SMD MINING CO. LTD. COOPER CREEK PROJECT

1981 EXPLORATION REPORT

ON

COOPER CREEK GROUP GRID

NTS 82K/3E LATITUDE 50°19'N LONGITUDE 117°10'W
PERTH (18105), PYRITE (18104), GOAT 1-3 (1094 - 1096)
COOPER 1 (2617)

SLOCAN MINING DIVISION

BRITISH COLUMBIA

OWNER: Otto Janout
310 - 1509 Martin Street
WHITEROCK, B.C. V9B 3W8

OPERATOR: SMD Mining Co. Ltd.
330 - 1130 West Pender Street
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By

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SASKATOON, Saskatchewan

November 1981

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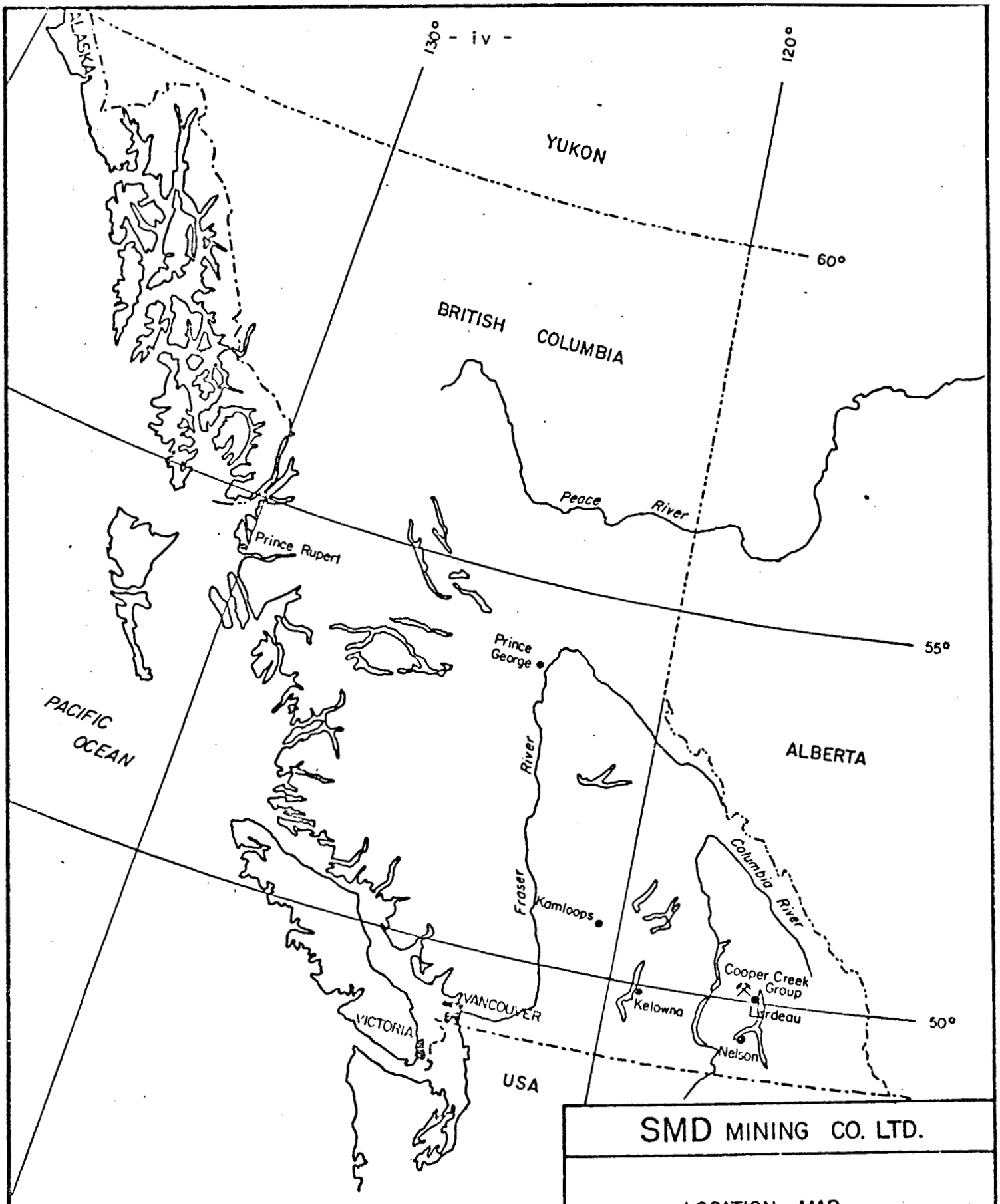

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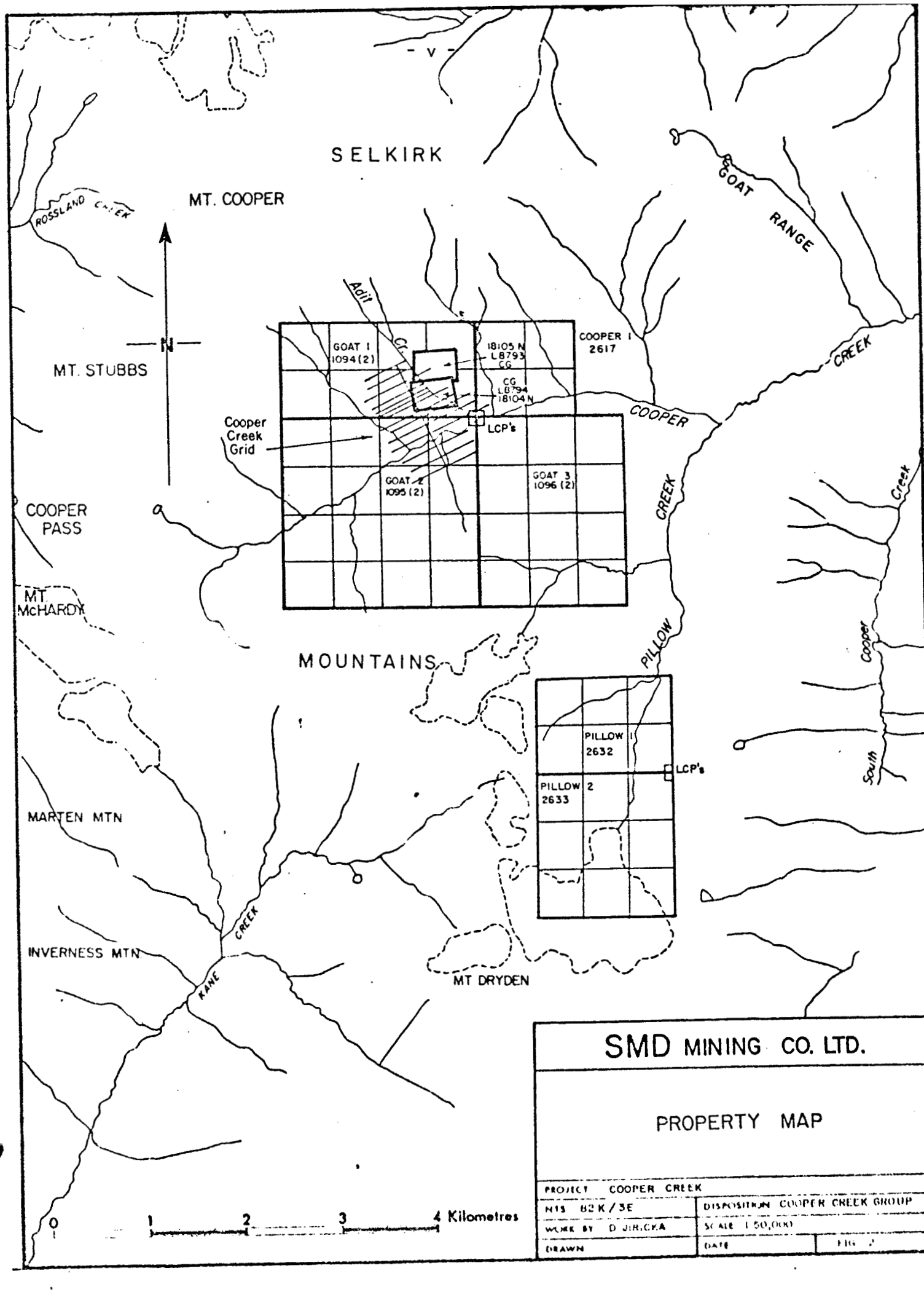
LOCATION MAP

PROJECT COOPER CREEK	
NTS	DISPOSITION COOPER CREEK GROUP
WORK BY D.E JIRICKA	SCALE 1 : 7,500,000
DRAWN	DATE NOV., 1981 MAP FIG. 1



SMD MINING CO. LTD.

PROPERTY MAP

PROJECT COOPER CREEK	
NTS 82K/3E	DISPOSITION COOPER CREEK GROUP
WORK BY D.JIR.C.K.A	SCALE 1:50,000
DRAWN	DATE FIG. 2

SUMMARY

A comprehensive field exploration program consisting of; grid preparation, geological mapping (at three scales), topographic surveying, soil geochemical surveying, lithogeochemical sampling, magnetic surveying, electromagnetic surveying, induced polarization surveying and diamond drilling, was carried out on the Cooper Creek group properties to test for potential massive base metal sulphide mineralization.

Detailed geological mapping has outlined a sequence of steeply dipping metavolcanic rocks of the Permo-Triassic Kaslo Group; striking 315^{o} to 360^{o}; dipping 65^{o} - 90^{o} west and plunging 16^{o} - 35^{o} south. Intermediate flows and tuffs are dominant in the eastern part of the grid while felsic pyroclastic rocks with minor flows, interbedded chert/exhalite and fine grained volcanoclastic sedimentary rocks dominant to the west. The volcanic pile includes a 25 - 30 m wide band of altered rock (quartz-sericite-pyrite $\pm$ chlorite schist) which contains four thin and discontinuous massive/semi-massive stratabound sulphide horizons of probable volcanogenic origin. (Adit Creek zone). Zones of less pronounced alteration and mineralization occur within the felsic pyroclastic rocks, stratigraphically upwards$^{?}$ in the sequence (Baseline zone). The Kaslo Group volcanic rocks are intruded from the north by the felsic McKian batholith and are cut by numerous thin dykes of granodiorite and quartz-monzonite.

Soil geochemical surveying results have outlined two major areas of anomalous base metal contents; one below the Adit Creek zone mineralization and one coinciding with the Baseline zone sulphides.

Lithogeochemical surveying on the Adit Creek zone has indicated that the massive/semi-massive sulphide horizons contain excellent copper contents (up to 8.5% Cu), moderate zinc and silver contents and generally low lead and gold values. Adjacent sericite-quartz-pyrite schists contain anomalous but apparently uneconomic base and precious metal values. The outcropping massive/semi-massive sulphide horizons are not of sufficient mining width.

Geophysical surveys (reported separately) outlined one high priority (CCI-2) and two lesser priority diamond drill targets (CCI-1 and CCI-3). Diamond drill hole CCI-1 tested a strong IP anomaly. Minor mineralization was intersected from 55.1 - 58.6 m in DDH CCI-1 where disseminated chalcopyrite; sphalerite and galena occurred separately over two 0.2 m intervals in felsic pyroclastic rocks. Up to 10% disseminated pyrite occurs throughout massive andesite and dacite flows from 70.0 - 127.1 m. Diamond drill hole CCI-2 tested an area 50 m vertically beneath the Adit Creek massive sulphide zone and intersected andesitic flows/tuffs with numerous thin beds of dacitic and rhyodacitic tuff and chert. No significant mineralization was encountered and only minor sericitization noted. Drill hole CCI-3 tested a strong IP anomaly and coincident soil anomaly. Rhyodacitic and dacitic lapilli-tuffs and agglomerate with minor interbedded black pyritic chert/exhalite were intersected. The latter contains up to 10% pyrrhotite with minor chalcopyrite.

No economically significant mineralization was intersected during the diamond drill program and no further work is recommended on the grid area.

SMD MINING CO. LTD.
SUMMER 1981 EXPLORATION
COOPER CREEK PROJECT
SLOCAN MINING DIVISION
BRITISH COLUMBIA

INTRODUCTION

General

This report describes exploration work carried out on Cooper Creek Project properties during the period May to September 1981. The Cooper Creek group of mineral dispositions consists of two reverted Crown grants and four claims totalling 40 units. These mineral properties and their record numbers are summarized as follows:

Perth C.G.	Record No. 18105
Pyrite C.G.	Record No. 18104
Goat 1 (8 units)	Record No. 1094
Goat 2 (16 units)	Record No. 1095
Goat 3 (12 units)	Record No. 1096
Cooper 1 (4 units)	Record No. 2617

(See Figure 2)

Crown grants Perth and Pyrite, as well as the Goat 1-3 claims belong to Mr. Otto and Mr. Ottokar Janout of Whiterock, B.C., optioned in 1981 by SMD Mining Co. Ltd., who staked the Cooper 1 claim to cover the area directly east of the Crown grants during the field season.

Location and Access

The Cooper Creek group of claims are located approximately 15 km due west of the town of Lardeau, B.C. on Kootenay Lake. The original showings are located on the northern side of Cooper Creek on the wall of a steep canyon cut by a small tributary, known as Adit Creek, draining the southern face of Mount Cooper (See Figures 1 and 2).

Access to the claim group during this exploration program was strictly by helicopter, provided by Okanagan Helicopters Ltd. of Nelson, B.C. A pack trail to the property, constructed during the early 1900's, is intermittently visible along the Mckian Creek and Cooper Creek

valleys. The closest all-weather road in the vicinity of the property is a forestry gravel road on Meadow Mountain located approximately 10 km due east.

Camp was established on Cooper Creek approximately 250 m upstream from the confluence with Adit Creek.

Physiography

The topography of the claim group area is extremely rugged and typical of the Selkirk Mountains. Ice-covered peaks over 2500 m in elevation are typically cut by deep narrow valleys occupied by fast moving streams. The property is situated in a stream-modified U-shaped glacial valley surrounded by four of the tallest mountains in the Goat Range; Mount Cooper (3,089 m), Mount Stubbs (2,755 m), Mount McHardy (2,743 m) and Marten Mountain (2,740 m) (See Figure 2).

Spruce and cedar stands, some of commercial value, extend well above the 2,200 m elevation. The forest cover is often cut by snow and rock avalanche zones covered by fallen trees and a thick regrowth of willow, alder and devils club. These avalanche zones are major obstacles to traversing and grid preparation.

Previous Work

The Perth and Pyrite claims, as well as several now-lapsed claims were staked and worked during the early 1900's on what will be referred to in this report as the Adit Creek zone. Prospecting at this locale had resulted in the discovery of a gossanous cliff containing several bands of massive sulphides rich in chalcopyrite and sphalerite. Two adits were driven into the cliff face. The lower adit went for 30 m but was stopped without intersecting the downdip extension of the mineralization. The upper adit cut 2 m of massive sulphides and stopped after 4 m of drifting. In addition, two trenches were excavated on a southward extension of the mineralization.

The first literature references to this occurrence are the BCDM report for 1907 pp. 96 and the GSC Summary Report for 1908 pp. 86-87.

The presence of sill-like monzonite intrusive rocks spatially related to the mineralization lead early workers to believe that the massive sulphides were of skarn related origin.

No further work was reported on the property until 1976 when Canadian Superior Exploration Ltd. carried out a very limited and inconclusive geological appraisal (Rae, 1976). In 1979, Aquitaine Company of Canada Ltd. carried out a somewhat more substantial program consisting of geological appraisal, limited ground EM magnetic and soil geochemical surveying. Results of this program were favourable and diamond drilling was recommended (Salat, 1980). Aquitaine, however, allowed their option to lapse in 1980.

Exploration 1981

Exploration in the Permo-Triassic volcano-sedimentary Kaslo Group has traditionally been directed towards silver-rich, lead-zinc veins. The old Cooper Creek Cu-Zn-Ag prospect was considered to be skarn related by earlier workers. At this occurrence, sulphides form lenses of crudely banded massive sulphides concordant with the enclosing felsic volcanic rocks just above the transition from mafic to felsic volcanic sequences. This prospect is reinterpreted by the authors as a massive sulphide occurrence making the Kaslo Group a prospective target for volcanogenic copper-zinc-silver massive sulphide deposits.

At Cooper Creek, four closely-spaced sulphide zones, containing lenses of massive sulphide, are exposed in outcrop. An additional sulphide zone was indicated by a nearby copper-zinc soil geochemical anomaly (Salat, 1980).

Exploration efforts during the Summer 1981 Program were aimed at defining diamond drill targets through the use of an integrated geological, geophysical and geochemical program.

Field work consisted of geological mapping at three scales (1:50, 1:2500, and 1:5000), soil geochemical sampling, lithogeochemistry, topographic surveying, ground electromagnetic surveying (CEM "Shoot-back" and VLF-EM), ground magnetic surveying, induced polarization (IP) surveying, drill site preparation and diamond drilling. In preparation

for field exploration work, a cut and secant-chained grid was completed. Previously existing grid lines were recut (Salat, 1980), additional lines cut between the old lines and the overall grid extended to the north and to the south.

GEOLOGY

Regional Geology

The Cooper Creek project area lies on the western (concave) flank of the Kootenay Arc, a major structural element within the Omineca Belt of the Canadian Cordillera (Sutherland-Brown et al, 1971). Geological mapping by the Geological Survey of Canada (Wheeler and Read, 1976) indicated that the property area is underlain by Permo-Triassic volcanic rocks of the Kaslo Group (Cairns, 1935). The Kaslo Group consists dominantly of andesitic volcanic rocks (greenstones) and related intermediate to mafic intrusive rocks with minor serpentinized and talcose ultramafic rocks, felsic pyroclastic rocks and intercalated, probably tuffaceous, sedimentary rocks.

To the east of the property lie Triassic rocks of the Milford Group, consisting of massive to banded chert, argillite, limestone and minor andesite. Further to the east, the Milford group unconformably overlies crystalline rocks of the Lardeau Group of Late Precambrian age.

Overlying the Kaslo Group rocks, to the west of the property, are slates, argillites, quartzite, limestone and tuffaceous rocks of the Permo-Triassic Slocan Group.

The volcanic and sedimentary sequence has been cut by intrusions (plugs and stocks) ranging in composition from granodioritic to quartz monzonitic, i.e. Nelson batholith, Kuskanex botholith. Small plugs and dykes related to these major Jurassic intrusions cut the Kaslo Group on the Cooper Creek property.

The Kaslo Group volcano-sedimentary sequence in the Cooper Creek area appears to be complexly structurally deformed (Fyles et al, 1967).

Although very broad stratigraphic sequences have been established, detailed study has shown that the lithological units are discontinuous due to structural disruptions. Several strike-slip (thrust?) faults appear to complicate and often repeat stratigraphy in the Kootenay Arc.

Property Geology

An extensive sequence of intermediate to felsic pyroclastics and lesser flows is indicated by the geological mapping completed in Cooper Creek valley and Pillow Creek valley (See Figure 2 and Dwg. CCI-2).

Andesitic flows (pillowed, brecciated, massive) and intermediate to felsic pyroclastics (from fine grained tuffs to very coarse grained agglomerates/tuff breccias) are seen (fold repeated?) to the east and west along the Cooper Creek valley away from the Cooper Creek grid. Little sedimentary rock is present except for thin interbeds of gritty reworked volcanoclastic units. Thin chert, and black pyritic chert/exhalite bands, are intimately interbedded with the pyroclastic rocks.

The thick accumulation of volcanic units suggest extensive volcanic activity, but no directional indicators to paleovent areas or volcanic centres, such as a distinctive directional coarsening of fragment size or facies change towards a proximal vent facies, were recognized.

The Cooper Creek grid geology consists of a metamorphosed Permo-Triassic (greenschist facies) sequence of intermediate and felsic pyroclastics with minor flows and interbeds of chert/exhalite, and fine to medium grained volcanoclastics. The pyroclastics range from fine grained tuffs to lapilli tuffs to agglomerates/tuff-breccias.

A reconstructed cross-section of the grid (See Figure 3) from stratigraphic bottom to top, consists of 225 m of complexly interbedded andesite tuff and flows, and rhyodacite-dacite lapilli tuff and agglomerate. This lower unit contains a 25 m wide band of quartz-sericite-pyrite schist, including four thin massive sulphide horizons (the Adit Creek zone) located roughly at a mafic/felsic volcanic interface. These rocks are overlain by a thick sequence (375 + m) of

SOUTH

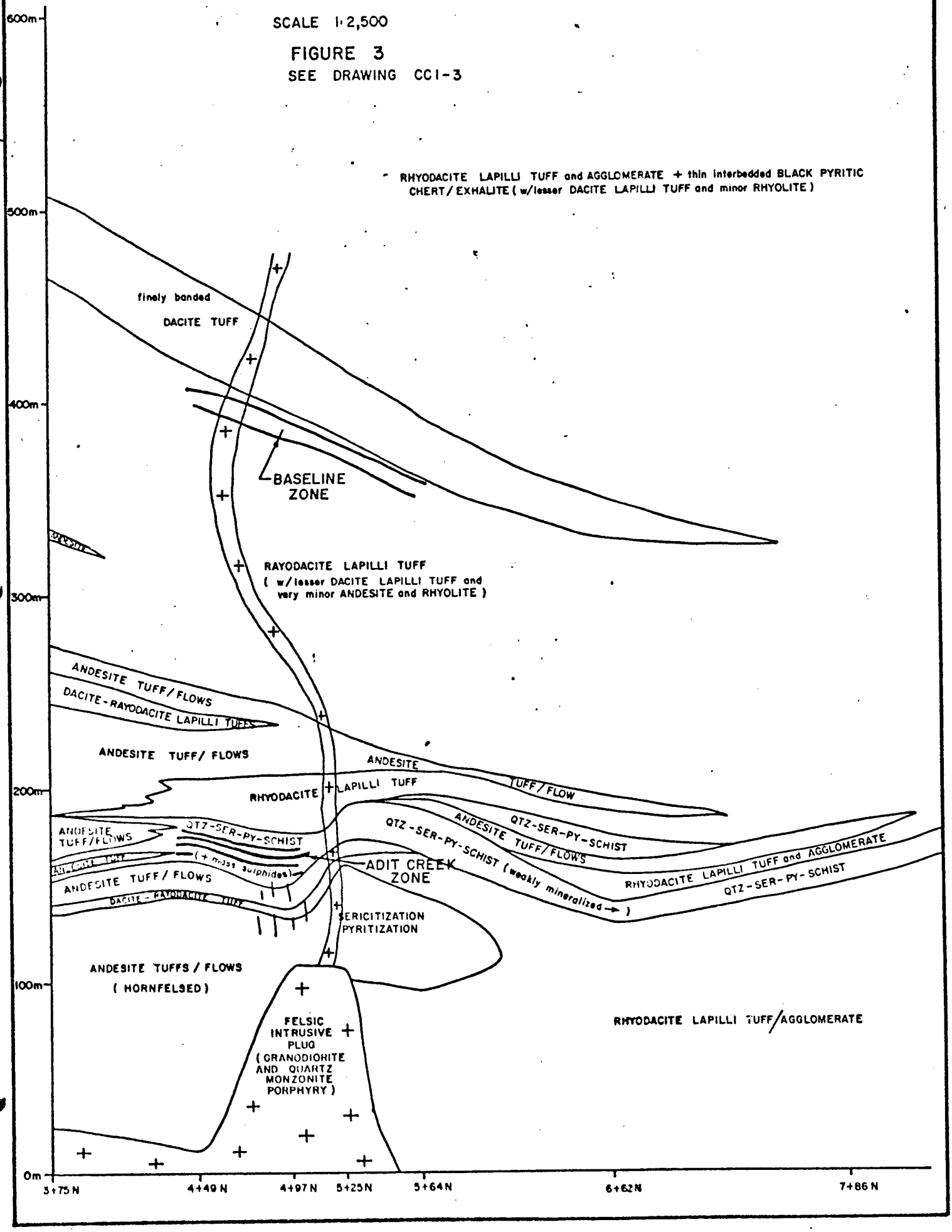
RECONSTRUCTED X-SECTION OF VOLCANIC SEQUENCE AT COOPER CREEK

NORTH

SCALE 1:2,500

FIGURE 3

SEE DRAWING CC1-3



rhyodacite and dacite tuff, lapilli tuff, and agglomerate with thin interbeds of black pyritic chert/exhalite and minor rhylolite. The pile is intruded to the north by the felsic McKian Batholith. Numerous thin dikes and sills of granodiorite and quartz monzonite intrude the pile.

The presence of rock units such as tuff-breccia/agglomerate and lapilli tuffs suggests a high energy, high relief, shallow subaqueous environment at the time of deposition.

Lithologies on the grid consist of:

Unit 1 - Andesite (tuff, lapilli tuff, flows). Tuffs predominate over flows. They consist of intermediate to felsic tuff and lapilli tuff fragments, set in an andesitic matrix. They are dark green to greyish-green and fine to medium grained. Fragments average 1 - 2 mm and range up to 10 mm in diameter. Texture or fabric varies from massive to schistose. Andesitic rocks are composed of 70-80% hornblende + lesser chlorite + 25% plagioclase, 1-5% quartz, and a few grains of sphene and pyrite. Hornfelsing, indicated by the presence of biotite and large green porphyroblasts of hornblende, occurs towards the east near the composite felsic intrusion. Quartz-carbonate-hematite-epidote-pyrite alteration occurs in bands and veinlets increases in intensity towards the alteration zone (Unit 4).

Unit 2 - Dacite (ash tuff, lapilli tuff, minor flows) - These rocks are dominantly tuff and lapilli tuff with minor agglomerate, and very minor flows and flow breccias. Fragments are intermediate to felsic in composition and are subordinate to an intermediate matrix. Dacites are medium grey to brownish grey and are fine to medium grained. The tuffs are bedded and compositionally banded with a pronounced pyroclastic texture. Dacitic flows exhibit porphyritic flow textures and flow breccia textures. They contain more biotite, plagioclase, quartz and less chlorite and hornblende than andesites of Unit 1. Flows contain 20% hornblende and 10% biotite porphyroblasts. When altered the unit contains stringers and bands of chlorite, hematite, pervasive sericite, stringers and disseminations of pyrite and pyrrhotite, and traces of disseminated chalcopyrite and sphalerite.

Unit 3 - Rhyodacite (lapilli tuff and agglomerate, less dacite tuff and lapilli tuff, thinly interbedded black pyritic chert/ exhalite, minor rhyolite lapilli tuff) - Rhyodacite lapilli tuff predominates in Unit 3. Large irregular felsic fragments are set in a matrix of lapilli; tuffs contain abundant 2 - 5 mm diameter felsic fragments; agglomerates contain large blocky irregular felsic fragments and bombs up to 10 cm in length. These rocks are white to light grey with abundant pyroclastic textures. Texture is schistose to occasionally massive. The rocks are composed of 70 - 75% quartz, 10 - 20% aligned biotite bands, 0 - 10% hornblende, 0 - 10% muscovite, 0 - 10% chlorite, disseminations of pyrite, and traces of sphalerite and chalcopyrite.

Rhyolite tuffs occur as rare thin interbeds; fragments can be discerned from matrix only with difficulty, both being felsic in composition. Rhyolites are white, very siliceous and hard, with a distinctive subconchoidal fracture. Composition is mainly quartz with minor orthoclase, plagioclase, silvery muscovite and pale green chlorite, with traces of disseminated pyrite and chalcopyrite.

Unit 4 - Alteration Zone - (quartz-sericite-pyrite schists, including massive sulphides) - This unit is distinctive because of its yellow and red oxidation, and strong schistosity and shearing. The alteration zone is composed of quartz, sericite, chlorite, and disseminated to massive sulphide-rich bands. Massive sulphide mineralization contains pyrrhotite with lesser pyrite up to 20% chalcopyrite, 3-5% sphalerite, and traces of galena. Malachite, azurite, and Zn-carbonate (smithsonite) are also present, in the surface showings.

Unit 5 - Intrusive rocks - (granodiorite, quartz-monzonite, biotite-hornblende porphyry dikes, sills, and plugs). Granodiorite occurs as dikes, sills, and irregular intrusive masses in the volcanic pile. They are white in colour, medium grained, with an equigranular to porphyritic texture. Composition is 40 - 50% white to pale pink 2 - 5 mm long plagioclase phenocrysts with minor orthoclase, less quartz (mainly as matrix), and 10 - 15% other

minerals (biotite, hornblende, magnetite, pyrite). A speckled appearance is caused by flecks of dark brown biotite. These rocks are generally fresh, unaltered, and not mineralized.

Quartz-monzonite occurs as a composite intrusive with granodiorite as dikes, sills, and irregular intrusive masses. The rocks are white to pale pink or pale green with a grain size of 5 - 15 mm, and a seriate, porphyritic texture. Subhedral to euhedral, tabular plagioclase (10 - 20%) and orthoclase phenocrysts (30 - 40%) with lesser quartz phenocrysts are set in a medium grained porphyritic matrix. Accessory minerals include euhedral magnetite crystals rimmed by hematite (2 - 3%), pale green epidote (1%) and pyrite crystals and clasts (2 - 3%).

Biotite-hornblende porphyry is a brownish-black, medium grained, equigranular rock composed of 50 - 60% hornblende crystals, 40 - 50% biotite crystals, with 5% disseminated pyrrhotite and pyrite, and traces of magnetite. This mafic intrusive is rare in the sequence, occurring as 0.1 to 0.5 m dikes in the western part of the grid, observed only in diamond drill core.

Structure

Primary structures in mafic volcanic flows (pillows, pillow breccia/ hyaloclastite) were observed regionally in Pillow Creek to the southeast and in Cooper Creek just southwest of the grid; however, these were only poorly preserved and tectonically elongated features.

Primary pyroclastic-fragmental-tuffaceous textures are abundant in outcrop on the grid, regionally in Cooper Creek valley, and in drill core. These are typified by large, poorly sorted lapilli and agglomerate/ breccia fragments which are stretched and flattened in the plane of foliation.

Porphyritic flow textures are observed in some andesite and dacite flows in drill core, and regionally in Cooper and Pillow Creeks.

Most metavolcanic rocks have a foliation defined by the parallel orientation of hornblende, biotite, chlorite, muscovite, and rock fragments.

Lineation is commonly represented by the stretching of fragments and the preferred orientation along the foliation plane of hornblende, biotite, and muscovite crystals. Lineations plunge consistently 15 - 30°

to the south of the grid.

A well defined shear zone within Unit 4, follows the Adit Creek gorge and mineralized zone. It is traceable along the lithological trend approximately of 330° from the base of Cooper Mountain in Adit Creek - southwards down the creek to the massive sulphide showings. A 30 m wide and 125 m long zone of strongly sheared sericite schists occurs in the showing area and rapidly pinches out to the south into more massive, fine grained andesites (See Dwg. CC1-4). A similar sericitic schist/shear zone 1 - 2 m wide occurs in Flag Creek to the east, thought to represent the fold-repeated eastern limb of the Adit Creek showing.

There is no evidence for major faulting in Cooper Creek valley. The rock units appear to be continuous from north to south across Cooper Creek valley.

Regional work (Cairnes, 1934), has indicated that the area has undergone two distinct periods of deformation. This interpretation appears to be valid in the Cooper Creek grid area where primary bedding (So) has been subjected to broad scale folding (amplitude of 1 km).

The grid area is underlain by a sequence of metavolcanic rocks striking 315° - 360°, dipping 65° - 90° west and plunging 16° - 35° south. Just 1 km east of the grid, bedding changes in dip direction to the east (55° - 85°) (See Dwg. CC1-2). Top determinations in drill core (rip-ups in chert beds) and from regional extrapolation (younger Slocan Group rock to the west) suggest that the volcanic rock sequence on the Cooper Creek grid faces to the west, and that the apparent fold structure is an anticline with a north-south trending axis located in the Elm Creek area. This period of deformation imparted the strong foliation (S_2) and lineations (S_3) observed in the volcanic rocks. A subsequent period of deformation resulted in a secondary twisting of the initial anticlinal axis from approximately north-south to east-northeast (See Dwg. CC1-2).

Alteration and Mineralization

The Adit Creek zone consists of four stratiform massive-semi-massive sulphide horizons (containing po+py+cpy+sph+minor gal.) which

vary in width from nil to 2.0 m and extends discontinuously for 125 - 150 m (See Dwg. CC1-4). Massive sulphide mineralization, consisting mainly of pyrrhotite with lesser pyrite, contains up to 20% chalcopyrite, 3 - 5% sphalerite, and traces of galena.

A distinctive stratiform "alteration zone" encloses the massive sulphide horizons and extends to the north and south of the Adit Creek zone sulphide horizons (See Unit 4 of Dwgs. CC1-3 and CC1-4). This zone of schistose and apparently sheared rock appears to be the result of intense sericitization and lesser silicification and chloritization of volcanic and volcano-sedimentary rock, immediately adjacent to the massive/semi-massive sulphide horizons. Three similar, but less sericitized, discordant alteration zones were outlined immediately beneath the Adit Creek zone in pyritiferous chloritic andesite and may represent "feeder pipes".

DDH CC1-2 tested the downdip extension of the main sulphide showing and enclosing alteration zone at 50 m depth. Only a few thin 0.1 to 0.4 m zones of sericitized rhyodacite tuff containing 1 - 5% disseminated pyrite with very minor copper and zinc contents were intersected. It appears that the mineralization and the main alteration zone follows a 20 - 30° southern plunge (Described in section on structure) and may therefore continue beneath the Cooper Creek valley.

Elsewhere on the property, to the west and stratigraphically above the massive sulphide showing, are numerous thin stratabound zones of alteration (waning stages of mineralizing events?) displaying strong sericitization in minor black cherty/exhalite horizons (See Dwg. CC1-3) DDH's CC1-1 and CC1-3 tested the zones of alteration, indicated by geochemical anomalies and strong IP resistivity contrasts (Baseline zone). DDH CC1-1 intersected only one thin seam of altered, biotitic, chloritic tuffaceous sediment, from 58.5 to 61.6 m, containing less than 1% disseminated chalcopyrite and sphalerite. The remainder of the core was relatively fresh and unaltered. DDH CC1-3 intersected abundant disseminated mineralization in the form of bands of pyrrhotite and pyrite in thin bands of black pyritic chert/exhalite containing trace disseminations of chalcopyrite.

In outcrop, dacite ash-tuffs are locally cut by stringers and bands of chlorite, hematite, pervasive sericite, and stringers and disseminations

of pyrrhotite and pyrite. Rhyodacite tuffs and cherts of the Baseline zone contain pyrrhotite, pyrite, very minor chalcopyrite, and traces of sphalerite.

Hornfelsing occurs at the far eastern end of the grid in andesite tuffs in response to hornfelsing by a large felsic intrusive plug in the vicinity. This alteration resulted in formation of coarse grained platy biotite and large dark green hornblende porphyroblasts in the andesites, thus altering them to biotite-hornblende hornfels and pseudo-diorite.

DIAMOND DRILLING

A total of 467.6 m of diamond drilling in three diamond drill holes were completed by J.K. and Candrill Ltd. of Whiterock, B.C., during the period August 5 - September 12, 1981.

Drill hole locations are indicated in drawing CC1-3. Drill field records and geological logs are included in Appendix II. A summary of diamond drilling is shown in Table 2. Drilling cross sections are included as Figures 4, 5, and 6. Drill core analytical results are included in Appendix III.

