1983 ASSESSMENT REPORT ON GEOLOGY AND GEOCHEMISTRY INCLUDING EXAMINATION OF TRENCHES

by
M.G. Morrice, Ph.D.

on the JD M.C.
(in the JD-82 Group)

situated near Mooseh Cr
in the Omineca Mining Division

57°26'W, 127°09'W
NTS 94E/6E

owned and operated by: Kidd Creek Mines Ltd.

December 1983 Vancouver, B.C.

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APPENDICES

LIST OF ILLUSTRATIONS

INTRODUCTION

Location, Access and Terrain

The JD property comprises 10 mineral claims and 3 fractional claims (95 units) in the Toodoggone area of north-central British Columbia (Figure 1).

Access to the property is by fixed-wing aircraft from Smithers to Sturdee Valley Airstrip and thereafter by helicopter.

The claim groups are situated at the eastern boundary of the Spatsizi Plateau and cover moderate to steep ridges between the broad valleys of Moosehorn and McClair Creeks (Figure 2). Vegetation below 1500 metres consists of a dense growth of spruce and fir trees. Alpine areas above 1500 metres are sparsely vegetated with moss, grasses and alpine flowers.

The property is under option by Kidd Creek Mines Ltd. from Energex Minerals Ltd..

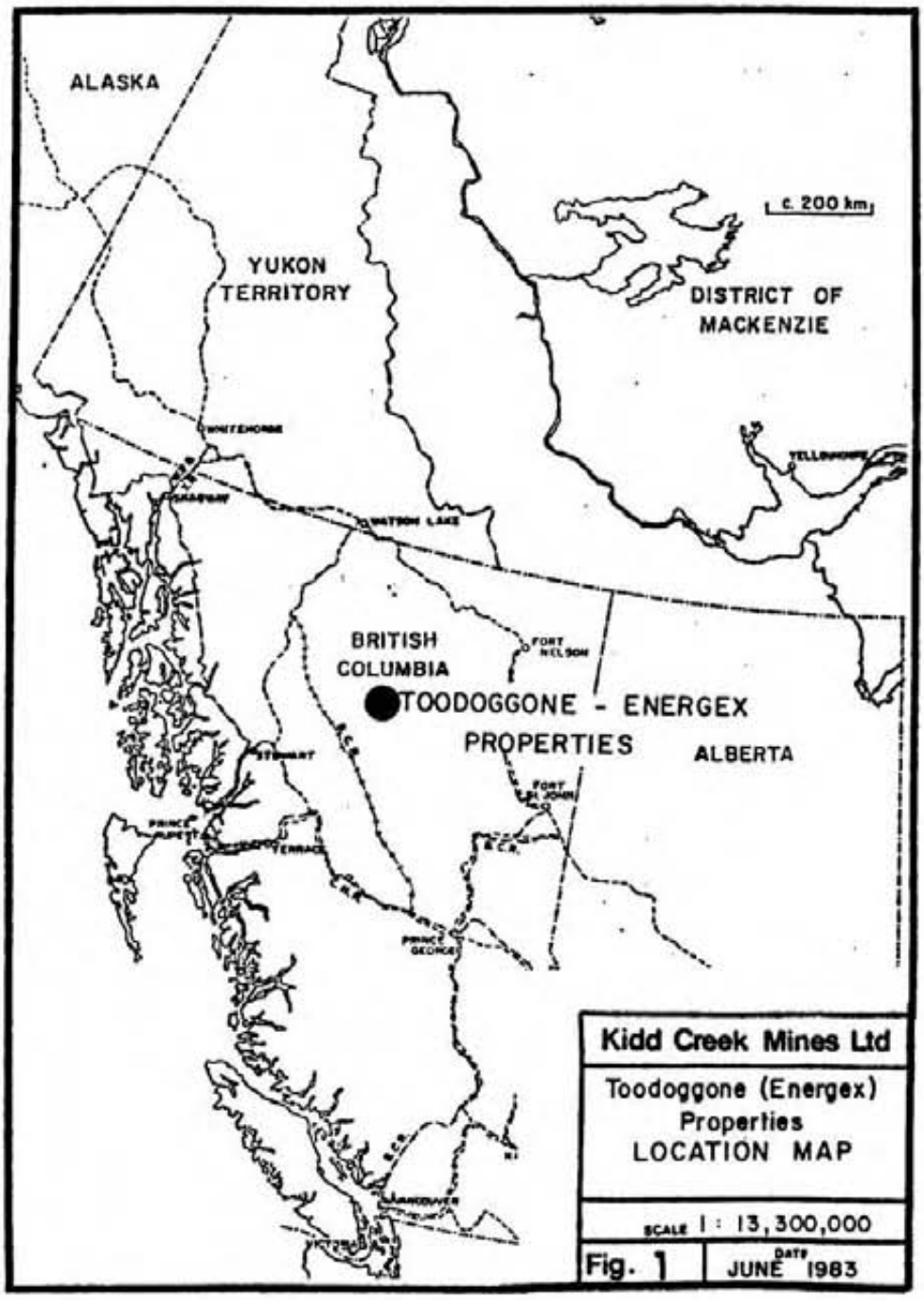
Previous Work

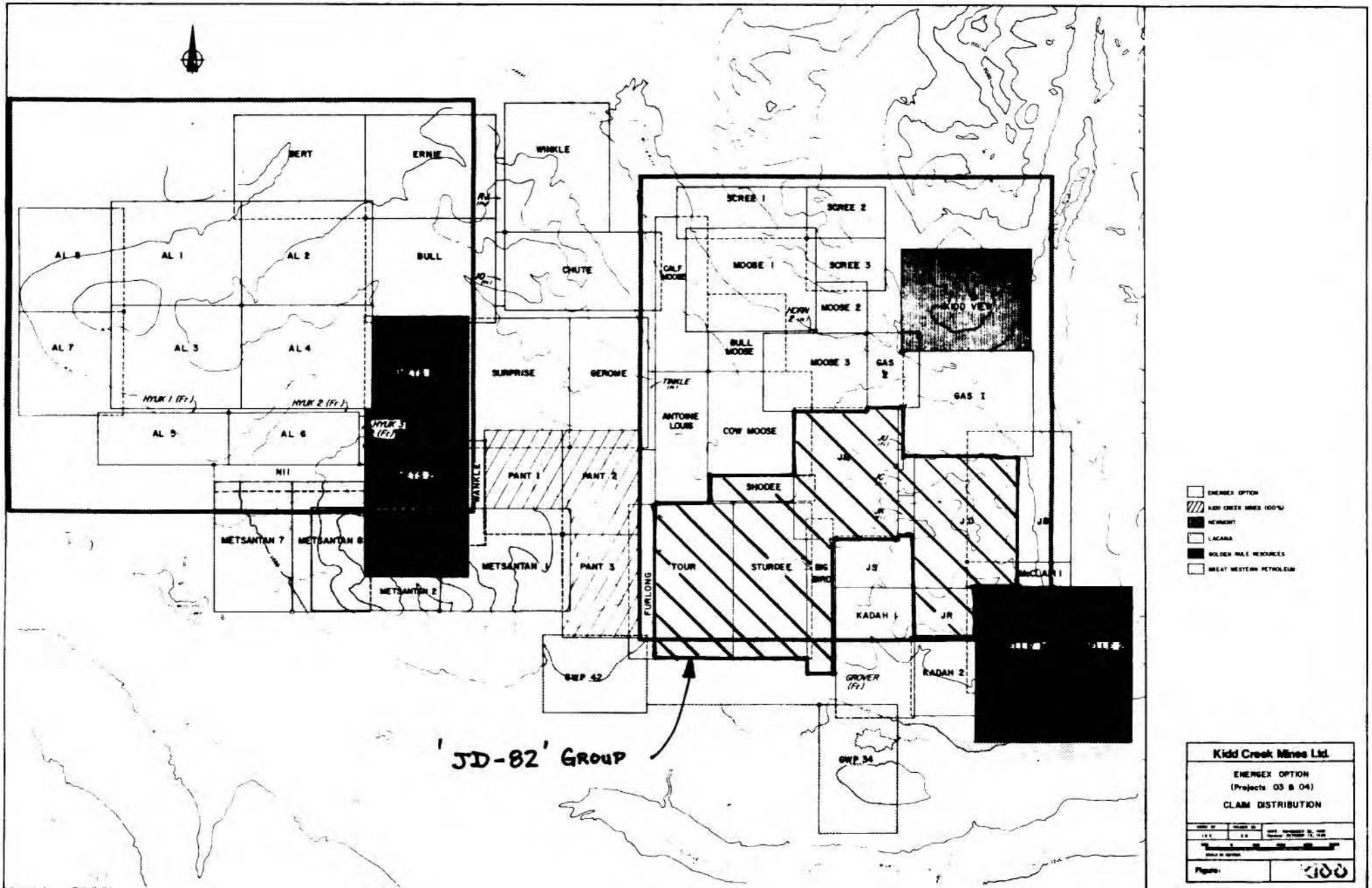
Previous work on the property during 1981 and 1982 included geological mapping, 92 m of trenching, soil geochemistry, rock-chip geochemistry, 1445 m of diamond drilling (16 NQ holes) and I.P. chargeability and resistivity surveys.

Summary of Work Completed in 1983

Trenching

813 m of trenches were dug by mechanized backhoe from July 6 to July 17, 1983. 433 m of trenches were dug during Sept 12 to 18, 1983. Bedrock was encountered in all but 54.5 m of the trenches.


ALASKA
YUKON TERRITORY
DISTRICT OF MACKENZIE
c. 200 km
WHITEHORSE
WATSON LAKE
YELLOWKNIFE
BRITISH COLUMBIA
FORT NELSON
TOODOGGONE - ENERGEX PROPERTIES
ALBERTA
STEWART
PRINCE RUPERT
TERRACE
PRINCE GEORGE
FORT ST. JOHN
VANCOUVER
Kidd Creek Mines Ltd
Toodoggone (Energex) Properties
LOCATION MAP
SCALE 1 : 13,300,000
Fig. 1
DATE JUNE 1983


BERT
ERNIE
WINKLE
AL 8
AL 1
AL 2
BULL
AL 7
AL 3
AL 4
CHUTE
SURPRISE
GEROME
HYLK 1 (Fr.)
HYLK 2 (Fr.)
AL 5
AL 6
NII
WANKLE
PANT 1
PANT 2
METSANTAN 7
METSANTAN 8
METSANTAN 1
METSANTAN 2
PANT 3
FURLONG
SCREE 1
SCREE 2
SCREE 3
CALF MOOSE
MOOSE 1
MOOSE 2
BULL MOOSE
MOOSE 3
GAS 2
GAS 1
ANTOINE LOUIS
COW MOOSE
SHODEE
TOUR
STURDEE
BIG BIRD
JS
KADAH 1
JR
KADAH 2
GROVER (Fr.)
GWP 42
GWP 34
McCLAIN 1
'JD-82' GROUP
ENERGEX OPTION
KIDD CREEK MINES (100%)
NEWMONT
LACANA
GOLDEN RULE RESOURCES
GREAT WESTERN PETROLEUM
Kidd Creek Mines Ltd.
ENERGEX OPTION
(Projects 03 & 04)
CLAIM DISTRIBUTION
Figure:
300

A Case 450 backhoe was used for the mechanized trenching. This machine, operated by S. Jaycox of Smithers, B.C., was flown by Hercules aircraft from Smithers to Sturdee airstrip and thereafter driven to the JD property. 1 m wide trenches were dug to bedrock, the depth of which varied between 0.5-3 m. Prior to sampling the trench, floors were hand-mucked.

Geological surveys

The author mapped the JD property at a scale of 1:5000 during the period June 20 to Sept 18, 1983. Emphasis was placed on volcanic stratigraphy and the relationship of alteration and mineralization to this stratigraphy.

