR INTERVAL - 10m
- BECKER DRILL HOLE
DEPTH TO BEDROCK IN METRES
- PERCUSSION DRILL HOLE
DEPTH TO BEDROCK IN METRES
- POSSIBLE PLACER CHANNEL
- ASSUMED BOUNDARY OF PLACER CHANNEL



FIGURE 34 DRILLHOLE LOCATIONS 1991

NOBLE METAL GROUP INCORPORATED
CASCA CLAIM GROUP
SEISMIC REFRACTION STUDY
PLACER CHANNEL LOCATION



OCTOBER-1986

Lorimer reported that the "Black Sand" consisted mainly of pyrite and produced an average grade of approximately 1 oz. of gold per cubic yard of black sand.

A Seismic Refraction survey was carried out in 1980 for the purpose of estimating gravel thickness and of attempting to locate buried channels; the survey was confined to the northern bench (Lorimer, 1981) and eleven lines, each of 165 meters at intervals of approximately 90 meters, were run north to south (Figure 4). The results were interpreted to confirm the existence of a major buried channel that appeared to be a former course of Snowshoe Creek. Lorimer (1981) calculated that over 4,000,000 cubic yards of gravel exist in the area based on the seismic survey, which is a reflection of the total surficial section.

In 1981 a camp was set up, complete with trailers, sewage, water and cooking facilities, much higher up in the hill away from the work site. Also at this time bulk testing was carried out using two types of separation plant. An upright spinning cone concentrator was found to be incapable of breaking up the clay in the feed with the consequent loss of fine gold. The second type of separation plant, a traditional trommel-slucice box combination, treated some 840 cubic yards of material with a reported grade of between 0.02 and 0.03 oz. per cubic yard. The company continued to utilize the trommel-slucice combination in 1982.

During 1986 a percussion drill program of 16 shallow holes, ranging in depth between 3 and 30 meters, was carried out. In most cases the drill holes confirmed the depth-to-bedrock results of the seismic survey. However, several holes indicated bedrock to be at shallower depths than that found by the seismic survey between lines SL6 and SL7. Timmins (1986) has interpreted this bedrock high as the rim-rock of a further possible channel parallel to Keithley Creek (Figure 4). It is reported that visible gold was present in the gravel recovered from Percussion Holes 1, 2, 4, 6, 7, 9 and 13.

GEOLOGY

Regional Geology

The area between Cariboo Lake and Barkerville has been most recently mapped on a regional scale by L.C. Struik (1988), who has divided the belt into four stratigraphically and tectonically distinct terranes. These terranes form a mosaic that were accreted to each other and to the western and metamorphosed margin of North America during the Jurassic, remetamorphosed during the mid-Cretaceous, and juxtaposed by large displacement on transform (strike-slip) and associated thrust faults from the mid-Cretaceous to the early Tertiary. The terranes are included in, or are correlative to, terranes mapped the length of the North American Cordillera (Struik, 1985c).

The terranes are from east to west: Cariboo (continental shelf clastics and carbonates), Barkerville (continental shelf clastics, carbonates and volcanics), Slide Mountain (oceanic rift volcanics, intrusives and clastics), and Quesnel (island arc volcanics and clastics) (Figure 5). The thrusts that separate the terranes are the east-dipping Pleasant Valley (placing Cariboo on Barkerville), flat Pundata (placing Slide Mountain on Barkerville and Cariboo), and west-dipping Eureka (placing Slide Mountain and Quesnel on Barkerville) (Figure 3) (Struik, 1985a; 1985b; 1985c).

Within the Canadian Cordillera, Cariboo is a subterrane of Cassiar, Barkerville contains equivalents of Kootenay and Yukon-Tanana terranes and Slide Mountain and Quesnel are Cordillera-wide terranes (Struik, 1986a).

Due to the importance of the placer and lode gold deposits, the area has been studied by many workers in the past (Lang 1936, Bowman 1887, Holland 1954, and Sutherland-Brown 1963).

The property is underlain by rocks of the Barkerville Terrane for which the stratigraphic column is illustrated on Figure 6. Rocks of this terrane are characterized by grit with black quartz grains and black siltite. They are metamorphosed and vary from chlorite to sillimanite grade with the lower grade occurring northwest of Cariboo Lake and increasing towards the southeast, attaining sillimanite grade along the east arm of Quesnel Lake. The age of these