Short summaries follow:

DDH CC1-1 was drilled to test an IP resistivity and percent frequency effect (PFE) anomaly and a weak, coincident copper soil geochemical anomaly (See Figure 4).

A total of 5.2 m of overburden was cased in this hole. In the drill interval 5.2 to 70.0 m, coarse grained rhyodacite and dacite lapilli-tuff and fine grained dacite ash-tuffs containing a few thin interbeds of volcanoclastic sedimentary rock, were intersected. Trace to 3% disseminated sphalerite and chalcopyrite was observed in chlorite and biotite rich volcanoclastic/tuffaceous sedimentary rock;

i.e. 55.1 - 55.4 m - 1% sp and 3% py - 0.17% Zn, 665 ppm Pb, trace Cu

58.4 - 58.6 m - 2-3% disseminated cp and 10% disseminated py = 0.62% Cu, 0.39 ppm Au

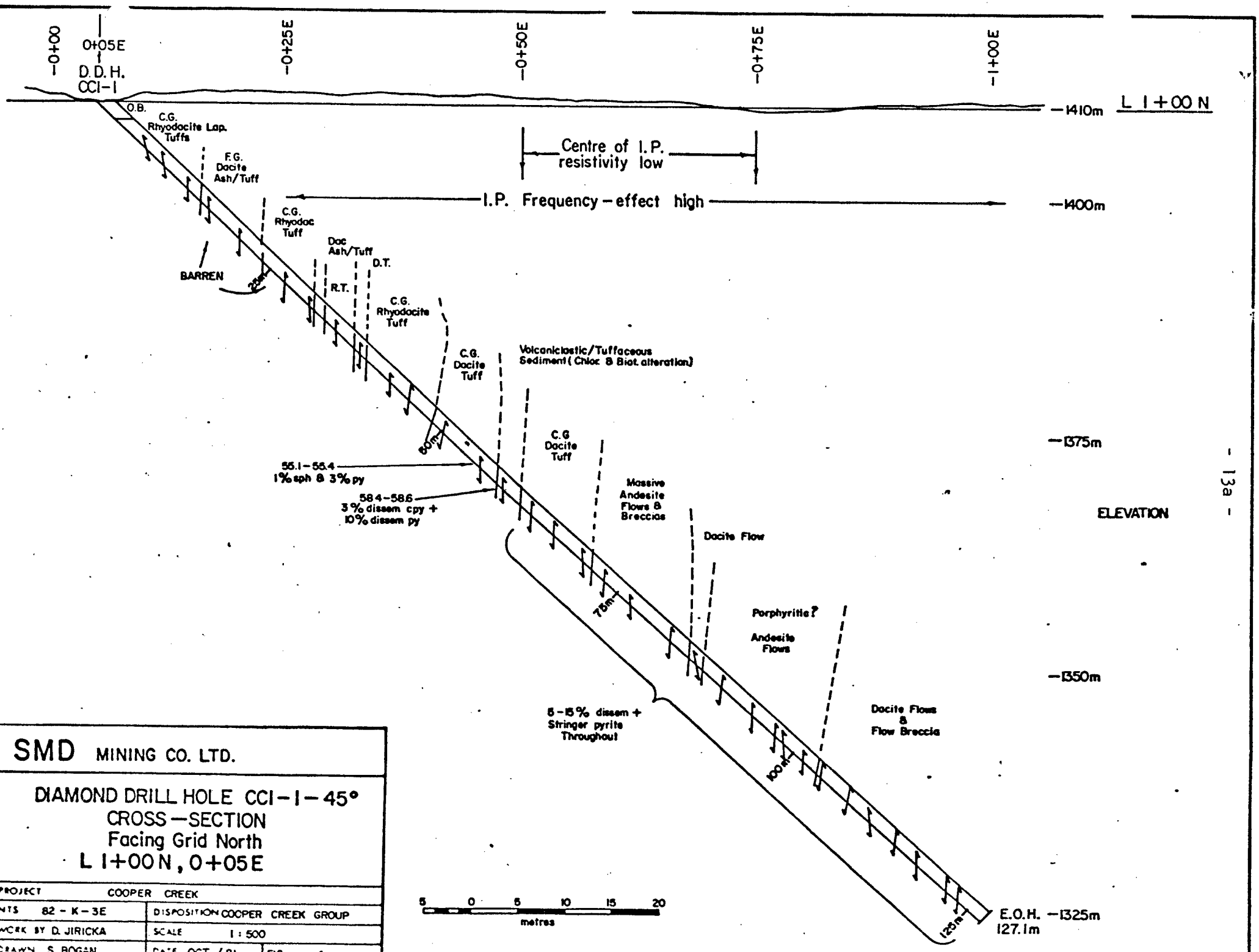
Massive to porphyritic andesite flows and tuff-breccias? with up to 5% disseminated and stringer pyrite were intersected between 70.9 - 103.6 m. In the remainder of the drill hole, to 127.1 m, dacite flows and fragmental rocks containing 5 - 10% stringer and disseminated pyrite, were intersected (Figure 4).

DDH CC1-2 was drilled to test a strong electromagnetic conductor; the apparent downdip extension of the Adit Creek zone. Lithologies intersected were dominantly andesitic flows and/or tuffs with minor thin beds of dacitic tuff and chert. Numerous thin granodiorite and quartz monzonite porphyry dikes and sills cut the volcanic rocks. Maximum sulphide content did not exceed 5% pyrite (no chalcopyrite observed) and only a few thin bands of sericitized dacite tuff was noted. The

hole ended at 169.8 m (Figure 5).

DDH CC1-3 was drilled to test a strong IP anomaly (resistivity and metal factor up to 25 times background) and a coincident geochemical soil anomaly. Rock types intersected in this drill hole are relatively consistent in texture and composition: very coarse grained rhyodacite and dacite lapilli-tuffs and agglomerate/tuff breccias, locally interbedded with thin beds of black pyritic chert/exhalite. These chert beds are 2 - 20 cm thick (apparent) and contain up to 15% pyrrhotite and trace to 2% chalcopyrite (Figure 6).

i.e.	74.6 - 75.6 m	-	trace to 2% cp	- 0.1% Cu
	160.0 - 160.5 m	-	trace cp	- 510 ppm Cu
	163.0 - 163.5 m	-	trace cp	- 745 ppm Cu

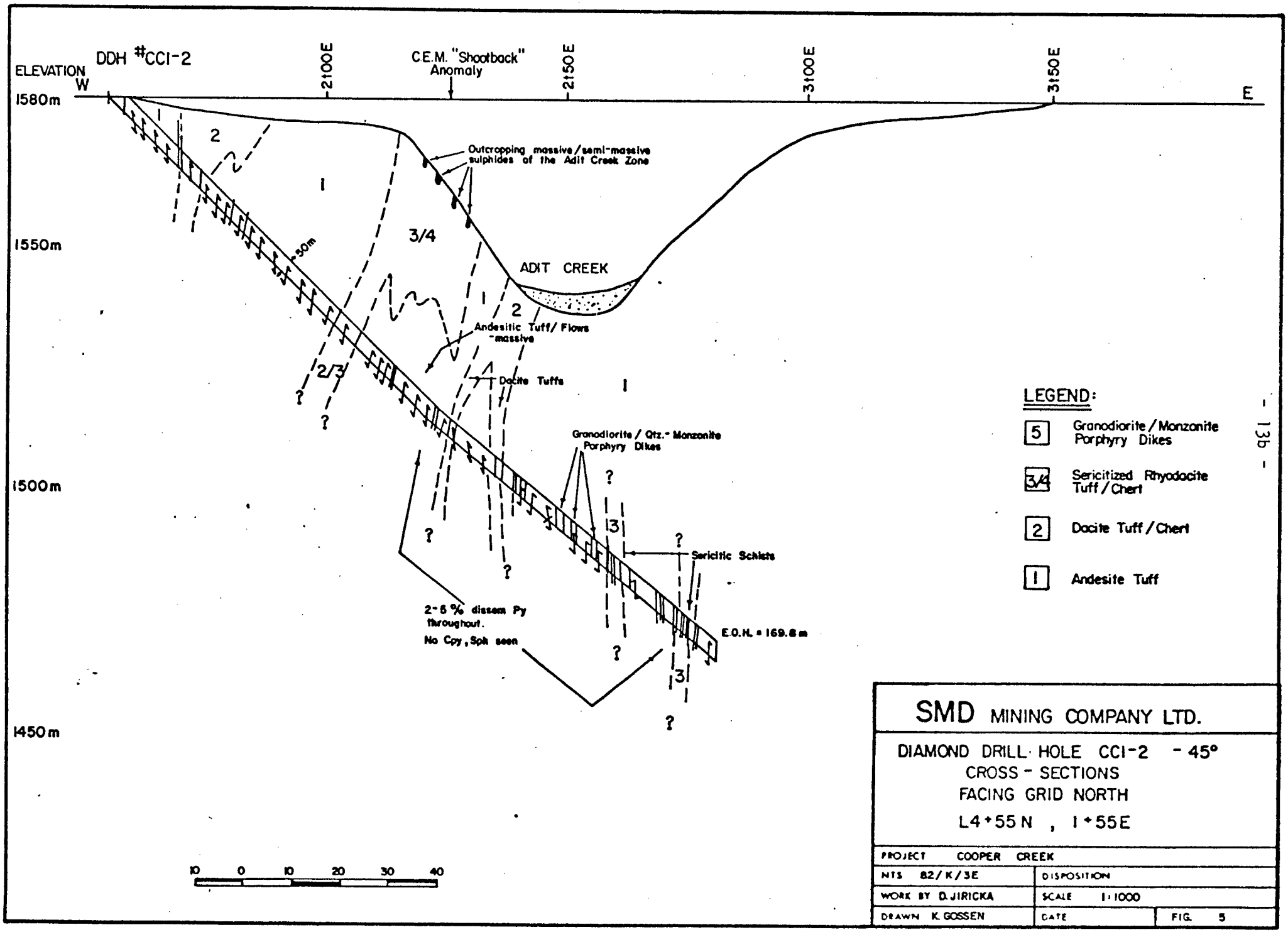


- 13a -

SMD MINING CO. LTD.

DIAMOND DRILL HOLE CCI-1-45°
CROSS-SECTION
Facing Grid North
L 1+00N, 0+05E

PROJECT	COOPER CREEK	
NTS 82 - K - 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1 : 500	
DRAWN S. BOGAN	DATE OCT. / 81	FIG 4

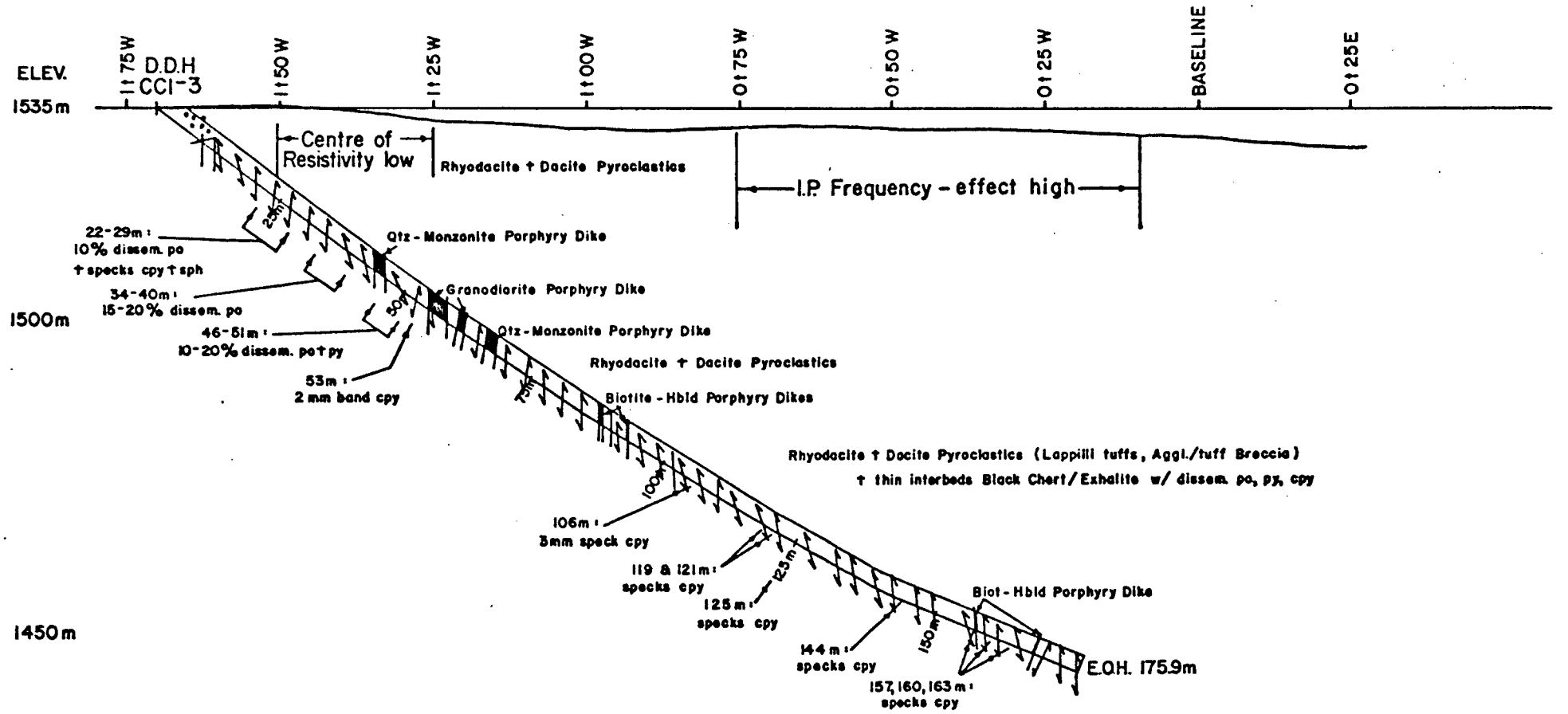


- 13b -

SMD MINING COMPANY LTD.

DIAMOND DRILL HOLE CCI-2 -45°
CROSS - SECTIONS
FACING GRID NORTH
L4+55 N , 1+55E

PROJECT COOPER CREEK		
NTS 82/K/3E	DISPOSITION	
WORK BY D. JIRICKA	SCALE 1:1000	
DRAWN K. GOSSEN	DATE	FIG. 5



- 13c -

SMD MINING CO. LTD

DIAMOND DRILL HOLE CCI-3-45°
CROSS-SECTION
Facing Grid North
L 3+75N, 1+70E

PROJECT	COOPER CREEK	
NTS 82-K-3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:1000	
DRAWN D. OFSTIE	DATE OCT/81	FIG 6

GEOPHYSICS

Magnetic, electromagnetic and induced polarization surveying were performed on the Cooper Creek grid during the period June 24 - July 10, 1981. Electromagnetic surveying included Very Low Frequency (VLF-EM) and CEM "Shoot-back" methods.

The magnetic and electromagnetic results are reported separately by R. B. Matthews and are attached to this report as Appendix IV.

The IP/resistivity survey, carried out by Phoenix Geophysics Limited, is the subject of another report being submitted by P. Cartwright (See References).

GEOCHEMISTRY

Soil

A total of 428 soil samples (lithosols) were collected at 25 m intervals over the entire Cooper Creek grid (See Dwg. CC1-5) and shipped for analysis of Cu, Zn, Pb and Mo contents in the -80 mesh fraction. Analytical work was completed by Acme Analytical Laboratories Limited of Vancouver.

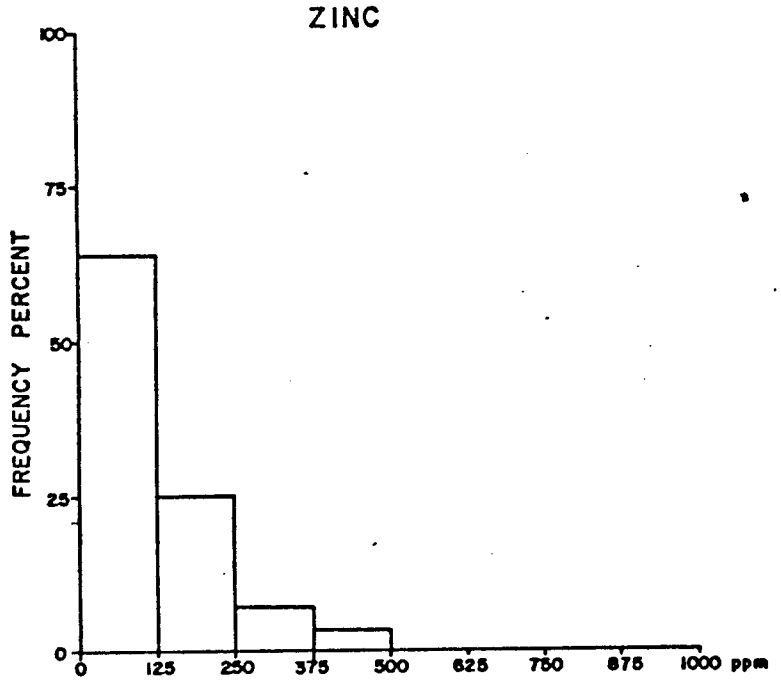
Results of the soil geochemical survey are depicted in Dwgs. CC1-5, 6, 7 and 8 and assay certificates contained in Appendix III.

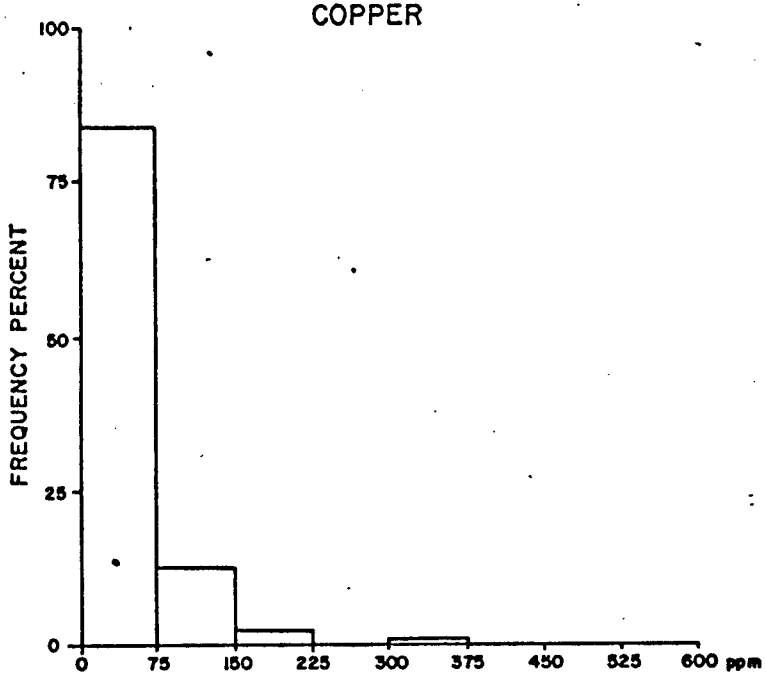
Geostatistical treatment of the soil geochemical data is outlined in Figure 7: histogram plots of Cu, Zn and Pb contents and in Figure 8: log cumulative-frequency plots for Cu, Zn, Pb. Although not readily apparent, weak inflection points are noted in the cumulative frequency plots for copper between 250 and 300 ppm and for lead between 200 and 250 ppm, thus indicating threshold values for anomalous populations. Zinc displays a relatively unimodal trend with a very weak flexure at approximately 400 ppm.

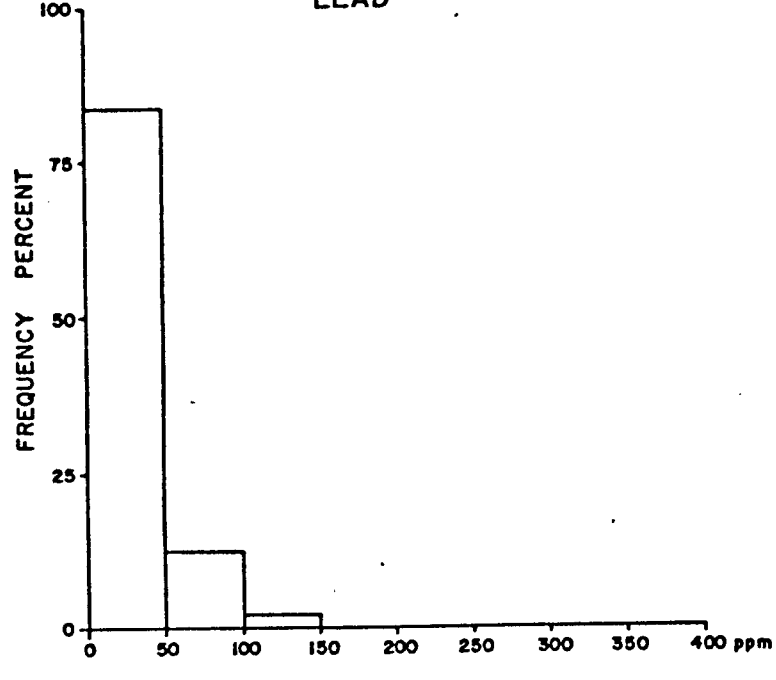
As seen in Dwgs. CC1-6 and CC1-8, copper and lead appear to have high positive correlation. Apparently anomalous Cu and Pb values appear in a relatively linear belt along the baseline with a major high centered at L5 + 25N, 0 + 25E (Baseline zone). A second copper anomaly occurs over the Adit Creek zone without a corresponding lead anomaly. Weak copper and lead anomalies located downslope of the Adit Creek zone mineralization and the Baseline zone are thought to be due to slide and avalanche mechanical transport of sulphide-bearing material.

Zinc content is anomalous in the area of the baseline copper anomaly and in scattered localities along slope (See Dwg. CC1-1 and CC1-7) to the west. The area within the zinc anomalies is underlain by felsic pyroclastic rocks and the Baseline mineralized zone.

Molybdenum content in soil samples was generally very low, although slightly elevated Mo values were obtained coincident with the main copper anomaly centred at L5 + 25N, 0 + 25E (See Dwg. CC1-9). A major quartz monzonite dyke was noted during geological mapping in the area of the Mo anomaly (Dwg. CC1-3), possibly representing the source of the weak







SMD MINING CO. LTD.

HISTOGRAMS
Cu, Pb, Zn CONTENT IN SOIL

PROJECT COOPER CREEK		
NTS	DISPOSITION	
WORK BY D. JIRICKA	SCALE	
DRAWN D. OFSTIE	DATE OCT/81	FIG. 7

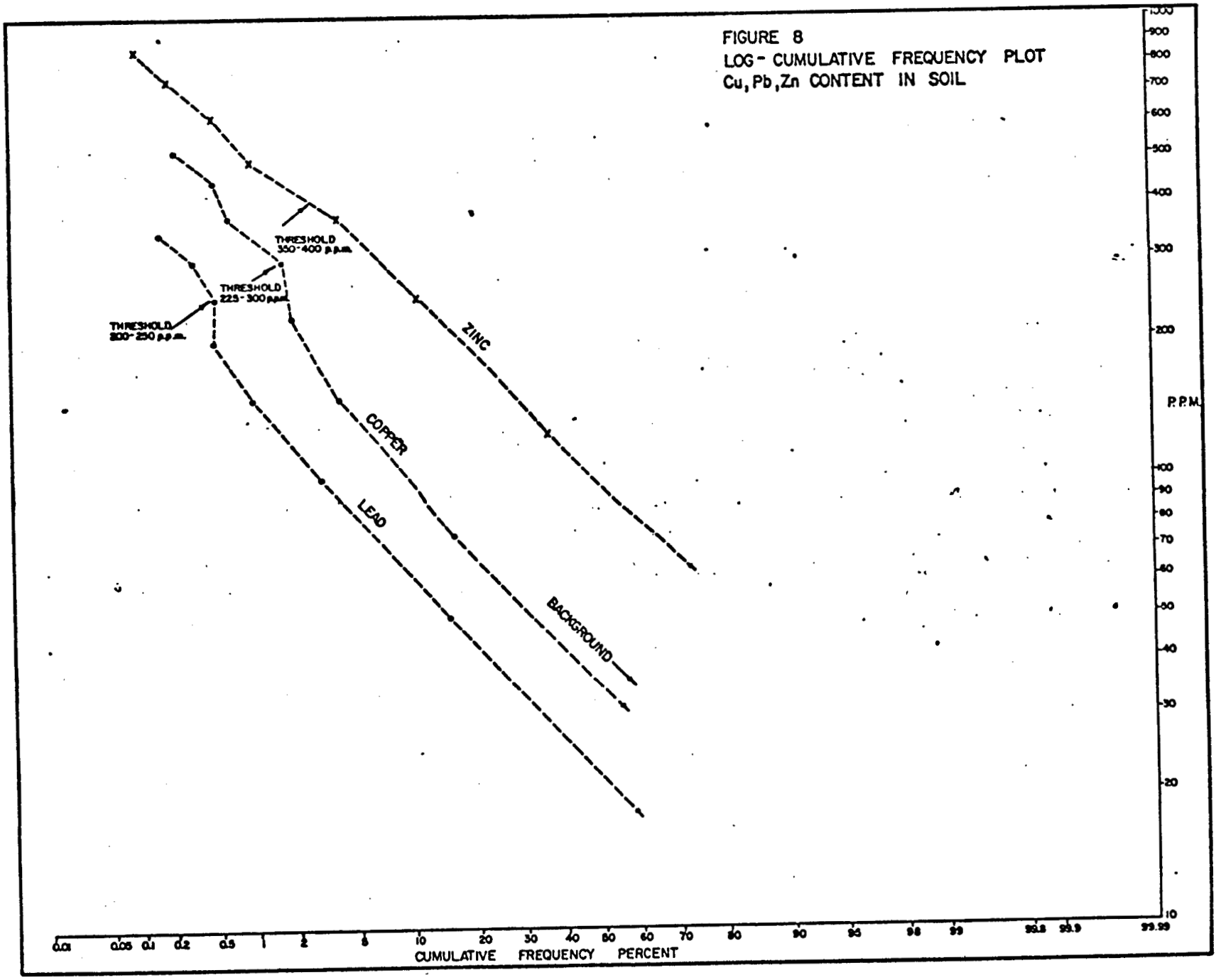


FIGURE 8
LOG - CUMULATIVE FREQUENCY PLOT
Cu, Pb, Zn CONTENT IN SOIL
THRESHOLD 350-400 p.p.m.
THRESHOLD 225-300 p.p.m.
THRESHOLD 200-250 p.p.m.
ZINC
COPPER
LEAD
BACKGROUND
P.P.M.
1000
900
800
700
600
500
400
300
200
100
90
80
70
60
50
40
30
20
10
0.01
0.05
0.1
0.2
0.5
1
2
5
10
20
30
40
50
60
70
80
90
95
98
99
99.8
99.9
99.99
CUMULATIVE FREQUENCY PERCENT

molybdenum values.

Core

A total of 115 diamond drill core samples from the Summer 1981 drill program were shipped to Acme Analytical Laboratories Ltd. of Vancouver for analysis of Cu, Zn, Pb, Ag and Au contents. The diamond drill core samples split and selected for analysis included sections containing visible (trace to 10%) sulphide. In addition, 137 outcrop samples, including samples taken during detailed lithogeochemical sampling of the Adit Creek zone, were collected and analyzed for Cu, Zn, Pb, Ag and Au contents.

Diamond drill core from Hole CC1-1 contained abundant disseminated sulphide mineralization, however, significant metal values were found in only two of fifteen samples taken.

These are; across sample intervals:

55.1 - 55.4 m: 1% disseminated sphalerite associated with pyrite and carbonate veinlets. Assay - 0.17% Zn, 665 ppm Pb.

58.4 - 58.6 m: Chalcopyrite stringers and disseminations associated with pyrite + biotite + chlorite. Assay - 0.62% Cu, 0.39 ppm Au.

Drill Hole CC1-2 was sampled from 50 m depth to the end of the hole at 169.8 m (See Table 4).

Values up to 100 ppm for Cu and Zn and 50 ppm for Pb were obtained.

Hole CC1-3 contains abundant sulphide mineralization in the form of pyrrhotite/pyrite stringers (10 - 20%) with occasional grains of chalcopyrite. In 36 samples taken in this hole, zinc is slightly anomalous in some samples (300 - 400 ppm) and copper is strongly anomalous in three samples. The three best copper assays are:

74.6 - 75.6 m:	trace of chalcopyrite assay - 1000 ppm Cu
160.0 - 160.5 m:	trace of chalcopyrite assay - 510 ppm Cu
163.0 - 163.5 m:	trace of chalcopyrite assay - 745 ppm Cu

Chip Sampling

Detailed chip sampling was carried out across measured widths and at regular intervals along the Adit Creek zone mineralization (See Dwg. CC1-10). In general, the massive and semi-massive sulphides have excellent copper contents (weighted averaged 3.10% Cu, range 0.26 - 8.5% Cu) with moderate zinc contents (weighted average 1.22% Zn, range 0.01 - 6.85% Zn) and low lead contents (weighted average 309 ppm Pb range 18 - 880 ppm Pb) moderate silver values (weighted average 0.68 oz./ton, range 0.07 - 1.74 oz./ton Ag) and notable gold values (weighted average 0.043 oz./ton, range 0.001 - 0.232 oz./ton Au). Although the tenor of the massive and semi-massive sulphide horizons is impressive, the sulphide mineralization is discontinuous and thin. Thickness ranges from 0.2 to 1.75 m, averaging approximately 0.6 m in width, offering very limited tonnage potential. Chip samples across wider sample intervals were obtained in the sericite-quartz-pyrite±chlorite alteration zone immediately adjacent to the massive/semi-massive sulphides. Unfortunately, tenors obtained in the SQP schists were significantly lower in grade and are not of economic interest. I.E. Copper; average 0.33% Cu (range 0.01 - 1.25% Cu), Zinc; average 0.08% Zn (range 0.004 - 0.53% Zn), Lead; average 74 ppm Pb (range 12 - 280 ppm Pb). Sulphide content in the sericite-quartz-pyrite schist decreases rapidly with distance from the massive sulphide beds.

RESULTS AND DISCUSSION

1. Geological mapping has outlined Kaslo Group stratigraphy on the Cooper Creek property. The interpreted stratigraphic sequence from oldest to youngest (east to west on the grid) is: andesite tuffs and flows, the Adit Creek mineralized zone (includes massive sulphides, sericite-quartz-pyrite±chlorite schist, dacitic tuff and tuffaceous sedimentary rock), interbedded andesite flows and/or tuffs and dacite tuffs, and an uppermost felsic unit of interbedded dacite and rhyodacite pyroclastic rocks. A change in source magma from mafic to felsic compositions is apparent across this sequence.

2. Bedded Kaslo Group rocks (S_0) on the property strike consistently to the north-northwest (150°) and dip vertically or very steeply to the west (60 - 90°). Although details are lacking in outcrop (i.e., marker horizons and top indicators), an apparent anticlinal (S_1) structure with a shallow (16 - 35°) southward plunge is inferred. In the area to the south of the property, the regional lithological trend curves from 150° to approximately 090° indicating a major flexure (S_2 structure) located 4 km north of Mount Dryden.

3. Detailed geological mapping indicated that base metal bearing sulphide units occur at two distinct stratigraphic levels: (i) the Adit Creek Zone - within andesitic rock, (ii) the Baseline Zone - within the upper felsic volcanic unit.

A. Within the Adit Creek horizon, four separate strata-bound, sulphide bearing units were traced laterally, more or less continuously over 100 - 150 m across the original showing area. Discontinuous pods of massive sulphides, rich in chalcopyrite and sphalerite (up to 2 m in thickness) occur within sericite-quartz-pyrite±chlorite schist (altered dacite, siltstone and/or andesite) and locally within bedded dacite. The sericite-quartz-pyrite± chlorite schist unit is up to 30 m wide and appears to be completely encapsulated in andesitic rocks. The sericite-quartz-pyrite±chlorite schists represents alteration resulting from intense sericitization and chloritization processes related to and accompanying the massive sulphide mineralization. Underlying the massive sulphide pods,

the andesitic rocks are chloritized and locally contain up to 10% stringer and fracture controlled sulphides along three distinct discordant zones. The discordant mineralization and alteration appears to represent a "feeder pipe" for the overlying stratabound mineralization.

B. The Baseline horizon occurs within the upper felsic pyroclastic unit. Minor sulphide-bearing "exhalative" cherty horizons containing trace amounts of chalcopyrite, sphalerite and galena were observed in outcrop and appear to represent the source of Cu and Zn "soil" anomalies discovered during previous work (Salat, 1980).

4. Ground magnetic survey results indicate that the monzonitic intrusions have anomalously-high magnetic susceptibilities while areas underlain by felsic volcanic rocks have low magnetic susceptibilities. Magnetic surveying has been useful in tracing these lithologies across overburden-covered areas. No major magnetic anomalies were detected.

5. Ground Very Low Frequency (VLF) - electromagnetic survey results are noisy and difficult to interpret in profile form. Fraser-filtering "cleaned up" the data considerably, and resolved several, albeit weak, conductor axes which coincide well with results from other surveys.

6. Results from the CEM "Shoot-back" survey are also very noisy and difficult to interpret in profile form. An attempt to Fraser filter this data was successful; individual conductors were resolved and good correlation achieved with other geophysical survey results.

7. Electromagnetic surveying detected only one strong conductor, that being directly over the outcropping sulphide horizons of the Adit Creek zone. The noisy electromagnetic data is likely attributable to the interbedded nature of strongly contrasting lithologies, several of which contain significant sulphide content, i.e., andesite and "exhalative" chert, as well as by sharp topographic changes.

8. Induced Polarization (IP) surveying outlined three zones of anomalous frequency effect. One of these anomalies trends along the baseline across the entire grid, correlating well with weak to moderate strength electromagnetic conductor axes. A second IP anomaly parallels the main anomaly

approximately 100 m west of the baseline, but appears to fade out before reaching Cooper Creek to the south and L6+62N to the north. These anomalies were subsequently found to be due to minor, disseminated sulphide bearing "exhalitive" chert horizons within the upper felsic unit (Baseline Zone). A third IP anomaly, possibly representing the edge of the Adit Creek zone, was indicated on L4+49N. The extremely rugged topography prevented complete IP coverage of the Adit Creek zone.

9. A soil geochemical survey carried out over the Cooper Creek grid verified results of the previous survey and provided more complete coverage. Two anomalous zones were outlined, one downslope of the Adit Creek zone and one straddling the baseline between L3+75N and L6+62N. Both anomalies are directly attributable to base metal sulphides observed in outcrop (Adit Creek and Baseline zones).

10. Chip sampling of massive sulphides and adjacent sericite-quartz-pyrite±chlorite schist was carried out on the Adit Creek zone. Results indicate that massive sulphides have excellent copper contents with moderate Zn and low Pb values over narrow widths. Au and Ag contents were significant in the highest grade Cu bearing samples. Samples of sericite-quartz-pyrite schist taken adjacent to massive sulphide gave anomalous but uneconomic Cu, Zn and Pb grades. The best base metal grades are restricted to the massive sulphides which have much less than sufficient true thickness and lateral extent to be of economic interest.