During the period July 6 - 17, L. Haering, L. Louie, M. Morrice, and R. Vandenbrink mapped the trenches at a scale of 1:50. From Sept 12 - 18, 1983, M. Morrice and A. Boronowski mapped trenches at the same scale. Both trench floor and side panels were mapped. Trench maps are drawn with side panels rotated 90° about the trench axis so as to place the panels on the same planes as the floor (Appendix A).

Geochemical surveys

During the period June 15 - September 2, 1983, 100 rock chip samples from the property and 872 trench panel samples were analysed by fire assay methods for Au and Ag ($\pm$ Cu, Pb, Zn). Three rock chip samples and 133 trench panel samples were analysed by atomic absorption (AA) for the same elements.

After Sept 2, 1983, 31 rock chip samples and 257 trench panel samples were analysed for Au and Ag, (± Cu, Pb, Zn) by AA and 281 trench panels by fire assay.

Between June 20 and July 4, soil gas geochemical samples were collected on the Pit grid of the JD property. These samples were analysed for CS_2, SO_2, COS, CO_2, H_2S and C_1-C_4 gases. A total of 49 gas-collecting bottles were buried at 20 m spacings along lines 3W, 2W, 0 and 2E of the Pit grid at a depth of approximately 0.5 m within the soil. Thirty-eight bottles were buried along lines 3W and 2E. These were placed across silicified zones to test this new technique for locating mineralization. Later, 11 more bottles were placed on lines 2W and 0 of the same grid.

Each bottle had an absorbing material in a protective plastic bottle attached to a 1 m long stake. After 2 weeks burial the collecting vial was unearthed, capped and shipped to Medeco, an analytical laboratory in Salt Lake City, Utah. Analysis for 6-9 carbon and/or sulphur compounds was carried out on each bottle of sorbent. Details of the principles of this geochemical technique are outlined in Appendix E.

Geophysical Surveys

G. Hendrickson , D. Flentge and T. Hutteman conducted an Induced Polarization (I.P.) chargeability and resistivity survey on a prepared grid on the Pit zone. A magnetometer survey was conducted over the same grid by R. Vandenbrink. (Hendrickson, 1983).

GEOLOGY

Regional Setting

The JD property occurs near the eastern margin of a Mesozoic volcanic arc assemblage. This assemblage is bounded by sedimentary rocks of the Sustut and Bowser Basin assemblages and to the east by the Omineca Crystalline Belt (Gabrielse and Dodds, 1974, Gabrielse et al, 1975, 1976). The property is underlain by the "Toodoggone" volcanic sequence. The Toodoggone series unconformably overlies submarine basalts and andesites of the Takla Group (Carter, 1971).

The Toodoggone volcanic sequence comprises a complexly intercalated assemblage of andesite, dacite and trachyte flows, tuffs, ash flow tuffs and epiclastic rocks which has a minimum thickness of 1000 m (Schroeter, 1982). These rocks were deposited in subaerial and shallow water environments. K-Ar and Rb-Sr radiometric dates from whole rock and mineral separate samples range from 179 to 190$\pm$ 7 Ma (Gabrielse et al, 1980). The Toodoggone volcanic rocks have a general northwest trend with variable, shallow to moderate westerly dips.

Property Geology

Introduction

The JD property is underlain by at least 800 m of shallow-dipping andesitic flows and flow breccias with lesser coarse and fine volcaniclastic rocks and

subvolcanic intrusions. This sequence is cut by steeply dipping mafic and felsic dykes. Layering attitudes, as measured from bedding planes of tuffaceous units and flaggy jointing of flows average 305°/35°SW. Deviations from this trend are due to either topographic irregularities during deposition or post-depositional disruptions.

Petrology

Extrusive rocks

The volcanic sequence has been subdivided on the basis of texture and phenocryst mineralogy into two formations. The lower, herein termed Formation B (map Unit 2), is composed of hornblende + plagioclase + magnetite + apatite - phyric andesites and dacites. Formation A (map Unit 1), the upper formation, comprises plagioclase $\pm$ biotite $\pm$ hornblende $\pm$ clinopyroxene + magnetite + apatite - phyric andesites and dacites. These two formations are in contact along a low-angle (thrust? gravity?) fault (Figure 3).

Both formations are dominated by flows and flow breccias. Flaggy jointing is commonly developed parallel to original layering. This jointing is a result of shear during flow and imparts a fissility to the rock. Individual flows are <20 m thick, and commonly are auto-brecciated. Volcaniclastic rocks occur infrequently (<5%). Auto-brecciated flows often grade vertically into lahars and tuffs. Tuffaceous units are <2 m thick. One tuffaceous bed, encountered in Formation B, contains fossil charcoal reeds indicating shallow water deposition.

Formation B is at least 600 m thick. Phenocryst phases include hornblende (5-8%) + plagioclase (10-20%) + magnetite (1-2%) + apatite (trace). The groundmass is aphanitic and varies in colour from light grey-purple-green, depending on degree and type of alteration. Phenocrysts, <5 mm in longest dimension, are often aligned due to flow.

Formation A is at least 200 m thick. Phenocryst phases include plagioclase (10-25%) $\pm$ biotite (2-7%) $\pm$ hornblende (5-10%) $\pm$ clinopyroxene (5-7%) + magnetite (1-2%) + apatite (trace). Large sanidine megacrysts (1-2 cm) occur infrequently. The groundmass is aphanitic. Major phenocryst phases are larger than their counterparts in Formation B.

Intrusive rocks

Subvolcanic intrusions, compositionally similar to the extrusive rocks, have not been recognized on the JD property. However, this may be a manifestation of poor exposure. Nevertheless, two types of intrusions are recognized ; both are compositionally distinct from their host volcanic rocks.

Diabase dykes, each less than 2 m thick, are confined to a 50 m wide swarm which crops out for 900 m along strike on the Pit Grid. At least 8 individual dykes are recognized. These diabase dykes intrude andesites of both Formations A and B. Individual dykes trend at 290°/86°E in Formation B, and at 316°/76°E in Formation A. This difference in dyke attitudes is the result of either different preferred fracture orientations into which the dykes were emplaced or post-emplacement faulting. In either case, the relatively restricted spatial distribution of diabase dykes on the JD property

and the presence of dykes in Formations A and B suggests that dyke emplacement post-dates the major period of movement along the low-angle fault (LAF) which defines the contact between Formations A and B.

The diabase dykes are dark green to black, magnetic, aphanitic and contain up to 5% spherical to ovoid calcite-filled amygdules (2-5 mm diameter). Chilled margins are <2 cm thick. 3-5 cm thick rusty, pyritic zones are often developed in the immediate host rock.

Felsic intrusions occur in two areas on the property. A 1-2 m wide plagioclase-phyric felsic dyke crops out on the Pit Grid and strikes north-south to the ridge above the east end of the JD-West zone (Figure 3). This dyke is continuous and cuts both Formation A and B, having been emplaced after movement along LAF. The dyke contains 7-10% plagioclase phenocrysts (2-5 mm) in an aphanitic orange-pink groundmass. This dyke has a conspicuous 5 cm wide flow-banded chill margin. A similar dyke crops out near the "EOS" zone to the east (Figure 3). Two plagioclase-phyric felsic intrusions crop out in the "WOOF" area (Figure 3). The smaller intrusion occurs as an isolated (10 m^2) outcrop immediately adjacent to calcite-acanthite veins of the WOOF zone. This intrusion contains 10% plagioclase phenocrysts in an aphanitic orange-pink groundmass, similar to the north-trending dyke to the east. The larger intrusion, located 400 m ENE of the WOOF zone, is approximately 25 m wide, trends east-west and appears to be faulted at its eastern extremity. Mineralogically, this dyke contains 10-15% plagioclase phenocrysts in an aphanitic dark grey groundmass. These latter dykes intrude only Formation B rocks, at the present erosion level.

Structural geology

Faulting

As previously mentioned, low-angle faults (LAF) define the contact between Formations A and B. It is not known whether these are thrust or gravity faults. LAF occurs as two distinct faults separated by a topographic valley (Figure 3). These two faults have juxtaposed similar lithologies and have similar associated styles of alteration suggesting that LAF was once continuous between the two areas.

LAF has been offset in several locations. The greatest observed displacement is at the mid-eastern part of the property where a steeply dipping, east-trending fault (ESF) has produced approximately 50 m of apparent vertical offset on LAF. A 50 m wide zone of steeply dipping east-trending fracture cleavage 600 m to the west in Formation B andesites may be related to ESF (Figure 3). North of ESF, LAF trends at 302°/24° NE while south of ESF, LAF trends at 339°/37° NE. This suggests that LAF has experienced both rotation and displacement about ESF.

No attitudes were measured on LAF in the southeastern part of the property. However, from geometric inspection, this portion of LAF trends at 300°/2-20°SW. It is not known whether this change of dip direction of LAF is a primary feature or is related to later faulting. There are no lineaments or obvious structural zones of appropriate orientation to account for the change of dip of LAF across the intervening valley (Figure 3).

Slickensides were measured on joint and fault surfaces from around the JD property. While there is considerable scatter in the data, 82% (14 of 17) have plunges less than 45° and 59% (10 of 17) have plunges less than 25°. 65% (11 of 17) have plunge directions of 035° ± 21° (1). That is, the last movement along these fault and joint surfaces which is preserved as slickensides has a preferred shallow plunge (0-45°) in a northeast direction.

The rocks on the JD property invariably lack any preferred structural orientation with the exception of confined zones of shearing and fracture cleavage.

Alteration

Hydrothermal alteration on the JD property is structurally controlled and related to faulting and fracturing of the host volcanic rocks. This alteration has, at least in part, been superimposed on earlier diagenetic hematization (Type A1, A2). Primary igneous textures are variably destroyed, depending on the type and degree of alteration. Many of the alteration types are intimately related and may be part of the same hydrothermal event. Mineralization is best developed in propylitized and/or silicified volcanic rocks.

Type A1: Unaltered to very weakly hematized volcanic rocks occur in minor isolated patches in the JD-West and Pit zones. Primary textures and mineralogy are preserved. The groundmass is a light grey colour.

Type A2: Hematization imparts a distinctive grey or grey-purple colour to the groundmass of volcanic rocks. In addition, the ferromagnesian minerals are altered to hematite. Primary textures are

invariably preserved. This alteration style may be largely diagenetic alteration in a subaerial environment. However, some hematization is clearly hydrothermal, having developed along fractures and shear zones which cross-cut primary layering.

Type A3: Propylitization affects approximately 30-40% of the andesites on the JD property. Propylitized volcanic rocks have a distinctive green groundmass, the result of the alteration of pyroxene to chlorite and uralitic hornblende. The groundmass also contains considerable disseminated calcite. Epidote is a common alteration product of plagioclase feldspar. The plagioclase feldspar phenocrysts are often orange- or pink-coloured due to the presence of finely disseminated hematite. With increasing degree of propylitization the ferromagnesian phenocryst phases may be obliterated.

Propylitic alteration zones range in thickness from 2 to >50 m and generally trend northwest with steep dips. As such, these alteration zones cross-cut primary volcanic layering. These zones are continuous along strike for >150 metres. The thinner zones are often associated with shearing in the host volcanic rocks while the thicker alteration zones appear to be fracture-controlled.

With decreasing intensity of alteration, Type A3 passes into weak propylitization (Type A3a), characterized by a mottled green and grey groundmass, the result of partial chloritization of the groundmass.