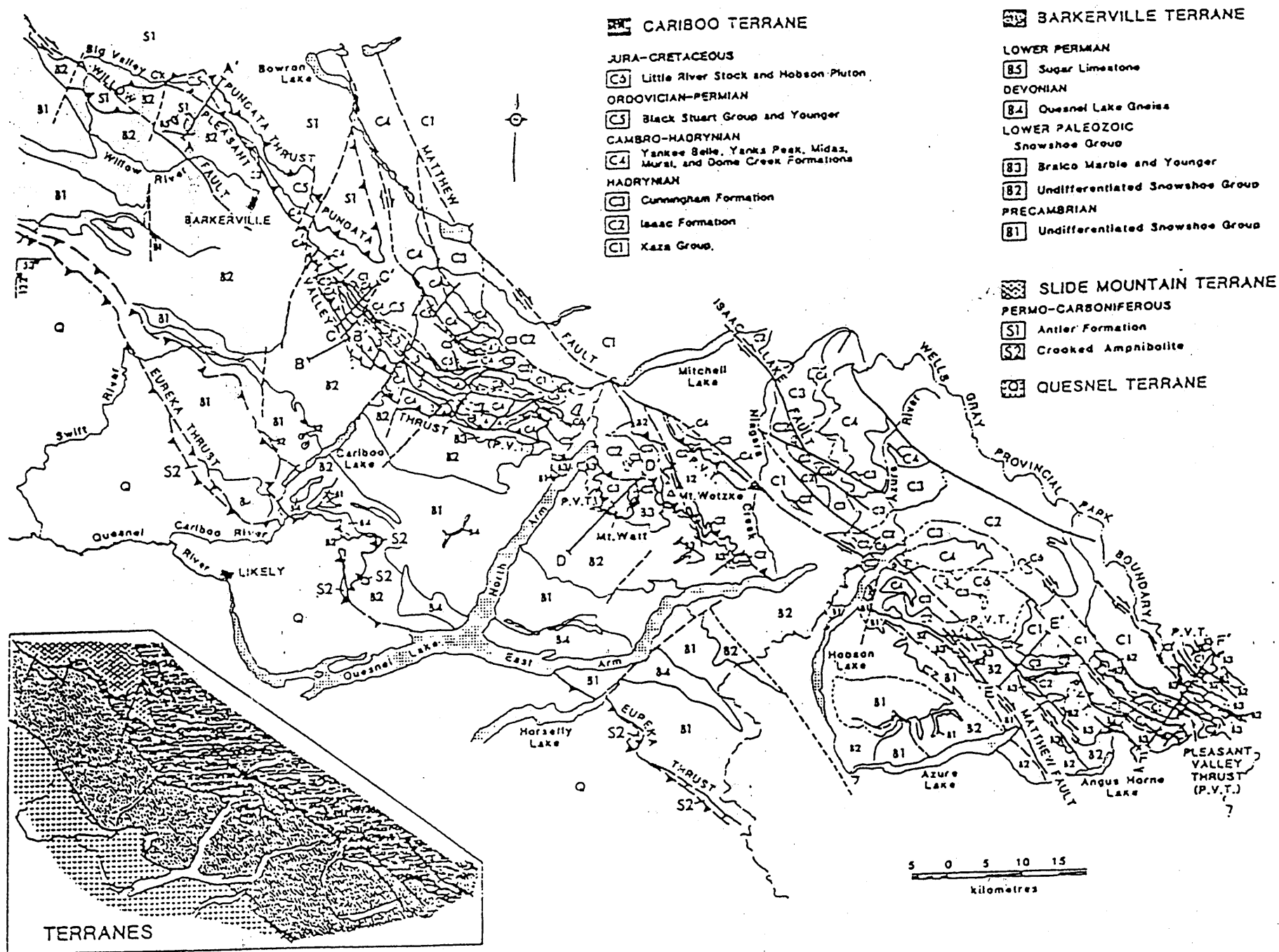


FIG. 5 Generalized geology of the Cariboo gold belt, emphasizing units within Cariboo and Barkerville terranes.