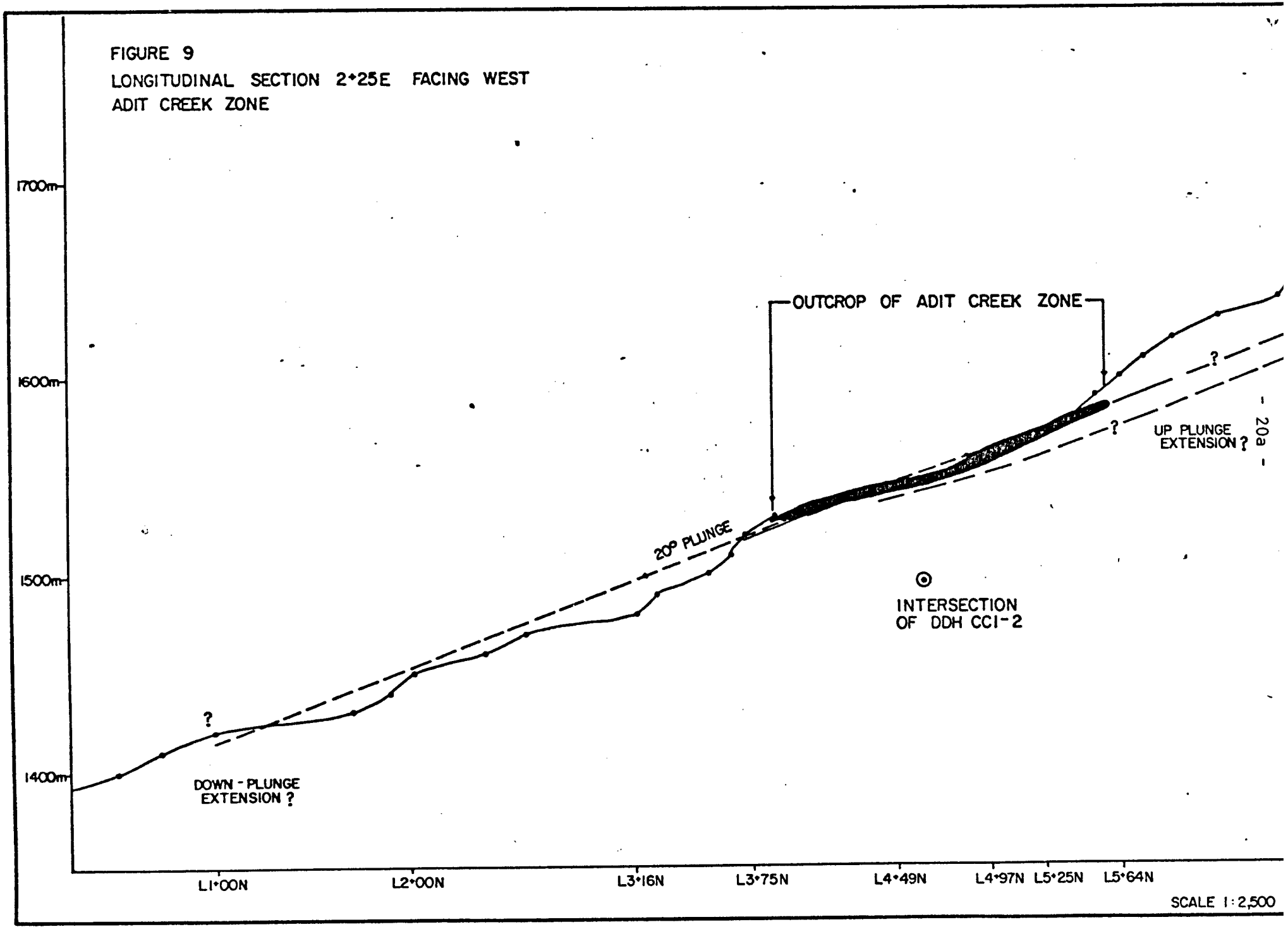
11. Diamond drilling failed to intersect significant mineralization or major zones of related alteration in any of the three diamond drill holes.

A. Diamond drill hole CC1-1, designed to test the "baseline" main IP anomalous zone at L1+00N, intersected minor disseminated and stringer sulphides adjacent to a felsic volcanic - intermediate volcanic interface.

B. Diamond drill hole CC1-2, designed to test the Adit Creek zone, did not intersect massive sulphide or significant related alteration.

C. Diamond drill hole CC1-3, designed to test the IP anomaly located west of the baseline, intersected several sulphide bearing

FIGURE 9
LONGITUDINAL SECTION 2+25E FACING WEST
ADIT CREEK ZONE



"exhalative" chert units within the upper felsic pyroclastic sequence. Trace amounts of chalcopyrite occur within the chert units.

Diamond drill holes CC1-1 and CC1-3 appear to have intersected sulphide bearing volcanic rocks which were responsible for the detected IP anomalies.

Diamond drill hole CC1-2 failed to intersect the expected vertical continuation of massive sulphides and related alteration zone of the Adit Creek showings. Detailed mapping of the showing area indicated a shallow (16 - 35°) southward plunge in the enclosing sericite-quartz-pyrite±chlorite schist. Assuming the massive sulphides are elongated parallel to this plunge, as are deposits in the Snow Lake area of Manitoba (Coats, et al, 1970), the sulphide horizons may have been eroded to the north and to the south of the original showings (Clark, 1981 internal memo)(See Figure 9). Potential thus exists for massive sulphide mineralization both up and down slope beyond the eroded areas.

Several contrary factors must be taken into account before testing these possible extensions of the Adit Creek zone:

(i) The lack of vertical continuity in the massive sulphide horizon(s) as indicated by diamond drill hole CC1-2. The massive sulphide zone (Adit Creek) and its associated alteration zone must have a very thin pencil-like form plunging shallowly to the south. It is felt that such a body could not contain sufficient tonnage to maintain an economically viable mining operation.

(ii) The area of the interpreted "reappearance" of the mineralization "down-plunge" has been very thoroughly tested. The interpreted southward plunge extension of the Adit Creek zone does not appear to have a significant geophysical or geochemical expression.

(iii) The interpreted up-plunge extension of the Adit Creek zone has either been completely eroded or extends into Mount Cooper up slope. The area has not been covered by present geochemical and geophysical surveys due to the extremely rugged nature of terrain in this area. Costs to test such a target would be very prohibitive.

The Baseline zone and a parallel zone indicated by the IP surveying to the west of the baseline were tested by diamond drilling. The induced polarization anomalies were apparently due to minor amounts of disseminated sulphide within cherty "exhalitive" units in a felsic pyroclastic sequence. Although the geological environment appears to be extremely favourable for generation of volcanogenic massive sulphide deposits, testing of the most favourable geophysical targets proved to be unsuccessful. No further diamond drill targets are obvious, in either of these two zones, on the Cooper Creek grid.

12. Regardless of present and largely unfavourable exploration results on the Cooper Creek property, one must keep in mind the favourable criteria which led us to this property initially; that is, its rather similar geological environment where compared to known volcanogenic massive sulphide deposits in British Columbia, i.e., Westmin Resources operation near Campbell River, British Columbia. Significant similarities shared by the Cooper Creek mineralization and the Myra, Lynx and Price deposits include (Seraphim, 1980):

(i) Association with rhyolitic, dacitic and andesitic volcanic rocks.

(ii) Mineralization occurs in stratabound bodies overlying or adjacent to hydrothermally altered and mineralized pipes.

(iii) Alteration included silicification, sericitization and chloritization - quartz-sericite-pyrite±chlorite schist.

(iv) Ore mineralogy includes chalcopyrite, sphalerite, minor galena, silver and gold minerals.

(v) Rhyolitic breccias or "mill-rock" occur proximal to the mineralization.

(vi) Intrusion by porphyrytic felsic dykes - quartz monzonite.

(vii) Banded siliceous (chert) and hematitic rocks overlie the mineralized zone(s).

(viii) The pod-like nature of the massive sulphide mineralization.

It is obvious that base metal concentrative processes have occurred at the Cooper Creek property and undoubtedly within the entire Kaslo

Volcanic Group. Discovery of the loci of the mineralizing processes will likely be the result of a more regional approach aimed at location of volcanic vent areas within the Kaslo volcanic rocks.

CONCLUSIONS AND RECOMMENDATIONS

1. The Cooper Creek grid area has been adequately tested.

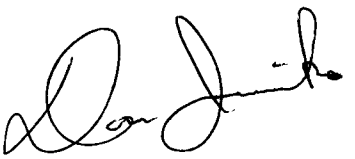
2. Little potential exists for economic massive sulphide mineralization in both the Adit Creek zone or the weakly mineralized zones to the west.

3. Little potential is believed to exist for economic massive sulphide mineralization both up and down plunge along the Adit Creek horizon on the Cooper Creek grid.

4. It is recommended that a regional approach to exploration be taken over the more accessible portions of the Kaslo Volcanic Group as well as on the Cooper Creek Group properties.

5. Exploration methods recommended include airborne (helicopter-borne) EM surveying, soil and stream sediment sampling and geological appraisal.

6. It is recommended that SMD Mining maintain its Janout option only if more favourable terms can be obtained.



Respectfully Submitted

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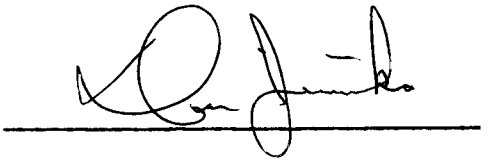
STATEMENT OF QUALIFICATION

I, Daniel E. Jiricka, of the City of Saskatoon, in the Province of Saskatchewan, certify as follows:

1. That I am a geologist residing at 521 Bedford Road, Saskatoon, Saskatchewan.
2. That I have practised my profession continuously since being graduated in Geology from Laurentian University, Sudbury, Ontario - Honours B. Sc. 1977.
3. That I am registered as a Professional Engineer in the Province of Saskatchewan.
4. That I have continuously worked in geological and mining exploration in Canada for the past four years.
5. That the accompanying report is based on field investigations during the summer field exploration program of 1981.

Dated at Saskatoon, Saskatchewan, this 29th day of October, A.D. 1981.



Daniel E. Jiricka

I, Michael R. Jackson, of the City of Saskatoon, in the Province of Saskatchewan, certify as follows:

1. That I am a geologist residing at 909 - 541 Fifth Avenue North, Saskatoon, Saskatchewan.
2. That I have practised my profession continuously since being graduated in Geology from McMaster University, Hamilton, Ontario - Honours B. Sc. 1977. I also obtained a M. Sc. in 1979 from University of Manitoba, Winnipeg, Manitoba.
3. That I have worked in geological and mining exploration in Canada since 1977.
4. That the accompanying report is based on field investigations during the summer field exploration program in 1981.

Dated at Saskatoon, Saskatchewan, this 29th day of October, A.D. 1981.

Michael R. Jackson

TABLE 1

EXPLORATION WORK SUMMARY

TABLE 1

EXPLORATION WORK SUMMARY - COOPER CREEK GROUP

TYPE OF WORK	COMPLETED BY	CONTRACT NO.	NO. OF LINE-KM	COMMENTS
Grid Establishment	Arctex Engineering Services Ltd. & IN-HOUSE crew	213	10.9	June 11-June 22, 1981
Topographic Surveying	IN-HOUSE	-	10.9	Elevation surveying
Geological Mapping	IN-HOUSE	-	10.9	1:50 Scale-0.1 km^2 1:2500 Scale-1.1 km^2 1:5000 Scale-6.0 km^2
Soil Geochemistry	IN-HOUSE	-	-	428 samples
Ground EM Surveying C.E.M. "Shoot-back"	IN-HOUSE	-	13.08	Several lines redone as check-One test line Multimode, multi-separation
Ground EM Surveying V.L.F. - E.M.	IN-HOUSE	-	20.63	Several lines redone in detail
Ground Magnetic Surveying	IN-HOUSE	-	10.9	Several detailed (10 m station) lines
Induced Polarization	Phoenix Geophysics Ltd.	210	8.5	July 1-July 10, 1981
Lithogeochemistry	IN-HOUSE	-	-	254 rock samples
Drill Site Preparation	Bema Industries Limited	214	-	Construction of three drill sites July 28-Aug. 6, 1981
Diamond Drilling	J.K. Drilling & Candrill Ltd.	219	-	3 diamond drill holes totalling 467.6 m of drilling Aug. 5-Sept.11,1981

TABLE 2

SUMMARY OF DIAMOND DRILLING

DIAMOND DRILL SUMMARY

'OLE NO.	GRID	GRID COORDINATES	SURVEY COORDINATES	DIP	LENGTH	AZMIUTH	PURPOSE	START	COMPLETED	LITHOLOGY	COMMENTS
CC 1 - 1	Cooper Creek	L1+00N 0+04E		-45°	127.1 m	064°	To test a strong linear IP anomaly	06-08-81	12-08-81	0 - 5.05 Overburden 5.05 - 24.3 Dacite and Rhyodacite Tuff 24.3 - 58.0 Dacite and Rhyodacite Lapilli-Tuff 58.0 - 61.4 Hematite-Chlorite-Sericite Schist 61.4 - 72.0 Dacite Tuff Breccia 72.0 - 127.1 Hornfelsed Andesite	>1% sph , gn @ 56.2 m ≈3% cp over 15 cm @ 58.5 m.
CC 1 - 2	Cooper Creek	L4+56N 1+55E		-45°	165 m	064°	To test the Adit Creek zone at depth. Target; a strong EM "Shootback" conductor	14-08-81	20-08-81	0 - 0.6 Overburden 0.6 - 21.2 Andesite massive to bedded 21.2 - 22.3 Dacite tuff 22.3 - 25.5 Andesite massive to bedded 25.5 - 26.0 Dacite tuff 26.0 - 60.0 Andesite massive to bedded 60.0 - 64.5 Dacite tuff and chert 64.5 - 69.0 Interbedded andesite and dacite tuff 69.0 - 116.4 Andesite massive and bedded 116.4 - 117.0 Dacite tuff 117.0 - 143.0 Andesite massive and bedded 143.0 - 151.4 Dacite tuff 151.4 - 163.0 Interbedded andesite and dacite tuff 163.0 - 169.7 Andesite massive	No significant alteration or sulphide mineralization.

DIAMOND DRILL SUMMARY

HOLE NO.	GRID	GRID COORDINATES	SURVEY COORDINATES	DIP	LENGTH	AZIMUTH	PURPOSE	START	COMPLETED	LITHOLOGY	COMMENTS
CC1-3	Cooper Creek	L3+75N 1+70E		-45°	175.5 m	064°	To test a strong IP anomaly with high metal factor values	02-09-81	10-09-81	0-9.1 Overburden 9.1 - 12.2 Quartz-monzonite porphyry dyke 12.2 - 44.0 Rhyodacite lapilli-tuff 44.0 - 45.7 Quartz-monzonite porphyry dyke 45.7 - 55.4 Rhodacite lapilli-tuff agglomerate 55.4 - 57.6 Granodiorite porphyry dyke 57.6 - 60.0 Dacite tuff-lapilli-tuff 60.0 - 61.7 Granodiorite porphyry dyke 61.7 - 65.7 Dacite lapilli tuff 65.7 - 67.5 Quartz monzonite porphyry dyke 67.5 - 88.1 Dacite lapilli-tuff 88.1 - 89.0 Biotite-hornblende-lamprophyre dyke 89.0 - 90.4 Dacite lapilli-tuff 90.4 - 90.6 Lamprophyre dyke 90.6 - 93.9 Dacite lapilli-tuff 93.9 - 175.9 Rhyodacite lapilli-tuff	Minor cp @ 75.0 m @ 81.0 m @ 160.2 m

TABLE 3

LITHOGEOCHEMISTRY - CHIP SAMPLES

TABLE 3

LITHOGEOCHEMISTRY - CHIP SAMPLES

(See Dwg. CC1-10)

Horizon (1 being upper)

	SAMPLE	LOCATION	HORIZON POSITION	(True) WIDTH	ANALYSIS					COMMENTS
					Cu	Pb	Zn	Ag	Au	
2	CC10-0428	Upper Adit	East of M. Sulph.	.4 M	1.22%	165	0.53%	8.9	0.006	CPY, PY - Altered
2	CC10-0429	Upper Adit	West of M. Sulph.	.8 M	1400	27	110	1.4	0.001	QTZ-PY-SRCT Schist
2	CC10-0430	Upper Adit	Massive Sulphide	1 M	3.37%	520	1.02%	0.78oz/ton	0.05	CPY, PO, PY
2	CC10-0431	4+85N 2+20E	East of M. Sulph.	.9 M	2600	50	370	4.7	0.005	QTZ-PY-SRCT Schist
2	CC10-0432	4+85N 2+20E	West of M. Sulph.	.6 M	1.10%	600	1400	0.37oz/ton	0.024	Abundant Sulphides
2	CC10-0433	4+85N 2+20E	Massive Sulphide	1.75M	7.10%	570	2.89%	1.48oz/ton	0.037	CPY, PY, PO
2	CC10-0434	4+94N 2+15E	East of M. Sulph.	.5 M	1900	50	340	1.8	0.011	QTZ-PY-SRCT Schist
2	CC10-0435	4+94N 2+15E	Massive Sulphide	.2 M	8.50%	330	6.58%	1.74oz/ton	0.027	PY-CPY
2	CC10-0436	4+94N 2+15E	West of M. Sulph.	.7 M	1800	23	350	1.5	0.003	QTZ-PY-SRCT Schist
1	CC10-0437	5+25N 2+19E	West of M. Sulph.	.6 M	0.45%	23	1100	2.6	0.001	CPY Stringers ll to Bedding
1	CC10-0438	5+25N 2+19E	Massive Sulphide	.3 M	2600	26	116	1.2	0.001	CPY-PY
1	CC10-0439	5+25N 2+19E	East of M. Sulph.	.5 M	3900	15	370	1.5	0.001	CPY (5%) Zones of High SiO_2
1	CC10-0440	5+15N 2+17E	East of M. Sulph.	.3 M	0.75%	10	86	4.1	0.001	QTZ-PY-SRCT Schist
1	CC10-0441	5+15N 2+17E	Massive Sulphide	.2 M	2.39%	18	530	8.4	0.001	CPY-Not Massive
1	CC10-0442	5+15N 2+17E	West of M. Sulph.	.5 M	1.25%	64	0.47%	4.6	0.001	Dacitic - Poor in Sulphide

Horizon

	SAMPLE	LOCATION	HORIZON POSITION	(True) WIDTH	ANALYSIS					COMMENTS
					Cu	Pb	Zn	Ag	Au	
	CC10-0443	4+68N 2+18E	Massive Sulphide	.3 M	1300	13	98	0.7	0.001	Massive CPY+PY+PO?
2	CC10-0444	4+68N 2+18E	East of M. Sulph.	.5 M	1300	89	96	6.3	0.014	Dacitic - High Degree of weathering, sulphide low or absent
	CC10-0445	4+68N 2+18E	West of M. Sulph.	.7 M	1900	19	230	1.5	0.004	
	CC10-0446	4+55N 2+13E	East of M. Sulph.	.4 M	820	20	148	0.9	0.001	Altered Dacite
1	CC10-0447	4+55N 2+13E	Massive Sulphide	.4 M	0.36%	19	220	2.1	0.002	30-40% Sulphide (PY+PY)
	CC10-0448	4+55N 2+13E	West of M. Sulph.	.8 M	1300	11	107	1.1	0.001	QTZ-PY-SRCT Schist
	CC10-0449	4+47N 2+18E	Massive Sulphide	.55M	1.35%	430	1.63%	0.40oz/ton	0.006	CPY, PO, SPH
2	CC10-0450	4+47N 2+18E	East of M. Sulph.	.6 M	2700	105	360	5.1	0.002	CPY Minor } Extreme Weathering
	CC10-0451	4+47N 2+18E	West of M. Sulph.	1.5 M	2400	40	430	2.2	0.003	CPY Diss. }
	CC10-0452	4+43N 2+27E	East of M. Sulph.	.6 M	0.94%	134	0.8%	6.9	0.006	High PY-CPY ~40%
2	CC10-0453	4+43N 2+27E	Massive Sulphide	.4 M	3.60%	65	0.62%	.89oz/ton	0.015	10% CPY
	CC10-0454	4+43N 2+27E	West of M. Sulph.	.5 M	0.26%	340	0.89%	4.2	0.003	PY, CPY, SPH
	CC10-0455	4+67N 2+27E	Massive Sulphide	.55M	3.12%	880	0.64%	0.64oz/ton	0.232	CPY Up to 10%
3	CC10-0456	4+67N 2+27E	West of M. Sulph.	1.5 M	0.20%	37	300	2.1	0.016	Minor CPY, PY, PO
	CC10-0457	4+67N 2+27E	East of M. Sulph.	1.5 M	0.32%	280	225	12.0	0.033	Minor CPY, PY, PO
	CC10-0458	4+75N 2+29E	West of M. Sulph.	1.5 M	1.04%	520	0.17%	0.54oz/ton	0.036	Cut by .5 M dyke
3	CC10-0459	4+75N 2+29E	Massive Sulphide	1.2 M	4.76%	170	1.01%	1.25oz/ton	0.003	CPY-PM
	CC10-0460	4+75N 2+29E	East of M. Sulph.	.75M	220	8	56	0.3	0.001	Dacitic-Altered

Horizon

SAMPLE	LOCATION	HORIZON POSITION	(True) WIDTH	ANALYSIS					COMMENTS
				Cu	Pb	Zn	Ag	Au	
CC10-0461	Lower Trench	Massive Sulphide	.35M	2.21%	480	1.78%	0.69oz/ton	0.019	PO, some CPY
CC10-0462	Lower Trench	West of M. Sulph.	.65M	710	35	240	1.0	0.002	Siliceous-Cherty
CC10-0463	Lower Trench	East of M. Sulph.	.9 M	0.48%	37	210	4.9	0.012	Sili'ceous-Cherty
CC10-0464	4+49N 2+40E		2.6 M	114	6	55	0.1	0.001	Andesite-Massive
CC10-0465	4+49N 2+30E		2.1 M	140	21	96	0.2	0.001	Dacitic-Some QTZ veins
CC10-0466	4+74N 2+40E		2.0 M	64	11	48	0.1	0.001	Andesitic
CC10-0467	4+74N 2+30E		1.8 M	96	9	58	0.1	0.001	Andesitic-Some PY
CC10-0468	4+64N 2+38E		2.2 M	240	10	293	0.1	0.001	Massive Andesite-PY seen
CC10-0469	4+67N 2+30E		2.3 M	260	10	123	0.2	0.001	Dacitic
CC10-0470	4+82N 2+27E	East of M. Sulph.	.4 M	1200	22	144	0.8	0.001	Dacitic-CPY Stringers
CC10-0471	4+82N 2+27E	Massive Sulphide	.3 M	3.30%	280	0.93%	0.74oz/ton	0.006	CPY, Some PY
CC10-0472	4+82N 2+27E	West of M. Sulph.	.6 M	1000	14	162	0.5	0.002	Altered Dacitic tuff
CC10-0473	4+95N 2+24E	West of M. Sulph.	.5 M	1200	230	1900	1.5	0.001	QTZ-PY-SRCT-Schist
CC10-0474	4+95N 2+24E	Massive Sulphide	.3 M	0.26%	32	720	1.9	0.001	CPY+PY→Next to .5 M Dyke
CC10-0475	4+95N 2+24E	East of M. Sulph.	.8 M	820	13	79	0.3	0.001	Altered Dacite
CC10-0476	5+15N 2+35E	East of M. Sulph.	.6 M	0.36%	25	140	2.6	0.001	QTZ-PY-SRCT Schist
CC10-0477	5+15N 2+35E	Massive Sulphide	.4 M	1.21%	57	2400	7.7	0.025	CPY+PY
CC10-0478	5+15N 2+35E	West of M. Sulph.	1.2 M	1.16%	33	410	6.0	0.003	Dacitic-CPY+PY Bands

Vents 1,2,3 from S to N

3

3

3

Horizon

Horizon	SAMPLE	LOCATION	HORIZON POSITION	(True) WIDTH	ANALYSIS Cu	Pb	Zn	Ag	Au	COMMENTS
	CC10-0479	5+45N 2+55E	West of M. Sulph.	.7 M	630	12	84	0.6	0.001	Dacites - unaltered?
4	CC10-0480	5+45N 2+55E	Massive Sulphide	.3 M	1.02%	28	0.82%	0.34 oz/ton	0.003	Mainly PY ~40%
	CC10-0481	5+45N 2+55E	East of M. Sulph.	.6 M	790	12	89	3.5	0.010	Dacites - unaltered?
	CC10-0482	5+33N 2+40E	Massive Sulphide	.4 M	4.67%	360	1.03%	0.98 oz/ton	0.003	CPY-Extreme Weathering
3	CC10-0483	5+33N 2+40E	East of M. Sulph.	1.5 M	1500	42	200	1.1	0.001	QTZ-PY-SRCT Schist
	CC10-0484	5+29N 2+37E	East of M. Sulph.	1.0 M	1600	21	210	0.6	0.001	QTZ-PY-SRCT Schist
	CC10-0485	5+29N 2+37E	Massive Sulphide	.2 M	6.15%	380	2.95%	1.48 oz/ton	0.043	CPY+PY+PO?
3	CC10-0486	5+29N 2+37E	West of M. Sulph.	.5 M	1100	51	210	1.4	0.002	Altered Dacites
	CC10-0487	5+25N 2+33E	Massive Sulphide	1.0 M	1.20%	400	1.30%	0.40 oz/ton	0.007	Bedded Siliceous Dacite
	CC10-0488	5+25N 2+33E	West of M. Sulph.	.2 M	680	24	285	0.8	0.002	PY-CPY ~70%
3	CC10-0489	5+25N 2+33E	East of M. Sulph.	.5 M	810	22	108	0.6	0.003	QTZ-PY-SRCT Schist (Marginal)
	CC10-0256		East of M. Sulph.	.48M	105	24	40	0.1	0.001	F.G. Banded Siliceous RK.
	CC10-0257		Massive Sulphide	.25M	0.30%	200	0.26%	3.2	0.003	Banded Sulphides
3	CC10-0258		West of M. Sulph.	.2 M	430	57	146	4.8	0.015	Sericite Schist
	CC10-0259		East of M. Sulph.	.8 M	650	22	111	1.0	0.021	Silic-CHL-SRCT Rock
	CC10-0260		Massive Sulphide	.8 M	2.80%	640	0.82%	0.66 oz/ton	0.049	CPY-PO-PY-SPH
3	CC10-0261		West of M. Sulph.	1.0 M	0.75%	56	940	6.9	0.007	SRCT Schist @ Diss. Sulph.

All geochemical data expressed in p.p.m. unless otherwise specified.

TABLE 4

GEOCHEMISTRY OF DRILL CORE

TABLE 4

GEOCHEMISTRY OF DRILL CORE

Cu, Pb, Zn, Ag in ppm; Au in oz./ton
(unless otherwise specified)

DDH CC1-1

SAMPLE NO.	Cu	Pb	Zn	Ag	Au	DEPTH (m)	DESCRIPTION
CC1D-1-001	32	665	1650	0.4	0.010	55.1- 55.4	1% dissem sph + dissem py + carbonate
1002	6200	25	80	4.1	0.390	58.4- 58.6	5% dissem cpy + py + biot + chlor
1003	85	27	40	0.4	0.005	86.3- 87.3	15% py stringers
1004	19	15	52	0.1	0.005	92.0- 93.0	10% py, 5% mgt x stals
1005	31	20	90	0.1	0.005	95.2- 96.0	10% py + po in qtz vein
1006	65	15	95	0.3	0.005	96.9- 97.9	5-7% py stringers'
1007	30	10	63	0.2	0.005	110.3-111.3	10-15% py stringers
1008	27	17	65	0.2	0.005	111.3-112.3	10-15% py stringers
1009	35	17	187	0.1	0.005	112.3-113.3	10-15% py stringers
1010	18	15	42	0.2	0.005	121.6-122.6	15% py stringers
1011	16	9	85	0.1	0.005	122.6-123.6	15% py stringers
1012	50	22	60	0.2	0.005	123.6-124.6	10-15% py stringers
1013	40	22	43	0.1	0.005	124.6-125.6	20% py stringers
1014	50	23	75	0.1	0.005	125.6-126.6	15% py stringers
1015	50	16	50	0.1	0.005	126.6-127.1	15% py stringers

TABLE 4 CONTINUED

DDH CC1-2

SAMPLE NO.	Cu	Pb	Zn	Ag	Au	DEPTH (m)	DESCRIPTION
CC1D-2-001	70	11	25	0.1	0.005	70.0- 72.0	1-2% dissem py
2002	50	17	25	0.1	0.005	72.0- 74.0	1-2% dissem py
2003	22	15	36	0.1	0.005	74.0- 76.0	1-2% dissem py
2004	28	70	40	0.2	0.005	76.0- 78.0	1-2% dissem py
2005	55	16	36	0.1	0.005	78.0- 80.0	1-2% dissem py
2006	43	14	32	0.1	0.005	80.0- 82.0	1-2% dissem py
2007	30	14	30	0.1	0.005	82.0- 84.0	1-2% dissem py
2008	40	11	28	0.1	0.005	84.0- 86.0	1-2% dissem py
2009	23	11	26	0.1	0.005	86.0- 88.0	1-2% dissem py
2010	38	11	27	0.1	0.005	88.0- 90.0	1-2% dissem py
2011	37	10	28	0.1	0.005	90.0- 92.0	1-2% dissem py
2012	38	18	47	0.2	0.005	92.0- 94.0	5% dissem py
2013	32	16	45	0.1	0.005	94.0- 96.0	1-2% dissem py
2014	45	15	38	0.1	0.005	96.0- 98.0	5-10% dissem py
2015	30	29	100	0.1	0.005	98.0-100.0	5-10% dissem py
2016	31	15	24	0.1	0.005	100.0-102.0	5-10% dissem py
2017	25	15	31	0.1	0.005	102.0-104.0	5-10% dissem py
2018	23	10	29	0.1	0.005	104.0-106.0	5-10% dissem py
2019	16	17	64	0.1	0.005	106.0-108.0	5-10% dissem py
2020	14	9	25	0.2	0.005	108.0-110.0	5-10% dissem py
2021	52	13	45	0.2	0.005	110.0-112.0	15-20% dissem py+carb,hem,chlo
2022	72	15	43	0.2	0.005	112.0-114.0	15-20% dissem py+carb,hem,chlo
2023	54	11	35	0.1	0.005	114.0-116.0	15-20% dissem py+carb,hem,chlo
2024	47	8	25	0.2	0.005	116.0-118.0	2-3% dissem py
2025	31	11	26	0.2	0.005	118.0-120.0	2-3% dissem py
2026	38	8	32	0.1	0.005	120.0-122.0	2-3% dissem py
2027	39	9	28	0.2	0.005	122.0-124.0	2-3% dissem py
2028	33	11	36	0.1	0.005	124.0-126.0	2-3% dissem py
2029	24	15	41	0.1	0.005	126.0-127.2	2-3% dissem py
2030	6	5	23	0.1	0.005	127.2-129.0	2-3% dissem py
2031	5	8	18	0.1	0.005	129.0-130.2	2-3% dissem py
2032	44	20	54	0.1	0.005	130.2-130.9	2-3% dissem py

TABLE 4

DDH CC1-2 CONTINUED

SAMPLE NO.	Cu	Pb	Zn	Ag	Au	DEPTH (m)	DESCRIPTION
2033	16	17	36	0.1	0.005	130.9-131.5	2-3% dissem py
2034	54	23	84	0.1	0.005	131.5-132.4	2-3% dissem py
2035	13	86	174	0.2	0.005	132.4-133.2	2-3% dissem py
2036	20	17	36	0.1	0.005	133.2-135.0	2-3% dissem py+carb veinlets
2037	na	na	na	na	na	135.0-136.8	2-3% dissem py+carb veinlets
2038	18	18	62	0.1	0.005	136.8-138.8	5% dissem py
2039	28	18	46	0.2	0.005	138.8-141.9	5% dissem py
2040	42	13	42	0.1	0.005	141.9-144.0	10% dissem py
2041	86	11	62	0.2	0.005	144.0-145.0	1-2% dissem py+ser
2042	4	8	50	0.1	0.005	145.0-147.0	5% dissem py+ser+carb
2043	6	9	54	0.1	0.005	147.0-148.0	5% dissem py+ser+carb
2044	45	17	49	0.1	0.005	148.0-150.0	5-10% dissem py+ser+carb
2045	27	12	34	0.2	0.005	150.0-152.0	5-10% dissem py+ser+carb
2046	60	13	40	0.1	0.005	152.0-154.0	5-10% dissem py+ser+carb
2047	48	14	22	0.1	0.005	154.0-156.0	5-10% dissem py+ser+carb
2048	70	14	35	0.1	0.005	156.0-158.0	5% dissem py+ser+chlor+carb
2049	54	17	56	0.2	0.005	158.0-160.0	5% dissem py+ser+chlor+carb
2050	78	16	56	0.1	0.005	160.0-162.0	5% dissem py+ser+chlor+carb
2051	70	15	49	0.2	0.005	162.0-164.0	5% dissem py+ser+chlor+carb
2052	64	14	45	0.1	0.005	164.0-166.0	5% dissem py+ser+chlor+carb
2053	49	10	19	0.1	0.005	166.0-168.0	5% dissem py+ser+chlor+carb
2054	28	9	41	0.1	0.005	168.0-169.7	5% dissem py+ser+chlor+carb
2054a	32	6	21	0.1	0.005	168.7-169.7	5% dissem py+ser+chlor+carb
2055	39	7	29	0.1	0.005	50.0- 52.0	2% dissem py
2056	33	13	33	0.1	0.005	52.0- 54.0	2% dissem py
2057	74	4	12	0.1	0.005	54.0- 56.0	2% dissem py
2058	72	5	13	0.1	0.005	56.0- 58.0	2% dissem py
2059	74	9	26	0.1	0.005	58.0- 60.0	2% dissem py
2060	6	6	49	0.1	0.005	60.0- 61.5	2% dissem py
2061	84	8	28	0.1	0.005	61.5- 64.0	2% dissem py
2062	66	8	24	0.1	0.005	64.0- 66.0	2% dissem py
2063	60	9	38	0.1	0.005	66.0- 68.0	2% dissem py
2064	42	6	16	0.1	0.005	68.0- 70.0	2% dissem py