The propylitic alteration zones are of foremost importance on the JD property, either directly hosting mineralized veins or as haloes around more

intensely altered (i.e. Type A6, A7) and mineralized systems. In fact, all known mineralization is associated with the propylitic zones. This suggests that propylitization has been superimposed upon earlier hematitic alteration. The contacts between propylitic and hematitic alteration zones are sharp and usually marked by a 1-5 m wide zone of mixed propylitization and hematization.

Type A4: This alteration type is characterized by white, yellow, brown or purplish argillization. Complete replacement of primary minerals by clay minerals occurs, but more commonly, argillization affects selected minerals, primarily plagioclase. Pyrite is commonly present. Argillic alteration exhibits an intimate association with silicification.

Type A5: Phyllic (quartz - pyrite - sericite) alteration is developed locally on the JD property, invariably with propylitic haloes. This suggests a genetic relationship between phyllic alteration and propylitization. Phyllic zones range in thickness from <1 m to >20 m. The intensity of silicification varies from weak groundmass to almost total silicification. Pyrite is disseminated in amounts ranging from 1-10%. Phyllic alteration zones appear to be linear, related to fractures and generally trend NW with steep dips. The ferromagnesian phenocrysts are often obscured by phyllic alteration.

Type A6: Intense silicification is characterized by almost total replacement of primary minerals by quartz. Pyrite is sometimes present in amounts ranging from 1-10%. Volcanic textures are sometimes preserved. Type A6 alteration is often

associated with argillization. Type A6 alteration forms linear NW-trending zones with variable dips. Type A6a alteration is characterized by groundmass silicification. Specular and red hematite is associated with Type A6 alteration, especially in the JD-West area.

Type A7: With the development of open-space quartz veining, Type A6 alteration becomes Type A7. Quartz veins are thin (<5 cm), white to clear, and sometimes chalcedonic.

Mineralization

Mineralization on the JD property occurs in various alteration assemblages in two general structural settings. In the first setting (Type M1) propylitic (Type A3) alteration zones (+ Type A5 + A6 + A7) often contain steeply dipping quartz, calcite or quartz-calcite veins in Formations A and B. In the second structural setting (Type M2), Type A6, A7 and A4 (silicification + argillization) alteration assemblages occur along the NNW-trending, shallow-dipping contact between Formations A and B.

Silver (acanthite, native silver) silver-gold, gold-silver and gold (native gold) mineralization types are recognized. Associated sulphide minerals include pyrite, sphalerite, galena and chalcopyrite.

Type M1 mineralization

Mineralization in Formation A is sparse and consists primarily of gold associated with steeply dipping quartz-clay (Types A6, A4) alteration zones, thin (<1 cm) quartz veins, or calcite veins. Most of these mineralized zones are of no further interest either because of low Au and Ag values or limited extent. However, on the southwest part of the property thin (>10 cm) calcite veins

with up to 10.6 ppm Au and 54.4 ppm Ag occur over a 10-15 m wide zone (Ridge zone).

Significant mineralization occurs in the steeply dipping calcite and quartz veins in Formation B. Three new zones are recognized: GASP, WOOF and EOS (Figure 3). The previously identified Ag-carbonate zone is reinterpreted here as a two-phase carbonate+acanthite vein in Formation B which is truncated by the JD-West structure.

The GASP zone consists of calcite-quartz veins in a propylitic volcanic host in the Pit Grid area (Figure 3). Individual calcite-quartz veins range from <1 mm to 20 cm thick and trend 295°/80° N. Thicker veins contain angular fragments of propylitic andesite wallrock. These veins occur in a NW-trending lens-shaped zone; which is approximately 20 m thick and 150 m along strike. The centre of the zone is at 2+00W, 0+15S of the Pit Grid (Figure 6). In these veins native gold occurs as tiny blebs (<.1 mm) usually attached to sulphide grains. The best trench intersection, in J83P-11 (Appendix A, Fig. 12), was 14.3 g/t (grams/tonne) Au and 4.5 g/t Ag across a true width of 12 m. Grab samples contain up to 217.0 g/t Au and 62.5 g/t Ag.

Thin (10 cm-1 m) diabase dykes are associated with, but not confined to, the GASP zone. Their genetic relationship to GASP mineralization is not known.

GASP mineralization appears to pre-date silicification as evidenced in trench J83P-13 (Appendix A, Fig. 14), where a hydrothermal breccia consists of fragments of calcite (with galena, pyrite, sphalerite) in a siliceous groundmass. This breccia is at the intersection of a silicified zone and the GASP zone.

The EOS zone, located approximately 800 m east-northeast of the Schmitt Showing (Figure 3), consists of NW-trending, steeply dipping quartz-calcite veins which are hosted by propylitized hornblende-plagioclase andesite, possibly of Formation B. Individual veins, 0.5-8 cm thick, occur in a 20-30 m wide zone with 2-3 veins/metre. The mineralogy of the veins is quartzcalcite-sphalerite-galena-pyrite-chalcopyrite. Grab samples of vein material contain up to 17.7 ppm Au and 47.4 ppm Ag.

The WOOF zone occurs approximately 500 m west of the Schmitt zone (Figure 3). This zone comprises two distinct vein types. A 1- 2 m wide zone of hematitic and argillically altered andesite is brecciated by milky-white quartz with visible gold. Grab samples contain up to 79.2 g/t Au and 39.0 g/t Ag. The second vein-type occurs 150 m north of the first vein where propylitic andesite is brecciated by calcite-acanthite veins with up to 5.3 g/t Au and 3650.0 g/t Ag. This latter zone is approximately 1 m thick. Both zones trend NW with sub-vertical dips.

Type M2 mineralization

Significant mineralization is associated with the shallow-dipping fault contact between Formations A and B. One of these mineralized zones, the JD-West, was trenched and drilled in 1982. This zone is characterized by intense silicification $\pm$ hematite. Au values are low, however, Ag values are significant.

In the Pit zone on the east-central part of the JD property, Au-Ag mineralization is associated with silicification- argillization in the "GUMBO" zone. The GUMBO zone is associated with the shallow-dipping fault which marks the contact between Formations A and B. The

zone of alteration is thickest (approximately 3 m) at both exposed extremities lines 2+50W, 1+00E) and thins to 20 cm near line 1+00W. Between 0+00 and 1+00E there are two zones of clay-quartz alteration separated by moderately silicified biotite-hornblende-plagioclase phyric andesite. It is not known whether these are two separate alteration zones or the repetition of one zone by imbricate faulting. GUMBO zone alteration is continuous for 400 m along strike.

The GUMBO zone is composed dominantly of yellow clay with angular to rounded fragments of argillized or silicified andesite and coherent layers of intensely silicified andesite. The proportion of quartz/clay is lower (approximately 1:20) at the eastern end of the GUMBO and increases westward (maximum: approximately 5:1). The yellow clay with enclosed fragments may represent fault gouge. Ground-up silicified layers also indicate post-alteration movement.

The east-west increase in quartz/clay ratio of the GUMBO zone corresponds with an increase in thickness and degree of phyllic alteration in the immediate hanging-wall. In trenches J83P-24 and 82-3, thin ($\leq$1 cm) quartz veins have been emplaced within this phyllic zone.

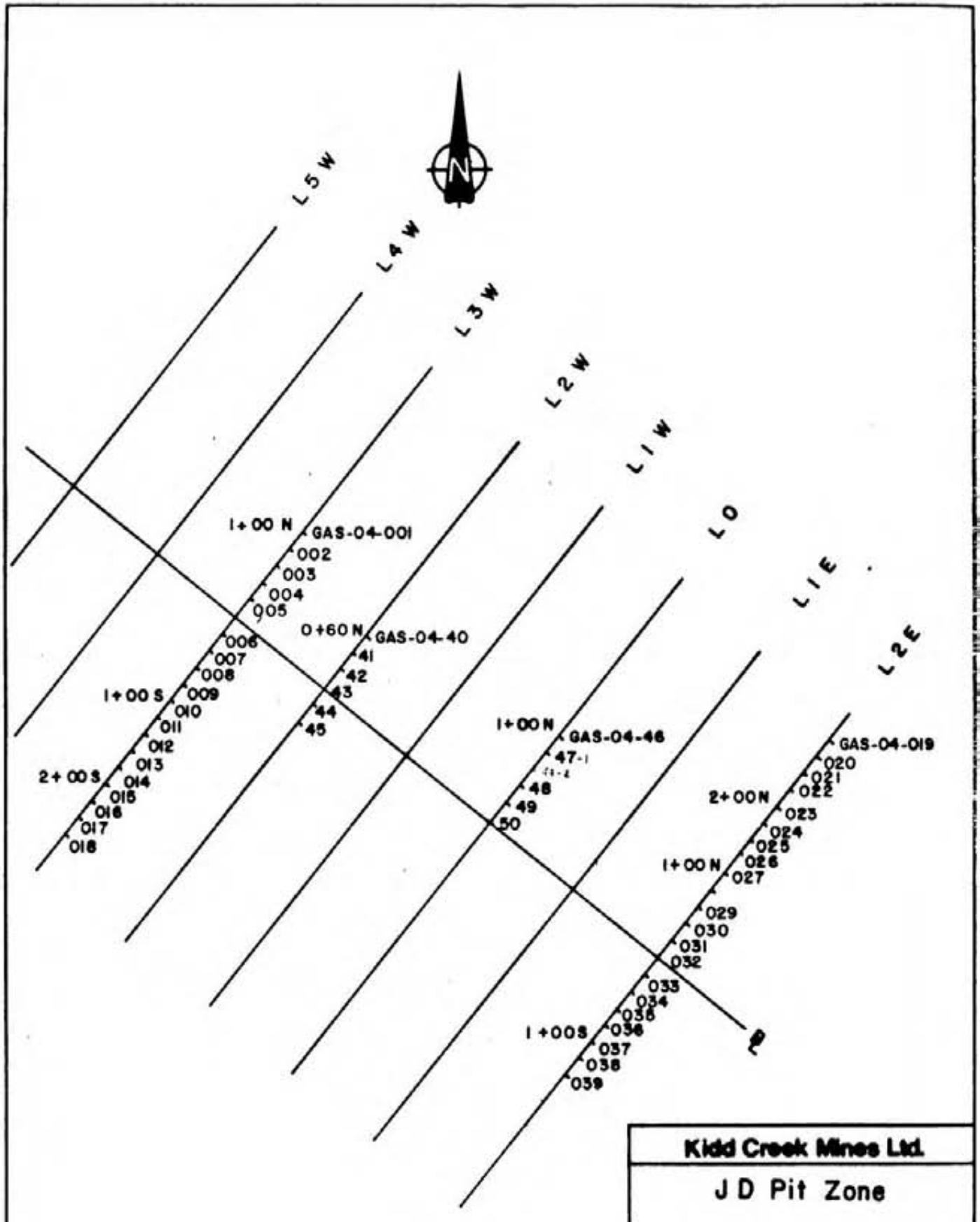
The GUMBO zone quartz-clay development is dominantly replacement-type alteration with only minor open-space quartz-veining. Silicification is intense, invariably destroys primary volcanic textures and is white, buff or grey in colour. Sulphides, where present, include finely disseminated pyrite (0-10%) and trace amounts of sphalerite, galena and acanthite.

It is not known whether GUMBO zone alteration has affected Formation A, B or both.

In the GUMBO zone, gold and silver mineralization is associated with coherent and fragmented zones of intense silicification. Gold and silver values of silicified material range up to 70.2 g/t Au and 185 g/t Ag, respectively. The best intersections are 1.35 m (true width) of 6 g/t Au and 141 g/t Ag (J83P-3) (Appendix A, Figure 4) and 1.3 m of 18 g/t Au and 69 g/t Ag (J83P-1) (Appendix A, Figure 1). There is an eastward increase in gold:silver ratios and in absolute gold contents. This trend is the continuation of the JD-West zone, which is relatively silver-rich.