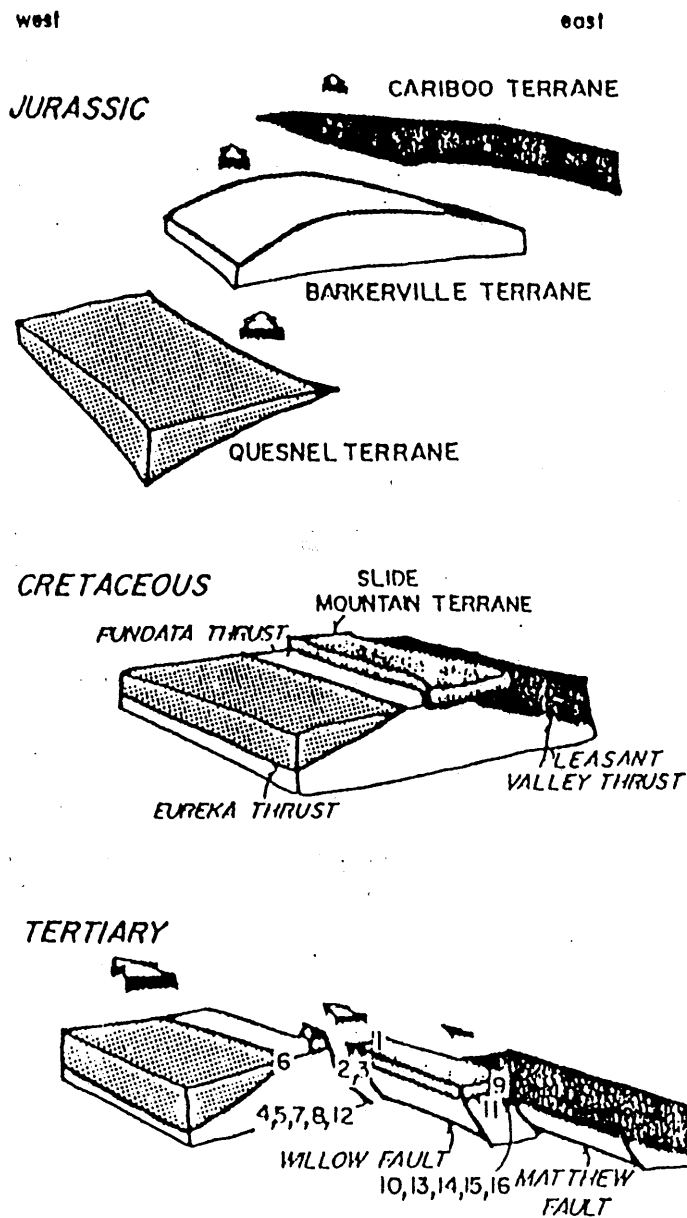


Figure Structural relations of the terranes through the (a) Jurassic, (b) Cretaceous and (c) Early Tertiary? The hypothesis is that the terranes have moved relatively northward with respect to the North American craton and that the displacement increases to the west. The present thrust overlap of the terranes is a record of transpression between the margin of North America and the oceanic and island arc terranes to the west. The pervasive north-west trending stretching lineation and fold axes are compatible with the transpression model. Northwesterly translation of the terranes along steep to moderately east dipping faults offsets terrane boundary thrusts and high temperature metamorphic isograds. This translation may have a small component of compression and records a change from the more compressive strain of the Jurassic northward movement of the terranes.

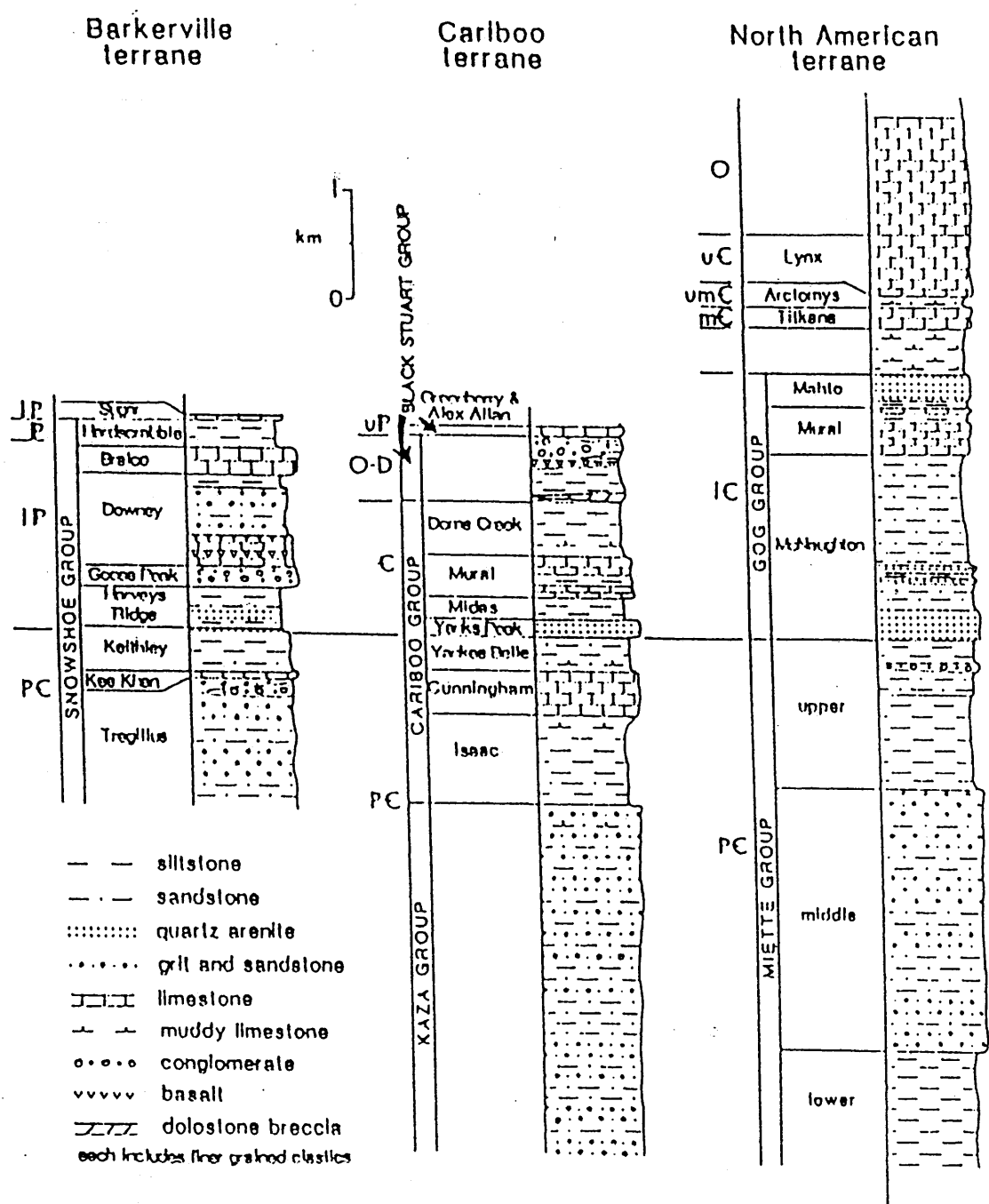


FIG. ... Generalized stratigraphy of Barkerville, Cariboo, and North American terranes. The stratigraphy of North American terrane is from R. B. Campbell *et al.* (1973). (Struik, 1986b)

FIGURE 16

rocks is unknown but speculated to be late Precambrian and Paleozoic. Regional unconformities may exist at the base of the Harveys Ridge succession (separating Precambrian from the Paleozoic) and the base of the Sugar limestone. (Struik, 1985c)

The lower Snowshoe Group underlies the western exposures of Barkerville terrane along its contact with Slide Mountain and Quesnel terrane. It is best exposed at low metamorphic grades along the Keithley Creek Valley north of Cariboo Lake.