TABLE 4 CONTINUED

DDH CC1-3

SAMPLE NO.	Cu	Pb	Zn	Ag	Au	DEPTH (m)	DESCRIPTION
CC1D-3-001	80	32	128	0.3	0.001	12.5- 13.5	10-20% thin bands po+py
3002	100	68	160	0.5	0.001	15.0- 16.0	10-15% thin bands po+py
3003	114	112	320	0.9	0.001	22.0- 23.0	10-20% thin bands po+py
3004	116	52	194	0.5	0.001	23.0- 24.0	10-20% dissem po+py;specks cpy
3005	82	27	58	0.4	0.001	24.0- 25.0	10% dissem po+py;specks cp+sph
3006	78	14	31	0.2	0.001	25.0- 26.0	10% dissem po+py;specks cp+sph
3007	102	17	28	0.1	0.001	26.0- 27.0	10% dissem po+py;specks cp+sph
3008	78	45	56	0.5	0.001	27.0- 28.0	10% dissem po+py;specks cp+sph
3009	76	54	350	0.5	0.001	28.0- 29.0	10% dissem po+py;specks cp+sph
3010	122	44	202	0.2	0.001	34.0- 35.0	20% dissem po+py
3011	104	42	395	0.3	0.001	35.0- 36.0	10-15% dissem po+py
3012	na	na	na	na	na	36.0- 37.0	10% dissem po+py
3013	92	39	196	0.6	0.001	37.0- 38.0	20% dissem po+py
3014	na	na	na	na	na	38.0- 39.0	20% dissem po+py
3015	136	44	305	1.0	0.001	39.0- 40.0	20% dissem po+py
3016	94	28	370	0.3	0.001	42.5- 43.5	10-20% dissem po+py
3017	82	24	120	0.3	0.001	43.5- 44.0	5% dissem po+py
3018	112	38	330	0.6	0.001	46.0- 47.0	10-20% dissem po+py
3019	58	23	52	0.3	0.001	47.0- 48.0	5-10% dissem po+py
3020	92	27	112	0.3	0.001	48.0- 49.0	5-10% dissem po+py
3021	166	41	210	0.6	0.001	49.0- 50.0	10-20% dissem po+py
3022	164	68	188	0.7	0.001	50.0- 51.0	10-20% dissem po+py
3023	570	21	92	0.6	0.001	53.0- 53.5	one band po w/ 2 mm speck cpy
3024	375	20	48	0.4	0.001	106.0-106.5	3 mm speck cpy
3025	124	14	36	0.3	0.001	115.0-115.5	10-20% po bands
3026	415	14	34	0.6	0.018	117.5-118.0	20% po bands
3027	170	8	54	0.2	0.006	119.0-119.5	10% dissem po w/<1% cpy
3028	126	10	27	0.3	0.014	120.5-121.0	10-15% dissem po w/<1% cpy
3029	132	11	37	0.3	0.001	124.5-125.0	10% dissem po w/<1% cpy
3030	116	22	94	0.4	0.001	144.0-144.5	10% po stringers
3031	78	12	48	0.3	0.001	156.5-157.0	5% dissem po; speck cpy
3032	1000	16	72	0.7	0.001	160.0-160.5	< 1% large specks cpy

TABLE 4

DDH CC1-3 CONTINUED

SAMPLE NO.	Cu	Pb	Zn	Ag	Au	DEPTH (m)	DESCRIPTION
3033	510	15	62	0.6	0.001	163.0-163.5	< 1% large specks cpy
3050	745	13	74	0.6	0.001	74.6- 75.6	< 1% cpy specks
3051	164	16	68	0.2	0.001	80.4- 81.4	< 1% cpy specks
3052	35	31	58	0.3	0.001	88.0- 88.7	chlor+biot+py

APPENDIX I

COST STATEMENT

APPENDIX I

COOPER CREEK GROUP PERSONNEL AND DATES

NAME	POSITION	DATES
D. Jiricka	Project Geologist	June 4 - June 22, 1981 June 24 - July 1, 1981 July 13 - July 15, 1981 July 17 - August 7, 1981 August 20 - August 21, 1981 September 3 - September 11, 1981
M. Jackson	Geologist	May 3 - July 6, 1981 July 8 - September 11, 1981
D. Bush	Senior Geological Assistant	May 25 - July 6, 1981 July 8 - July 15, 1981 July 17 - August 5, 1981
K. Judge	Junior Geological Assistant	May 25 - July 1, 1981 July 6, 1981 July 9 - August 5, 1981
D. Hallson	Junior Geological Assistant	May 25 - June 6, 1981
B. Carmichael	Exploration Technician	June 2 - June 10, 1981
B. Langford	Cook	May 25 - August 28, 1981
E. Argatoff	Cook	August 28 - September 8, 1981
T. McNabb	Labourer	September 3 - September 5, 1981
J. Bass	Cook	September 8 - September 11, 1981
M. Mezzabarba	Labourer	September 9 - September 11, 1981
B. Birdnall	Labourer	September 11, 1981

COOPER CREEK SALARIES AND TOTAL PAY

NAME	EMPLOYEE NO.	DAILY SALARY		TOTAL 1981
D. Jiricka	3552	$ 164	61 days	$ 10,004
M. Jackson	3271	$ 139	130 days	$ 18,070
D. Bush	3873	$ 85	70 days	$ 5,950
K. Judge	3861	$ 64	65 days	$ 4,160
D. Hallson	4092	$ 59	12 days	$ 708
B. Carmichael	4094	$ 80	9 days	$ 720
B. Langford	4103	$ 75	95 days	$ 7,125
E. Argatoff	5015	$ 67	11 days	$ 737
T. McNabb	5016	$ 67	4 days	$ 268
J. Bass	5014	$ 67	4 days	$ 268
M. Mezzabarba	5018	$ 67	3 days	$ 201
B. Birchall	5017	$ 67	1 day	$ 67
			465 days	$ 48,278

OTHER COSTS

TYPE	COMMENT	COST
Food & Accommodation	465 man-days SMD Mining personnel 233 man-days Contractor personnel	$ 23,635.75
Ground Transport	4x4 Truck, 5-Ton	4,800.00
Helicopter Support	Okanogan Helicopters - camp support	63,100.00
Analysis	428 soil samples 254 rock samples	1,711.14
Report Preparation	Jiricka and Jackson 20-man days Drafting 10 man-days	4,000.00
Contractors:		
Line cutting	Arctex Engineers (See Table 1)	6,240.00
Topomap	Vandal Reproductions Group	2,056.14
IP & Resistivity	Phoenix Geophsics (See Table 1)	8,069.82
Diamond Drilling	Candrill & J.K. Drilling Ltd. (See Table 1)	53,000.00
		$166,612.85

APPENDIX II

DRILL FIELD RECORDS AND GEOLOGICAL LOGS

DIAMOND DRILL FIELD RECORD

Drill Hole Number CC1-1

Project Cooper Creek Disposition Cooper Creek Grid or place name Cooper Creek

Location:
Grid Coordinates L1+00N, 0+05E

Elevation:
Collar

Surveyed Coordinates

Land surface

Initial inclination -45°

Acid tests

		Depth	Dip angle (corrected)
Azimuth	064°	41.8 m	39°
Total depth	127.1 m	66.4 m	38 1/2°
Casing length	5.2 m	96.6 m	37°
Size	BQ	127.1 m	36°

Bit sizes: From/to

Commenced August 6, 1981 Completed August 12, 1981

Drilling Contractor JK Candrill Ltd. Machine type Longyear Super 38

Core stored at Cooper Creek camp (Drill site CC1-1)

Downhole radiometric logging by Date

Logging instrument

Conditions: Steel casing to ____, steel rods to ____, plastic casing to ____

Logging rate: Down Up

Data processing by

Geological log by M. Jackson Date August 13, 1981

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-1

Sheet 1 of 6

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	% to C.A.
0	3.1	OVERBURDEN				
3.1	5.2	BOULDERS		- Fractured, rubbly, crumbly bldrs of rhyodacitic pyroclastics; only .6 m core recovered over 2.1 m (top of outcrop here).		
5.2	9.4	COARSE GRAINED RHYODACITE LAPILLI TUFF		- Siliceous, massive banding outlining by musc, chlor, biotite. - white to light grey, thin biotite bands give brownish hue in places. - some large irregular shaped felsic fragments set in matrix of medium-grained lapilli fragments. - bedding with pronounced where rock locks abundant fragments, and rock darker greyish-brown colour (thin 2 cm seams here and there). @ 6.1 - 6.7 m - fine grained brownish banded dacitic interbed. @ 6.9 - 7.1 m - streaky pale green chloritic bands (25%) with slip plane along chloritic band (21°)		7.0m - 21°
9.4	11.9	COARSE GRAINED RHYOLITE LAPILLI TUFF		- Sharp contacts (compositional); white, very hard, massive siliceous. - thin bands of silvery musc. + pale green chlorite (up to 10%), but mostly composed of quartz. - fragments (some quite large) can be discerned (milky white quartz) but with difficulty because matrix also quartz-rich. Less than 2% disseminated euhedral pyrite xstals; also 5-10% pink kspar (1 mm) in places.		9.8m - 30°
11.9	15.2	MEDIUM GRAINED BANDED RYODACITE LAPILLI TUFF		- As described above coarse grained to medium grained fragmental pyroclastics. - lower contact with inter. banded unit is very gradational over 1 m or so; traces of disseminated pyrite. - chloritic banding in .5 cm wide green/grey bands more prominent in this unit than above - perhaps 10% of unit. - extremely stretched, flattened lapilli fragments, no large fragments. - becoming more banded and finer grained than above - grey in color.		13.7m-44°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-1

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∝ to C.A.
				- fragments are quartz, or pale green and chloritized; few thin bands py.		
15.2	24.1		FINE TO MEDIUM GRAINED, BANDED DACITE LAPILLI TUFF AND ASH TUFF	- Medium to dark grey, banded, inter. comp due to influx now of chlorite+musc+biot bands; Dacitic comp; comp. banding throughout. - some medium grained lapilli fragments, but nothing large (nothing >1 cm). - mostly very fine grained banded volcanic ash with lapilli fragments embedded in ash. - up to 5% dissem mgt phenos? (.5 mm) and 2-3% dissem py in places. - few welded looking fragmental beds.		16.8-39° 21.3-37°
24.1	32.0		COARSE GRAINED RHYODACITE LAPILLI TUFF	- as previously described; some quite large felsic fragments; coarse grained brecciated contact and brecciated zones throughout unit - broken up pyroclasts?!; much less fine grained grey ash than above and more large felsic pyroclasts, but most are 2-5 mm lapilli size (few approx. 4 x 4 cm). - greyish-white (depending on fragments to matrix ratio) - pervasive pale green chloritic banding throughout also. @ 24.1 - 28.0 - fragment rich @ 28.0 - 32.0 - becoming a light grey colour because more fine grained matrix material, including more chlorite (10-15%). - up to 5% dissem py over short .2 - .3 m intervals mostly barren. @ 30.3 - 30.6 - thin interbed of brown, banded f.g. Dacitic ash/tuff		24.4m-47° 28.3m-47° 31.4m-47°
32.0	33.4		FINE TO MEDIUM GRAINED DACITIC ASH/TUFF	- As described above fine grained mostly, medium grey colour, comp. banding. - thin bands (3-5 mm) of dissem. pyrite @ 32.9 m.		
33.4	37.3		COARSE GRAINED RAYODACITE LAPILLI TUFF	- As described above; light greyish-white, siliceous, fragment rich. - dominantly small lapilli sized fragments; perasive chloritic bands extremely stretched lapilli-in place		35.4m-45°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-1

Sheet 3 of 6

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∝ to C.A.
				of foliation - few very large fragments presen with beautiful welded pyroclastic texture.		
37.3	39.8		FINE TO MEDIUM GRAINED, BANDED DACITE LAPILLI TUFF	- As described above - very wide banded; mostly fine grained lapilli fragments with lesser very fine grained grey ash beds; medium grey colour. - main difference from unit directly above is compositional change and slightly finer grain size. - 2-3% disseminated py throughout; speck cpy seen @ 38.4 m.		38.5m-43°
39.8	48.9		COARSE GRAINED RAYODACITE LAPILLI TUFF	- As previously described - coarse grained, rich in lapilli, siliceous, light greyish-white. - numerous 6 cm fragments, disseminations of py throughout (2-5%). - only spect cpy seen - at 48.0 m - severe brecciation of fragments throughout - leaving patchwork mosaics in what were once single fragments. - blocky from 47.0 to 48.9 m (approaching a major contact?).		42.7m-48° 45.8m-55°
48.9	58.5		COARSE GRAINED DACITE LAPILLI TUFF	- Coarse grained, strongly banded pyroclastics; medium grey colour; large fragments impart banded texture - some beds are agglomerate because of size and frequency of fragments; matrix and fragments are itermediate in composition; 3-5% disseminated py+po throughout. - this unit very blocky. 55.1 - 55.4 m - Sample CC1D-1-1 @ 56.4 - 58.5 - biotite bands now comprise 10% of rock - perhaps due to gradation approach to biotitic tuff/sediment below. - no large fragments seen in rock now - finer grained tuff.	1% dissem. reddish-brown sph. and 2-3% dissem py associated with 10% yellow carborate stringers.	56.1m-45°
58.5	61.6		ALTERED, BIOTITIC CHLORITIC VOLCANICLASTIC/TUFFACEOUS SEDIMENT	- Massive inter comp., greyish brown, biotitic (20-30%) disseminated through rock as blebs - not as bands; contains rich splash of cpy (15%) from 58.4 - 58.6 m Sample CC1D-1-2 - chalcopyrite is right at contact with coarser pyroclastics above - but only seen over .2 m.	5% dissem cpy + 10% dissem py + associated biot and chlor alteration.	59.2m-44°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-1

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∠ to C.A.
				- large blotchy areas of chloritic alteration (15%) - lower contact grades into coarse grained pyroclastics again, and chlor + biot alteration fades out in pyroclastics by 62.2 m in next unit.		
61.6	71.9	COARSE GRAINED DACITE LAPILLI TUFF		- Coarse grained pyroclastics (inter. comp.) as described above. - large welded and brecciated fragments throughout - banded too. - 5-10% biotitic bands up to 64.0 m (from tuff/sediment unit above). - fragments in this unit now chloritized and pale green from 69.1 to 71.9 m. - major, sharp contact @ 71.9 m with mafic, porphyry flow units below.		63.4m-43° 66.5m-45° 70.6m-42°
71.9	80.8	MEDIUM GRAINED MASSIVE ANDESITE FLOW(S)		- Massive, medium grained, 2-5 mm hornblende+plagioclase+phenos; inter to mafic comp. - sections rich in biotite flakes (contact meta?) - 30%, and sections with 10% dissemination and stringer pyrite. 71.9 - 73.4 m - 25% disseminated biotite flakes @ 73.7 m - thin slip along chloritic band - 45° 73.4 - 74.4 - 15% pale green chloritic bands with abundant associated pale yellow pyrite (10-15%) - no economic sulphides. - approx. 10% thin bands and swirls of chlorite throughout. - also 5-10% white carbonate veinlets (after vesicles?) - commonly a porphyritic texture with 35% hornblende and 15% plagiophenos.	hornfelsed	73.7m-53° 77.4m-47° 80.5m-52°
80.8	85.7	ANDESITE FLOW BRECCIA		- Sharp contact @ 80.8 m with flow breccia below. - flow breccia (hyaloclastite?); fragments are mafic (hornblende and chlorite) and are all approximately 1 cm in size and rounded. - set in medium grey inter. matrix. - 20% 5 mm biotite flabs - giving dark brown mottled appearance where biotite prominent. - streaks and bands of chlorite, and 3-5% dissem. py + po.		84.5m-35°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-1

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∠ to C.A.
85.7	87.5		DACITE FLOW	- As described above but more siliceous - much more matrix (60%) which is felsic in comp.; phenos of hornblende (20%) and biotite (10%); also stringer of pale yellow pyrite (5-10%). - no cpy or sph seen. Check sample - 86.3 - 87.3 - Sample CC1D-1-3 15% py stringers		87.6m-55°
87.5	103.6		MASSIVE MEDIUM GRAINED, PORPHYRITIC ANDESITE FLOW(S)	- As described previously - more mafic in comp. than directly above. - 10% biotite flakes now; 10% py blebs and stringers in many places. Check sample - 92.0 - 93.0 - Sample CC1D-1-4 10% py stringers and blebs 5-10% dissem mgt xstals.		92.1m-40°
				5-10% euhedral black 2-3 mm mgt xstals from 92.0 - 94.1 m. - large milky white quartz vein containing disseminated pyrite and mgt. phenos/xstals. Check sample - 95.2 - 96.0 - Sample CC1D-1-5 10% dissem py + po trace magnetite xstals in large milky white quartz vein.		95.2m-49°
				3-5 mm hornblende + plag. phenos throughout - porphyritic texture. - past 95.0 m - thin bands + stringers of biot/chlor/pyrite - together make up approximately 15% - py associated with chloritic bands and stringers. - plag/hornblende pheno ratio is 55/45 - approaching 65/35. Check sample - 96.9 - 97.9 - Sample CC1D-1-6 5-7% stringer pyrite.		99.4m-42° 102.5m-48°
103.6	110.3		MASSIVE DACITE FLOW(S)	- Medium grey colour now; 1-2 mm g.s. - hornblende phenos now approximately 30%. - also more biotite now approximately 5-10% - rest mostly plag and little quartz - still 5-10% pale yellow pyrite stringer throughout.		106.6m-54°
110.3	127.1		DACITE BRECCIA (FLOW BRECCIA)	- Rock extremely fractured with large to small rounded dacitic fragments - much late pyrite filling numerous late fracture seams (10-15%) throughout much of unit)		109.7m-56° 113.4m-44°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-1

Sheet 6 of 6

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	α to C.A.
				- massive breccia fragmental rock - no pyroclasts or banding fragments andesite to dacite in comp.; thin biotite+chlorite bands throughout - no cpy or sph seen.		116.5m-52°
				Check samples 110.3 - 111.3 Sample CC10-1-7 10-15% py stringers 111.3 - 112.3 Sample CC10-1-8 10-15% py stringers 112.3 - 113.3 Sample CC10-1-9 10-15% py stringers		120.6m-47°
				- also white carbonate stringers (late?) 5-10% from 121.6 to 127.1 m there appears to be more pyrite stringers (15-20%) than from 110.3 to 121.6 (approx. 5%).		123.7m-49°
				Chekc samples 121.6 - 122.6 Sample CC10-1-10 15% py stringers 122.6 - 123.6 Sample CC10-1-11 15% py stringers 123.6 - 124.6 Sample CC10-1-12 10-15% py stringers 124.6 - 125.6 Sample CC10-1-13 20% py stringers 125.6 - 126.6 Sample CC10-1-14 15% py stringers 126.6 - 127.1 Sample CC10-1-15 15% py stringers	DIP TESTS @ 41.8 m etch = 47 1/2° dip = 39° @ 66.1 m etch = 47° dip = 38 1/2° @ 96.6 m etch = 45 1/2° dip = 37° @127.1 m etch = 44° dip = 36°	
127.1	END OF HOLE					

DIAMOND DRILL FIELD RECORD

Drill Hole Number CC1-2

Project Cooper Creek Disposition Cooper Creek Grid or place name Cooper Creek, B.C.

Location:
Grid Coordinates L.4+56N/1+55E

Elevation:
Collar

Surveyed Coordinates

Land surface

Initial inclination -45°

Azimuth 064°

Total depth 165.0 m

Casing length 0.6 m

Size BQ

Bit sizes: From/to BQ

Acid tests

Depth	Dip angle (corrected)
32.6 m	43°
66.1 m,	41°
96.6 m	40°
127.1 m	38½°
157.6 m	36½°

Commenced August 16, 1981 Completed August 21, 1981

Drilling Contractor JK Candrill Ltd. Machine type Longyear Super-38

Core stored at Cooper Creek Camp (Drill Site CC1-1)

Downhole radiometric logging by Date

Logging instrument

Conditions: Steel casing to _____, steel rods to _____, plastic casing to _____

Logging rate: Down Up

Data processing by

Geological log by M. Jackson Date August 22, 1981

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-2

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∠ to C.A.
0	0.6	Overburden				
0.6	6.1	Feldspar Porphyry Dyke/Sill lithology?		- felsic camp; 40-50% 2-5 mm white pink plagioclase (lesser kspar) phenocrysts; m.g. size, massive. - sharp contact with andesite below - fine grained, dark green, mafic, .5-1 mm plagioclase phenocrysts. - massive structure; includes flaw and tuff material. - increasing tuff downwards - thin interbeds becoming massive gritty tuff beds to weakly banded few grains tuffs. - a few breccia fragments seen at 16.1-17.4 m with ~ 5% disseminated py. in interstices. - also ~ 10% thin white carbonate stringers 17.4 m-21.2 m - massive fine grained tuff (mafic).		6.1 m - 31° 9.2 m - 38° 13.1 m - 35° 16.2 m - 40°
21.2	22.1	Massive Dacite Tuff/ Chert		- very fine grained, massive inter. comp., no textures; could be massive fine grained tuff or chert; medium grey colour.		20.4 m - 40°
22.1	24.7	Feldspar Porphyry Dyke/Sill ?		- as described above - fresh - sharp contact with mafic andesites below.		23.5 m - 40°
24.7	25.9	Andesite Tuff		- fine grained, massive mafic comp., thinly bedded tuff to massive gutty tuff.		
25.9	26.4	Tuff/Chert		- fine grained andesite to dacite tuff and chert beds - finely bedded.		
26.4	36.0	Andesite Tuff		- as described above - massive gritty tuff to finely banded tuff; mafic comp. - also numerous, very thin interbeds of dacite tuff. - ~ 10% thin biotitic bands in places. - individual tuff beds can be seen wedging in and out. - the more felsic interbeds also carry 5-10% disseminated pyrite (no econ. sulphides seen). - 10-15% white carbonate stringer throughout.	At 32.2.-32.5 - thin interbed of dacite tuff - biotitic, pyritic (with ~ 10% pyrite). At 35.7-36.0 - pyritic, biotitic dacite tuff band.	27.4 m - 42° 30.5 m - 48° 33.8 m - 42°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-2

Sheet 2 of 6

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∠ to C.A.
36.0	39.3		Feldspar Porphyry Dyke/Sill	- as described above		36.9 m - 54°
39.3	65.7		Andesite Tuff	- fine-grained, mafic, numerous thin 1 cm interbeds of dacitic tuff (brown, biotitic); andesitic rocks have ~ 2% disseminated pyrite. - finely banded to massive tuff. - at 43.3 m - speck of sph. in white carbonate veinlet. - at 47.8-47.9 m - thin fingers of brown, biotitic, dacitic tuff. - at 51.5-51.8 m - heavily pyritic rhyodacitic bedded tuff band. - at 56.1 m - couple specks cpy. in thin 1 cm wide cherty/tuff band.		40.2 m - 52° 43.3 m - 50° 47.9 m - 42° 51.0 m - 55° 55.2 m - 50°
65.7	71.6		Dacite Ash Tuff/Chert	- medium grey colour, very fine grained and siliceous, very finely bedded and banded. - partly gritty tuff (70%) and partly aphaniti- massive chert in bands 1 cm to 20 cm wide. - at 68.9 m - rip up in chert bed gives tops up hole to west. - disseminated pyrite (1 or 2%) - very homogenous comp., colour and fine grained size		58.3 m - 52° 68.3 m - 55° 71.4 m - 61°
71.6	82.3		Andesite Tuff	- comp. - gradational changes to andesite - approaches dacite comp. in places. - light greenish grey - still a fine grained gritty tuff. - quartz-carbonate-ep.-py. alt. veinlets from 71.6 to 75.6 m 75.6-82.3 m - 1-2 mm hbld. phenos - but tuffaceous texture still evident; only 1-2% disseminated and stringer pyrite.		75.2 m - 63° 78.3 m - 57°
82.3	82.9		Feldspar Porphyry Dyke	- as described above.		82.6 m - 61°
82.9	94.6		Andesite Tuff	- as described above - fine grained, light greenish grey, 1-2 mm hbld. phenos, tuffaceous texture, banding. - at 84.4 m - thin 2 cm white quartz veins with pyrite (no base metals)		85.7 m - 54°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-2

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∠ to C.A.
				- at 85.6 m - 1 cm seam siliceous fragmental lapilli tuff with 10% disseminated pyrite.		89.6 m - 52°
				- 88.4 - 1 cm seam pyritic siliceous fragmental		92.7 m - 54°
				- 91.4 - now 5% disseminated pyrite in quartz-carbonate veins (some of these are cherty beds) - thin pyritic chertz/ no Cu seen.		
94.6	95.2	Feldspar Porphyry Dyke		- as previously described.		
95.2	98.3	Andesite Tuff		- as described above; now commonly 5-10% disseminated pyrite.		96.6 m - 62°
98.3	99.5	Dacite Tuff		- light brown, lapilli fragments (siliceous); more biot., plag., quartz and less chlor. and hbld.		99.7 m - 47°
99.5	108.2	Andesite Tuff		- as described above; fine grained chloritic.		103.9 m - 38°
108.2	111.6	Andesite Flow		- massive, porphyritic flow texture; no tuffaceous texture, fragments, or bedding discernable.		107.0 m - 43°
				- abundant 30-40% hbld. crystals (1-2 mm) - hornfelse?		108.8 m - 48°
				- at 107.3 - 3 cm seam of siliceous (interflow?) fragmental.		
111.6	112.5	Dacitic Tuff		- banded tuffaceous rock, light brownish grey, biotitic and chloritic bands, hbld. phenos (hornfelsed?), pyritic (15-20% disseminated pyrite).		111.9 m - 45°
				- also stringers of carbonate and reddish black hematite.		
				SAMPLE CCID-2-1 111.6 - 112.5	15-20% disseminated pyrite, associated with carb., hem., chlor., biot.	
112.5	116.0	Andesite Flow(s) (Hornfelsed)		- as described from 108.2 - 111.6 m - hbld. phenos now 5 mm, lenticular and needly (hornfels?); minor wispy chlorite bands.		
				- biot.-hbld. hornfels - numerous rounded 3-5 mm biot. flakes.		
116.0	116.2	Andesite Tuff		- banded, tuffaceous		117.5 m - 45°
116.2	116.5	Rhyolite Lapilli Tuff		- bands of very siliceous fragmental rock; lapilli rich (felsic).		
116.5	127.1	Andesite Tuff		- bands of fine grained to very fine grained mafic tuff, small fragments < 1 cm seen.		120.6 m - 55°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-2

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
				- pale grey to pale green, pervasively chloritized; 2-3% pyritic carbonate stringers throughout		124.4 m - 36°
				- at 120.4 m - couple thin 4 cm greyish white, aphanitic chert beds - one has ripped up fragment above bed - which indicates top direction is up hole to west.		127.5 m - 40°
127.1	130.2	Granodiorite Porphyry Dyke		- as previously described (as feldspar porphyry)		
130.2	131.1	Andesite Tuff		- as previously described from 116.5-127.1 m.		
131.1	131.6	Granodiorite Porphyry Dyke		- as previously described.		132.0 m - 45°
132.4	133.3	Granodiorite Porphyry Dyke		- as previously described.		
133.3	136.9	Andesite Tuff		- medium green, mafic comp, fine grained, weakly banded to massive texture. - pervasive chlorite; 2-3% disseminated pyrite in thin carbonate veinlets.	2-3% disseminated pyrite in thin carbonate veinlets.	135.1 m - 50°
136.9	138.4	Granodiorite Porphyry Sill		- as previously described.		138.3 m - 45°
138.4	142.0	Andesite Tuff		- massive, fine grained, gritty texture; becoming very blocky and fractured now.	- 2-3% disseminated pyrite in thin carbonate veinlets; more carbonate and chloritic stringers now with 5% disseminated pyrite.	141.4 m - 35°
142.0	142.5	Sericitized Rhyodacite Tuff		- fine grained, banded whitish-yellowish-grey, pervasively sericitized but contains inly 2-3% thin (< 1 mm) pyrite bands.		
142.5	143.0	Andesite Tuff		- fine grained, massive, mafic, very blocky and fractured.	5% pyrite stringers.	
143.0	143.5	Sericitized Rhyodacite Tuff/Chert		- as above, siliceous, mildly but pervasively sericitized giving rock a yellowish hud; very thin bedding discernable. - fine grained felsic tuff/chert beds.	2-3% disseminated pyrite.	
143.5	143.8	Andesite Tuff		- very blocky, fractured rock; few thin 1-2 cm seams of felsic tuff/chert.	- highly chloritized with 10-15% disseminated and stringer pyrite and po.	

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-2

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
143.8	144.0	Sericitized Rhyodacite Tuff/Chert		- as described from 143.0 - 143.5 m.		
144.0	144.2	Granodiorite Porphyry Dyke		- as previously described.		
144.2	145.1	Sericitized Rhyodacite Tuff/Chert		- pervasive yellowish hue; fine grained felsic tuff/chert (very finely bedded)	- thin bands pale yellow sericite. - only 1-2% disseminated pyrite bands	145.1 m - 43°
145.1	148.2	Monzonite Porphyry Dyke		- looks different from main phase of intrusive dykes - very coarse grained. - large tabular to equant white and pink feldspar phenocrysts up to 15 and 20 mm - inequigranular texture.		148.2 m - 43°
148.2	155.1	Andesite Tuff		- fine grained, mafic, finely banded; extremely blocky, fractured. - at 149.4-150.3 m - SHEAR ZONE - thin rock slices with c.a.'s in 48°. 1-2 cm bands of rock with slip plane surfaces and minor gorge. - at 151.8-153.6 m - massive, medium grained, porphyritic texture now (flow? or hornfels?) - extreme fracturing ends at 152.0 m. - still the odd 1 cm band of sericitized felsic schist - at 153.6-155.1 m - tuffaceous rock again.	5-10% fine sericitic bands + 5% disseminated pyrite and carbonate stringers. - chloritic carbonate, sericite bands; still 5% disseminated pyrite.	154.6 m - 43°
156.1	156.6	Andesite Tuff		- fine grained, mafic, chloritic.		
156.6	157.0	Granodiorite Porphyry Dyke		- as previously described, white, rich in medium grained plag. phenocrysts - lack of pink feldspar crystals (unlike the monzonite).		
157.0	160.2	Andesite Tuff		- as described from 156.0-156.6 m, but with more alteration (especially chloritic); approaches dacite in composition.	- pervasively altered by chlorite, biotite, carbonate, sericite, pyrite. - 5% pyrite stringers and disseminations. - predominately chloritic alteration.	158.5 m - 40°

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-2

Sheet 6 of 6

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∝ to C.A.
160.2	160.3	Sericite Schist		- banded yellow alteration - sericite bands	- sericite schist	
160.3	162.2	Andesite Tuff		- dark grey, intermediate composition - approaching dacite in comp. but still very chloritic.	- pervasive chlorite and sericite alteration 161.6 m - 46° with 5% disseminated pyrite.	
162.2	162.3	Rhyodacite Tuff/Chert		- very fine grained, banded, siliceous, seriticized, yellowish hue.		
162.3	162.6	Andesite Tuff		- as described from 160.3-162.2 m.	- pervasively sericitized.	
162.6	163.1	Rhyodacite Tuff/Chert		- as described from 162.2-162.3		
163.1	164.8	Andesite Tuff		- as described from 160.3-162.- m; blocky and fractured again.		
164.8	164.9	Rhyodacite Tuff/Chert		- as described from 162.2-162.3 m.		164.8 m - 54°
164.9	165.4	Andesite Tuff		- as described from 160.3-162.2 m.		
165.4	165.5	Sericite Schist		- as described from 160.2-160.3 - moderately blocky to end of hole.	- sericite schist.	167.9 m - 52°
	169.8	END OF HOLE				

DIP TESTS

32.6 m - etch = 52°
dip = 43°

66.1 m - etch = 49½°
dip = 41°

96.6 m - etch = 48½°
dip = 40°

127.1 m - etch = 47°
dip = 38½°

175.6 m - etch = 44½°
dip = 36½°

DIAMOND DRILL FIELD RECORD

Drill Hole Number CC1-3

Project Cooper Creek Disposition Cooper Creek Grid or place name Cooper Creek, B.C.