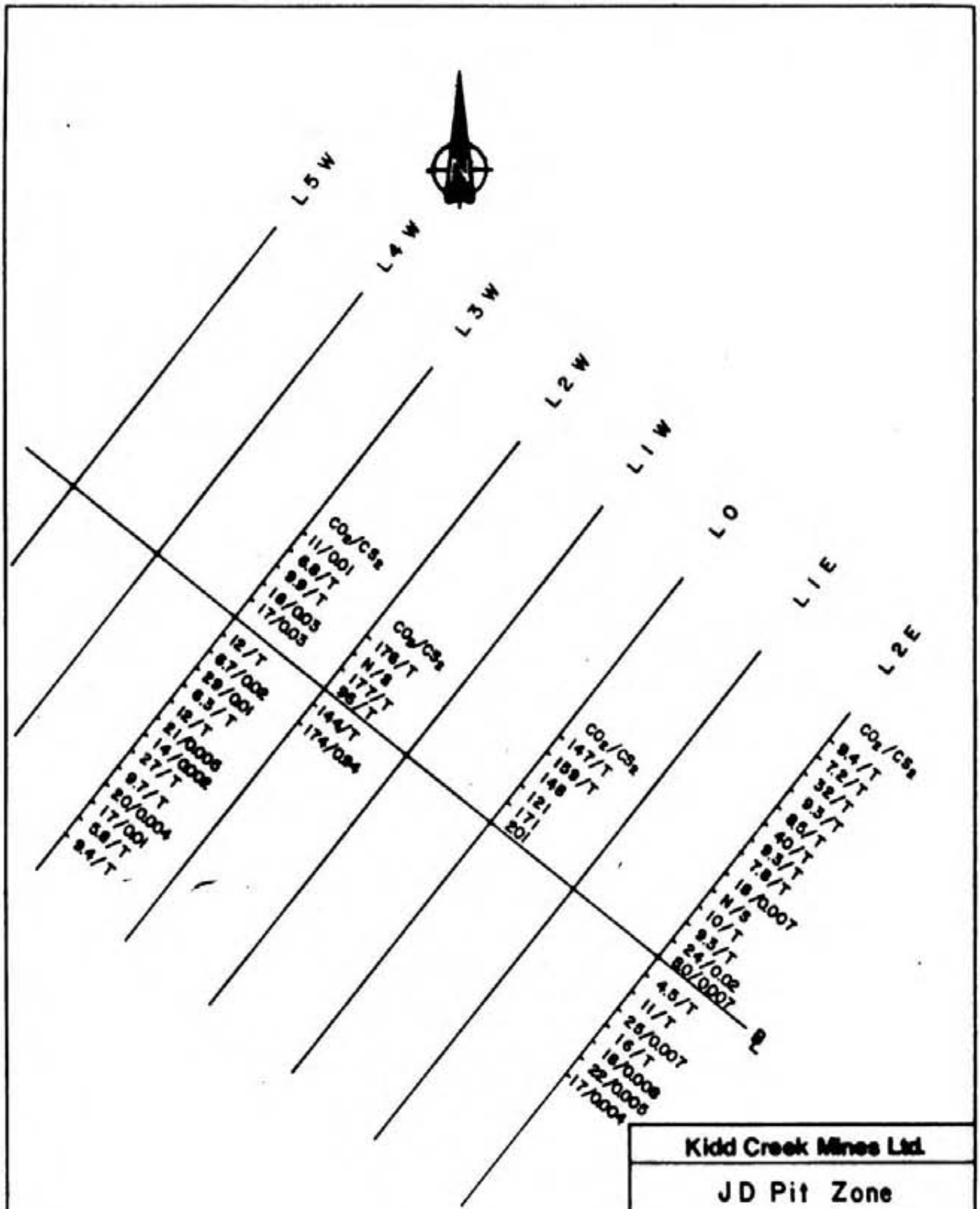
SOIL GAS GEOCHEMISTRY

From the results shown in Figures 8 to 11 and tabulated in Appendix B some general observations are noted. CO_2 results reveal two distinct populations. The earlier gas samples from lines 3W and 2E are much lower in CO_2 and may reflect partially frozen ground conditions at the time of their collection (Figure 8). A single CS_2 anomaly exists in the southern-most sample from line 2W and may reflect gases generated from minor downslope movement of material from the GASP zone. Anomalous values for C_1, C_2, C_3, C_4 and SO_2 are all concentrated along the southern half of line 2E and correspond to a zone of intensive argillic + pyrite alteration. Further testing of the technique is required before a final judgement can be made as to its effectiveness. In particular, the gas-collecting vials should be left buried for a period of about a month or longer, in contrast with the recommended two week period which is used in warmer climates.



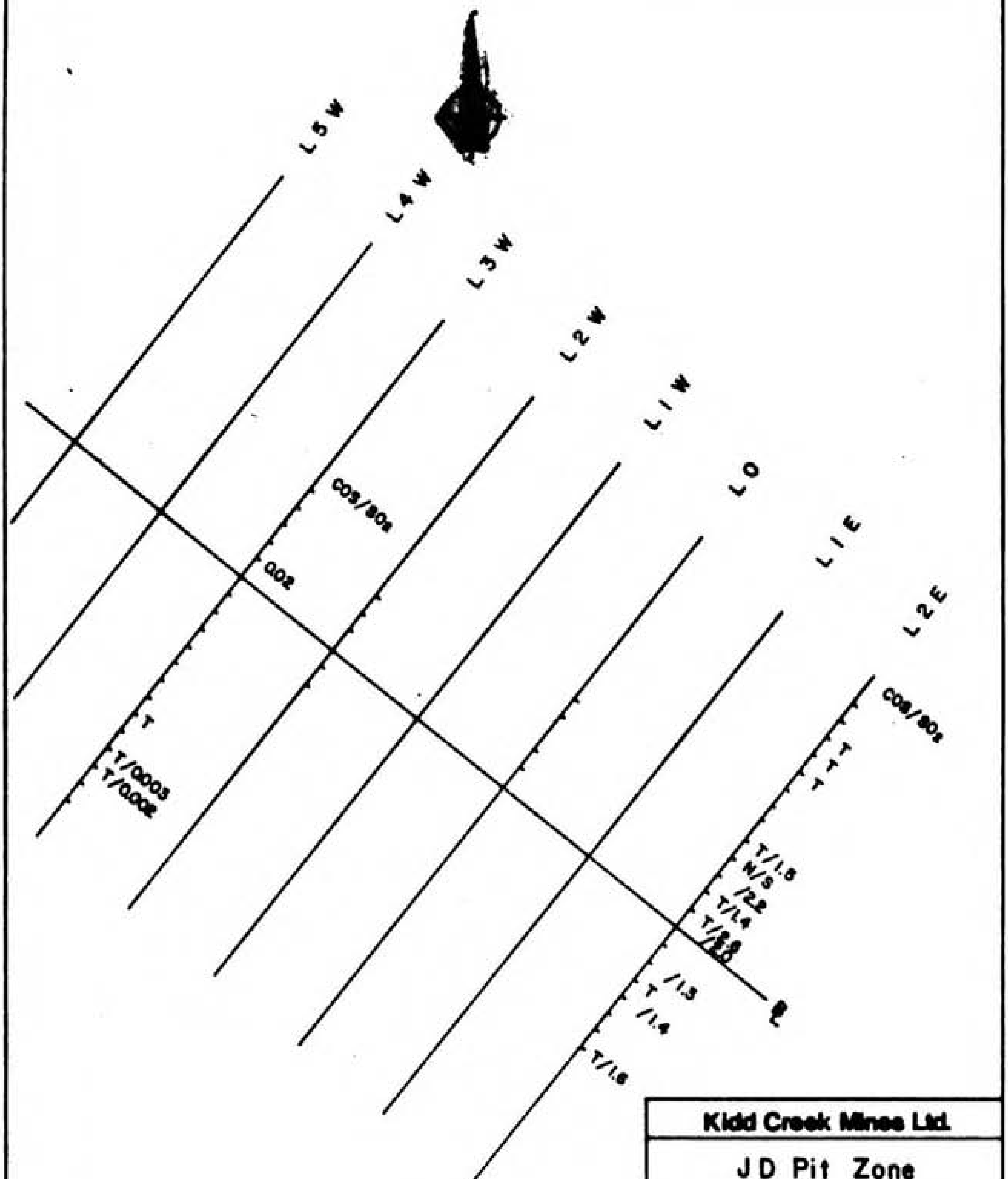
Kidd Creek Mines Ltd.		
J D Pit Zone		
Gas Sample Locations		
I.S.	E. R.	Dec. 6, 1983.
Figure: 7		

MCI - 556



Kidd Creek Mines Ltd.		
JD Pit Zone		
Gas Samples CO_2/CS_2		
I.S.	E.R.	DEC. 6 1983.
Figure: 8		

NCI - 556



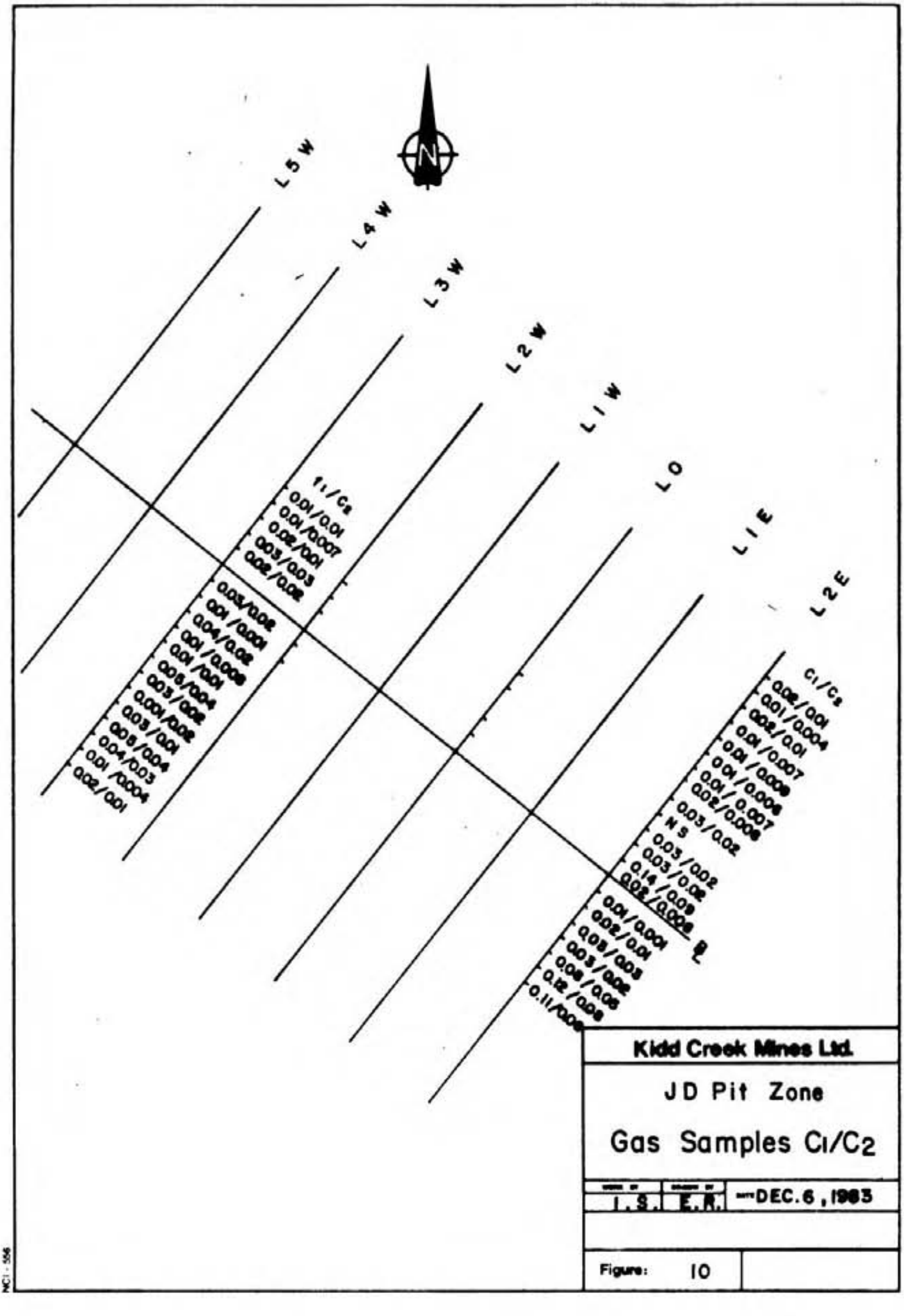
Kidd Creek Mines Ltd.