It is dominated by olive - grey grit and thinner interbeds of pelite, olive - grey pelite, and very fine grained equivalents of the grit. It has secondary amounts of marble, black siltite, tuff, and white orthoquartzite.

It is characterized by the sequence of grit, marble, fine grained grit equivalent, and orthoquartzite and by the presence of granule to pebble conglomerate at the contact between the grit and marble. The thickness of the unit is in excess of 1 km (Struik, 1986b + 1988).

Local Geology

Little detail geological mapping has been completed on the claims. The following remarks are taken mainly from Struik 1988, Archambault 1986 and Payne 1989. Geological mapping is proposed on the Noble Metal Group Incorporated property in 1991.

The claims are underlain by Lower Snowshoe Group siltstones, phyllites, greywackes, quartzites, limestones and dirty quartzites, cut by quartz and quartz-carbonate veins and veinlets. Alteration products are commonly limonite and chlorite. Disseminations, stringers and fracture coatings of pyrite are common. Struick subdivides the local rocks into the following units from west to east:

- (a) Ramos Succession (HRs) phyllite, schist, quartzite, calc-silicate rocks, maybe partly equivalent to Hke HRc - limestone / calcareous quartzite;
- (b) Keithley Thrust Fault;
- (c) Snowshoe Group undifferentiated (HPS);
- (d) Harveys Ridge succession (PHR) micaceous quartzite, black quartzite, interbedded phyllite;
- (e) Keithley succession (HKe) grey and olive, fine micaceous quartzite and phyllite, minor marble.

Intrusive rocks (Mississippian or Younger in age), diabase, diorite and gabbro form small stocks best exposed along Keithley Creek, but are also present along the road cuts. A somewhat larger area of foliated diorite occurs in the southeast corner of the Casca 5 claim.

A vertical north-trending fault is located along upper Snowshoe Creek and into Swift River. Northeasterly trending faults appear to be located along lower Snowshoe Creek and Weaver - Upper French Snowshoe Creeks (Figure 2).

Petrographic notes on 10 drill core specimens from Hole 89-6 were described by Payne (1989). Rock types identified were sandy siltstone, porphyritic andesite, sericitic argillite, quartz-muscovite schist, cataclastically deformed diorite, pebbly siltstone, limy siltstone and limy andesite tuff. The porphyritic andesite contains abundant epidote which is often associated with minor chalcopyrite and pyrrhotite.

SONIC DRILLING AND SAMPLE RESULTS

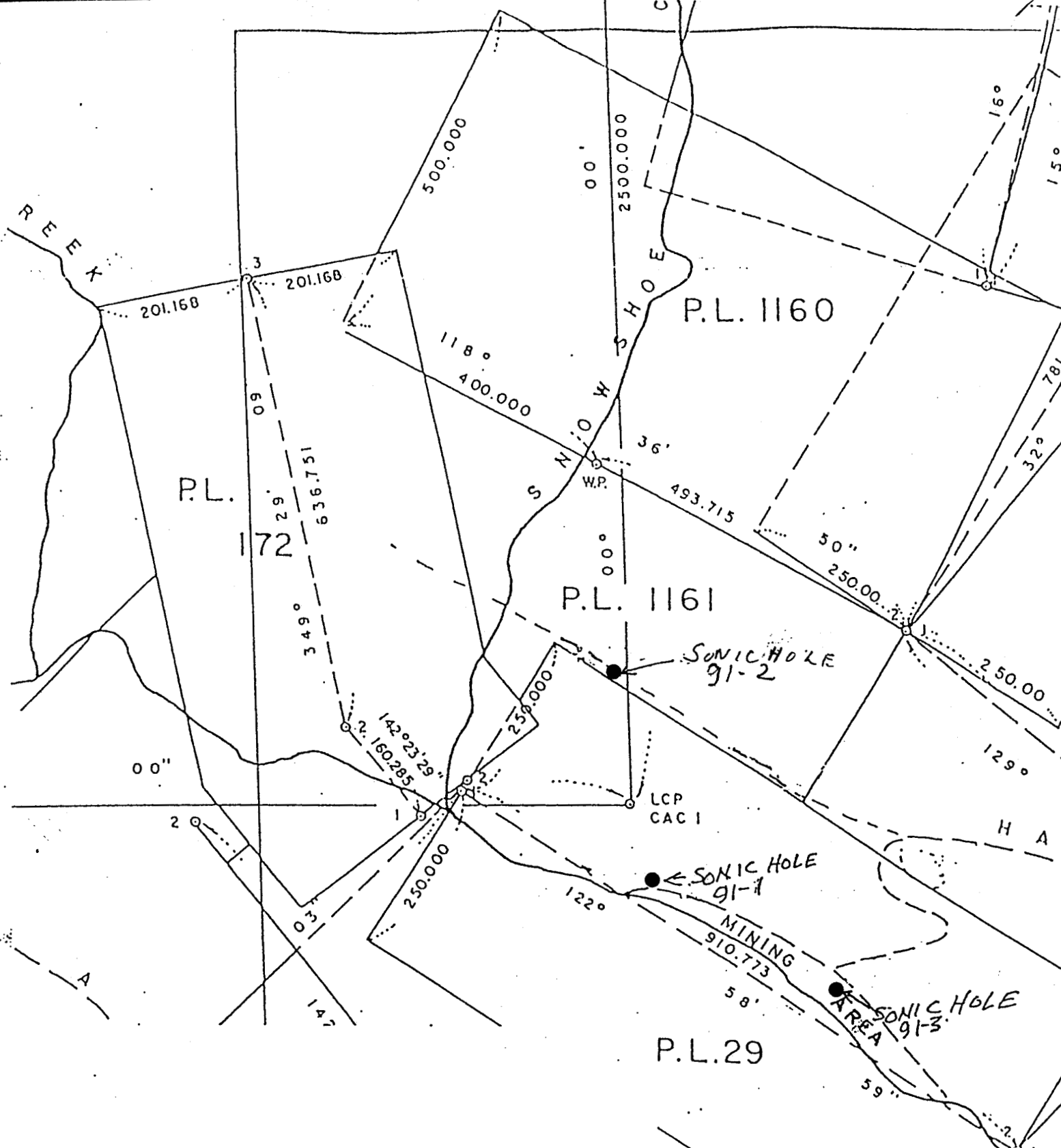
A three hole program was completed with a Sonic drill between July 13 and July 19, 1991 on the J-1 and CAC 1 mineral claim. Hole Sonic 91-1 was located between areas which were mined in the past and along the toe of the slumped area which was apparently oversteepened during 1987 mining. The presence of a major high-level, canyon-type channel was investigated by Hole Sonic 91-2 well above and north of the modern stream. Sonic Hole 91-3 was drilled adjacent to the present day Keithley Creek just east of the 1987 settling ponds, Figure 6. General data on each hole is summarized in Table 2.