Location:
Grid Coordinates L.3+75N/1+70E

Elevation:
Collar

Surveyed Coordinates

Land surface

Initial inclination -45°

Acid tests

Depth	Dip angle (corrected)
32.6 m	37°
63.1 m	35°
93.6 m	32°
111.9 m	30½°
124.1 m	29°
154.5 m	23°
175.9 m	21°

Azimuth 064°

Total depth 175.5 m

Casing length 9.1 m

Size BQ

Bit sizes: From/to BQ

Commenced September 4, 1981 Completed September 10, 1981

Drilling Contractor JK-Candrill Ltd. Machine type Longyear Super-38

Core stored at Cooper Creek Camp (Drill Site CC-1)

Downhole radiometric logging by Date

Logging instrument

Conditions: Steel casing to ____, steel rods to ____, plastic casing to ____

Logging rate: Down Up

Data processing by

Geological log by M. Jackson Date September 11, 1981

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-3

Sheet 1 of 7

Depth 175.9 From	To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
0	9.1	OVERBURDEN				
9.1	12.2	QUARTZ-MONZONITE PORPHYRY DIKE		- white, very coarsed grained, porphyritic : inequigranular texture; large 5-15 mm, subhedral to euhedral, tabular to equant plag. phenocrysts (30-40%) with lesser Kspar and quartz phenocrysts - set in medium grained porphyritic matrix; accessory minerals are: euhedral mgt crystals (6 sided and rimmed by hematite) 2-3%, epidote ∿1%, pyrite crystals and rounded clasts (2-3%), - mgt crystals mostly ≤1 mm and finely speckled in matrix		
12.2	44.0	COARSE GRAINED (LAPILLI TUFF AND AGGLOMERATE) RHYODACITE WITH LESSER DACITE PYROCLASTICS WITH INTERBEDS THROUGHOUT OF VERY FINED GRAINED BLACK PYRITIC CHERT/ EXHALITE		- coarse grained felsic to intermediate pyroclastics - large fragments dominant; banded throughout with 2 mm to 8 cm bands of black pyritic chert/exhalite beds - some beds pyritic (10-20%), others barren - sulphides in these thin bands are po and py, but in places there is yellowish and reddish tints-suggesting presence of fine grained chalcopyrite and sphalerite -areas not sampled are essentially barren		
				12.5-13.5 CCID-3-001 -mineralization exclusively in aphanitic black sediment bands, not in felsic fragmental beds therefore amount of mineral present largely dependent on abundance of fine grained black bands @14.6 m - thin .2 m band of fine grained gritty tuffaceous sediment with convoluted and contorted bedding @15.0 m - numerous fine grained black "exhalite" bands coming in	-10-20% thin bands po and py -suspect finely dissem. chalcopyrite and sphalerite	12.8m-48°
				15.0-16.0 CCID-3-002 @16.2 m -thin .1 m band biotite-rich tuffaceous sediment -elsewhere is coarse grained lapilli tuffs and agglomerate bands with very thin black bands throughout -good tuffaceous/pyroclastic textures	-10-15% dissem. po and py bands	

SMDC GEOLOGICAL LOG

Drill Hole No. CCI-3

Sheet 2 of 7

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∝ to C.A.
				@16.5 m-slumping and micro-faulting-large slumped blocks of tuff and offsetting -continuous structural deformation to 17.3 m		16.4m-38°
				@18.5 m-another .1 m interval of tuffaceous banded sediment-much late pyrite and hematite along fracture planes in rocks		19.5m-54°
				@22.0 m-black cherty/exhalite bands now up to 6 or 7 cm wide -mineral starting in these bands again @22.0 m -numerous fine grained chalcopyrite and sphalerite seen @22.2 m		
22.0	23.0			CCID-3-003	-10-20% dissem bands po <1% specks cpy & sph	
23.0	24.0			CCID-3-004	-10-20% dissem bands po 1% specks cpy, trace sph specks	23.4m-61°
24.0	25.0			CCID-3-005	-10% dissem po, trace specks cpy & sph	
25.0	26.0			CCID-3-006	-10% dissem po, trace cpy & sph	
26.0	27.0			CCID-3-007	-10% dissem po, trace cpy & sph	26.5m-59°
27.0	28.0			CCID-3-008	-10% dissem po, trace cpy & sph	
28.0	29.0			CCID-3-009	-20% dissem po, trace cpy & sph	
				@29.0-34.0 m-mostly very coarse grained felsic agglomerate with ≤5% dissem po		30.8m-58°
				@34.0 m-mineralization beginning again (no cpy/sph seen)		33.9m-58°

SMDC GEOLOGICAL LOG

Drill Hole No. CCI-3

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∠ to C.A.
				(<1% is pyrite)		
				34.0-35.0 CCID-3-010	-20% dissem po & py	
				35.0-36.0 CCID-3-011	-10-15% dissem po & py	
				36.0-37.0 CCID-3-012	-10% dissem po & py	
				37.0-38.0 CCID-3-013	-20% dissem po & py	
				38.0-39.0 CCID-3-014	-20% dissem po & py	
				39.0-40.0 CCID-3-015	-15-20% dissem po & py	
				@35.0-40.0 m -in this zone-black beds show good primary textures-sharp contacts, smooth & even rhythmic bedding with some rip-up clasts (tops up hole to west) -indicates that is some type of very fine grained chemical sediment or ash		38.1m-37° 41.2m-43°
				@40.0-42.5 -thick agglomerate bands		
				@42.5 m -numerous black mineralized bands appearing		
				42.5-43.5 CCID-3-016	-10-20% dissem po & py	
				43.5-44.0 CCID-3-017	-5% dissem po & py	
44.0	45.7	QUARTZ KONZONITE PORPHYRY DIKE		- as previously described from 9.1-12.2 m		
45.7	55.4	COARSE GRAINED (LAPILLI TUFF & AGGLOMERATE RHYODACITE WITH LESSER DACITE PYROCLASTICS WITH INTERBEDS THROUGHT OF VERY FINE GRAINED BLACK PYRITIC CHERT/ EXHALITE		- as previously described from 12.2-44.0 m - black bands up to 20 cm in places now -but not all are mineralized		
				46.0-47.0 CCID-3-018	-10-20% dissem bands po & py	
				47.0-48.0 CCID-3-019	-5-10% dissem bands po & py	
				48.0-49.0 CCID-3-020	-5-10% dissem bands po & py	48.4m-32°
				49.0-50.0 CCID-3-021	-10-20% dissem bands po & py	

SMDC GEOLOGICAL LOG

Drill Hole No. CC1-3

Sheet 4 of 7

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
				50.0-51.0 CCID-3-022	-10-20% dissem py & po	
				@51.0 m-dominantly barren coarse grained felsic pyroclastics again -there is no more sulphide in this unit, except for one 2-3 mm band of po & cpy @ 53.1 m probably <1% cpy diluted over .5 m sample interval		52.1m-67°
				53.0-53.5 CCID-3-023	-one band po & cpy over 2 mm	
55.4	57.6	GRANODIORITE PORPHYRY DIKE		- change in texture, grain size, composition from Quartz Monzonite -medium grained (1-2 mm), equigranular, porphyritic textures -white, speckled appearance due to flecks of biotite and pyrite -phenocrysts dominantly plag with lesser quartz; notable lack of Kspar phenos; 10-15% fine grained mafic minerals (biotite, hbld, pyrite, magnetite)		55.2-50°
57.6	60.0	COARSE GRAINED (LAPILLI TUFF) DACITE WITH LESSER RHYODACITE PYROCLASTICS		-similar to described above from 45.7 to 55.4 m, but with notable differences; more dacitic in composition and lack of black cherty exhalite bands, and lack of mineralization; grey, brown, black bands throughout -also lack of agglomerate size fragmental bands		
60.0	61.7	GRANODIORITE PORPHYRY DIKE		-as described above from 55.4 to 57.6 m		
61.7	65.7	COARSE GRAINED (LAPILLI TUFF) DACITE WITH LESSER RHYODACITE PYROCLASTICS		-as described above from 57.6 to 60.0 m @61.7 to 64.0 m -numerous rip-ups in black beds giving way up as up hole (to West); no black cherty beds past this point, other than 1 mm wisps		64.4m-64°

SMDC GEOLOGICAL LOG

Drill Hole No. CCI-3

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
65.7	67.5		QUARTZ MONZONITE PORPHYRY DIKE	- as previously described above from 44.0 to 45.7 m		
67.5	88.1		COARSE GRAINED (LAPILLI TUFF) DACITE WITH LESSER RHYODACITE PYROCLASTICS	- as described above from 61.7 to 65.7 m - homogeneous texture and composition throughout -barren of any significant mineralization		69.5m-59° 73.8m-66° 76.9m-55° 80.8m-58°
88.1	89.0		BIOTITE-HORNBLENDE PORPHYRY DIKE	- mafic composition -composed of 40-50% biotite flakes, 50-60% hornblende crystals and up to 5% dissem po & py; traces of magnetite - medium grained, equigranular texture		83.9m-62° 88.1m-58° 91.2m-52°
89.0	90.4		COARSE GRAINED DACITE WITH LESSER RHYODACITE LAPILLI TUFF	- as described above from 57.6 to 60.0 m		
90.4	90.6		BIOTITE-HORNBLENDE PORPHYRY DIKE	- as described above from 88.1 to 89.0 m		
90.6	93.8		COARSE GRAINED DACITE WITH LESSER RHYODACITE LAPILLI TUFF	- as described above from 57.6 to 60.0 m		
93.8	93.9		BIOTITE-HORNBLENDE PORPHYRY DIKE	- as described above from 88.1 to 89.0 m		
93.9	102.4		COARSE GRAINED RHYODACITE LAPILLI TUFF WITH LESSER DACITE AND FEW INTERBEDS OF RHYOLITE	- as described above from 57.6 to 60.0 m, except that it is now more Rhyodacitic than Dacitic in composition, and there are now several thin interbeds of Rhyolite - also some bands of gritty tuffaceous sediment		96.0m-45° 99.1m-45°

SMDC GEOLOGICAL LOG

Drill Hole No. CCI-3

Sheet 6 of 7

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
102.4	102.7		BIOTITE-HORNBLENDE PORPHYRY DIKE	- as described above from 88.1 to 89.0 m		
102.7	157.5		COARSE GRAINED RHYODACITE LAPILLI TUFF WITH LESSER DACITE AND FEW INTERBEDS OF RHYOLITE	- as described above from 93.9 to 102.4 m @105.5-105.8 m -thin seam of Rhyolite pyroclastics		103.4m-43°
				@105.8-106.0 m -thin bands of volcaniclastic sediment		
				@106.1 m -speck of cpy (3 mm bleb) -isolated through		106.5m-44°
				106.0-106.5 CCID-3-024	-3 mm speck of cpy	
				@108.8-111.3 m -numerous zones of banded tuffaceous/ volcaniclastic sediment with very thin black chert/ exhalite bands		110.3m-58°
				@112.5-112.8 m -thin interbed Rhyolite composition pyroclastics		113.4m-42°
				@113.6-113.8 m -thin interbed Rhyolite composition pyroclastics		
				@115.0-115.5 m -2 bands (1 cm wide) of po -appear to be in a banded exhalite type sediment		117.7m-43°
				115.0-115.5 CCID-3-025	-10-20% po bands	120.8m-46°
				past 115.5 m -again dominantly banded fragmental bands - interbands of Rhyolite pyroclastics @117.7-117.9 m, 121.9-122.1, 126.9-127.1 m @119.5-121.9 m -Alteration -patchy, irregular, discontinuous alteration of light yellow patchy, acicular mineral (musc?) - also associated is a little chlorite, thin bands of red hematite, po blebs, and few specks of cpy.		
				117.5-118.0 CCID-3-026	-20% bands po	
				119.0-119.5 CCID-3-027	-10% dissem po <1% specks cpy	
				120.5-121.0 CCID-3-028	-10-15% dissem po <1% specks cpy	124.0m-57°

SMDC GEOLOGICAL LOG

Drill Hole No. CCI-3 Sheet 7 of 7

Depth From	Depth To	Lithology	Rock Type	Description	Mineralization Alteration Fracturing	∡ to C.A.
				124.5-125.0 CCID-3-029	-10% dissem po <1% specks spy	127.1m-43°
				144.0-144.5 CCID-3-030	-10% po stringers	132.0m-52°
				156.5-157.0 CCID-3-031	-5% dissem po <1% speck cpy	135.1m-54° 139.0m-52°
157.5	158.3	BIOTITE-HORNBLENDE PORPHYRY DIKE	- as described above from 88.1 to 89.0 m			142.1m-60° 146.6m-60°
158.3	167.7	COARSE GRAINED RHYODACITE LAPILLI TUFF WITH LESSER DACITE AND FEW INTERBEDS OF RHYOLITE	- as described 93.9 to 102.4 m; 160.0-160.5 CCID-3-032 - large blebs cpy -but diluted over 0.5 m will be <1% 163.0-163.5 CCID-3-033		-<1% large blebs cpy -<1% large blebs cpy	149.7m-62° 155.0m-52° 158.1m-59° 160.9m-61° 164.0m-54° 168.2m-90° 171.3m-65° 174.0m-67°
167.7	167.9	BIOTITE-HORNBLENDE PORPHYRY DICE	- as described above from 88.1 to 89.0 m.			
167.9	175.9	COARSE GRAINED RHYODACITE LAPILLI TUFF WITH LESSER DACITE AND FEW INTERBEDS OF RHYOLITE	-as described above from 93.9 to 102.4 m.			
	175.9	END OF HOLE		DIP TESTS: @ 32.6 m - etch = 45°; dip 37° @ 63.1 m - etch = 43°; dip 35° @ 93.6 m - etch = 40°; dip 32° @ 111.9 m - etch = 38°; dip 30.5° @ 124.1 m - etch = 36½° dip 29° @ 154.5 m - etch = 29°; dip 23° @ 175.9 m - etch = 26½° dip 21°		

APPENDIX III

GEOCHEMICAL RESULTS

SOIL GEOCHEMICAL RESULTS

ACME ANALYTICAL LABORATORIES LTD.

Assaying & Trace Analysis

852 E. Hastings St., Vancouver, B.C. V6A 1R6

phone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender, - 74 -
Vancouver, B.C.
V6E 4A4

File No. 81-0623

Type of Samples Soils

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G cc Sturdy - Stone Centre, Sask. Project : Cooper Creek 004956

SAMPLE No.	Mo	Cu	Pb	Zn
0001	5	12	101	190
0002	1	6	75	150
0003	1	26	106	490
0004	1	6	37	60
0005	5	45	58	190
0006	1	15	36	215
0007	1	12	40	170
0008	1	9	37	124
0009	1	11	17	80
0010	1	17	33	120
0011	1	15	29	90
0012	1	19	36	130
0013	1	13	33	132
0014	1	53	36	178
0015	1	56	39	175
0016	1	6	36	72
0017	1	95	63	215
0018	1	15	134	100
0019	1	12	42	112
0020	1	18	46	110
0021	1	22	27	160
0022	1	10	25	115
0023	2	39	55	240
0024	4	91	62	260
0025	3	40	59	120
0026	1	17	22	100
0027	1	27	24	68
0028	1	15	28	145
0029	1	14	32	168
0030	1	34	39	170
0031	1	23	47	132
0032	1	9	30	106
0033	1	14	42	132
0034	1	13	20	64
0035	1	10	51	135
0036	1	10	36	105
0037	1	8	42	102

All reports are the confidencial property of clients
All results are in PPM.

DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED June 30, 1981

DATE REPORTS MAILED July 4, 1981

ASSAYER D Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.

- 75 -

File No. 81-0623

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

SAMPLE No.		Mo	Cu	Pb	Zn
0038		1	10	42	145
0039		1	5	25	76
0040		1	3	19	54
0041		1	5	55	210
0042		1	6	35	198
0043		1	17	43	215
0044		1	5	14	72
0045		1	12	40	115
0046		1	19	13	60
0047	N.S.				
0048		4	35	24	115
0049		4	38	25	126

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED June 30, 1981

DATE REPORTS MAILED July 4, 1981

ASSAYER D. Toye

DEAN TOYE, B.Sc.
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ACME ANALYTICAL LABORATORIES LTD.
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852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

15 199

To: Saskatchewan Mining Development Corp.,
330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

- 76 -

DAN J.

c.c. Mr. G. Pollock, Saskatoon.
Mr. D. Jiricka, Nelson, B.C.

File No. 81-0703
Type of Samples Soil
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G Property : Cooper Creek 004956 Requisition No.: 0634

SAMPLE No.	Mo	Cu	Pb	Zn
0050	7	98	46	350
0051	5	44	24	124
0052	10	146	44	310
0053	1	12	13	55
0054	1	28	27	131
0055	1	25	57	147
0056	1	48	41	235
0057	1	7	37	188
0058	1	14	32	133
0059	1	6	35	170
0060	1	4	11	29
0061	1	4	33	99
0062	1	13	42	144
0063	1	15	71	330
0064	1	10	42	350
0065	1	11	56	570
0066	1	12	48	270
0067	7	56	24	68
0068	4	52	44	144
0069	4	49	41	132
0070	2	50	33	85
0071	1	58	27	74
0072	2	57	52	163
0073	1	41	30	110
0074	3	82	30	140
0075	3	85	23	125
0076	5	81	49	90
0077	2	98	22	88
0078	3	80	32	85
0079	2	90	33	120
0080	6	130	174	248
0081	8	125	60	720
0082	4	54	45	184
0083	1	16	31	155
0084	1	17	79	180
0085	1	5	21	60
0086	2	29	54	240

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All results are in PPM.

DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER

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CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,

- 77 -

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

2

SAMPLE No.	Mo	Cu	Pb	Zn	
0087	2	26	73	510	1
0088	1	13	73	163	2
0089	2	7	30	220	3
0090	1	7	39	210	4
0091	1	2	5	28	5
0092	1	6	36	139	6
0093	8	110	112	205	7
0094	9	104	115	220	8
0095	5	520	48	205	9
0096	5	90	50	245	10
0097	3	61	28	49	11
0098	1	54	23	245	12
0099	3	35	30	113	13
0100	1	56	32	102	14
					15
0101	1	97	34	94	16
0102	2	51	31	88	17
0103	2	49	29	100	18
0104	2	80	32	104	19
0105	1	31	38	142	20
0106	1	56	31	200	21
0107	4	290	40	235	22
0108	11	325	65	360	23
0109	5	178	39	240	24
0110	10	113	70	320	25
0111	12	320	65	435	26
0112	13	345	66	425	27
0113	5	160	27	230	28
0114	2	86	74	260	29
0115	1	53	60	260	30
0116	3	63	120	390	31
0117	8	102	151	460	32
0118	9	120	93	510	33
0119	4	31	100	470	34
0120	4	168	75	350	35
0121	1	14	112	810	36
0122	1	14	60	350	37
0123	1	5	26	83	38
					39
					40

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All results are in PPM.

DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER

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852 E. Hastings St., Vancouver, B. C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

SAMPLE No.	Mo	Cu	Pb	Zn
0124	1	5	19	91
0125	1	3	15	76
0126	1	8	29	115
0127	1	6	34	94
0128	1	7	28	100
0129	1	9	35	82
0130	14	174	51	290
0131	21	160	62	245
0132	1	48	35	103
0133	1	59	35	134
0134	1	32	28	130
0135	1	40	33	144
0136	1	66	34	128
0137	6	325	59	380
0138	4	71	53	180
0139	17	580	360	440
0140	7	157	49	270
0141	8	200	58	370
0142	4	102	56	315
0143	3	185	83	880
0144	1	24	49	151
0145	3	90	52	430
0146	3	75	121	360
0147	4	32	60	470
0148	3	23	148	630
0149	1	12	69	280
0150	1	2	16	58
0151	1	6	34	225
0152	1	6	25	65
0153	1	8	20	102
0154	1	3	9	27
0155	1	7	21	54
0156	13	320	51	375
0157	4	112	63	200
0158	3	98	47	160
0159	6	152	61	480
0160	9	155	81	470

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B. C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

SAMPLE No.	Mo	Cu	Pb	Zn
0161	4	71	37	240
0162	7	72	91	410
0163	1	146	92	350
0164	1	46	43	199
0165	3	54	48	220
0166	1	9	60	270
0167	1	11	36	140
0168	1	14	56	340
0169	1	8	45	210
0170	1	4	12	45
0171	1	8	21	95
0172	1	4	14	62
0173	1	10	21	162
0174	6	131	340	400
0175	1	74	37	195
0176	1	28	23	66
0177	1	64	28	300
0178	2	113	34	166
0179	1	40	42	143
0180	1	95	26	84
0181	3	205	85	78
0182	4	150	49	215
0183	3	117	25	127
0184	1	74	26	128
0185	1	101	31	144
0186	1	69	25	165
0187	1	4	2	12
0188	1	3	2	14
0189	1	20	31	88
0190	4	58	40	126
0191	4	101	65	450
0192	4	107	62	230
0193	2	49	24	180
0194	1	69	47	360
0195	1	56	54	330
0196	1	24	40	225
0197	1	35	46	132

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DIGESTION:

DETERMINATION:

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ASSAYER D. Toye

DEAN TOYE, B.Sc.
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ACME ANALYTICAL LABORATORIES LTD.
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852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,

- 80 -

File No. 81-0703

Type of Samples _____

Disposition _____

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

SAMPLE No.	Mo	Cu	Pb	Zn
0198	1	30	40	130
0199	1	22	44	198
0200	1	24	48	260
0201	1	5	24	70
0202	1	5	13	70
0203	1	16	79	600
0204	1	2	6	35
0205	2	8	19	68
0206	1	5	14	52
0207	1	64	38	360
0208	1	34	20	150
0209	1	20	24	190
0210	1	8	9	48
0211	1	31	46	103
0212	2	40	55	270
0213	1	19	41	184
0214	1	18	52	196
0215	1	30	90	240
0216	1	5	9	35
0217	1	6	26	180
0218	1	11	22	110
0219	1	8	17	45
0220	1	11	22	56
0221	4	88	60	290
0222	1	19	13	50
0223	1	113	73	450
0224	5	91	67	540
0225	9	194	194	670
0226	1	20	15	111
0227	3	121	51	530
0228	1	133	31	260
0229	1	30	20	105
0230	1	62	30	135
0231	1	41	29	132
0232	1	560	24	93
0233	1	145	43	47
0234	2	325	32	85

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DIGESTION: .....

DETERMINATION: .....

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852 E. Hastings St., Vancouver, B. C. V6A 1R6
phone:253 - 3158

To:Saskatchewan Mining Development Corp.

- 81 -

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC 1G

6

SAMPLE No.	Mo	Cu	Pb	Zn
0235	2	110	41	90
0236	1	91	25	132
0237	1	88	23	101
0238	2	70	21	135
0239	1	60	45	122
0240	2	66	46	194
0241	1	64	42	187
0242	1	22	21	41
0243	3	77	38	320
0244	1	89	46	450
0245	1	67	41	275
0246	1	58	27	255
0247	1	53	28	148
0248	2	61	44	195
0249	1	81	50	183
0250	1	230	24	187
0251	1	89	20	38
0252	3	90	38	67
0253	4	310	31	80
0254	2	122	39	126
0255	2	80	26	140
0256	1	71	20	100
0257	1	29	21	101
0258	2	58	33	162
0259	5	70	72	122
0260	1	29	24	176
0261	1	19	27	100
0262	1	20	30	310
0263	1	28	36	117
0264	1	12	28	48
0265	1	12	27	60
0266	1	51	34	58
0267	2	46	30	57
0268	1	35	23	139
0269	2	31	27	40
0270	2	31	20	38

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DIGESTION:

DETERMINATION:

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852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253-3158

To: Saskatchewan Mining Development Corp.,

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

SAMPLE No.	Mo	Cu	Pb	Zn	
0271	1	49	35	55	1
0272	1	42	28	49	2
0273	1	75	48	94	3
0274	1	31	73	82	4
0275	1	30	80	89	5
0276	2	18	90	53	6
0277	1	24	22	129	7
0278	1	53	32	153	8
0279	1	53	30	205	9
0280	1	85	26	190	10
					11
0281	1	41	24	79	12
0282	1	32	22	81	13
0283	1	57	21	71	14
0284	1	51	18	59	15
0285	1	92	25	36	16
0286	1	380	102	83	17
0287	3	61	26	72	18
0288	1	44	23	51	19
0289	1	130	35	87	20
0290	1	10	6	20	21
0291	1	53	23	71	22
0292	1	45	36	86	23
0293	3	36	20	41	24
0294	1	33	16	28	25
0295	1	27	22	24	26
0296	1	24	24	48	27
0297	1	52	61	63	28
0298	3	65	51	360	29
0299	1	29	28	97	30
0300	2	114	55	86	31
					32
0301	1	32	18	36	33
0302	2	11	19	56	34
0303	1	42	21	39	35
0304	2	25	27	43	36
0305	4	89	70	129	37
0306	4	46	34	66	38
					39
					40

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

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phone:253 - 3158

To: Saskatchewan Mining Development Corp.

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

8

SAMPLE No.	Mo	Cu	Pb	Zn
0307	3	28	25	43
0308	1	22	23	30
0309	1	35	28	27
0310	1	46	16	16
0311	1	33	39	22
0312	3	45	23	40
0313	3	40	39	52
0314	1	18	14	24
0315	1	8	6	17
0316	1	22	15	44
0317	1	34	41	143
0318	4	34	16	41
0319	1	36	10	25
0320	1	61	19	34
0321	2	97	18	40
0322	1	46	24	70
0323	1	48	23	43
0324	1	30	15	45
0325	1	56	24	31
0326	2	62	26	64
0327	3	166	45	117
0328	1	80	11	25
0329	1	10	6	25
0330	1	37	18	139
0331	1	37	31	66
0332	2	20	12	20
0333	2	88	72	112
0334	1	41	16	41
0335	3	51	19	52
0336	2	75	36	100
0337	3	98	42	96
0338	2	104	56	118
0339	1	39	48	34
0340	1	37	75	34
0341	2	40	58	39
0342	1	58	33	60
0343	1	71	14	31

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER D Toye

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ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

9

SAMPLE No.	Mo	Cu	Pb	Zn	
0344	1	34	53	31	1
0345	1	37	30	34	2
0346	4	82	41	85	3
0347	1	22	10	23	4
0348	1	25	13	31	5
0349	1	27	21	90	6
0350	1	33	16	78	7
0351	1	14	14	37	8
0352	1	16	13	50	9
0353	1	16	19	22	10
0354	1	21	29	62	11
0355	1	26	21	29	12
0356	1	15	5	13	13
0357	1	22	30	16	14
0358	1	14	16	43	15
0359	1	16	15	14	16
0360	1	40	19	61	17
0361	1	45	18	72	18
0362	1	19	16	66	19
0363	1	21	20	79	20
0364	1	30	20	29	21
0365	3	68	25	51	22
0366	3	53	15	56	23
0367	1	22	12	20	24
0368	1	17	12	26	25
0369	1	10	18	30	26
0370	1	13	24	38	27
0371	1	18	23	21	28
0372	1	29	8	24	29
0373	1	27	29	45	30
0374	1	9	7	18	31
0375	1	16	14	18	32
0376	1	25	30	66	33
0377	1	19	12	23	34
0378	2	38	29	37	35
0379	1	28	32	32	36
0380	1	14	15	17	37
					38
					39
					40

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER D. Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B. C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

SAMPLE No.	Mo	Cu	Pb	Zn	
0381	1	28	28	24	1
0382	1	18	20	18	2
0383	1	9	9	20	3
0384	1	16	24	17	4
0385	1	36	15	29	5
0386	1	18	19	14	6
0387	3	51	25	79	7
0388	1	33	16	53	8
0389	1	35	49	35	9
0390	1	35	28	28	10
0391	1	27	16	20	11
0392	1	26	18	27	12
0393	1	20	9	21	13
0394	1	33	19	62	14
0395	2	24	12	42	15
0396	1	14	5	14	16
0397	1	21	6	15	17
0398	1	37	27	28	18
0399	4	27	28	34	19
0400	6	60	17	53	20
					21
0401	1	13	3	12	22
0402	1	7	1	9	23
0403	1	5	1	10	24
0404	1	5	1	8	25
0405	2	74	49	93	26
0406	1	21	12	17	27
0407	1	24	15	21	28
0408	1	17	24	16	29
0409	1	18	16	20	30
0410	1	15	23	17	31
0411	1	18	15	23	32
0412	1	21	38	30	33
0413	1	20	39	21	34
0414	1	21	29	25	35
0415	1	12	18	24	36
0416	1	15	11	15	37
0417	1	13	23	29	38
					39
					40

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER D Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,

File No. 81-0703

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

CC1G

11

SAMPLE No.	Mo	Cu	Pb	Zn
0418	1	14	28	32
0419	1	27	7	26
0420	1	9	3	10
0421	5	175	27	87
0422	3	123	28	83
0423	3	147	21	71
0424	2	48	15	34
0425	1	34	17	35
0426	1	11	7	18
0427	1	20	45	22
0428	2	63	29	64

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 8, 1981

DATE REPORTS MAILED July 14, 1981

ASSAYER D. Toye

DEAN TOYE, B.Sc.
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ROCK GEOCHEMICAL RESULTS

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Saskatchewan Mining Development Corporation,
#330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

- 88 -

Attn.: Mr. M. Rebagliati
c.c. : SMDC, Saskatoon

ASSAY CERTIFICATE

File No. 81-0831B
Type of Samples Rock
Disposition

Project : Cooper Creek P.O. 0540

No.	Sample	Au oz/ton	Cu%	Pb%	Zn%				No.
1	cc10 0028	.001							1
2	0030	.001							2
3									3
4	cc10 0400		.64	.01	.79			Massive Sulfide	4
5	0401		1.06	.02	1.82			"	5
6	0402		.17	.01	1.01			"	6
7	0403		.48	.01	1.66			"	7
8	0404		.29	.01	.46			"	8
9	0405		.79	.01	.34			"	9
10	0406		7.10	.31	7.10			"	10
11	0407		.40	.03	.98			"	11
12	0408		.35	.02	.46			"	12
13	0409		1.48	.01	.22			"	13
14	0410		.29	.01	.11			"	14
15	0411		15.40	.05	.86			"	15
16	0412		3.20	.01	.09			"	16
17	0413		1.38	.01	.04			"	17
18	0414		1.34	.01	.06			"	18
19	0415		.48	.01	.03			"	19
20	0416		.02	.01	.01			Massive Sulfide	20

DATE SAMPLES RECEIVED July 21, 1981
DATE REPORTS MAILED July 29, 1981
ASSAYER D. Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Saskatchewan Mining Development Corporation,

File No. 81-0831B

Type of Samples Rock

Disposition

ASSAY CERTIFICATE

No.	Sample	Cu%	Pb%	Zn%					No.
1	cc10 0417	.02	.01	.07				Massive Sulfide	1
2	0500	1.15	.04	1.14				"	2
3	0501	.21	.04	1.74				"	3
4	0502	1.12	.01	.05				"	4
5	0503	.30	.01	2.85				"	5
6	0504	1.06	.03	1.34				"	6
7	0505	7.15	.03	1.96				"	7
8	0506	2.86	.01	1.40				"	8
9	0507	.23	.01	.51				"	9
10	0508	.30	.01	1.75				"	10
11									11
12									12
13									13
14	Note - Unlabelled sample was labelled 0413 by ACME								14
15									15
16									16
17									17
18									18
19									19
20									20

DATE SAMPLES RECEIVED July 21, 1981

DATE REPORTS MAILED July 29, 1981

ASSAYER

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

- 90 -

c.c. Mr. Steven Earle, Saskatoon.

File No. 81-0973
Type of Samples Rocks
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

Project : COOPER CREEK 004956 Requisition No.: 0541, 0615 & 0626

SAMPLE No.	Cu	Pb	Zn	Ag	Au oz/ton	CaO%	Cu%	Zn%	Ag oz/ton	
CC10 0047	14	9	26	.1	.001					1
0048	74	13	56	.1	.001					2
0049	*	49	1200	1.5	.001		.78			3
0050	225	25	64	.1	.001					4
0051	38	40	73	.1	.001					5
0052	2600	82	111	.3	.001					6
0053					.001	5.60				7
0054					.001	1.19				8
0055					.001	8.40				9
0057	3600	75	550	.9	.001					10
0058	75	22	49	.1	.001					11
0059	3	70	73	.6	.001					12
0060	213	17	71	.1	.001					13
0061	175	20	52	.1	.001					14
0062	99	13	70	.1	.001					15
0063	2600	12	200	1.2	.002					16
0064	86	45	103	.1	.001					17
0065	50	24	48	.2	.001					18
0066	410	24	75	.6	.006					19
0256	105	24	40	.1	.001					20
0257	3000	200	2600	3.2	.003					21
0258	430	57	146	4.8	.015					22
0259	650	22	111	1.0	.021					23
0260	*	640	*	*	.049		2.80	.82	.66	24
0261	*	56	940	6.9	.007		.75			25
0420	390	24	38	.4	.001					26
0421	74	17	82	.1	.001					27
0422	200	18	38	.6	.001					28
0428	*	165	*	8.9	.006		1.22	.53		29
0429	1400	27	110	1.4	.001					30
0430	*	520	*	*	.050		3.37	1.02	.78	31
0431	2600	50	370	4.7	.005					32
0432	*	600	1400	*	.024		1.10		.37	33
0433	*	570	*	*	.037		7.10	2.89	1.48	34
0434	1900	50	340	1.8	.011					35
0435	*	330	*	*	.027		8.50	6.58	1.74	36
CC10 0436	1800	23	350	1.5	.003					37
										38
										39
										40

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DIGESTION:.....

DETERMINATION:.....

** Au and CaO - Assay Result

* Assay result to come

DATE SAMPLES RECEIVED Aug. 6, 1981

DATE REPORTS MAILED Aug. 18, 1981

ASSAYER

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B. C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.

File No. 81-0973

Type of Samples

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

(ASSAY)

2

SAMPLE No.	Cu	Pb	Zn	Ag	Au oz/ton	Cu%	Zn%	Ag oz/ton		
CC10 0437	*	23	1100	2.6	.001	.45				1
0438	2600	26	116	1.2	.001					2
0439	3900	15	370	1.5	.001					3
0440	*	10	86	4.1	.001	.75				4
0441	*	18	530	8.4	.004	2.39				5
0442	*	64	*	4.6	.001	1.25	.47			6
0443	1300	13	98	.7	.001					7
0444	1300	89	96	6.3	.014					8
0445	1900	19	230	1.5	.004					9
0446	820	20	148	.9	.001					10
0447	3600	19	220	2.1	.002					11
0448	1300	11	107	1.1	.001					12
0449	*	430	*	*	.006	1.35	1.63	.40		13
0450	2700	105	360	5.1	.002					14
0451	2400	40	430	2.2	.003					15
0452	*	134	*	6.9	.006	.94	.80			16
0453	*	65	*	*	.015	3.60	.62	.89		17
0454	2600	340	*	4.2	.003		.89			18
0455	*	880	*	*	.232	3.12	.64	1.34		19
0456	2000	37	300	2.1	.016					20
0457	3200	280	225	12.0	.033					21
0458	*	520	1700	*	.036	1.04		.54		22
0459	*	170	*	*	.003	4.76	1.01	1.25		23
0460	220	8	56	.3	.001					24
0461	*	480	*	*	.019	2.21	1.78	.69		25
0462	710	35	240	1.0	.002					26
0463	*	37	210	4.9	.012	.48				27
0464	114	6	55	.1	.001					28
0465	140	21	96	.2	.001					29
0466	64	11	48	.1	.001					30
0467	96	9	58	.1	.001					31
0468	240	10	293	.1	.001					32
0469	260	10	123	.2	.001					33
0470	1200	22	144	.8	.001					34
0471	*	280	*	*	.006	3.30	.93	.74		35
0472	1000	14	152	.5	.002					36
CC10 0473	1200	230	1900	1.5	.001					37
										38
										39
										40

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED Aug. 6, 1981

DATE REPORTS MAILED Aug. 18, 1981

ASSAYER D. Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253-3158

To: Saskatchewan Mining Development Corp.,

File No. 81-0973

Type of Samples Rock

Disposition

GEOCHEMICAL ASSAY CERTIFICATE

3 SAMPLE No.	Cu	Pb	Zn	Ag	ASSAY oz/ton Au	Cu%	Zn%	oz/ton Ag	
CC10 0474	2600	32	720	1.9	.001				1
0475	820	13	79	.3	.001				2
0476	3600	25	140	2.6	.001				3
0477	*	57	2400	7.7	.025	1.21			4
0478	*	33	410	6.0	.003	1.16			5
0479	630	12	84	.6	.001				6
0480	*	28	*	*	.003	1.02	.82	.34	7
0481	790	12	89	3.5	.010				8
0482	*	360	*	*	.003	4.67	1.03	.98	9
0483	1500	42	200	1.1	.001				10
0484	1600	21	210	.6	.001				11
0485	*	380	*	*	.043	6.15	2.95	1.48	12
0486	1100	51	210	1.4	.002				13
0487	*	400	*	*	.007	1.20	1.30	.40	14
0488	680	24	285	.8	.002				15
0489	810	22	108	.6	.003				16
0516	80	14	70	.2	.001				17
CC10 0523	270	14	42	..4	.001				18
									19
									20
									21
									22
									23
									24
									25
									26
									27
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DIGESTION:

DETERMINATION:

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ASSAYER

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Telephone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

- 93 -

c.c. Mr. Steven Earle; Saskatoon,

File No. 81-0973 (Re-run)

Type of Samples _____

Disposition _____

ASSAY CERTIFICATE

Project : Cooper Creek 004956 Requisition No.: 0541 & 0615 & 0626

No.	Sample	Au oz/ton							No.
1	0260	.052							1
2	0430	.047							2
3	0433	.037							3
4	0435	.012							4
5	0455	.252							5
6	0457	.030							6
7	0458	.046							7
8									8
9									9
10									10
11									11
12									12
13									13
14									14
15									15
16									16
17									17
18									18
19									19
20									20

DATE SAMPLES RECEIVED Aug. 27, 1981

DATE REPORTS MAILED Sept. 1, 1981

ASSAYER D Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

DIAMOND DRILL CORE

GEOCHEMICAL RESULTS

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

c.c. Mr. Steven Earle, Saskatoon, Sask.