J D Pit Zone

Gas Samples COS/SO_2

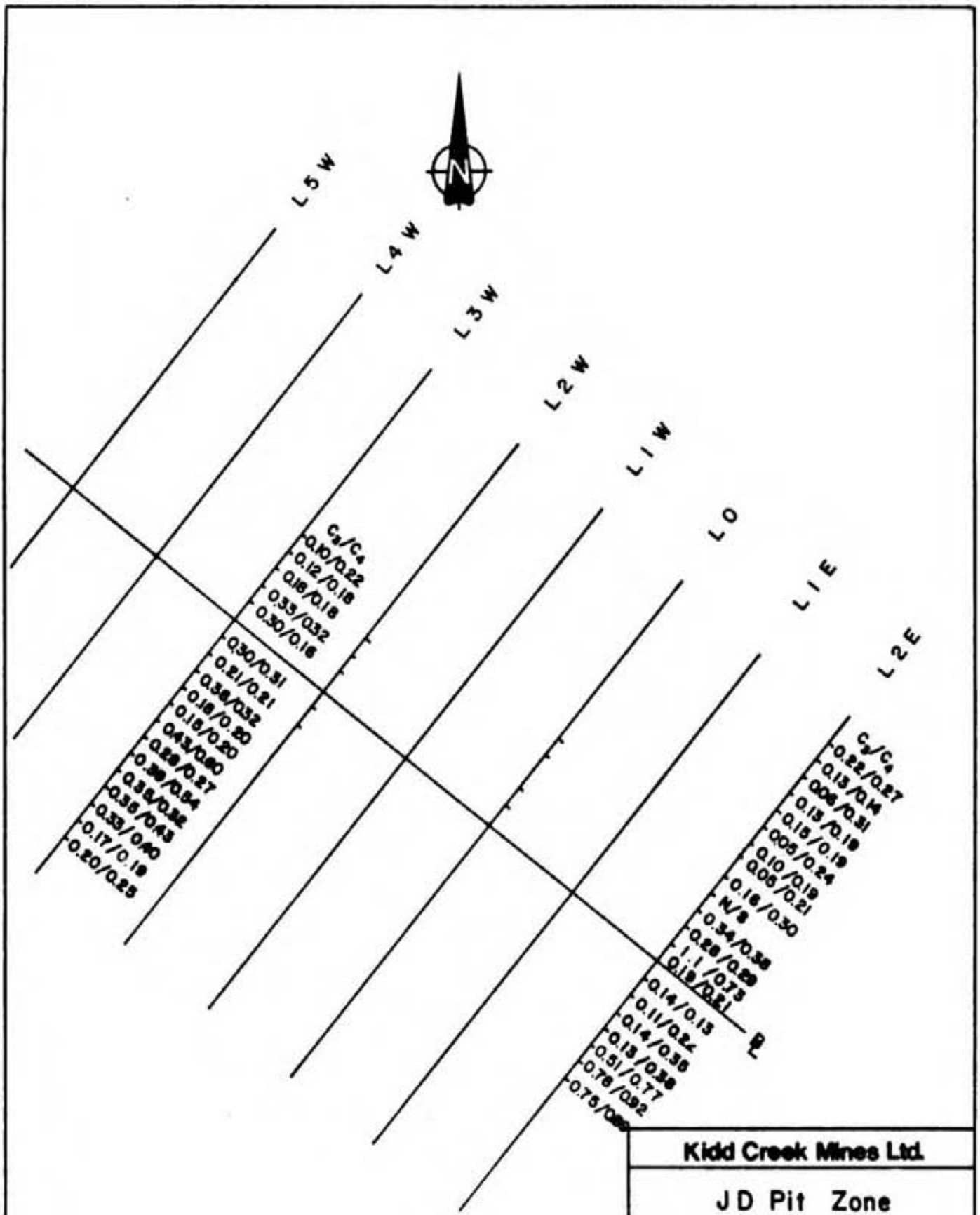
I.S.	E.R.	DEC. 6, 1983

Figure: 9



Kidd Creek Mines Ltd.		
JD Pit Zone		
Gas Samples C1/C2		
I. S.	E. R.	DEC. 6, 1983
Figure: 10		

NCI - 556



Kidd Creek Mines Ltd.		
JD Pit Zone		
Gas Samples C_3/C_4		
I.S.	E.R.	Dec. 6, 1965.
Figure: 11		

NCI - 556

SUMMARY AND CONCLUSIONS

The JD property is underlain by two distinctive volcanic assemblages. Both are andesitic dacitic in composition, and are dominated by massive flows and flow breccias. These two formations are in contact along a NW-trending, shallow-dipping fault. The upper assemblage, Formation A, is plagioclase $\pm$ hornblende $\pm$ biotite $\pm$ clinopyroxene $\pm$ sanidine + magnetite + appatite - phyric while the underlying formation (B) is plagioclase + hornblende + magnetite + apatite - phyric.

Gold and silver are concentrated with at least two distinct alteration-mineralization environments on the JD property: silicification $\pm$ argillization (JD West, GUMBO) is developed along the faulted contact between the two major volcanic lithologies and steeply dipping calcite - quartz veins within propylitic alteration zones occur within the two major lithological subdivisions (GASP, WOOF, EOS, Ag-Carbonate).

Further work on the JD property is clearly warranted on several of the precious metal showings. The GUMBO and GASP zones will be tested by diamond drilling during the 1984 exploration season, while trenching is planned for the EOS, WOOF and Ag-carbonate zones.

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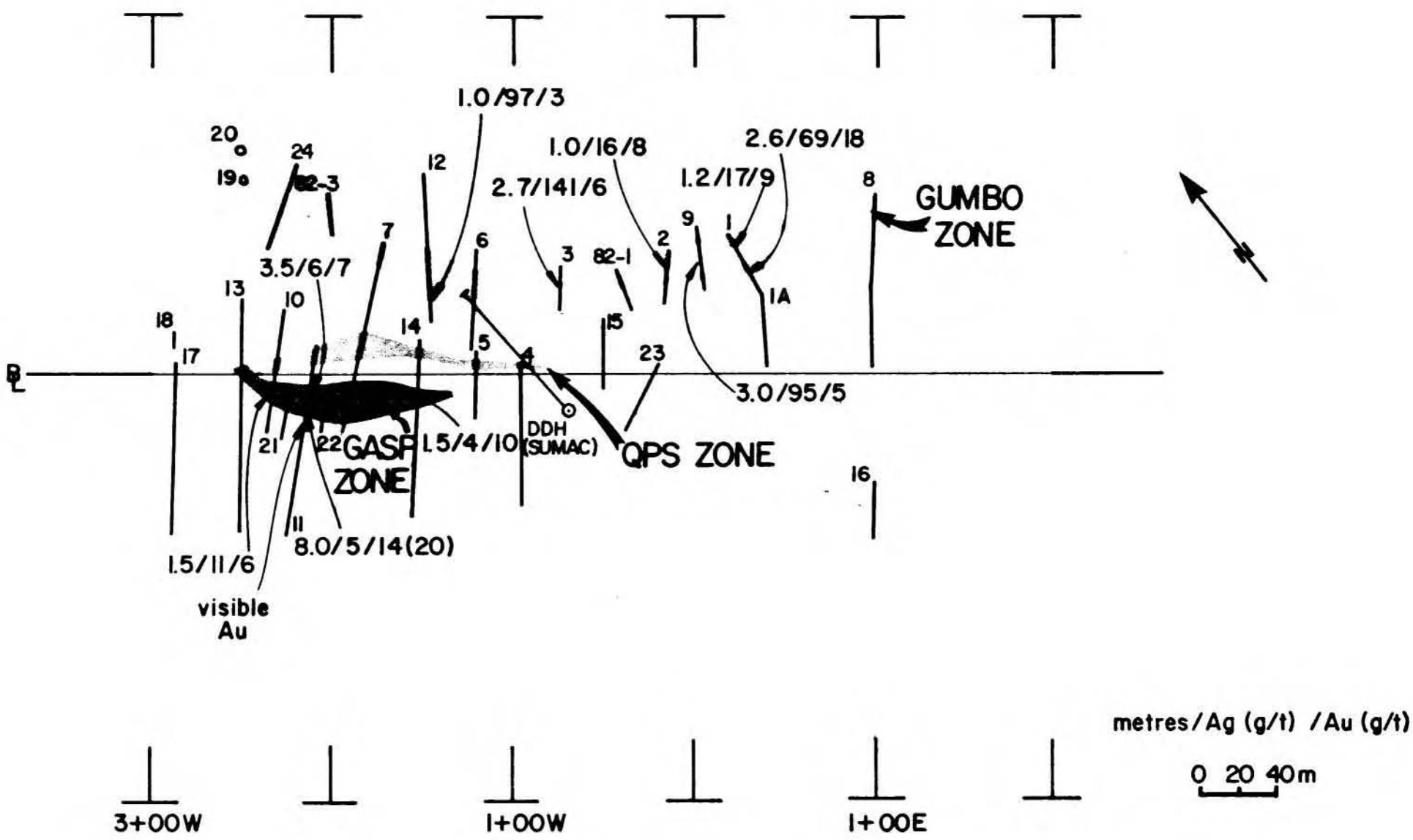
APPENDIX A