TABLE 2

List of Drill Holes 1991

<u>Drill Hole</u>	<u>Attitude</u>	<u>Total Depth</u>	<u>Interglacial Section</u>		<u>Bedrock</u>	<u>Sample Concentrate Remarks</u>
Sonic 91-1	vertical	42.0 feet	8' - 22'5"	14.5'	39'7"	
Sonic 91-2	vertical	147.5 feet	78' - 113'9"	35'	bedrock not reached	
Sonic 91-3	<u>vertical</u>	<u>57.0 feet</u>	9'4" - 22'1"	12'9"	55'	
	Total	246.5 feet	(75.13 m)			

In each hole, an interglacial sand-gravel sequence was found between thick clay-rich tills. The upper till was not intersected in the first drill hole but can be observed on surface above the drill site. Holes 91-1 and 91-3 show that the bedrock is immediately overlain by a proximal, angular stony till. Bedrock was not encountered in Hole 91-2 due to the slowness of penetration and drill problems including squeezing clays around the casing.



DRILL HOLE LOCATION MAP
 NOBLE METAL GROUP INCORPORATED
 CASCA CLAIM GROUP
 CARIBOO MINING DIVISION, B.C.
 SCALE - 1:2300

Figure 8.6

P.L.

CONCLUSIONS AND RECOMMENDATIONS

Keithley Creek and its major tributaries have produced large quantities of placer gold since 1860. Intermittent small scale placer mining has occurred on Noble Metal Group Incorporated claims since 1978.

The surficial stratigraphy is characterized by thick clay-rich stony tills both above and below at least one interglacial sequence marked by varved silty lake sediments, well washed gravel and bedded sand. Buried Tertiary gravels were not observed in the present drilling program. Apparently, much of the gold produced from Keithley Creek has come from interglacial sequences. Consequently, the detail definition of the interglacial sequences is of paramount importance in locating and analyzing the placer gold channels.

A minimum Sonic or reverse circulation drilling program consisting of four holes along a line in the central part of PML-29 (between Sonic holes 91-1 and 91-2) is recommended.

COST ESTIMATE OF FUTURE WORK

Phase I

1) Geological mapping and supervision	\$ 20,000
2) Orthophotography and base maps	10,000
3) Follow-up soil sampling and line cutting including labour	20,000
4) Excavator trenching	15,000
5) Analytical	5,000
6) Camp and supplies	<u>5,000</u>
Total Phase I	\$ 75,000

Phase II

Sonic drilling - 350 feet (3 to 4 holes north-central portion of PML 29)	\$ 15,000
Geological supervision, core logging, sample preparation, and camp costs	20,000
Analytical	<u>5,000</u>
Total Phase II	\$ 40,000

TOTAL PHASES I & II \$ 115,000

REFERENCES

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APPENDIX I

STATEMENT OF QUALIFICATIONS

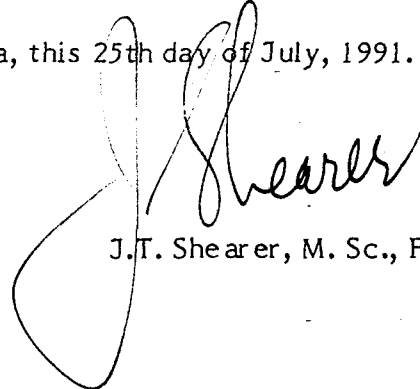
J.T. Shearer
Cariboo Gold Property
Keithley Creek Area
93 A / 14 W

STATEMENT OF QUALIFICATIONS

I, JOHAN T. SHEARER, of 1498 Columbia Avenue, in the City of Port Coquitlam, in the Province of British Columbia, do hereby certify:

1. I am a graduate of the University of British Columbia, B.Sc. (1973) in Honours Geology and the University of London, Imperial College (M.Sc. 1977).
2. I have over 20 years of experience in exploration for base and precious metals and other commodities in the Cordillera of Western North America with such companies as McIntyre Mines Ltd., J.C. Stephen Explorations Ltd., Carolin Mines Ltd. and TRM Engineering Ltd.
3. I am a fellow in good standing of the Geological Association of Canada (Fellow No. F439).
4. I am an independent consulting geologist employed since December 1986 by New Global Resources Ltd. at 548 Beatty Street, Vancouver, British Columbia.
5. I am the author of a report entitled "Report on the Sonic Drilling Program, J-1 Mineral Claim, Keithley Creek Area, British Columbia, dated July 25, 1991.
6. I have visited the property from November 1 - November 9, 1990, July 12 - 20, 1991 and carried out diamond drill and Sonic drill logging and sample collection. I am familiar with the regional geology and geology of nearby properties. I have become familiar with the previous work conducted on the Cariboo Gold Property by examining in detail the available reports, plans and sections, and have discussed previous work with persons knowledgeable of the area.
- 7) I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein nor in securities of Noble Metal Group Incorporated in respect to services rendered in preparation of this report.
- 8) I consent to authorize the use of the attached report and my name in the company's Statement of Material Facts or other public document.

Dated at Vancouver, British Columbia, this 25th day of July, 1991.



J.T. Shearer, M. Sc., F.G.A.C.

APPENDIX II

STATEMENT OF COSTS

CAC Group

and

J-II Group

PLACER DRILLING

Keithley Creek

Program:

7 day drilling by Sonic Drill (approximately 600 feet of drilling), sample preparation - sluicing - panning to heavy mineral concentrate, amalgamate selected concentrate samples.

STATEMENT OF COSTS

Contract Drilling:

6 days at \$2,000 (\$200/hr)	\$12,000.00
Mob & demob	1,500.00
Sample preparation, sluicing, logging and supervision	
J. Shearer, logging 8 days at \$300/day	2,400.00
B. Lennan, 8 days at \$300/day	2,400.00
S. McParlin, sluicing, etc.	1,285.00
Travelling, truck gas (3 vehicles)	1,800.00
Camp costs food, propane, fuel 55 mandays at \$30/day	3,494.88
Amalgamation, 5 select samples (gold-rich samples) at \$19	95.00
Report preparation, reproduction and supplies	810.00
Camp Supplies	1,435.77
Drilling Costs (Sonic)	14,231.00
Supervision, 12 days at \$200/day	<u>2,400.00</u>

TOTAL

\$43,851.65

APPENDIX III

LIST OF PERSONNEL AND DATES WORKED

(Field Work and Travelling)

APPENDIX III

LIST OF PERSONNEL AND DATES WORKED

(Field Work and Travelling)

<u>Name</u>	<u>Position</u>	<u>Address</u>	<u>Dates Worked</u>
J.T. Shearer, M.Sc.	Geologist	1498 Columbia Avenue Port Coquitlam, B.C.	July 12-20, 1991 8 days
W.B. Lennan, B.Sc.	Geologist	876 Lynwood Avenue Port Coquitlam, B.C.	July 12-20, 1991 8 days
S. McParltin	Core	8080 Glover Road Fort Langley, B.C.	July 11-25, 1991 9 days
D. Dennis	Camp Manager	1010-409 Granville St. Vancouver, B.C.	July 13-25, 1991 7 days
R. Roussy & Helper Sonic Drilling Ltd.	Contract Sonic Drilling	10241-148th St. Surrey, B.C. V3R 6S4	July 13-19, 1991 6 days

APPENDIX IV

DRILL RECORDS

SONIC HOLES:

91-1, 91-2, 91-3

July 1991

Note: samples taken but not assayed

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Company: Noble Metal Group Incorporated
 Drill Contractor: Sonic Drilling Ltd., 584-2803, Surrev. B.C.
 Claims: J-I Mineral Claim, PL-29
 Date Started: July 13, 1991 Dated Finished: July 13, 1991
 Geologist: J.T. Shearer, B. Lennan, New Global Resources Ltd.
 Sample Preparation: B. Lennan, S. McPartlin
 Depth of Hole: 42 feet

1 ft = 30.5 cm

HOLE NUMBER: SONIC 91-1

Location: slump area, near 1990 extractor trench, east of 1987 mining, west of 1981 mining, 110 m north of creek

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
0-8'	<u>Slough (Roadfill)</u> , pebbly, clay rich, dark grey 1/2" pebbles, minor 2" pebbles and angular rock fragments	511251H	0-8'	15% black sand, very fine colour	0.009	0-10'
8-12'	<u>Sand</u> , clay-rich sandy, light brown uniform, very minor pebbles	511252H	8-10'	5% black sand, 2 very fine colours	0.0146	10-16'
12-15'½"	<u>Gravel - Stony clay-rich till</u> dark grey, pebbles to 4" in diameter very angular	511253H	12-15.2	light grey pyritized schist fragments, concentrate approx 50% pyrite, 1 very fine grained colour	0.0116	
15'½"-16'2"	<u>Boulder</u> in dark grey clay, some large angular pebbles and cobbles up to 5" in diameter	511254H	15.2-16.2	no black sand, 50% pyrite in concentrate, 1 vfg colour	0.0036	16-19'1"
16'2"-17'6"	<u>Gravel</u> dry, rusty boulders and cobbles up to 6" in diameter, much less clay content	511255H	16.2-17.6	grey, green sand, no black sand or visible gold	0.0049	