File No. 81-1184
Type of Samples DD Core
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

Project : Cooper Creek 4956

SAMPLE No.	Cu	Pb	Zn	Ag	Au	
CC10-1- 1	32	665	1650	.4	.010	1
2	6200	25	80	4.1	.390	2
3	85	27	40	.4	.005	3
4	19	15	52	.1	.005	4
5	31	20	90	.1	.005	5
6	65	15	95	.3	.005	6
7	30	10	63	.2	.005	7
8	27	17	65	.2	.005	8
9	35	17	187	.1	.005	9
10	18	15	42	.2	.005	10
11	16	9	85	.1	.005	11
12	50	22	60	.2	.005	12
13	40	22	43	.1	.005	13
14	50	23	75	.1	.005	14
CC10-1- 15	50	16	50	.1	.005	15
						16
						17
						18
						19
						20
						21
						22
						23
						24
						25
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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED Aug. 25, 1981
DATE REPORTS MAILED Sept. 3, 1981
ASSAYER D. Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

ACME ANALYTICAL LABORATORIES LTD.
Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

- 96 -

c.c. Mr. Steven Earle, Saskatoon,

File No. 81-1346
Type of Samples Core
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

Project : Cooper Creek (004956) Req.No.: 0630

SAMPLE No.	Cu	Pb	Zn	Ag	Au	
CC1D-2- 018	23	10	29	.1	.005	1
019	16	17	64	.1	.005	2
020	14	9	25	.2	.005	3
021	52	13	45	.2	.005	4
022	72	15	43	.2	.005	5
023	54	11	35	.1	.005	6
024	47	8	25	.2	.005	7
025	31	11	26	.2	.005	8
026	38	8	32	.1	.005	9
027	39	9	28	.2	.005	10
028	33	11	36	.1	.005	11
029	24	15	41	.1	.005	12
030	6	5	23	.1	.005	13
031	5	8	18	.1	.005	14
032	44	20	54	.1	.005	15
033	16	17	36	.1	.005	16
034	54	23	84	.1	.005	17
035	13	86	174	.2	.005	18
036	20	17	36	.1	.005	19
037	N.S.					20
038	18	18	62	.1	.005	21
039	28	18	46	.2	.005	22
040	42	13	42	.1	.005	23
041	86	11	62	.2	.005	24
042	4	8	50	.1	.005	25
043	6	9	54	.1	.005	26
044	45	17	49	.1	.005	27
045	27	12	34	.2	.005	28
046	60	13	40	.1	.005	29
046 A	48	14	22	.1	.005	30
047	70	14	35	.1	.005	31
048	54	17	56	.3	.005	32
049	78	16	56	.2	.005	33
050	70	15	49	.1	.005	34
CC1D-2- 051	66	16	44	.2	.005	35
						36
						37
						38
						39
						40

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED Sept. 14, 1981
DATE REPORTS MAILED Sept. 21, 1981

ASSAYER D. Toye

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phone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender St.,
Vancouver, B.C.
V6E 4A4

- 97 -

c.c..: Mr. Steven Earle, Saskatoon,

File No. 81-1344 A
Type of Samples Core
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

Project : Cooper Creek 004956 Req.No.: 0629

SAMPLE No.	Cu	Pb	Zn	Ag	Au
CC1D-2- 052	64	14	45	.1	.005
053	49	10	19	.1	.005
054	28	9	41	.1	.005
054A	32	6	21	.1	.005
055	39	7	29	.1	.005
056	33	13	33	.1	.005
057	74	4	12	.1	.005
058	72	5	13	.1	.005
059	74	9	26	.1	.005
060	6	6	49	.1	.005
061	84	8	28	.1	.005
062	66	8	24	.1	.005
063	60	9	38	.1	.005
CC1D-2- 064	42	6	16	.1	.005

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED Sept. 14, 1981

DATE REPORTS MAILED Sept. 21, 1981

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DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

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852 E. Hastings St., Vancouver, B.C. V6A 1R6
phone:253-3158

To: Saskatchewan Mining Corp.

File No. 81-1344 A

Type of Samples _____

Disposition _____

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.	Cu	Pb	Zn	Ag	
CC1D 3001	80	32	128	.3	1
3002	100	68	160	.5	2
3003	114	112	320	.9	3
3004	116	52	194	.5	4
3005	82	27	58	.4	5
3006	78	14	31	.2	6
3007	102	17	28	.1	7
3008	78	45	56	.5	8
3009	76	54	350	.5	9
3010	122	44	202	.2	10
3011	104	42	395	.3	11
3012	N.S.				12
3013	92	39	196	.6	13
3014	N.S.				14
3015	136	44	305	1.0	15
3016	94	28	370	.3	16
3017	82	24	120	.3	17
3018	112	38	330	.6	18
3019	58	23	52	.3	19
3020	92	27	112	.3	20
3021	166	41	210	.6	21
3022	164	68	188	.7	22
3023	570	21	92	.6	23
3024	375	20	48	.4	24
3025	124	14	36	.3	25
3026	415	14	34	.6	26
3027	170	8	54	.2	27
3028	126	10	27	.3	28
3029	132	11	37	.3	29
3030	116	22	94	.4	30
3031	78	12	48	.3	31
3032	1000	16	72	.7	32
CC1D 3033	510	15	62	.6	33
					34
CC1D 3050	745	13	74	.6	35
3051	164	16	68	.2	36
CC1D 3052	35	31	58	.3	37
					38
					39
					40

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DETERMINATION: _____

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Telephone:253 - 3158

To: Saskatchewan Mining Development Corp.,
#330 - 1130 W. Pender,
Vancouver, B.C.
V6E 4A4

File No. 81-1344B

Type of Samples _____

Disposition _____

ASSAY CERTIFICATE

No.	Sample	Au oz/ton							No.
1	CC1D 3001	.001							1
2	3002	.001							2
3	3003	.001							3
4	3004	.001							4
5	3005	.001							5
6	3006	.001							6
7	3007	.001							7
8	3008	.001							8
	3009	.001							9
10	3010	.001							10
11	3011	.001							11
12	3012	Missing							12
13	3013	.001							13
14	3014	Missing							14
15	3015	.001							15
16	3016	.001							16
17	3017	.001							17
18	3018	.001							18
19	3019	.001							19
20	CC1D 3020	.001							20

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DATE REPORTS MAILED Sept. 17, 1981

ASSAYER D. Toye

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CHIEF CHEMIST
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Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
Telephone:253 - 3158

To: Saskatchewan Mining Development Corp.,

- 100 -

File No. 81-1344B

Type of Samples _____

Disposition _____

ASSAY CERTIFICATE

No.	Sample	Au oz/ton							No.
1	CC1D 3021	.001							1
2	3022	.001							2
3	3023	.001							3
4	3024	.001							4
5	3025	.001							5
6	3026	.018							6
7	3027	.006							7
8	3028	.014							8
9	3029	.007							9
10	3030	.001							10
11	3031	.001							11
12	3032	.001							12
13	CC1D 3033	.001							13
14									14
15	CC1D 3050	.001							15
16	3051	.001							16
17	CC1D 3052	.001							17
18									18
19									19
20									20

DATE SAMPLES RECEIVED Sept. 12, 1981

DATE REPORTS MAILED Sept. 17, 1981

ASSAYER D Toye

DEAN TOYE, B.Sc.
CHIEF CHEMIST
CERTIFIED B.C. ASSAYER

APPENDIX IV

SUMMER GEOPHYSICAL PROGRAM 1981

BY

R. B. MATTHEWS

SMD MINING CO. LTD. COOPER CREEK PROJECT

SUMMER GEOPHYSICAL PROGRAM 1981

COOPER CREEK CLAIMS:

GOAT 1 (1094), GOAT 2 (1095), COOPER 1 (2617)

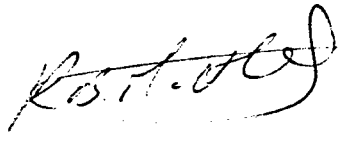
PERTH 18105, PYRITE 18104

NTS 82-K-3E LATITUDE 50°19'N LONGITUDE 117°10'W

SLOCAN MINING DIVISION

OWNER: OTTO JANOUT
330 - 1509 MARTIN STREET
WHITEROCK, BRITISH COLUMBIA V9B 3W8

OPERATOR: SMD MINING CO. LTD.
310 - 1130 WEST PENDER STREET
VANCOUVER, BRITISH COLUMBIA V6E 4A4



BY:

R. B. MATTHEWS
SENIOR GEOPHYSICIST
SASKATOON, SASKATCHEWAN
NOVEMBER 1981

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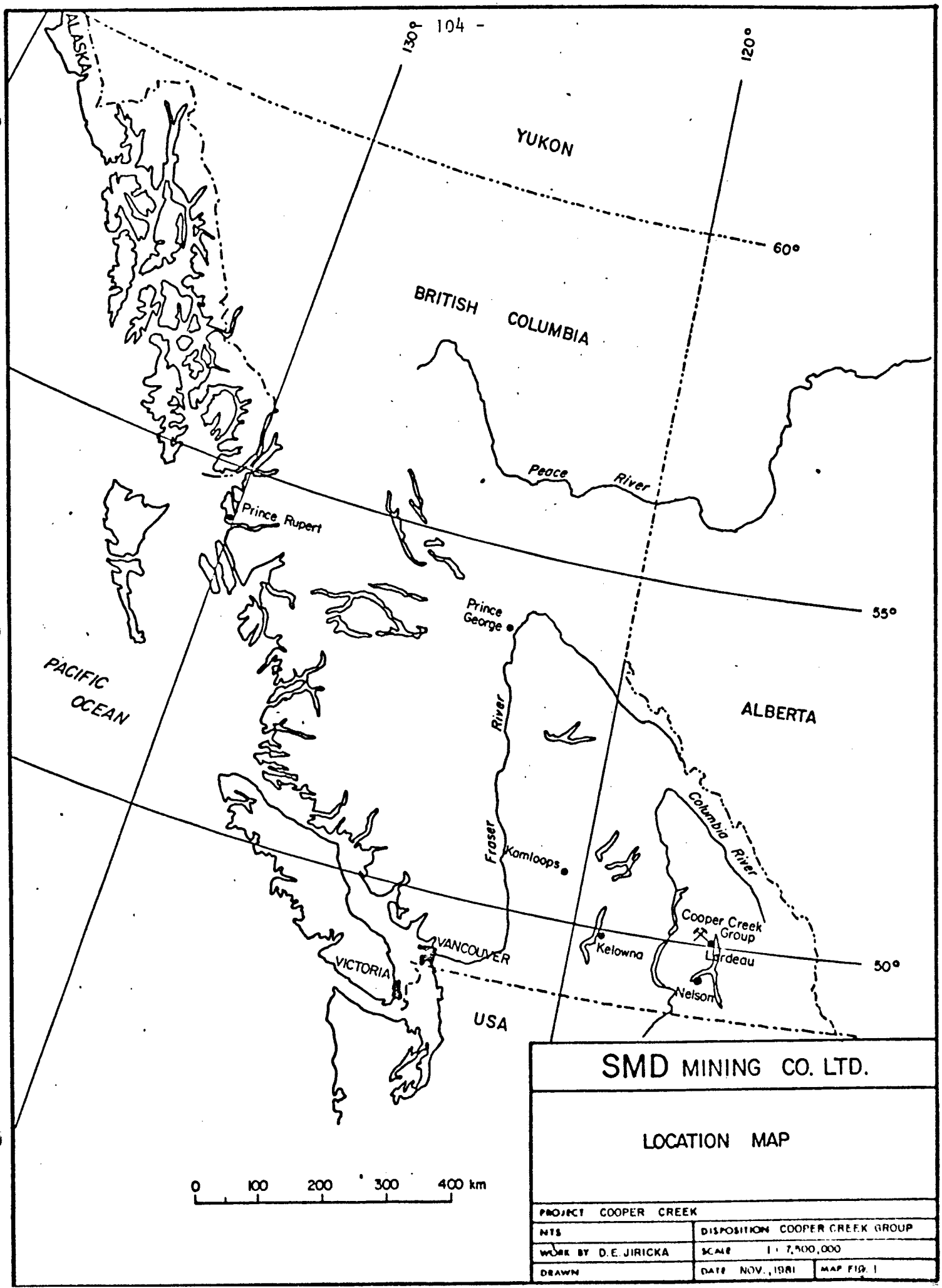
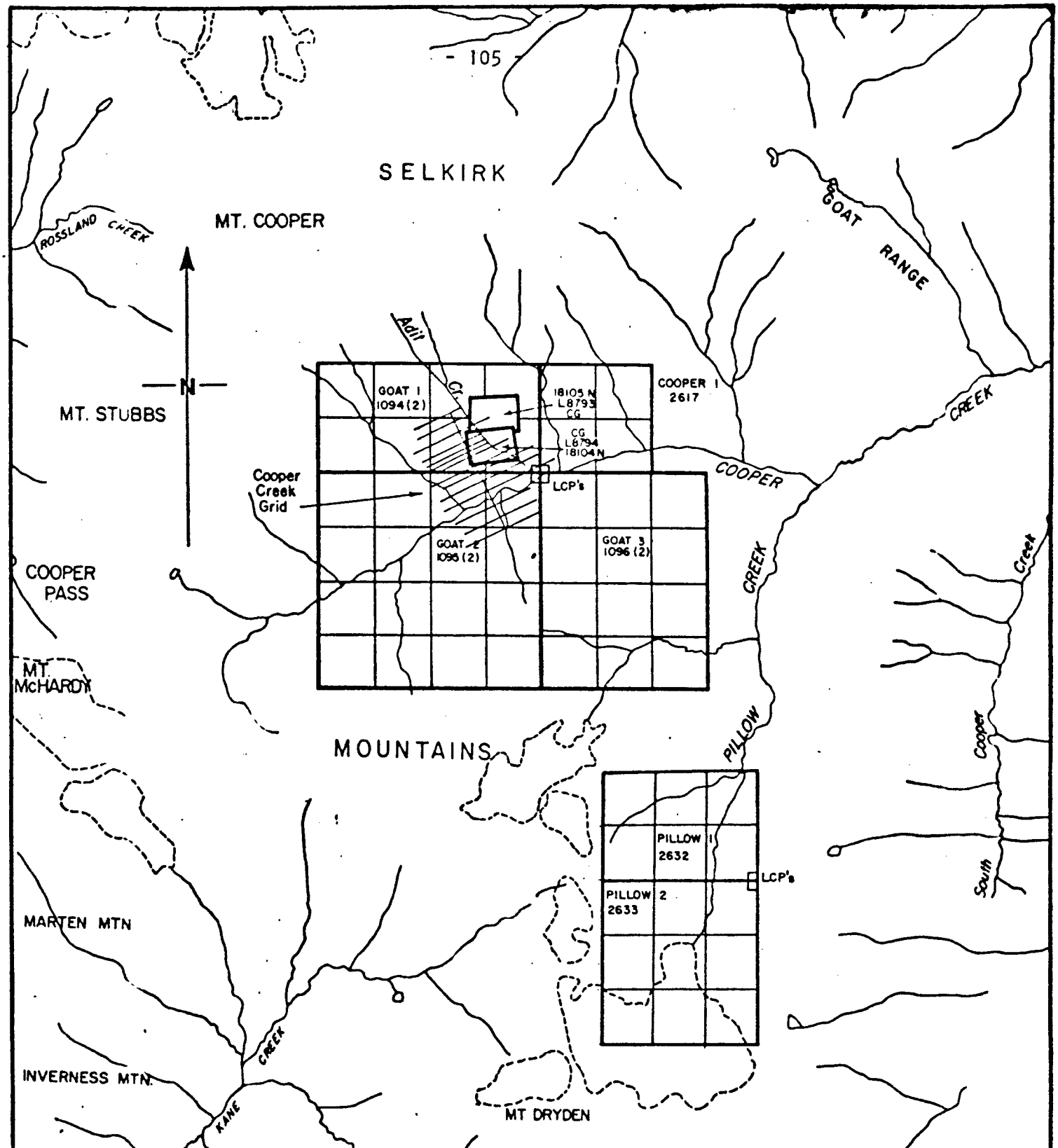


SMD MINING CO. LTD.

LOCATION MAP

PROJECT COOPER CREEK		
NTS	DISPOSITION COOPER CREEK GROUP	
WORK BY D.E. JIRICKA	SCALE 1 : 7,500,000	
DRAWN	DATE NOV., 1981	MAP FIG. 1



SMD MINING CO. LTD.

PROPERTY MAP

PROJECT COOPER CREEK		
NTS 82K/3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:50,000	
DRAWN	DATE	FIG 2

INTRODUCTION

A geophysical program was carried out during June and July, 1981, on a grid over a known massive sulphide mineralized showing, within the Cooper Creek group of mineral dispositions (Figures 1 and 2). The work includes 10.87 km of magnetic, 20.63 km of two-frequency VLF and 13.08 km of Shootback EM coverage, and was carried out by in-house personnel. A breakdown of personnel and dates, as well as the coverage obtained is given in Appendix I. An IP/resistivity survey was also carried out by Phoenix Geophysics Limited (Contract #210) and will be reported on separately. Grid preparation was carried out by Arctex Engineering (Contract #216), assisted by in-house personnel.

The Cooper Creek group of claims is located approximately 15 km west of Lardeau, British Columbia (NTS 82-K-3E), and access to the area was by helicopter.

PREVIOUS WORK

Previous work in the area includes prospecting, first reported on in the early 1900's, as well as more recent intensive programs carried out by Canadian Superior Explorations Ltd. (1976), and Aquitaine of Canada Ltd. (1979). The latter company carried out a limited amount of ground EM and magnetics, as well as geochemical soil sampling and a geological appraisal of the area.

The geology of the property and the surrounding area is discussed in the 1981 Exploration Report by D. E. Jiricka, and consists of a sequence of steeply dipping metavolcanic rocks of the Kaslo group.

The present program was designed to check the extent of the known mineralized zone, as well as locate any other possible sulphide mineralization within the grid area. The grid was located over the known sulphide zones, and includes the two areas of anomalous base metal concentrations, outlined by soil geochemistry.

PRESENT PROGRAM

The Shootback EM survey was carried out using Crone CEM equipment. Readings were obtained at 390 and 1830 Hz, at a station interval of 25 m. A test line (4+49N) was surveyed using a 50 and 100 m coil separation, and in both the Horizontal and Vertical modes of operation. A good response was obtained in all cases but the best combination appeared to be a coil separation of 50 m and the Vertical Shootback EM method. The complete grid was then surveyed with this combination. A considerable portion of the grid was also surveyed with a 100 m coil separation.

In the Vertical mode the transmit coils are held with the plane of the coils vertical, and in the Horizontal mode the transmit coils are held horizontal. Both operators in turn transmit and receive, measuring the dip angle of the resultant field. The two dip angles are added together, and the reading is recorded at the midpoint between the two operators. In this way the effects of rough topography can be removed. Note the topography in the survey area is extremely rugged and the area is cut by deep narrow valleys occupied by fast-moving streams. This reverse procedure also means that variations in coil separation are not an important consideration.

Though the two modes of operation are equivalent, the Horizontal Shootback method is particularly responsive to wide conductors at depth. Hence, data collected using the Horizontal mode tends to be somewhat more noisy.

The basic shape of a Shootback anomaly over a shallow, vertical conductor is a central positive peak, flanked by negative peaks. The ratio of the resultant peak dip angles at two frequencies permits an evaluation of the conductivity of the body. The geometrical parameters of a conductor can be estimated by comparing the field curves with model studies. As the dip of a body becomes shallower the hanging wall negative portion of the profile increases in magnitude and extent, and the footwall negative decreases. Flat conductors produce predominantly negative resultant dip angle profiles, with positive angles only occurring over the edge of near surface, high conductivity conductors.

For depths greater than half the coil spacing only low amplitude, negative resultant dip angles are obtained which can often be lost in the noise envelope. Effective depth penetration for the Shootback techniques is thus limited to less than half the coil spacing.

Noisy Shootback data, presuming the field operations are carried out with care, result from two main sources: geologic noise and atmospheric noise.

The magnetic survey was carried out using a Geometrics G-816 proton precession magnetometer. Readings were obtained every 25 m, and were corrected for diurnal drift using a MR-10 base station recorder, manufactured by Canadian Mining Geophysics. The instrument drift was also checked by running the magnetometer traverses in closed loops. The VLF survey was carried out using a Phoenix VLF-2 unit. Readings were obtained every 25 m, using transmitters located at Cutler, Maine (17.8 kHz) and Seattle, Washington (18.6 kHz).

RESULTS

The contoured magnetic results are presented in Drawing CC1-11 at a scale of 1:2500. The contour interval is 100 gammas. Note the figure notation used is the same as that adopted by D. E. Jiricka in his 1981 Exploration Report. The VLF dip angle data for the two transmitting stations is plotted in Drawings CC1-12 and 13. The VLF results were also Fraser filtered and are presented in Drawings CC1-14 and 15.

The Shootback results for the test line (4+49N) over the mineralized zone are plotted in Drawing CC1-16. The Horizontal mode Shootback results over the Cooper Creek grid for coil separations of 100 m and 50 m are presented in drawings CC1-17 and 18 respectively. The scale is 1:2500, and the vertical plotting scale is 1 cm = 10^{o}.

Both the VLF and Shootback results are very noisy, with the only clear strong response observed over the known mineralized zone. Fraser filtering of the VLF data helped to clean up the results, and enabled a number of weak conductive trends to be picked (Drawings CC1-14 and 15). A form of inverse Fraser filtering was also applied to the Shootback data.

The Shootback data is particularly noisy, and it is extremely difficult to correlate from line to line the complex pattern of weak anomalies. The filtering approach helped to sort out the individual weak anomalies, and by referring back to the original profiles the weak anomalous responses could be correlated from line to line. Though it should be noted that the separation of interfering anomalies can only be qualitatively achieved in view of the complex basic shape of the Shootback anomaly. A series of weak conductive trends is obtained, trending approximately north-northwest and covering the entire grid (Drawings CC1-17 and 18).

Although some of these conductors are possibly caused by extraneous noise, it would appear that the majority are real and caused by local concentrations of sulphides within the metavolcanic sequence, i.e., geologic noise. The VLF and Shootback trends agree on the broad scale, but differ in detail. This can be expected for an area with intermittent concentrations of sulphides.

The main conductive trends have been selected and plotted on a compilation map (Drawing CC1-19). This selection procedure is very qualitative, with the only significant response obtained over the mineralized zone (Zone A). This indicates that the massive zone is very localized. Although it is possible that the mineralization is too deep to be detected by the Shootback technique, a portion of the grid was also surveyed with a 100 m coil separation, and the results (Drawing CC1-17) do not significantly differ from those obtained with a 50 m coil spacing, and do not indicate the presence of a strong conductor at depth.

The major magnetic features are also shown on the compilation map. The area is magnetically fairly flat, but the magnetic results have proved to be useful in tracing lithologies across overburden covered areas. In general the areas overlying monzonitic intrusions, with higher magnetic susceptibilities can be distinguished from the areas underlain by felsic volcanic rocks.

Apart from the main zone (A), three other weak zones have been defined. All three zones have a very weak geophysical expression.

Zone D, however, corresponds quite well with the second geochemically anomalous area, and Zone C appears to be a very weak extension of Zone A. There also appears to be a break in the region of line 5+25N. There is also some evidence for this disruption in the magnetic data.

CONCLUSIONS AND RECOMMENDATIONS

The only significant EM response was obtained over the known showing. The present work indicates that this zone has no southerly lateral extent, but there are weak concentrations of sulphide mineralization throughout the area. The preliminary IP/resistivity results also confirm this interpretation. No further ground surveying can be recommended, and the only good target located on the basis of the EM and magnetic work is in the vicinity of the mineralized showing. A more regional airborne EM survey might be considered to check for more extensive mineralized zones in the vicinity of the Cooper Creek group of claims.

APPENDIX I

LOGISTICAL DETAILS

PERSONNEL

1. Magnetic Survey

D. Bush	Senior Geological Assistant	July 16
K. Judge	Junior Geological Assistant	July 2 - 5, 16
P. Ehmayer	Junior Geological Assistant	July 15 - 18, 24

2. VLF Survey

D. Jiricka	Project Geolgoist	July 16, 27
M. Jackson	Geologist	July 7
D. Bush	Senior Geological Assistant	July 7
K. Judge	Junior Geological Assistant	July 7, 8
P. Ehmayer	Junior Geological assistant	July 2 - 5, 11, 12

3. Shootback Survey

R. Matthews	Senior Geophysicist	July 2
G. Aust	Geophysical Technician	June 25 - July 3
B. Delisle	Geophysical Technician	June 25 - July 3

COOPER CREEK GRID - GEOPHYSICS SUMMARY

Disposition	Magnetic Survey	VLF Survey	CEM "Shootback" Survey	
		(Two Frequency)	50 metre Coil Separation	100 metre Coil Separation
Pyrite (18104)	2.54 km	5.08 km	2.54 km	1.13 km
Perth (18105)	0.84 km	1.68 km	0.84 km	
Goat 1 (1094)	4.08 km	7.51 km	4.08 km	1.34 km
Goat 2 (1095)	3.37 km	6.29 km	2.93 km	0.18 km
Cooper 1 (2617)	0.04 km	0.07 km	0.04 km	
TOTAL	10.87 km	20.63 km	10.43 km	2.65 km

APPENDIX II

COST STATEMENT

COOPER CREEK SALARIES AND TOTAL PAY

Name	Employee No.	Daily Salary	Days	Total 1981
R. Matthews	3232	$199	1	$199
D. Jiricka	3552	$164	2	$328
M. Jackson	3271	$139	1	$139
D. Bush	3873	$ 85	2	$170
K. Judge	3861	$ 64	6	$384
P. Ehmayer	4054	$ 64	11	$704
G. Aust	3323	$ 89	9	$801
B. Delisle	3322	$ 91	9	$819
TOTAL			41	$3,544

OTHER COSTS

Type	Comment	Cost
Food and Accommodation	41 man-days	$1,600.00
Ground Transport	4 x 4 truck	200.00
Helicopter Support	Okanagon Helicopters	5,000.00
Instruments	Magnetometer and base station, VLF CEM "Shootback"	1,711.14
Report Preparation	R. Matthews 3 man-days and Drafting	1,000.00
TOTAL		$9,511.14

CERTIFICATE OF QUALIFICATION

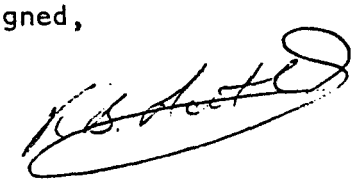
I, the undersigned certify that:

1. I graduated from the University of Exeter, England, with a B.Sc. degree in Physics.

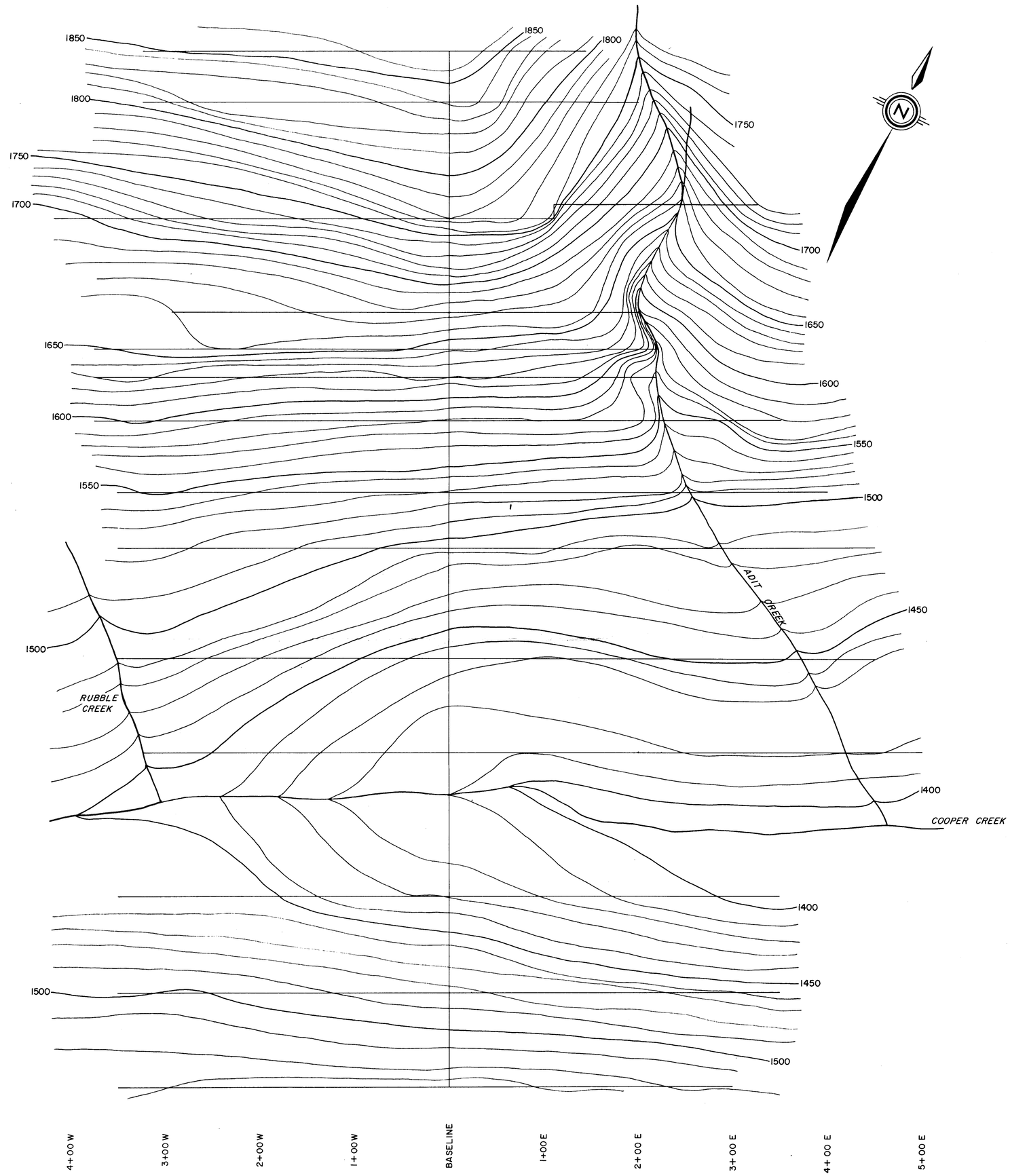
2. I graduated from the Imperial College, London, Royal School of Mines, with a PhD degree in Geophysics.

3. That I have five years experience in the field of mining geophysics.

Signed,



R. B. Matthews, PhD.



Contour Interval = 10m

SMD MINING CO. LTD.

TOPOGRAPHIC SUPVEY COOPER CREEK GRID

PROJECT COOPER CREEK	
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT./81 DWG. CC1-1

+2715m

+2493m

PERTH 18105

PYRITE 18104

GOAT 1 1094

GOAT 2 1095

GOAT 3 1096

COOPER 1 2617

DDH CCI-1 -45°

DDH CCI-2 -45°

DDH CCI-3 -45°

CAMP

LCP's

Baseline

Adit Creek

Elm Creek

Ken's Creek

Flag Creek

Cooper Creek

Rubble Creek

Bash Creek

Far Creek

Beth's Creek

Nettle Creek

CCIO 0420

CCIO 0042

CCIO 0002

CCIO 0001

CCIO 0005

CCIO 0004

CCIO 0003

CCIO 0043

CCIB 0003

CCIB 0002

CCIB 0001

CCIB 0004

CCIB 0005

CCIB 0006

LEGEND

JURASSIC

5 KUSKANOX BATHOLITH AND STOCKS:
GRANITIC ROCKS : Granodiorite, Quartz monzonite

PERMO - TRIASSIC (KASLO GROUP VOLCANICS)

4 ALTERATION ZONE : Quartz, - Sericite - Pyrite schist including massive Sulphide lenses ± Chlorite

3 RHYODACITE : Light grey to buff felsic Pyroclastics, Lesser interbedded Dacite and Rhyolite
- 3a - fine to medium grained tuff
- 3b - coarse grained lapilli tuff
- 3c - very coarse grained tuff breccia / agglomerate
- 3d - black pyritic chert / exhalite

2 DACITE : Dark grey, intermediate composition, finely banded
- 2a - fine grained banded tuff
- 2b - medium to coarse grained tuff

1 ANDESITE : Dark green, mafic composition, hornfelsed in part
- 1a - fine to medium grained tuff
- 1b - coarse grained lapilli tuff
- 1c - very coarse grained tuff breccia / agglomerate
- 1d - massive coarse grained hornfels
- 1e - massive

DDH CCI-1 -45° Diamond Drill Hole Location (number and inclination)

Area of Bedding Outcrop

Bedding (Top Unknown)

Schistosity and Foliation

Geological Boundary, Observed

Geological Boundary, Position Interpreted

Shear Zone

Jointing ; Inclined, Vertical

Massive Sulphides

Lineation, Inclined

CCIB 007 Boulder Sample

SOURCES OF INFORMATION

Geology by M. Jackson and D. Jiricka, 1981
Geology tied to surveyed lines on Cooper Creek Grid
Magnetic declination about 21° W
Baseline trends 334° Azimuth
Crossline trends 064° Azimuth

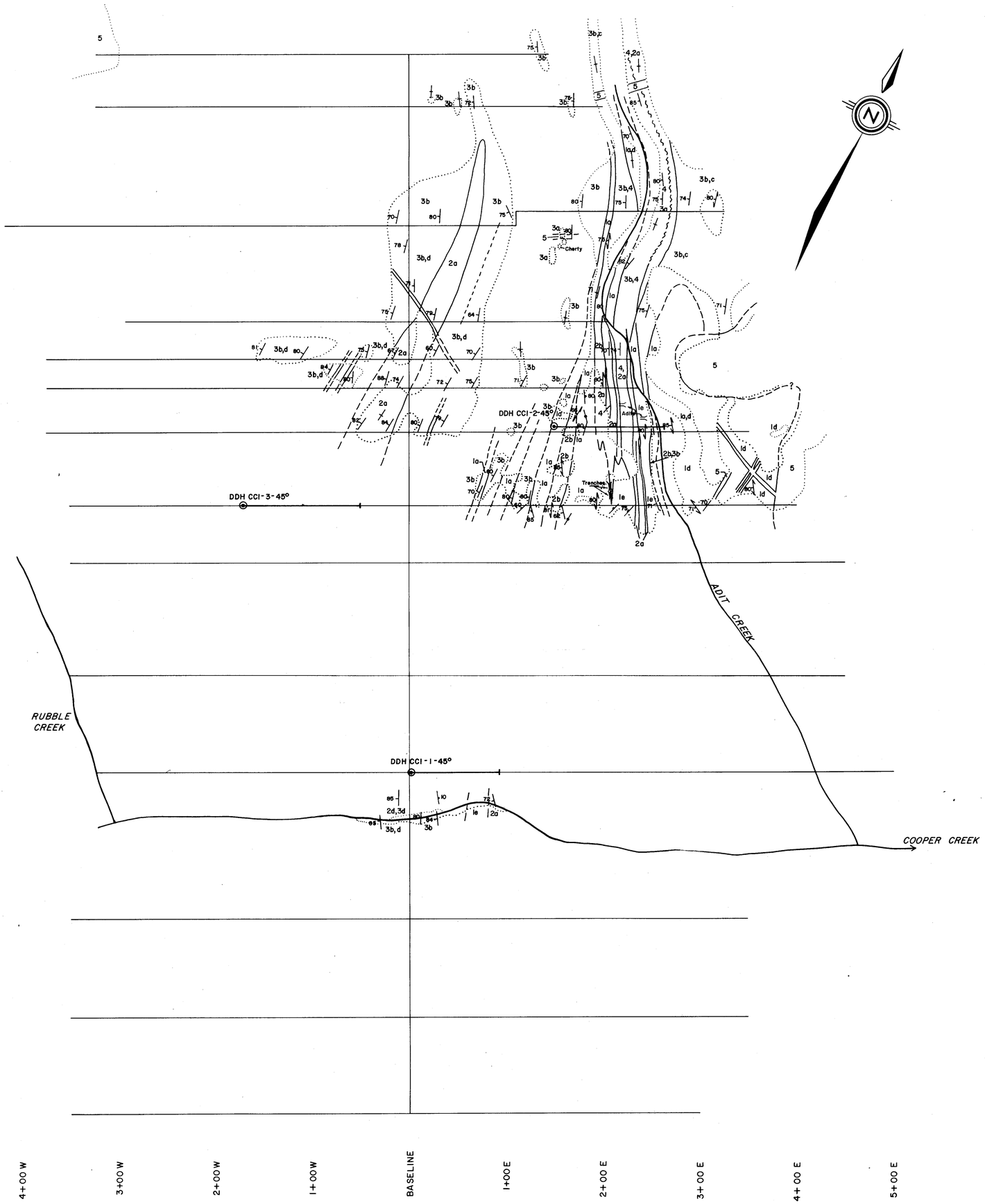
100 0 100 200 300 400 500
metres

9697
PART 2 of 2

Saskatchewan Mining Development Corporation

GEOLOGY
COOPER CREEK GROUP

PROJECT COOPER CREEK		
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1 : 5000	
DRAWN D OFSTIE	DATE OCT /81	DWG CCI-2



LEGEND

JURASSIC

5 KUSKANOX BATHOLITH AND STOCKS:
GRANITIC ROCKS : Granodiorite, Quartz monzonite

PERMO - TRIASSIC (KASLO GROUP VOLCANICS)

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- 1b - coarse grained lapilli tuff
- 1c - very coarse grained tuff breccia / agglomerate
- 1d - massive coarse grained hornfels
- 1e - massive

- Area of Bedding Outcrop
- Bedding (Top Unknown)
- Schistosity and Foliation
- Geological Boundary, Observed
- Geological Boundary, Position Interpreted
- Shear Zone
- Jointing ; Inclined, Vertical
- Massive Sulphides
- Lineation, Inclined
- Diamond Drill Hole Location and Inclination

SOURCES OF INFORMATION

Geology by M. Jackson and D. Jiricka , 1981
Geology tied to surveyed lines on Cooper Creek Grid
Magnetic declination about 21° W
Baseline trending 334° Azimuth
Crosslines trending 064° Azimuth

SMD MINING CO. LTD.