TRENCH MAPS



JD PIT ZONE

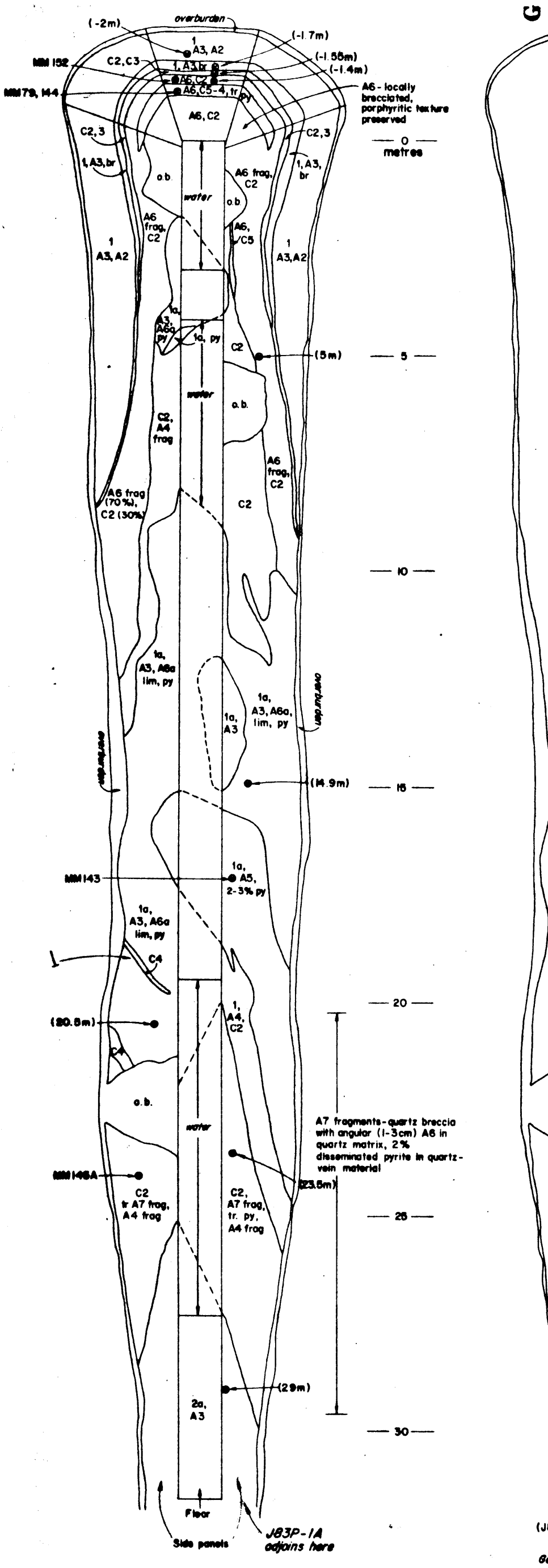
TRENCH LOCATIONS

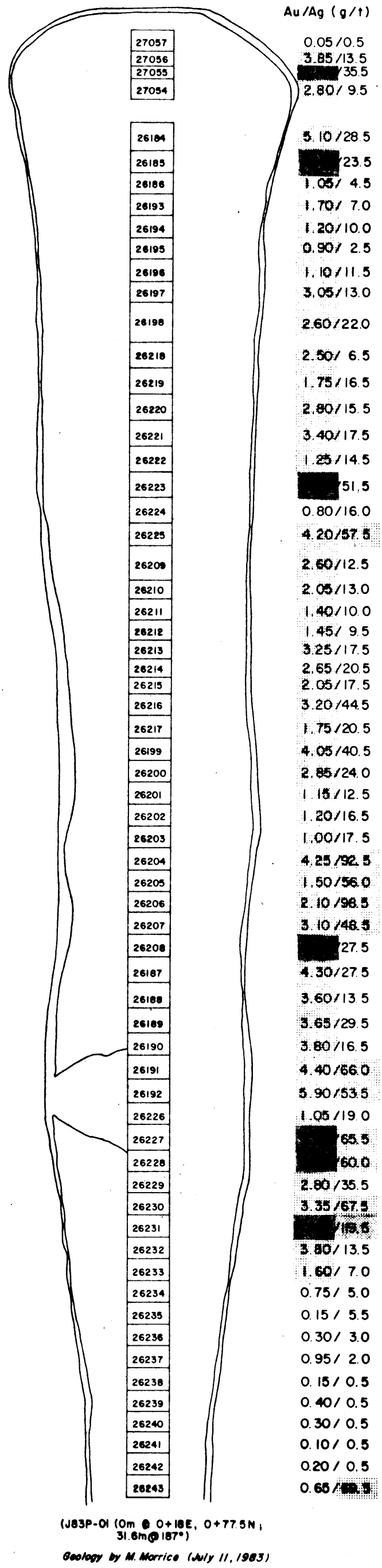
GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

Kidd Creek Mines Ltd.	JD PROPERTY PIT GRID TRENCH J83P-01	Project 04
NTS 94E/6E	WORK BY: M.M., L.L.	DRAWN BY: E.R.
DATE: OCT 12, 1983	SCALE IN METRES: 0 1 2 3 4	Figure: 1

J83P-01





(J83P-01 (0m @ 0+18E, 0+77.5N; 31.6m@187°)

Geology by M. Morrice (July 11, 1983)

Au/Ag (g/t)

0.05/0.5
3.85/13.5
/35.5
2.80/ 9.5
5.10/28.5
/23.5
1.05/ 4.5
1.70/ 7.0
1.20/10.0
0.90/ 2.5
1.10/11.5
3.05/13.0
2.60/22.0
2.50/ 6.5
1.75/16.5
2.80/15.5
3.40/17.5
1.25/14.5
/51.5
0.80/16.0
4.20/57.5
2.60/12.5
2.05/13.0
1.40/10.0
1.45/ 9.5
3.25/17.5
2.65/20.5
2.05/17.5
3.20/44.5
1.75/20.5
4.05/40.5
2.85/24.0
1.15/12.5
1.20/16.5
1.00/17.5
4.25/92.5
1.50/56.0
2.10/98.5
3.10/48.5
/27.5
4.30/27.5
3.60/13.5
3.65/29.5
3.80/16.5
4.40/66.0
5.90/53.5
1.05/19.0
/65.5
/60.0
2.80/35.5
3.35/67.5
/119.6
3.80/13.5
1.60/ 7.0
0.75/ 5.0
0.15/ 5.5
0.30/ 3.0
0.95/ 2.0
0.15/ 0.5
0.40/ 0.5
0.30/ 0.5
0.10/ 0.5
0.20/ 0.5
0.65/[illegible]

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic). 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a. massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (laharic). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants.

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass; hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase. A3a. weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass Disseminated pyrite

A6 — Silicification Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

contact: observed (abrupt), inferred, gradational

bedding attitude, vertical

dyke/vein attitude, vertical

joint attitude, vertical

fault attitude, vertical, relative motion

fault-teeth on upper block

outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.a.	position approximate
fr	fracture coating	●	sample location

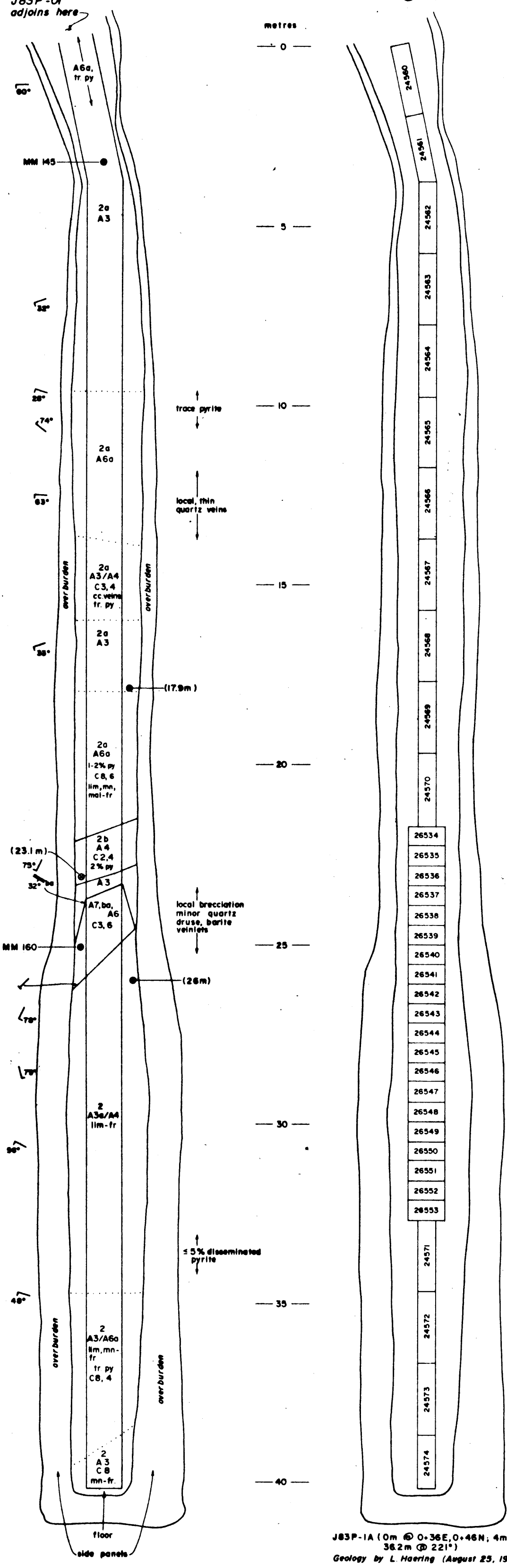
0 1 2 3m

GRAB SAMPLES

Sample No	Tag No	Au	Ag
MM 78	25985	8.5	0.20 (g/t)
MM 79	25984	13.5	11.40
MM 144	26012	5.70	23.0
MM 152	26015	1.40	2.5

Kidd Creek Mines Ltd.	JD PROPERTY PIT GRID TRENCH J83P-01A	Project 04
NTS 94E/6E	WORK BY: L.H.	DRAWN BY: G.T.
DATE: OCT. 25, 1983	SCALE IN METRES: 0 1 2 3 4	Figure: 2.

J83P-01A



Au / Ag	
0.085 / 4.2	(ppm)
0.110 / 1.5	
0.060 / 1.2	
0.140 / 2.2	
0.170 / 1.3	
0.185 / 1.5	
0.240 / 1.7	
2.470 / 4.8	
0.155 / 1.7	
1900 / 2.1	
0.970 / 1.3	
0.35 / 2.0	(g/t)
0.45 / 3.5	
1.40 / 4.0	
0.85 / 8.5	
5.30 / 9.0	
2.40 / 6.5	
1.05 / 6.5	
4.05 / 11.5	
2.05 / 5.0	
1.50 / 3.5	
0.60 / 3.0	
0.35 / 2.5	
0.50 / 12.5	
2.70 / 6.0	
0.80 / 4.0	
1.80 / 4.5	
2.20 / 6.0	
/ 7.0	
1.10 / 6.5	
2.20 / 4.5	
1100 / 1.9	(ppm)
4200 / 2.8	
0.795 / 3.9	
0.330 / 1.3	

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite. 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (laharic). 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (laharic). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

☐ — Calcite - quartz - galena - sphalerite - pyrite - chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact: observed (abrupt), inferred, gradational
- 80°/ bedding attitude, vertical
- 70° dyke/vein attitude, vertical
- 60°/ joint attitude, vertical
- 80° fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.e.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

J83P-1A (0m @ 0+36E, 0+46N; 4m @ 209°, 36.2m @ 221°)

Geology by L. Haering (August 25, 1983)

GRAB SAMPLES

Sample No	Tag No	Au	Ag
MM 160	26019	3.0	1.5 (g/t)

J83P - 02

Kidd Creek Mines Ltd.