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Drill Hole No.: Sonic 91-1

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
17'6"-19'4"	Schist Gravel, brownish, slightly rusty, finer grained, finer pebbles not much clay, dry	511256H	17.6-19.4	no black sand, 50% pyrite in conct, no visible gold	0.0067	19.1-20'
19'4"-22'5"	Chloritic Schist Boulder, grey-green rock chips, green schist, very chloritic at top, very schistose at lower end, wet sample, quartz rich at top	511257H	19.4-22.5	pyritized schist light grey, heavy pyrite in conct (90%) no visible gold	0.0113	20-25'
22'5"-24'1"	Till, very clay rich, dark grey, wet, pebles to 1/2" in diameter	511258H	22.5-24.1	as above	0.0061	
24'1"-25'	Till, (dry), grey pebbly, dry clay, similar in composition to 22.5-24.1, pebbles very friable, break up easily, up to 2" in diameter but most pebbles are flat					
25'-26'7"	Till, (wet), pebbly-clay-rich dark grey, flat, siliceous pebbles common, up to 3" in diameter	511259H	24.1-27	as above	0.0106	
26'7"-27.2"	Till, (dry), pebbly - clay rich till angular, flat cobbles up to 4" in diameter	511260	27-30	pyritized grey schist, heavy pyritic in conc (90%), no vg.	0.0109	
27'2"-39'7"	Till, wet very clay rich, pebbly till, very angular rocks up to 6" in diameter, minor sandy intervals, all pebbles of the siliceous quartzite 33'-35' parts of sample very sandy 35 1/2-36 1/2 more clay rich interval, minor angular quartz fragments Artesian water flow between 38-40'	511260 511261 511262 511263 511264	27-30 30-33 33-34 1/2 34 1/2-36 1/2 36 1/2-39'7"	as above as above as above as above but only 40%	27-33 0.0109 0.0055 0.0073 0.0113	33-35 1/2 35 1/2-36 1/2 36 1/2-40

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Drill Hole No.: Sonic 91-1

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
39'7"-42'	Bedrock, dark green siliceous green quartzite, calcite filled fractures clean, large cored chunks	511265	39.7-42.0	85% pyrite in conc	0.0088	40-42
END OF HOLE 42 FEET						

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Company: Noble Metal Group Incorporated
 Drill Contractor: Sonic Drilling Ltd., 584-2803, Surrey, B.C.
 Claims: CAC I Mineral Claim - PL-29
 Date Started: July 14, 1991 Dated Finished: July 18, 1991 (Drill down for 3-1/2 days)
 Geologist: J.T. Shearer, B. Lennan, New Global Resources Ltd.
 Sample Preparation: B. Lennan, S. McPartlin
 Depth of Hole: 147.5 feet

HOLE NUMBER: SONIC 91-2

Location: top road down to mine area, 400 metres south of camp

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
0-3'3"	<u>A Horizon Soil</u> , light brown soil roots, 1/2" pebbles, well rounded	511266H	0-5.4	top soil, mixed gravel, minor black sand and pyrite (5%) no visible gold	0.0195	0-7 1/2
3'3"-4'	<u>B Horizon Soil</u> , orange-brown soil, some dark brown-orange, fine grained, no pebbles, iron oxide stained zone					
4'-5'4"	<u>C Horizon Soil</u> , dark brown soil, boulders to 4" weathered till, clay-rich	511267H	5.4-9.9	brown, increase in black sand & pyrite (5-10%), no visible gold	0.0161	
5'4"-9'9"	<u>Till</u> , (transition zone), very clay-rich grey-brown soil-like in upper part, minor gravel layers 3" thick					7 1/2-10 1/2 10 1/2-12 1/2
9'9"	<u>Till</u> , grey pebbly till, very clay-rich variety of rock types up to 1" diameter, fairly angular pebbles, characteristically swelling	511268 511269 511270	9.9-12 1/2 12 1/2-17 1/2 17 1/2-22 1/2	approx 35% black sand, no ^{visible} gold	0.0100 0.0182 0.0182	12 1/2-17 1/2 17 1/2-27 1/2

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Drill Hole No.: Sonic 91-2

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
	From 13½' to 15¼" is slightly more gravel content - gravelly till					
9'9"-29'6"	Till, very clay-rich, variety of rock types, solid clay 15¼" to 17'5", rusty quartz pebbles at 15'7", more brownish grey 17½-27½, minor gravel layers (less than 3" thick) at 17'10", 22'9", 23'2", 23'6", pebbly, clay-rich till, some sections slightly rusty, some large schist fragments, 4¼" in diameter in places, traces of free pyrite 29½' large very abrasive boulder wearing down button bit	511271H 511272H	22½-27½ 27½-29½		0.0182 0.0073	27.5-37.5 pull tube, no core
29½-35¼"	<u>Blue Quartzite Boulder</u> clean, minor clay, cut in chunks up to 4" in diameter	511273H	29½-35.4		0.0213	37.5-47.5
35¼"-54'6"	Till, clay-rich, cobbles to 2" and less, very clay-rich, unusual "dry" pebbles in an only slightly wet clay matrix, some white layers in clay at 40'4", minor sections with very few pebbles, for example 40'2"-41'3" no pebbles, very clay-rich 47½-54½, dark green quartzite boulders at 46'2", up to 3" in diameter	511274H 511275 511276 511277 511278	35.4-37 37½-42½ 42½-47½ 47½-50½ 50½-52½		0.0079	47.5-52.5