GEOLOGY
COOPER CREEK GRID

PROJECT COOPER CREEK		
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT/81	DWG. CCI-3

LEGEND

DDH CCI-2-45

JURASSIC

5 KUSKANOX BATHOLITH AND STOCKS:
GRANITIC ROCKS : Granodiorite, Quartz monzonite

PERMO - TRIASSIC (KASLO GROUP VOLCANICS)

4 ALTERATION ZONE : Quartz, - Sericite - Pyrite schist including massive Sulphide lenses ± Chorite

3 RHYODACITE : Light grey to buff felsic Pyroclastics, Lesser interbedded Dacite and Rhyolite
- 3a - fine to medium grained tuff
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- 1b - coarse grained lapilli tuff
- 1c - very coarse grained tuff breccia / agglomerate
- 1d - massive coarse grained hornfels
- 1e - massive

Area of Outcrop
Bedding (Top Unknown)
Schistosity and Foliation
Geological Boundary, Observed
Geological Boundary, Position Interpreted
Shear Zone
Jointing ; Inclined, Vertical
Massive Sulphides
Lineation, Inclined
Outcrop Sample (select)

SOURCES OF INFORMATION

Geology by M. Jackson and D. Jiricka, 1981
Geology tied to surveyed lines on Cooper Creek Grid
Magnetic declination about 21° W
Azimuth of cross-lines (064°)

Trench 1
Trench 2
Overburden
Creek
UPPER ADIT
LOWER ADIT
0/B

3+75 N
4+00 N
4+25 N
4+49 N
4+75 N
4+97 N
5+25 N
5+40 N
5+64 N
2+00 E
2+25 E
2+50 E

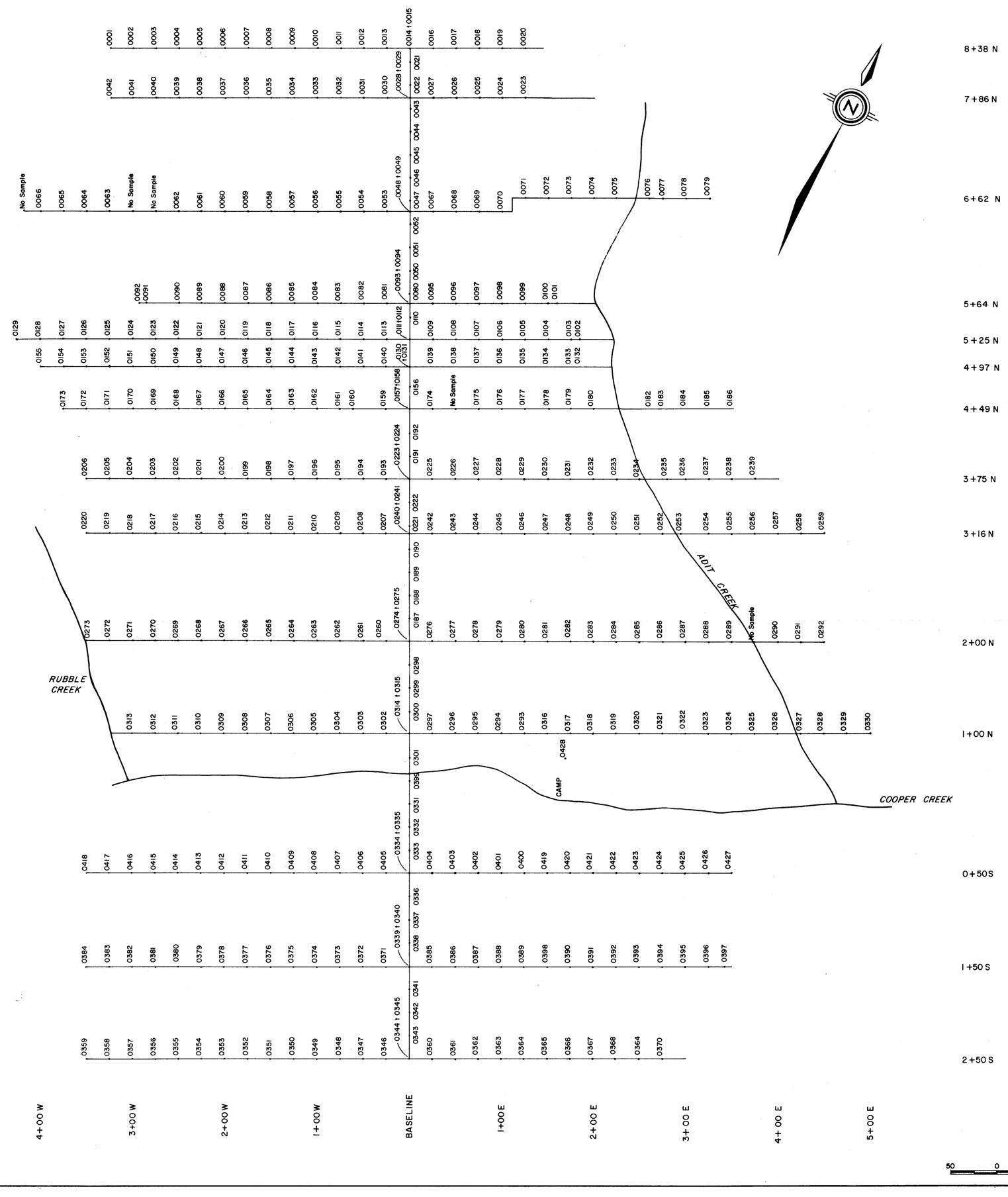
5 0 5 10 15 20 25
metres

9697
PART 2 of 2

smdc Saskatchewan Mining Development Corporation

DETAILED GEOLOGICAL MAP
& SAMPLE LOCATIONS
ADIT CREEK ZONE

PROJECT COOPER CREEK	
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1 : 250
DRAWN D. OFSTIE	DATE OCT / 81 DWG CCI - 4



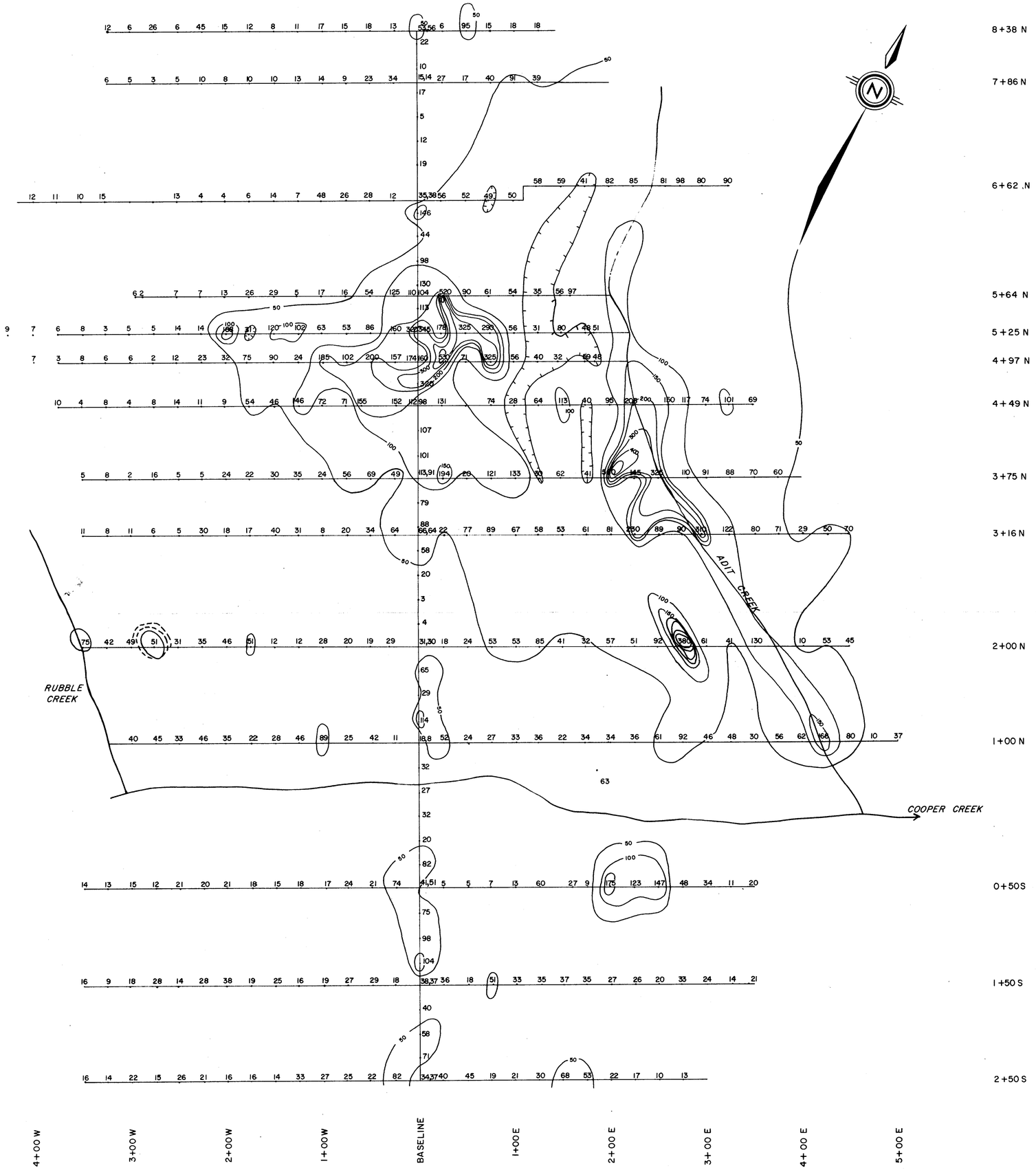
9697

PART 2 of 2

SMD MINING CO. LTD.

SOIL GEOCHEMICAL SURVEY COOPER CREEK GRID SAMPLE LOCATIONS

PROJECT COOPER CREEK	
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT/81 — DWG CCI-5



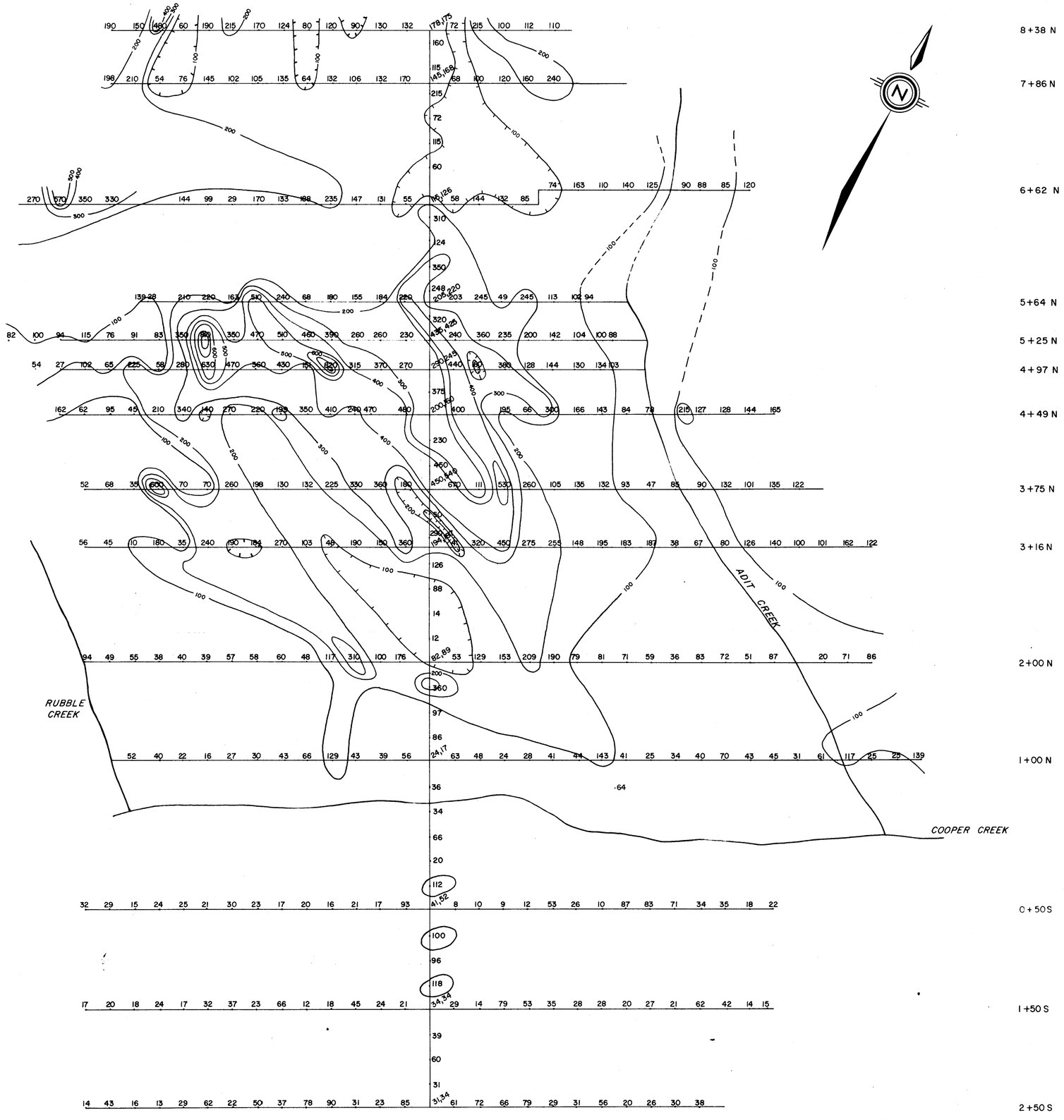
Contour Interval = 50ppm

50 0 50 100 150
metres

SMD MINING CO. LTD.

SOIL GEOCHEMICAL SURVEY
COOPER CREEK GRID
Cu

PROJECT COOPER CREEK	
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT/81 DWG CCI-6



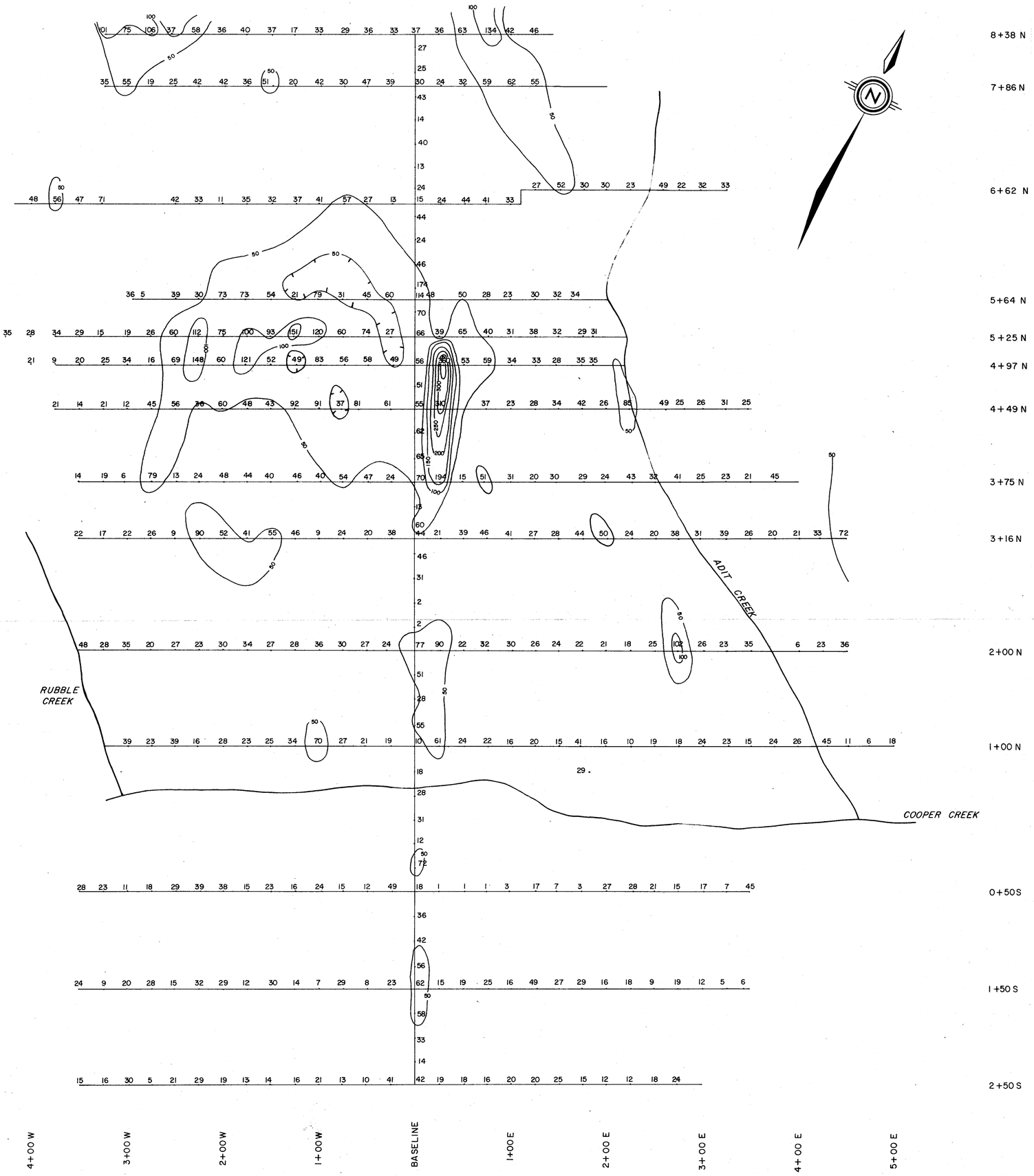
9697
PART 2 of 2

Contour Interval = 100 ppm

SMD MINING CO. LTD.

SOIL GEOCHEMICAL SURVEY
COOPER CREEK GRID
Zn

PROJECT COOPER CREEK		
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT/81	DWG. CCI - 7



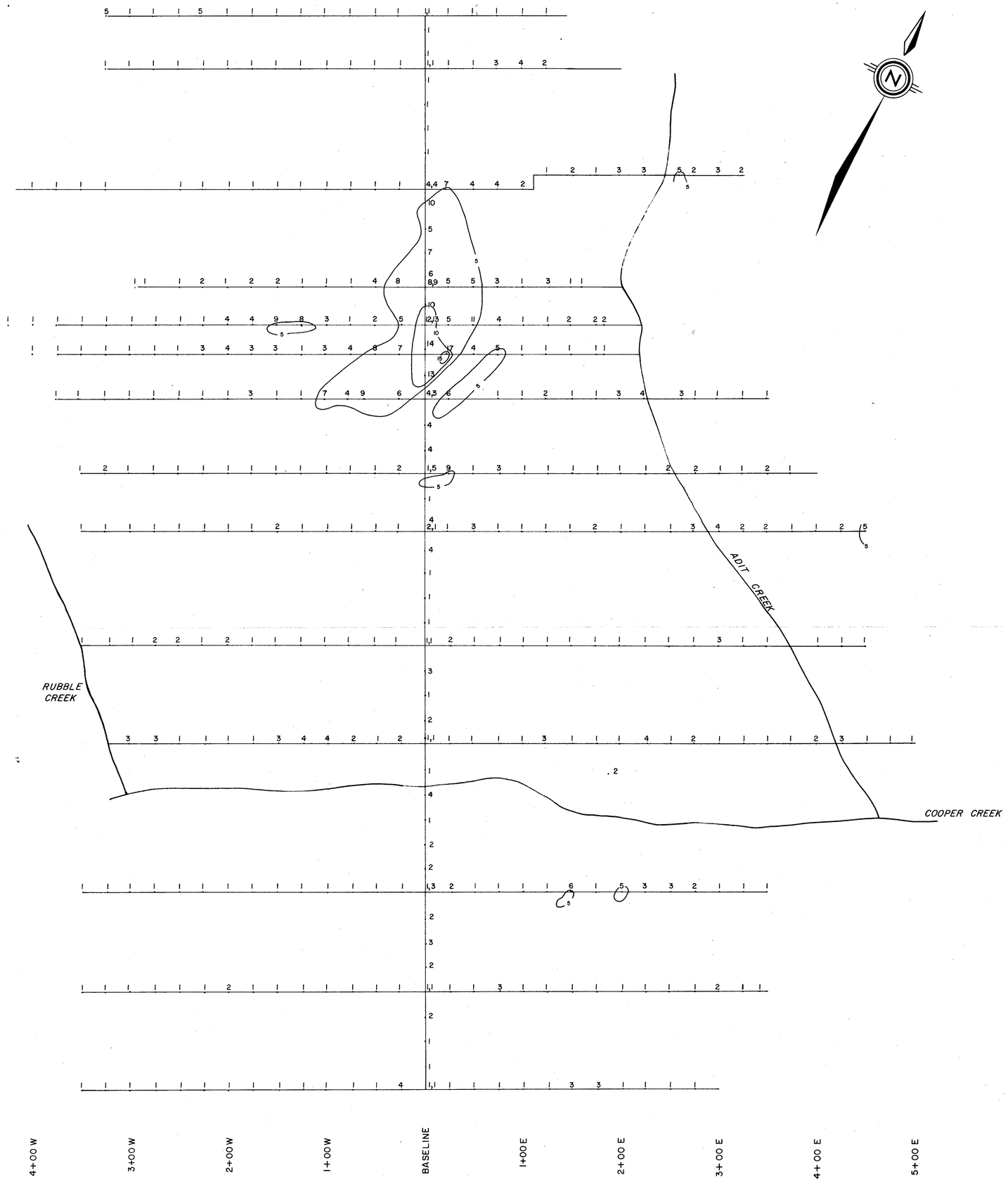
9697
PART 2 of 2

Contour Interval = 50 ppm

SMD MINING CO. LTD.

SOIL GEOCHEMICAL SURVEY
COOPER CREEK GRID
Pb

PROJECT COOPER CREEK		
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT / 81	DWG. CCI - 8



Contour Interval = 5ppm

SMD MINING CO. LTD.

SOIL GEOCHEMICAL SURVEY
COOPER CREEK GRID
Mo

PROJECT COOPER CREEK	
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT/81 DWG. CCI-9

Overburden

Overburden

Overburden

Overburden

Overburden

Overburden

Overburden

Creek

Creek

Creek

2+00 E

2+25 E

2+50 E

2125 E

3+75 N

4+00 N

4+25 N

4+49 N

4+75 N

4+97 N

5+25 N

5+64 N

5+40 N

LEGEND

0462 — Cu(ppm) | Zn(ppm) | Au(oz/ton) / Pb(ppm) | Ag(ppm) | Sample width

0411 X — Select Sample

0260 — Chip Sample

Massive Sulphides

Crosslines trending 064° Azimuth

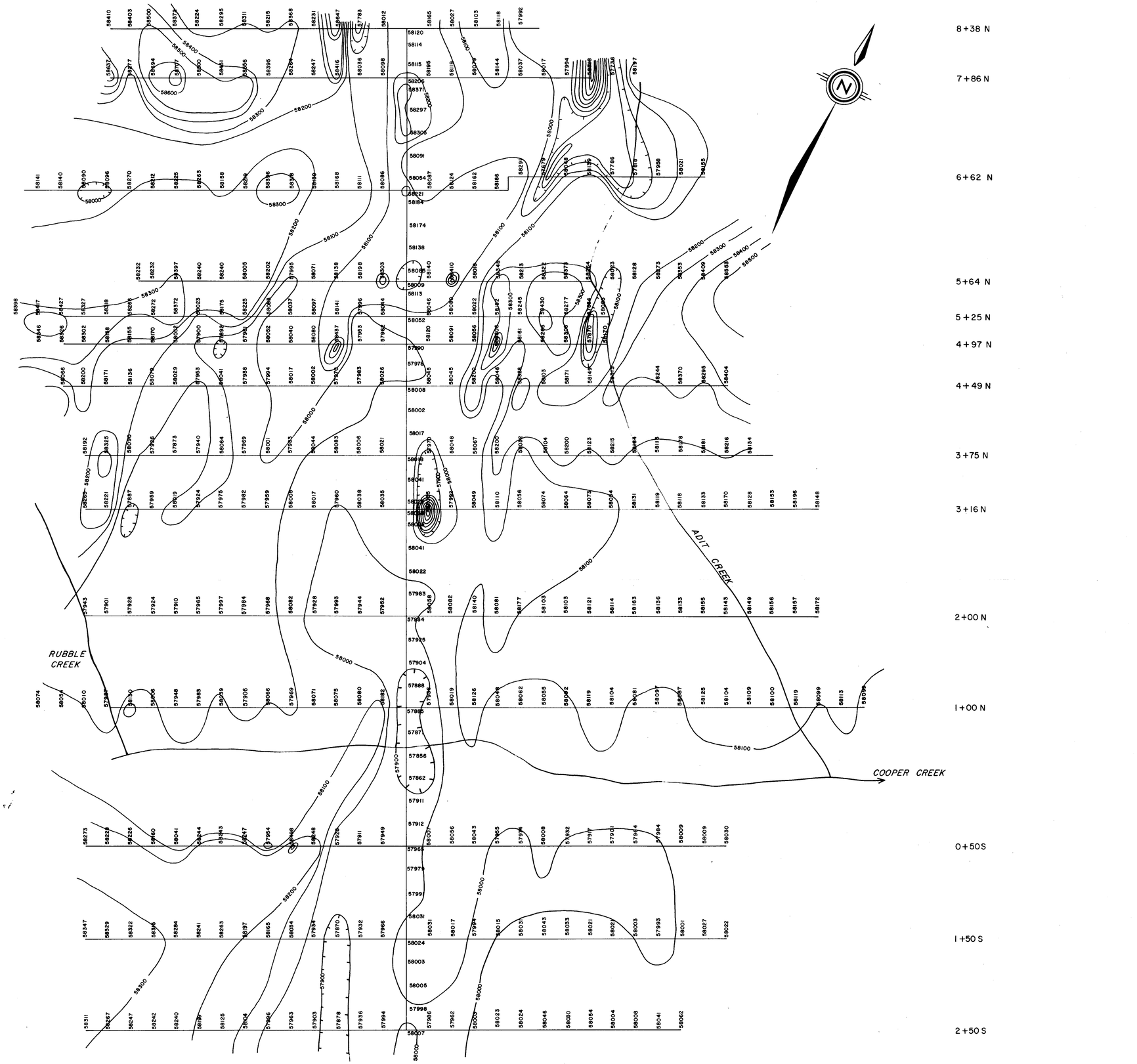
10 5 0 5 10 15 20

metres

smdc Saskatchewan Mining Development Corporation

SAMPLE LOCATIONS and GEOCHEMICAL RESULTS ADIT CREEK ZONE

PROJECT	COOPER CREEK
NTS	52 - K - 3 E
DISPOSITION	COOPER CREEK GROUP
WORK BY	D. URYCKA
SCALE	1 : 250
DRAWN	S. BOGAN
DATE	OCT./81
DWG	CC1 - 10

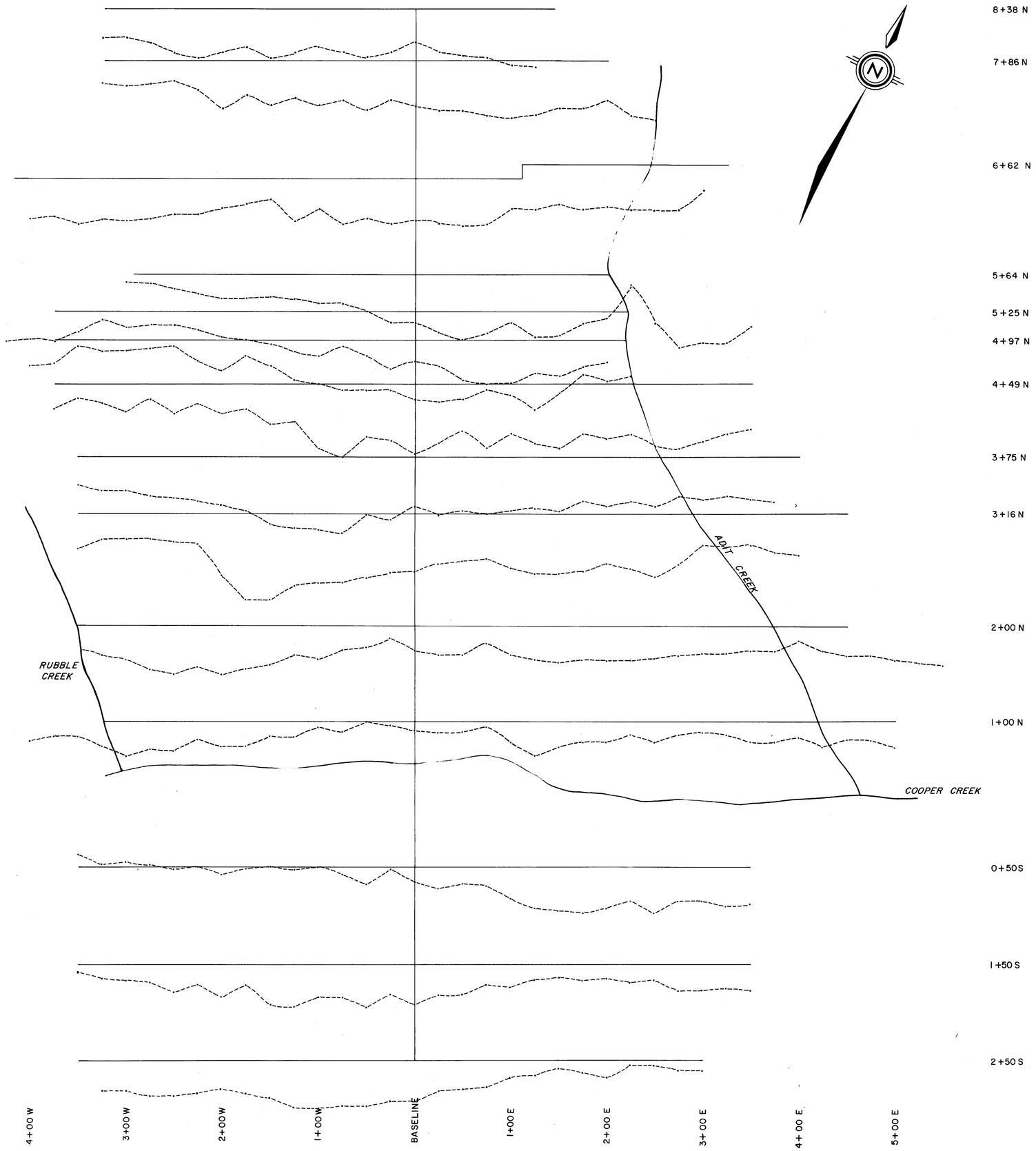


Contour Interval = 100 Y

SMD MINING CO. LTD.

MAGNETIC SURVEY
COOPER CREEK GRID

PROJECT COOPER CREEK	
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT/81 DWG CC1-11



+ W
− E

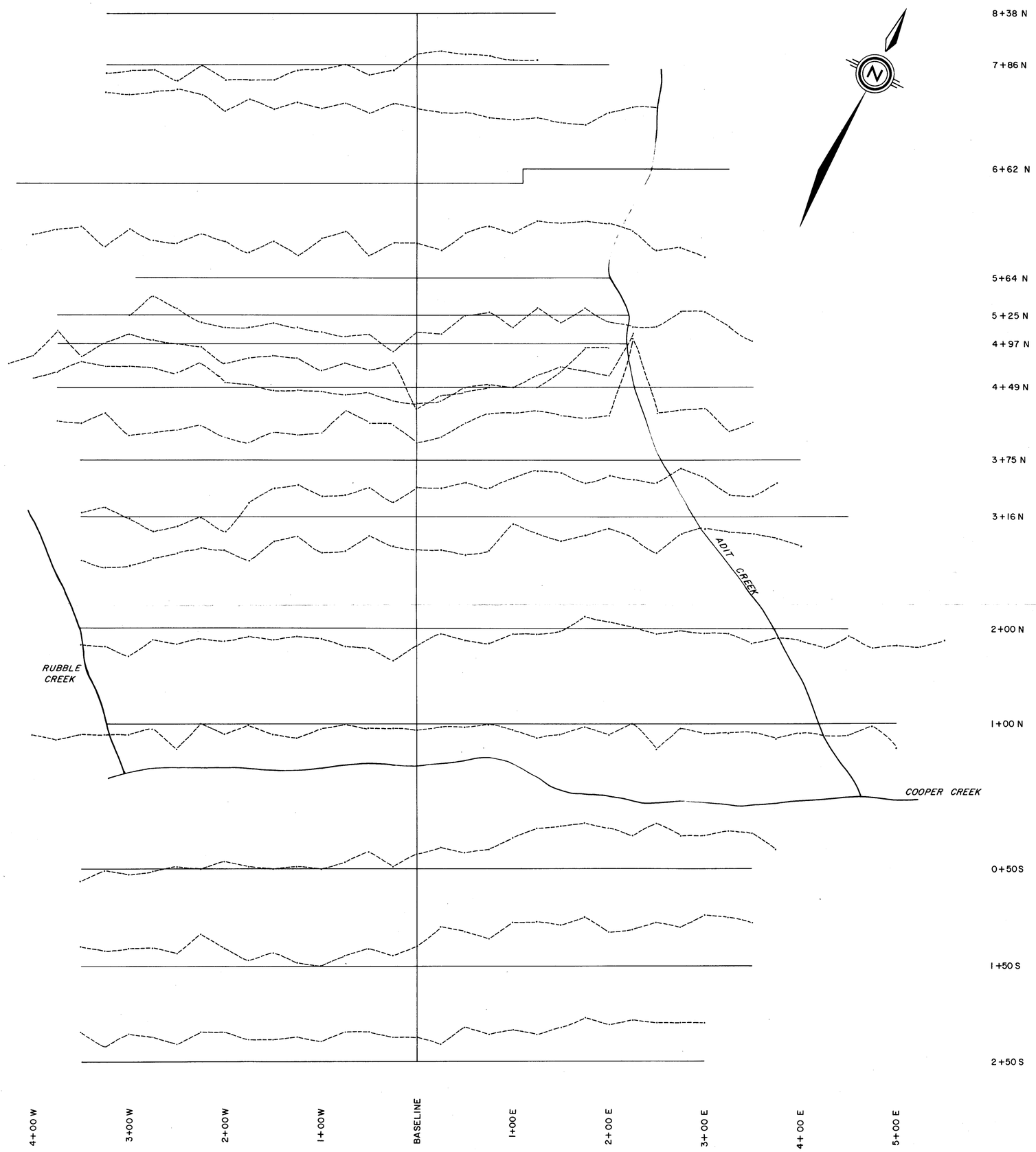
Vertical Scale 1cm = 10°

Readings taken facing N.