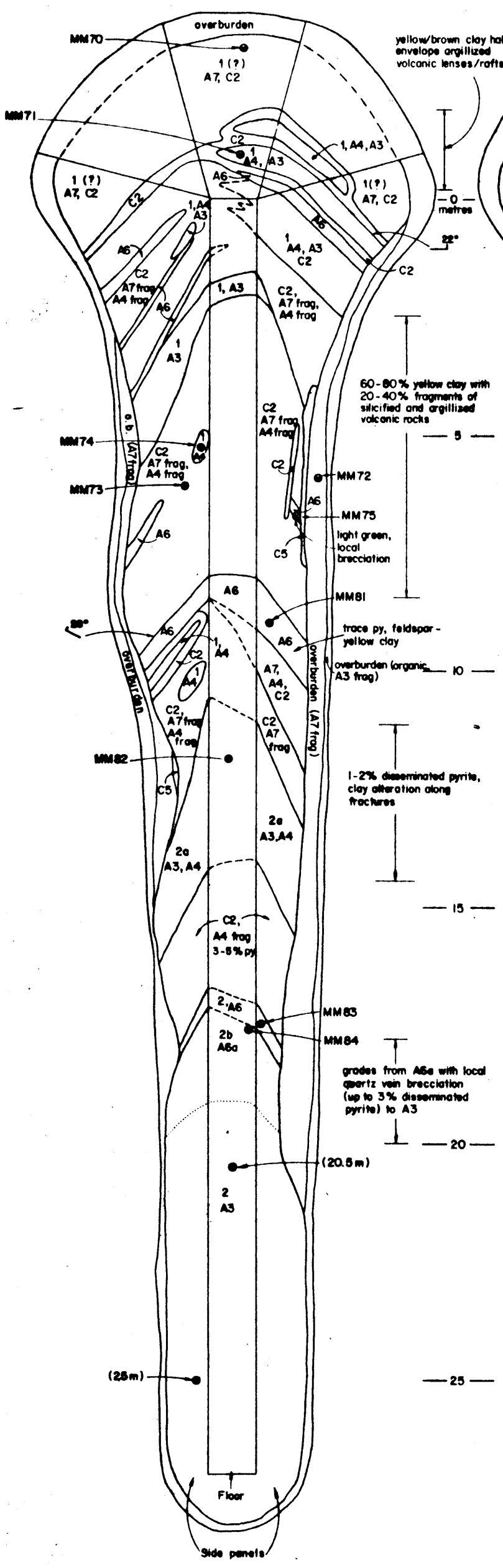
JD PROPERTY
PIT GRID
TRENCH J83P-02

NTS 94E/6E — Project 04

WORK BY: M.M., L.L. — DRAWN BY: E.R. — DATE: OCT 12, 1983

SCALE IN METRES: 0 1 2 3 4

Figure: 3



LEGEND

Lithologies

1	Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)
2	Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (laharic). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants
3	Aphyric diabase dyke. Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules. Magnetic
4	Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1	Unaltered, very weak hematization
A2	Hematization Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase
A3	Propylitization Dark green chloritic groundmass Orange plagioclase. A3a. weak propylitization, with A2-patchy green and grey groundmass
A4	Argillization ± silicification ± pyritization
A5	Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass Disseminated pyrite
A6	Silicification Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.
A7	Intense silicification + quartz veining
C	Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)
	Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contacts: observed (abrupt), inferred, gradational
- bedding attitude, vertical
- dyke/vein attitude, vertical
- joint attitude, vertical
- fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b.	overburden
bx	breccia	p.a.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

Sample No	Au/Ag (g/t)
26251	1.85 / 10.0
26252	1.80 / 11.5
26253	[redacted] /17.5
26254	[redacted] / 8.5
26255	2.20 / 19.5
26256	0.50 / 4.0
26257	0.60 / 7.0
26258	4.65 / 15.0
26259	4.45 / 18.5
26260	1.90 / 24.5
26261	2.95 / 36.5
26262	1.40 / 13.0
26263	2.00 / 17.5
26264	[redacted] / 18.0
26265	[redacted] / 13.5
26266	1.20 / 13.0
26267	1.35 / 11.0
26268	0.60 / 4.5
26269	0.95 / 7.5
26270	1.15 / 13.5
26271	1.05 / 19.5
26272	0.35 / 4.5
26273	0.55 / 12.5
26274	1.75 / 22.5
26275	1.05 / 8.5
26276	0.45 / 4.5
26277	0.75 / 7.0
26278	1.15 / 13.5
26279	1.50 / 22.5
26280	0.50 / 1.5
26281	1.85 / 21.0
26282	1.80 / 12.0
26283	2.90 / 10.0
26284	0.75 / 15.0
26285	1.40 / 8.0
26286	0.65 / 6.0
26287	0.15 / 1.0
26288	1.30 / 6.0
26289	0.10 / 12.0

J83P-02 (0m @ 0+14W, 0+66N; 27m @ 223°)

Geology by M. Morrice (July 9, 1983)

GRAB SAMPLES

Sample No	Tag No	Au	Ag
MM 70	25977	0.10	2.5 (g/t)
MM 71	25978	1.45	6.5
MM 72	25979	0.35	3.5
MM 73	25980	0.15	3.5
MM 74	25981	0.15	1.5
MM 75	25982	0.40	5.5
MM 81	25988	0.85	12.5
MM 83	25989	5.25	9.5
MM 84	25990	5.10	9.0

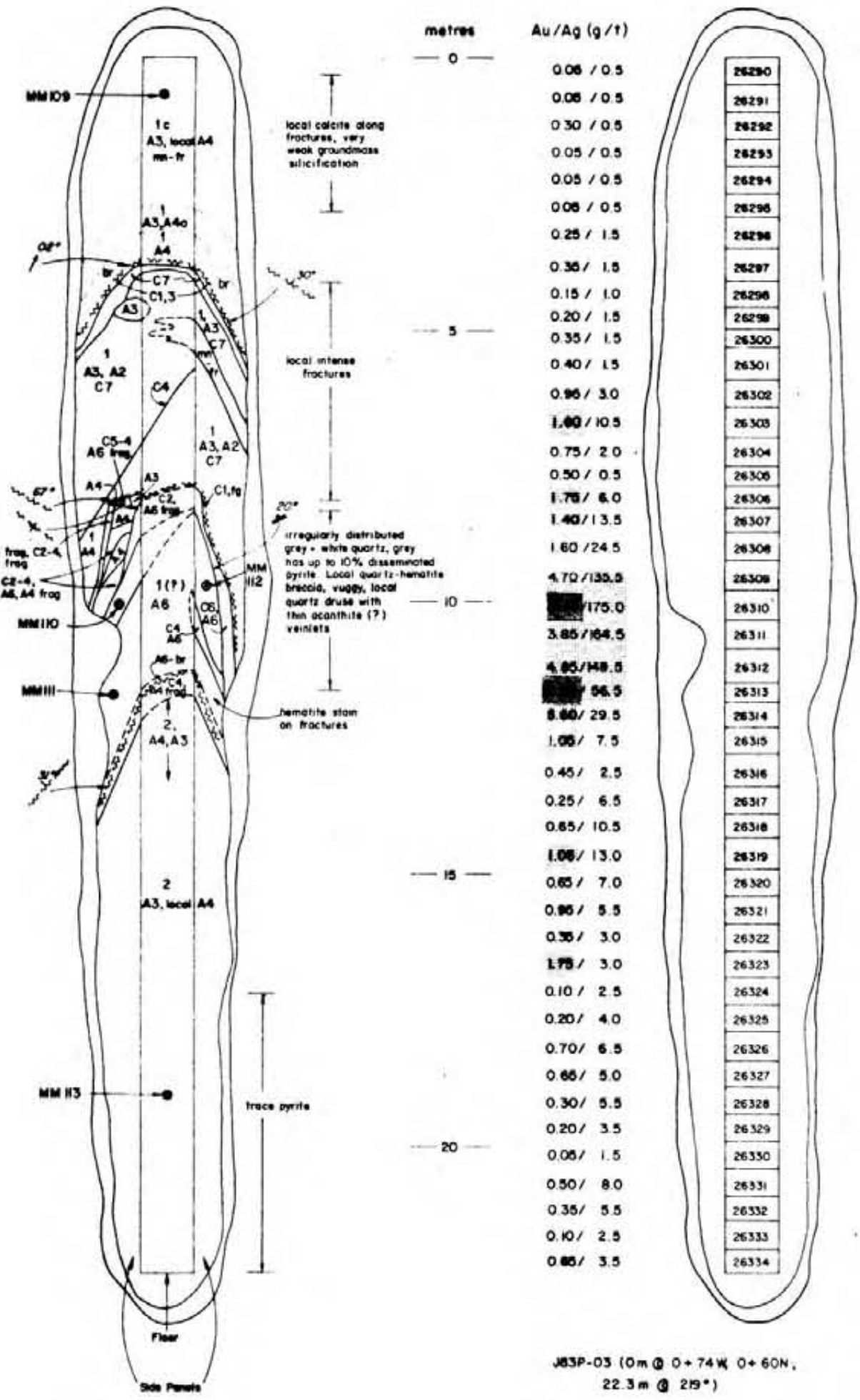
GRAB SAMPLES			
Sample No	Tag No	Au	Ag(g/t)
MM 111	26023	4.95	172.5
MM 112	26024	2.30	104.5

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-03

Project 04 | OCT 12, 1983 | E R | M.M., L.L. | NTS 84E/6E | Figure: 4

J83P - 03



metres	Au/Ag (g/t)	
0	0.05 / 0.5	26290
	0.05 / 0.5	26291
	0.30 / 0.5	26292
	0.05 / 0.5	26293
	0.05 / 0.5	26294
	0.05 / 0.5	26295
	0.25 / 1.5	26296
	0.35 / 1.5	26297
	0.15 / 1.0	26298
	0.20 / 1.5	26299
5	0.35 / 1.5	26300
	0.40 / 1.5	26301
	0.95 / 3.0	26302
	1.60 / 10.5	26303
	0.75 / 2.0	26304
	0.50 / 0.5	26305
	1.75 / 6.0	26306
	1.40 / 13.5	26307
	1.60 / 24.5	26308
	4.70 / 135.5	26309
10	[redacted] / 175.0	26310
	3.85 / 164.5	26311
	4.85 / 148.5	26312
	[redacted] / 96.5	26313
	8.60 / 29.5	26314
	1.05 / 7.5	26315
	0.45 / 2.5	26316
	0.25 / 6.5	26317
	0.65 / 10.5	26318
	1.05 / 13.0	26319
15	0.65 / 7.0	26320
	0.95 / 5.5	26321
	0.35 / 3.0	26322
	1.75 / 3.0	26323
	0.10 / 2.5	26324
	0.20 / 4.0	26325
	0.70 / 6.5	26326
	0.65 / 5.0	26327
	0.30 / 5.5	26328
	0.20 / 3.5	26329
20	0.05 / 1.5	26330
	0.50 / 8.0	26331
	0.35 / 5.5	26332
	0.10 / 2.5	26333
	0.85 / 3.5	26334

J83P-03 (0m @ 0+74W, 0+60N, 22.3m @ 219°)

Geology by L. Loure (July 7, 1983)

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite. 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (±2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (lahoric). 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (lahoric). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace-5% round-ellipsoidal calcite amygdules. Magnetic.

4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

[ ] — Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- bedding attitude, vertical
- dyke/vein attitude, vertical
- joint attitude, vertical
- fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

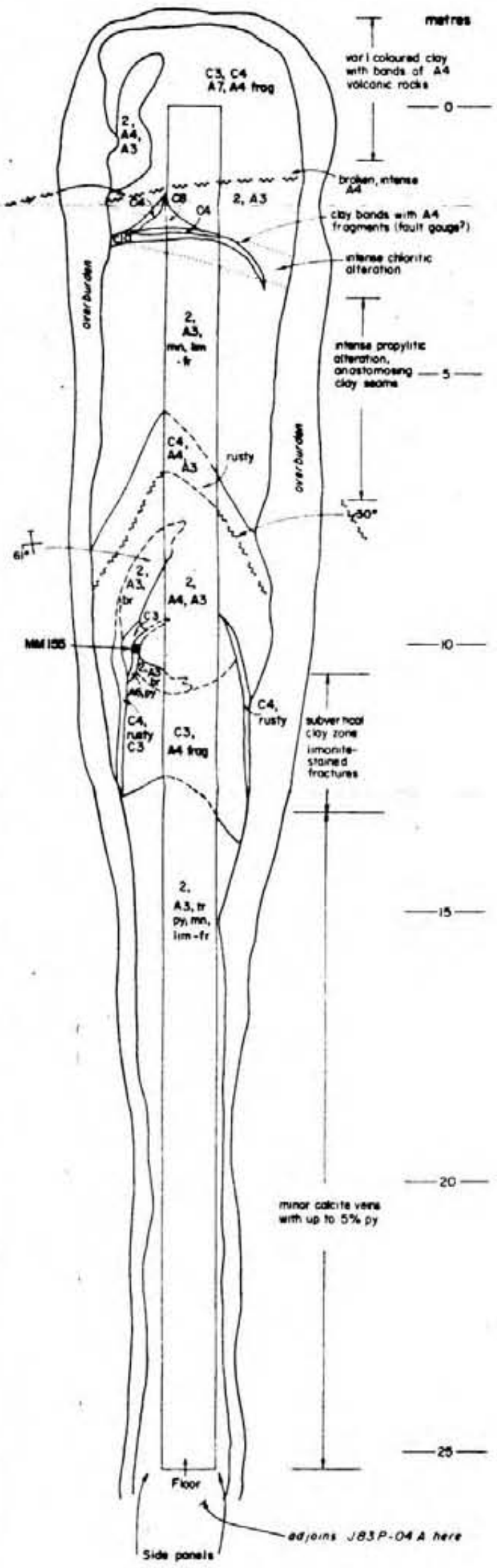
frag	fragments	fg	fault gouge
br	broken	ob	overburden
bx	breccia	p.a	position approximate
fr	fracture coating	●	sample location