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Drill Hole No.: Sonic 91-2

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
52'6"-78.0'	Silty Till very silt-rich, but still high clay content, pebbles 1/4 to 1/2" in diameter minor cobbles up to 4" in diameter dry pebbles common, often crumbly, core slightly more brownish 66.5-73.5, very silty, variety of rock types as cobbles, clay-rich, gravel sized pebbles common, well-rounded, very clay-rich till to 75.5, more gravelly from 75.5 to 77.5 with numerous quartz pebbles and small rusty areas, light brownish colour, minor bluish-grey streaks in the clay-rich sections, pebbles well rounded	511279H	52½-55			
		511280H	55-57½			
		511281H	57½-61½			
		511282H	61½-66½			
		511283H	66½-69½			52.5-57.5
		511284H	69½-73½			57.5-66.5
						66.5-73.5
		511285H	73.5-75.5			73.5-77.5
78'-113'9"	Brown Sand, fine quartz-rich sand, relatively uniform throughout, minor ½" pebbles, well bedded at 85° to core axis, gravel sized pebbles common between 86.0-87.5, bedding averages 1/4 to 1/2" thick as alternating coarser and finer grained sandy layers, minor slumping in the clay-rich laminae, (perhaps a lucustrine outwash delta). Considerable clay content 87.5-97.5, slightly more gravel content 87.5 to 89.0, very dry core 93.5-9.0 with more pebbles, clay content increasing 93.0-93.5, light brown 1" pebbles at 100'8", rusty stained high clay content at 102'2" - 102'11"	511287H	77.5-80.5			77.5-87.5
		511288H	80.5-84.0			
		511289H	84-87.5			
		511290H	87.5-90.5			
		511291H	90.5-94.0			
		511292H	94.0-97.5			
		511294H	101-104.3			
						97.5-107.5

--- DRILL RECORD ---

Project: Keithley Creek Claims
Company: Noble Metal Group Incorporated
Drill Contractor: Sonic Drilling Ltd., 584-2803, Surrey, B.C.
Claims: J-1 Mineral Claim, PL-29
Date Started: July 19, 1991 **Dated Finished:** July 19, 1991
Geologist: J.T. Shearer, B. Lennan, New Global Resources Ltd.
Sample Preparation: B. Lennan, S. McPartlin
Depth of Hole: 57.0 feet

HOLE NUMBER: SONIC 91-3

Location: adjacent to Keithley Creek, north of coarse rock berm and south of waste pile

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
0-4.0	No core recovery a few washed pebbles up to 2" in diameter					0-8
4.0-9'4"?	<u>Grey Stony Till</u> , very clay-rich, mainly dry till, minor rusty pebbles dark grey, pebbles 1-1½" in diameter well rounded pebbles, occasional small fragment of blackened wood up to 3" long within clay-rich sections, pebble rock type variable. Clay rich till to 9'4", then core loss	511305H	4-9.4			8-18
9'4"?-22'1"	<u>Gravel</u> , minor sand with appreciable clay content, cobbles & boulders up to over 4¼" in diameter, grey-brown approx 40% recovery, possibly passing through 2-4' boulder which was only partially recovered (boulder blocked core tube), some quartz cobbles to 4" in diameter. <u>Gravel</u> , more brownish near end of interval, large boulders probably 2-3 ft in diameter 18-22, much more clay content as depth increases	511306H 511307H	9.4-18 18-22	core loss		18-23.2

--- DRILL RECORD ---

Project: Keithley Creek Claims
 Drill Hole No.: Sonic 91-3

Footage	Description	Sample	Interval	Gold & Concentrate Description	Sample Volume yd ³	Drill Runs
22'1"-26'4"	<u>Grey Till</u> , very clay-rich, large boulder 23'8"-23'2" clean quartzite, larger pebbles 23 to 28, colour gradually changes to light brown	511308H	22.1-26.8			23.2-28
26'4"-30'7"	<u>Black Clay</u> , with abundant coarse pyrite cubes, colour appears to be due to very abundant but very finely divided sulfides, white streaking common throughout, pebbles to 1½" in diameter, white wispy layering at lower contact, dry angular pebbles	511309H 5113010	26.8-30.7 grab sample			28-33, 1½ ft left in hole
30'7"-32'9"	<u>Grey Till</u> , very clay-rich, light grey, 1/2 to 1/4" pebbles, pebbles slightly more angular, slightly blacker colour toward lower contact, pebble rock-type gradually becoming less variable	511311H	30.7-32.9			
32'9"-55'	<u>Grey Basal Till</u> , very dry, very angular pebbles, commonly flat pebbles of angular - friable chloritic schist, no variation in pebble rock type. Short section of pulverized (powder) boulder at 40'3" - dark grey rock fragments throughout are all the same rock type, very angular chloritic schist, fragments up to 10" long	511312H 511313H 511314H	32.9-36.5 36.5-40.3 40.3			33-38 38-43 43-48 48-54 54-57
55'-57'	Bedrock(?), very hard drilling, however no core recovery from below 55'					

END OF HOLE - 57 FEET