SMD MINING CO. LTD.

VLF SURVEY
PROFILES
SEATTLE, WASHINGTON TRANSMITTER
COOPER CREEK GRID

PROJECT COOPER CREEK	
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT / 81 — DWG CCI-12



+ | W
− | E

Vertical Scale 1cm = 10°

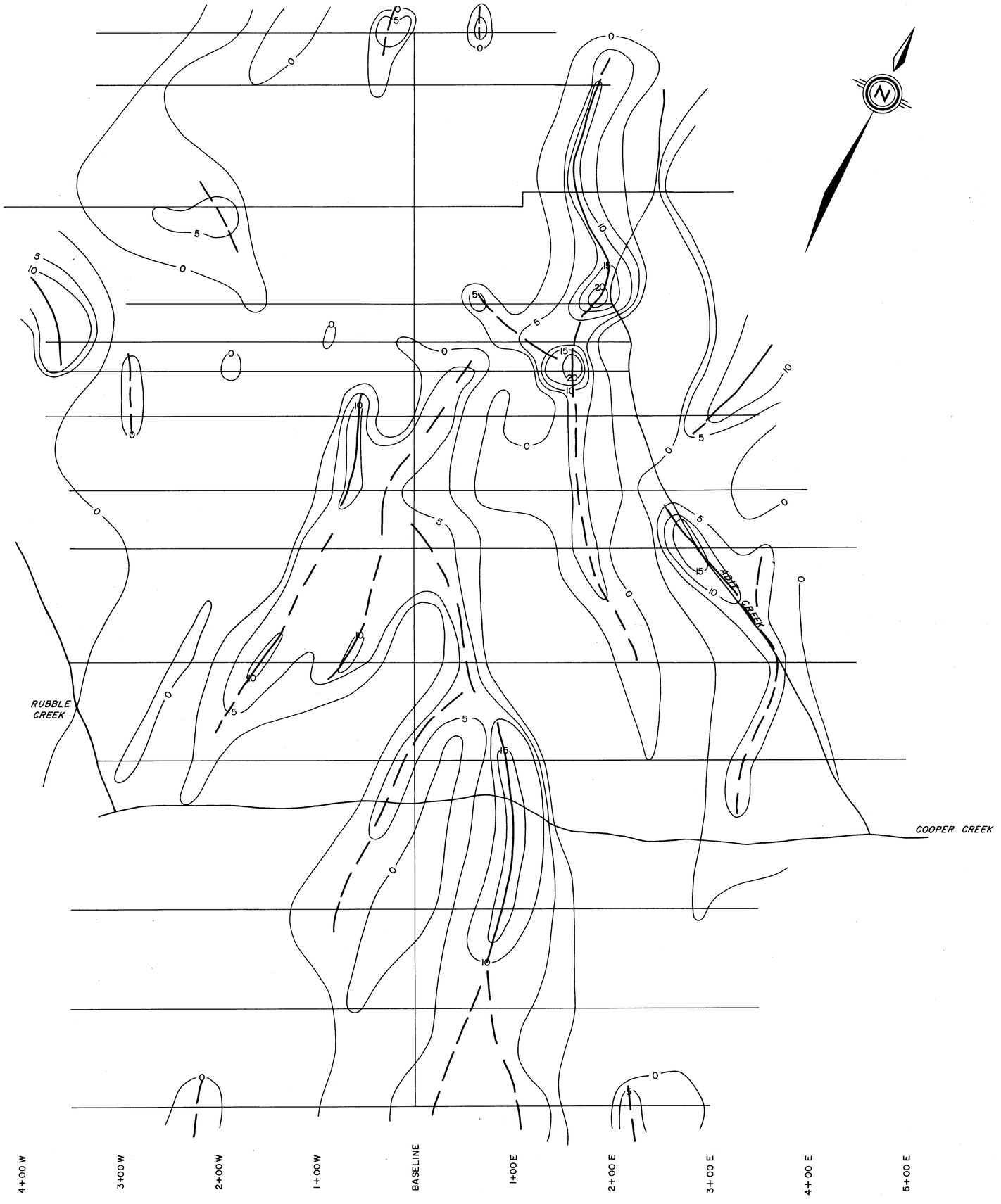
Readings taken facing N.

50 0 50 100 150
metres

SMD MINING CO. LTD.

VLF SURVEY
PROFILES
CUTLER, MAINE TRANSMITTER
COOPER CREEK GRID

PROJECT COOPER CREEK		
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT / 81	DWG CC1-13

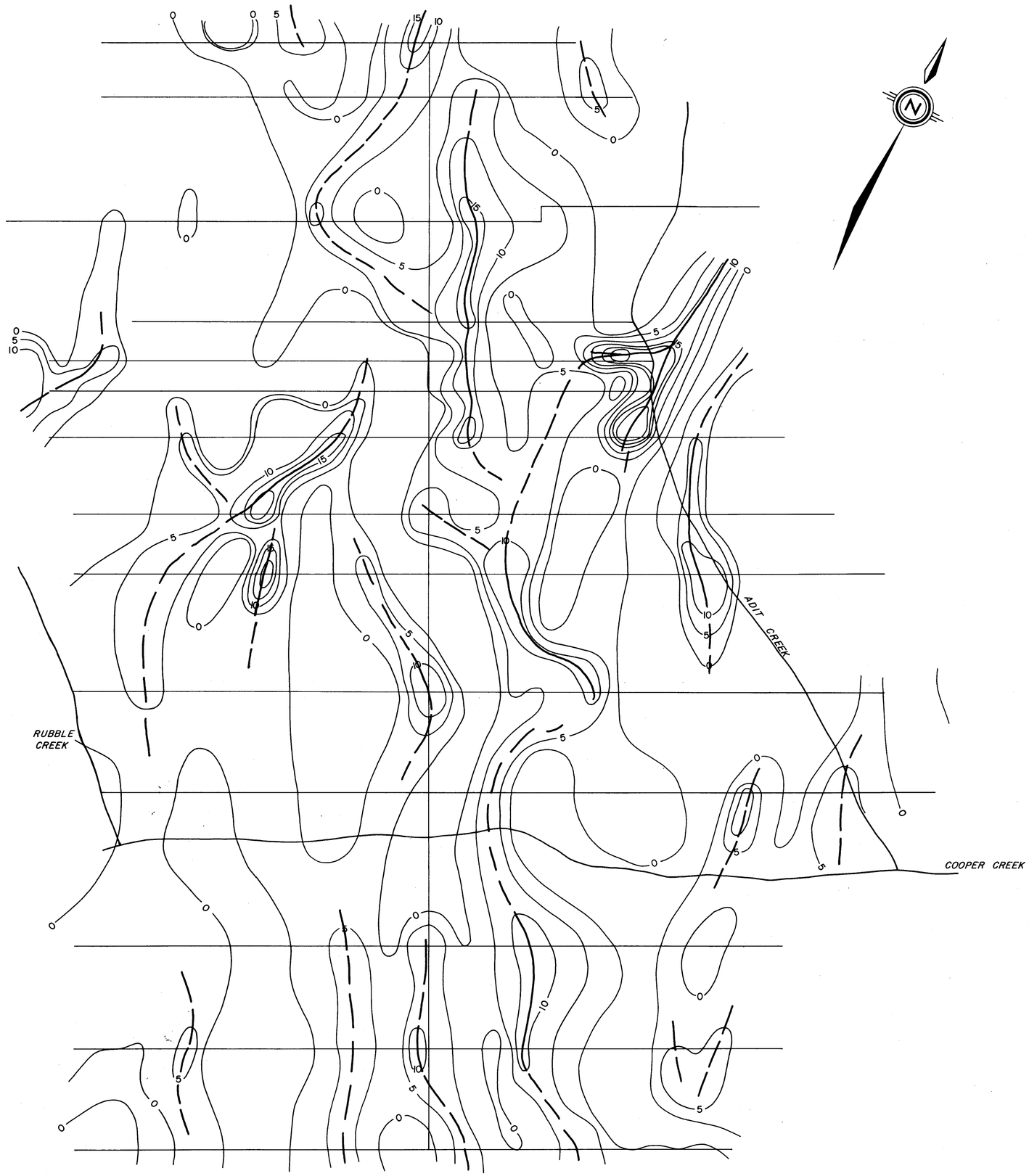


Contour Interval = 5 units
Conductor Axis ——— – –

SMD MINING CO. LTD.

VLF - EM SURVEY
FRASER FILTERED DATA
SEATTLE, WASHINGTON TRANSMITTER
COOPER CREEK GRID

PROJECT COOPER CREEK		
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT/81	DWG CCI-14



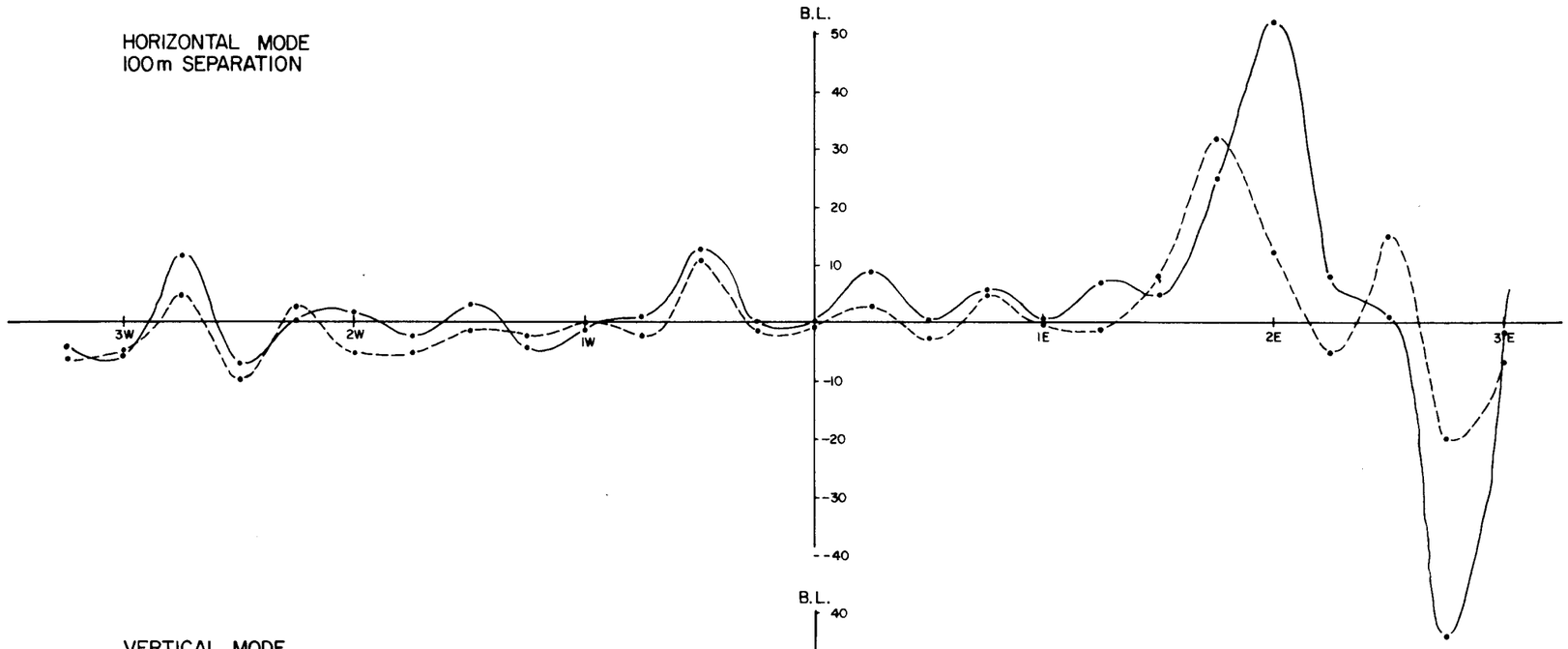
Contour Interval = 5 units
Conductor Axis ——— — —

SMD MINING CO. LTD.

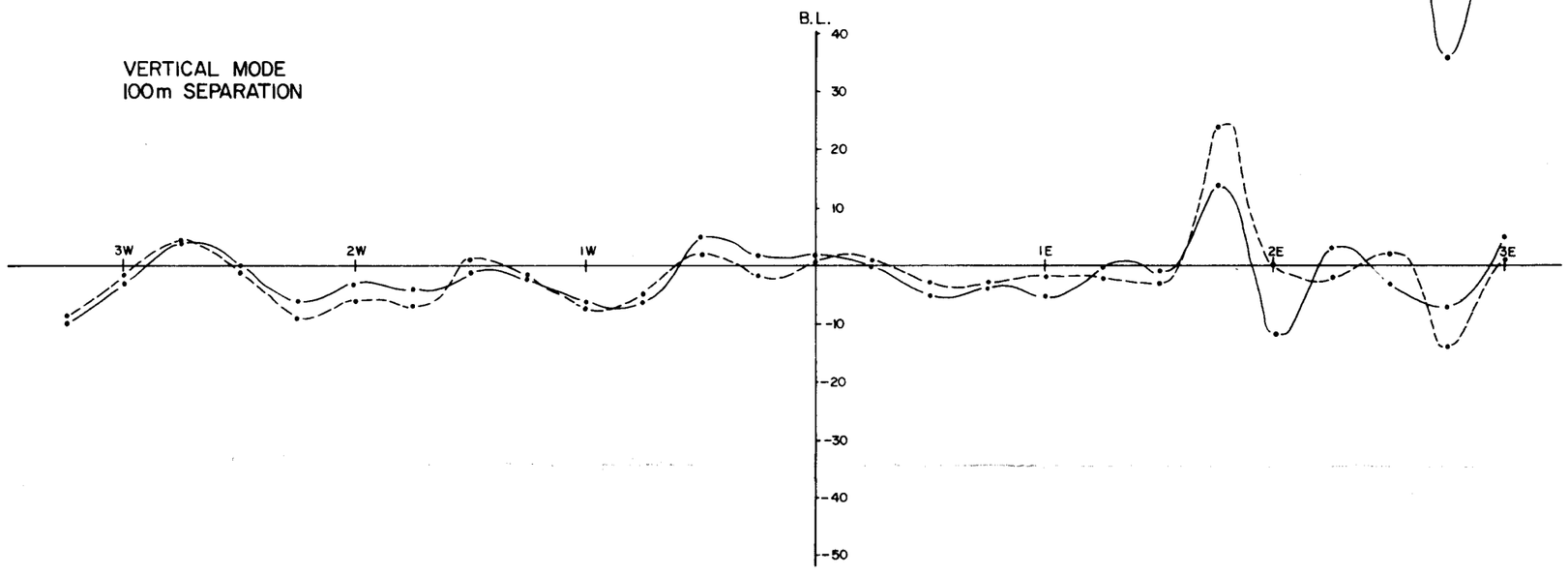
VLF - EM SURVEY
FRASER FILTERED DATA
CUTLER, MAINE TRANSMITTER
COOPER CREEK GRID

PROJECT COOPER CREEK		
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT/81	DWG CCI-15

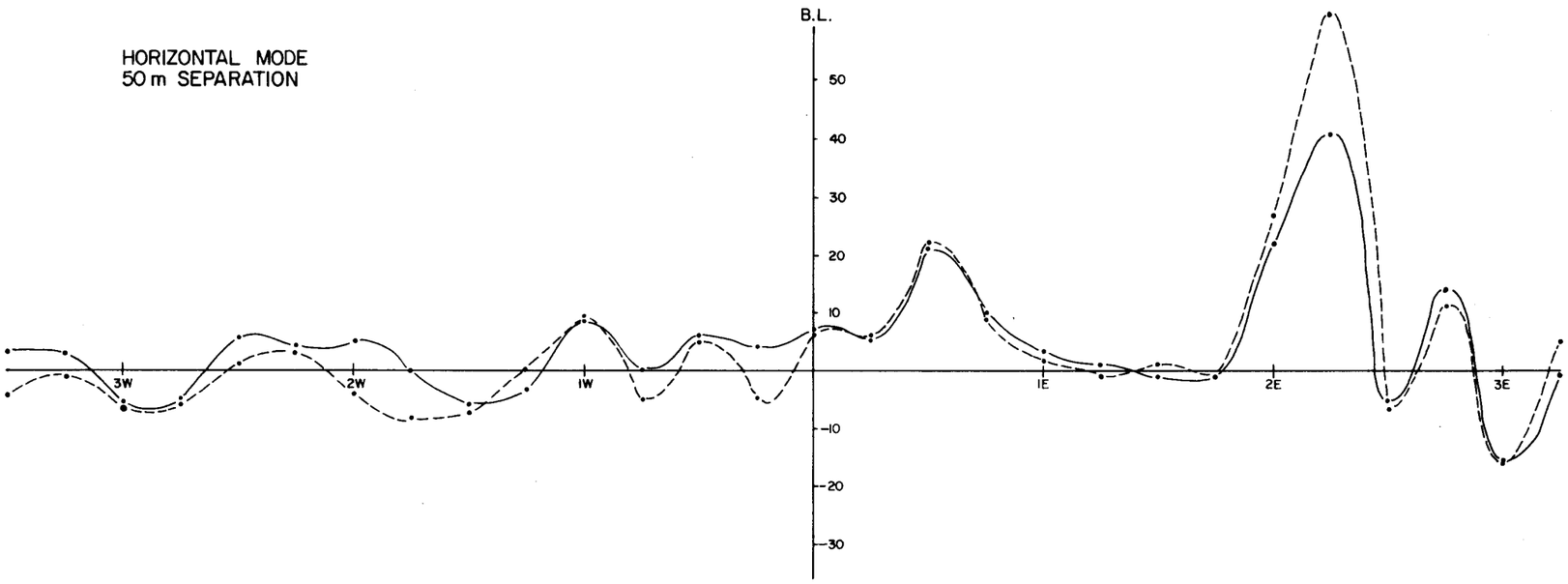
HORIZONTAL MODE
100m SEPARATION



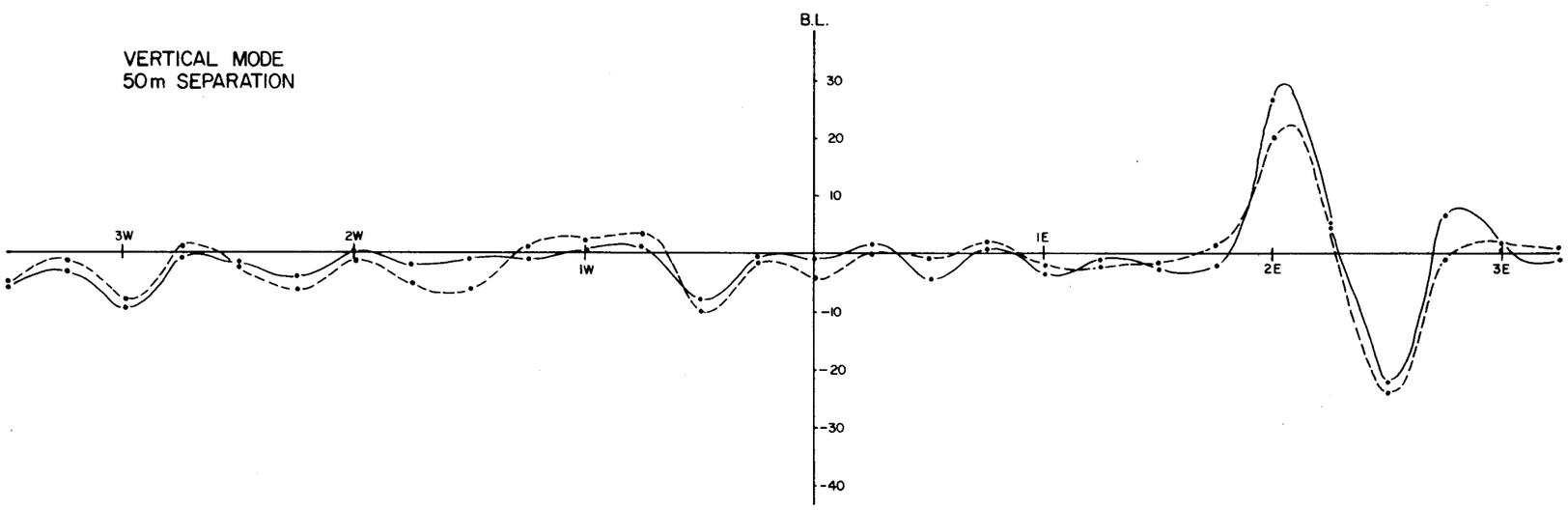
VERTICAL MODE
100m SEPARATION



HORIZONTAL MODE
50 m SEPARATION



VERTICAL MODE
50m SEPARATION



LEGEND

•——• Low freq.

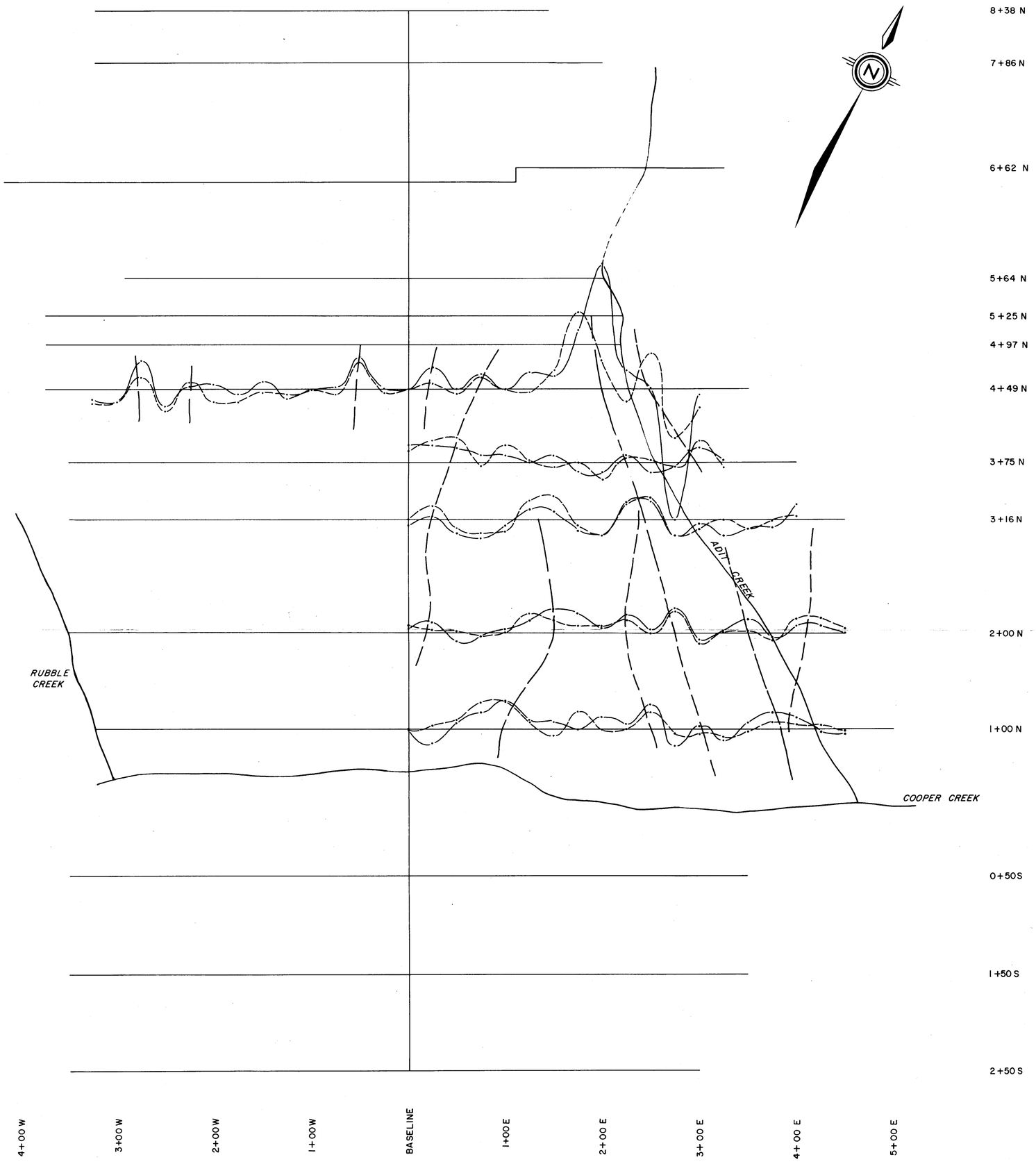
•- - -• Medium freq.

1cm = 10°

SMD MINING CO. LTD.

SHOOTBACK EM
TEST LINE 4+49 N

PROJECT COOPER CREEK		
NTS 82 - K - 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1 : 2500	
DRAWN S. BOGAN	DATE OCT/81	DWG CCI - 16



——— Conductor Axis
·—· Low Frequency
·— — Med. Frequency

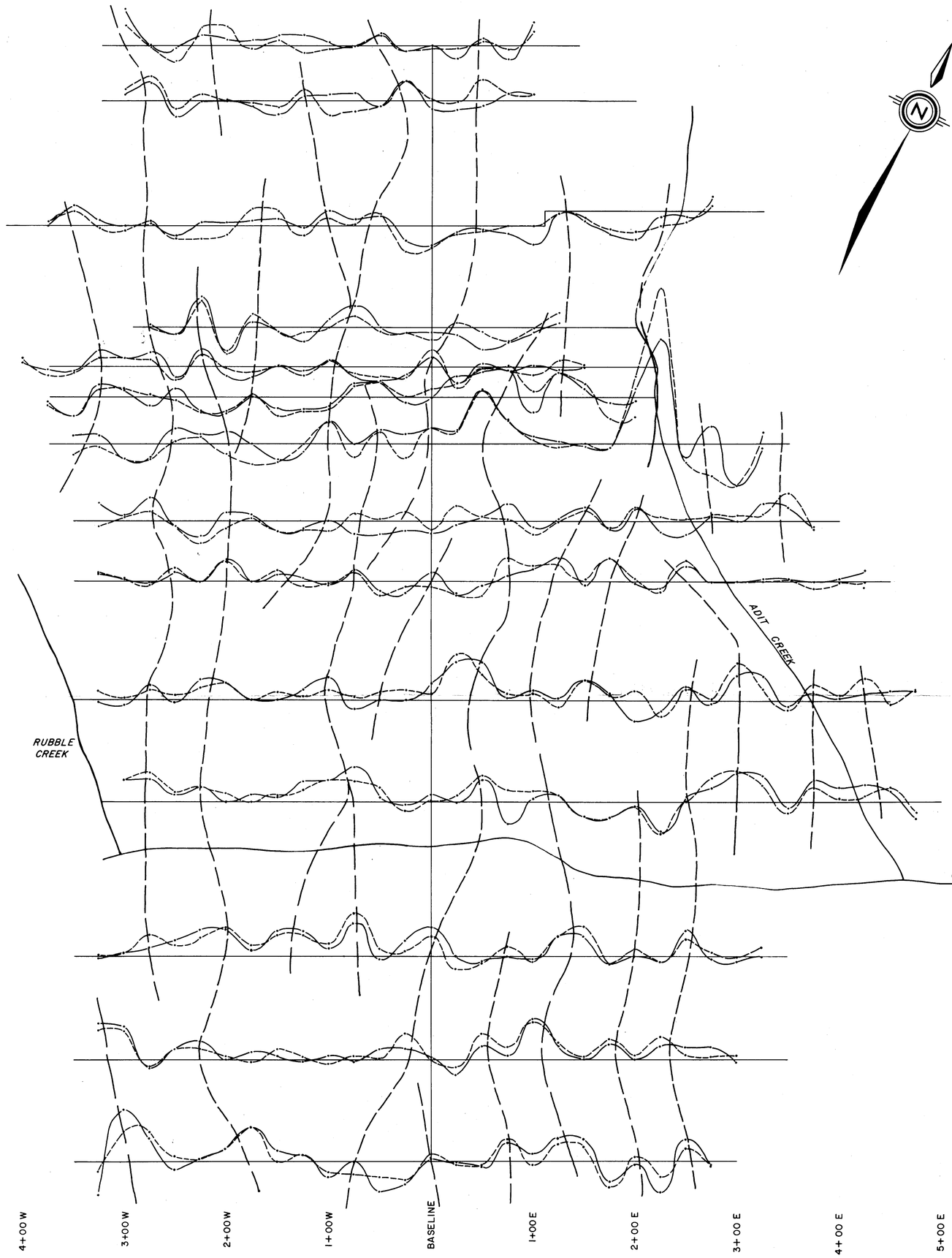
Scale 1 cm = 10°

50 0 50 100 150
metres

SMD MINING CO. LTD.

SHOOTBACK
HORIZONTAL MODE
100m SEPARATION
COOPER CREEK GRID

PROJECT COOPER CREEK	
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP
WORK BY D. JIRICKA	SCALE 1:2500
DRAWN D. OFSTIE	DATE OCT / 81 — DWG CCI-17



Conductor Axis
Low Frequency
Med. Frequency

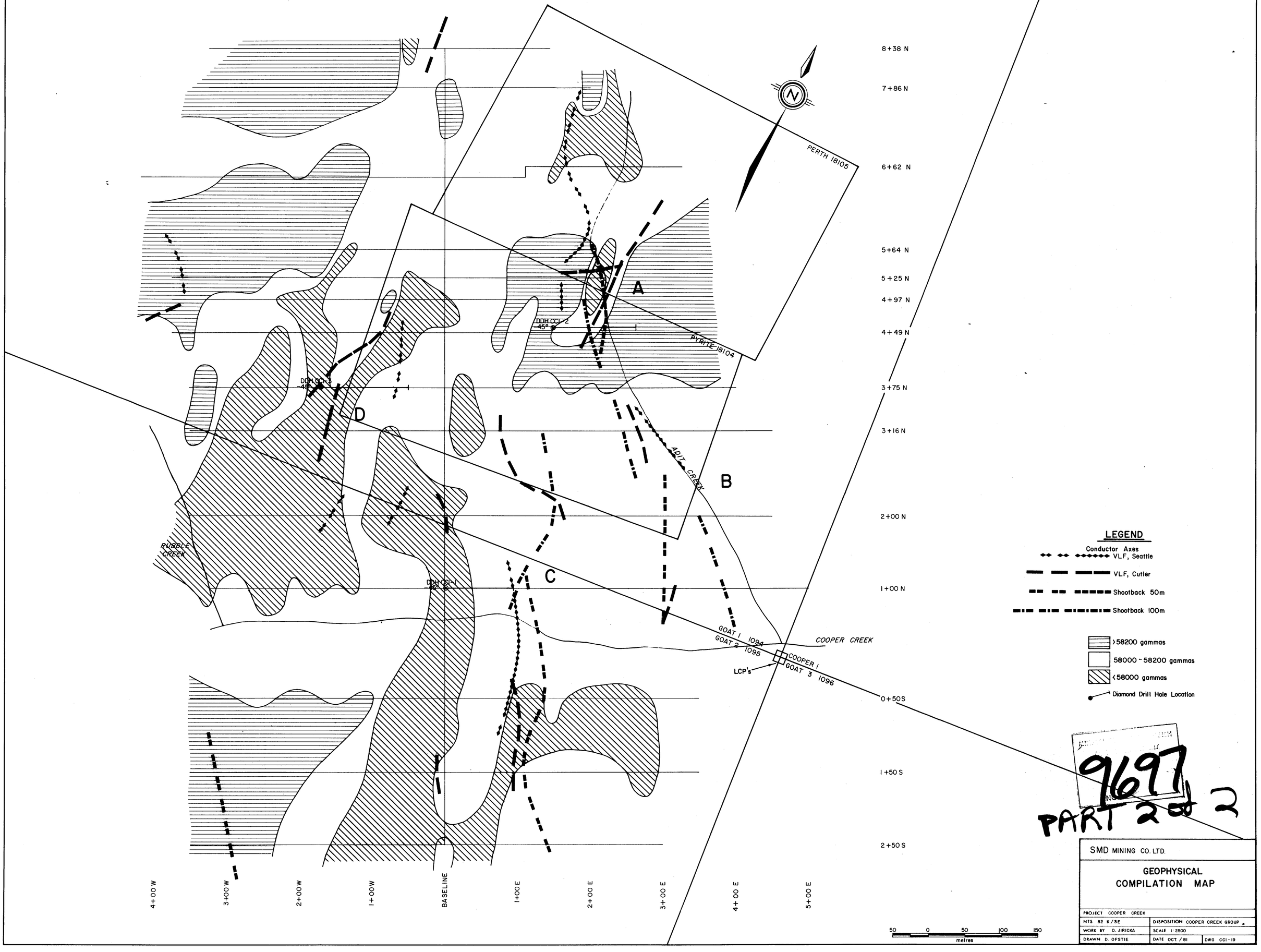
Scale 1 cm = 10°

50 0 50 100 150
metres

SMD MINING CO. LTD.

SHOOTBACK
HORIZONTAL MODE
50m SEPARATION
COOPER CREEK GRID

PROJECT COOPER CREEK		
NTS 82 K / 3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT/81	DWG CCI-18



SMD MINING CO. LTD.

GEOPHYSICAL COMPILATION MAP

PROJECT COOPER CREEK		
NTS 82 K/3E	DISPOSITION COOPER CREEK GROUP	
WORK BY D. JIRICKA	SCALE 1:2500	
DRAWN D. OFSTIE	DATE OCT. / 81	DWG CCI-19