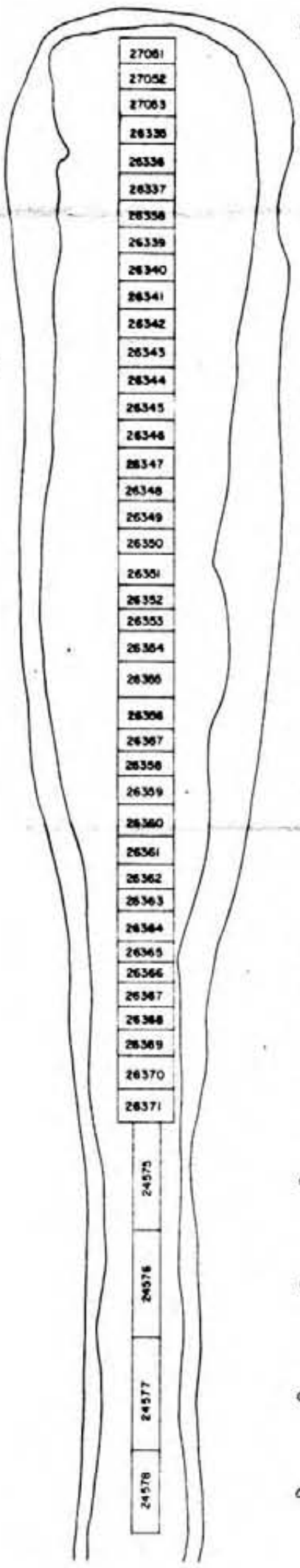
0 1 2 3m

GRAB SAMPLES			
Sample No	Tag No	Au	Ag
MM 155	26016	010	45 (g/t)

J83P-04

Kidd Creek Mines Ltd.
JD PROPERTY
PIT GRID
TRENCH J83P-04
Project 04
NTS 94E/8E
drawn by: M.M., L.L.
plotted by: E.R.
DATE: OCT 12, 1983
SCALE in metres: 0 1 2 3 4
Figure: 5a.





Au/Ag	
3.30 / 2.5	(g/t)
1.75 / 3.0	
1.98 / 4.5	
1.40 / 11.5	
2.88 / 23.5	
1.48 / 15.5	
3.30 / 20.5	
1.05 / 4.5	
0.55 / 4.0	
0.20 / 4.5	
0.55 / 4.0	
0.05 / 2.5	
0.05 / 2.5	
0.25 / 3.5	
0.55 / 4.0	
0.05 / 3.5	
0.15 / 3.5	
0.05 / 3.0	
0.05 / 3.5	
0.05 / 4.0	
0.05 / 5.0	
0.05 / 4.5	
0.05 / 3.5	
0.50 / 4.5	
0.10 / 5.0	
0.20 / 4.0	
0.05 / 3.5	
0.05 / 8.5	
0.25 / 7.0	
0.15 / 4.0	
0.15 / 4.0	
0.50 / 1.5	
0.30 / 2.5	
0.25 / 2.5	
0.25 / 2.5	
1.80 / 2.5	
1.90 / 2.0	
0.40 / 2.5	
0.20 / 4.5	
0.05 / 2.5	
0.330 / 1.4	(ppm)
0.480 / 1.3	
0.565 / 0.7	
0.070 / 0.9	

J83P-04a (0m @ 0+96W, 0+05N, 253m @ 219°)

Geology by L. Lourie (July 12, 1983)

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite. 12-15% plagioclase (2-7mm); 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≤2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (laharic). 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (laharic). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace-5% round-ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase ~~[illegible]~~ patchy green and grey groundmass

A4 — Argillization ± silicification, ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

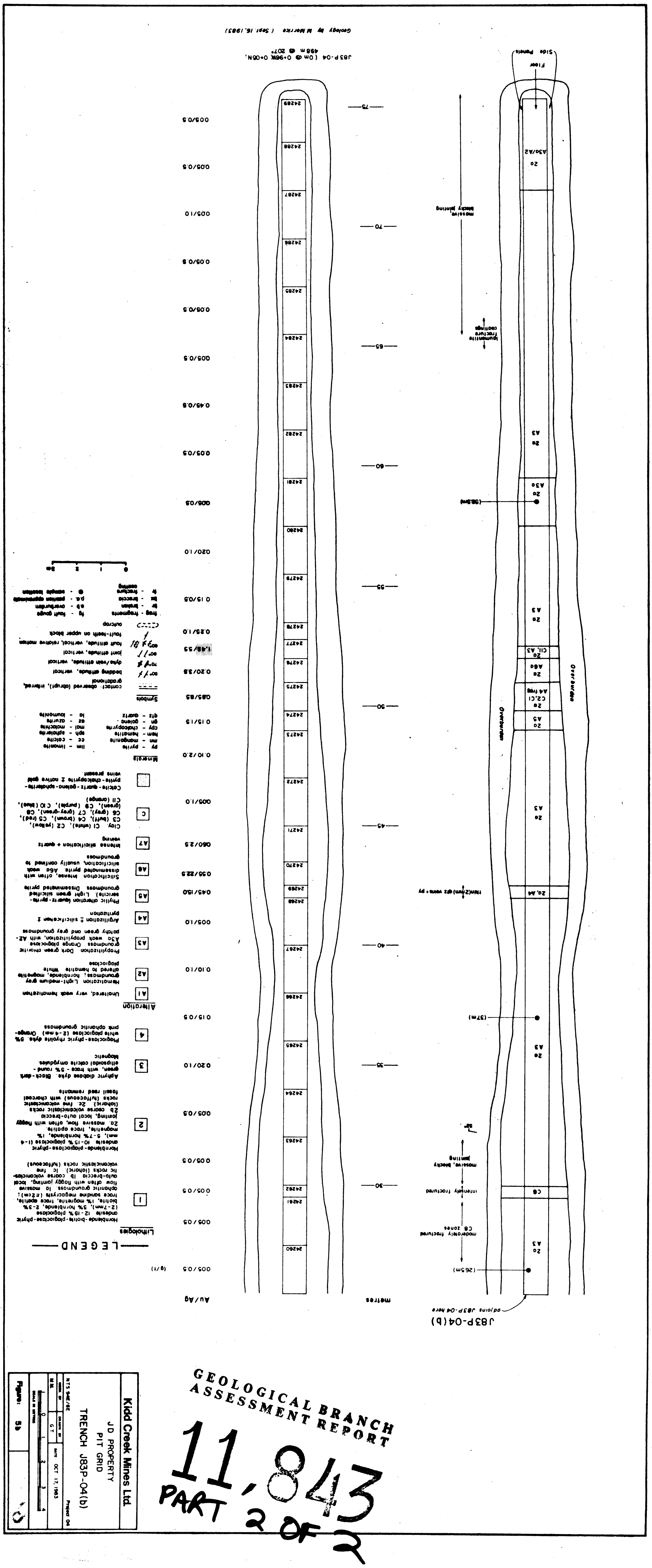
py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- bedding attitude, vertical
- dyke/vein attitude, vertical
- joint attitude, vertical
- fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b.	overburden
bx	breccia	p.o.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m


J83P-04(b)
adjoins J83P-04 here
metres
Au/Ag
LEGEND
Lithologies
Alteration
Minerals
Symbols
Kidd Creek Mines Ltd.
JD PROPERTY
PIT GRID
TRENCH J83P-04(b)
Figure: 5b
GEOLOGICAL BRANCH
ASSESSMENT REPORT
11,843
PART 2 OF 2

Kidd Creek Mines Ltd.

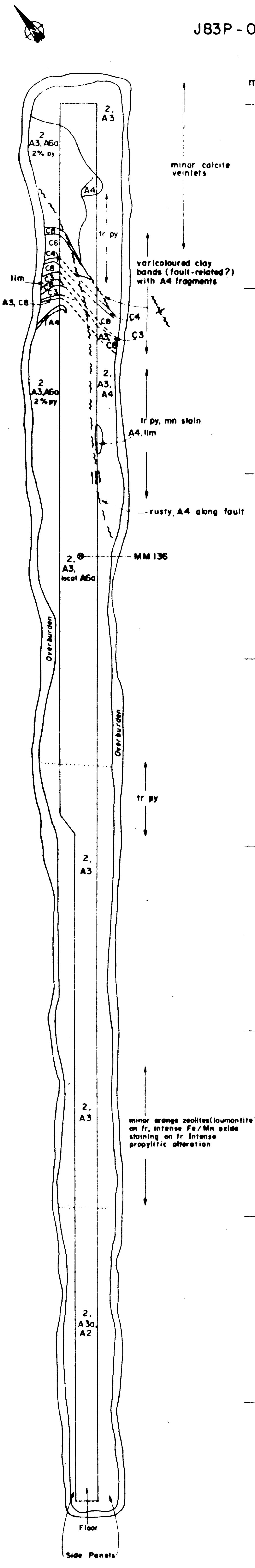
JD PROPERTY
PIT GRID
TRENCH J83P-05

Project 04

NTS 94E/6E | WORK BY L.H., L.L. | DRAWN BY G.T. | DATE OCT 12, 1983 | SCALE IN METRES 0 1 2 3 4

Figure: 6

J83P-05



metres	Sample	Au/Ag
0	26372	0.45 / 3.5 (g/t)
	26373	3.55 / 9.5
	26374	2.15 / 10.5
	26375	0.40 / 5.0
	26376	4.40 / 8.5
	26377	0.85 / 3.0
	26378	1.05 / 4.5
	26379	1.10 1.5
	26380	2.45 3.0
5	26381	[illegible] 6.0
	26382	3.95 4.5
	26383	0.90 3.5
	26384	0.25 2.5
	26385	0.10 1.5
	26386	0.05 2.5
	26387	0.05 2.5
	26388	0.05 1.5
	26389	0.05 2.5
	26390	0.40 3.5
	26391	0.05 1.5
10	24536	0.025 / 1.8 (ppm)
	24537	0.040 / 1.6
15	24538	0.005 / 0.3
	24539	0.020 / 0.8
	24540	0.065 / 2.0
20	24541	0.075 / 1.1
	24542	0.240 / 0.6
25	24543	0.010 / 0.9
	24544	0.030 / 0.1
	24545	0.010 / 1.2
30	24546	0.015 / 0.3
	24547	0.050 / 0.3
35	24548	0.010 / 0.4
	24549	0.030 / 0.4

J83P-05 (0m @ 1+21W, 0+14N; 37.7m @ 218°)

Geology by L Louie (July 13, 1983)
L Haering (August 23, 1983)

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass Disseminated pyrite

A6 — Silicification Intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

(blank box) — Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- 50° bedding attitude, vertical
- 70° dyke/vein attitude, vertical
- 80° joint attitude, vertical
- 60° fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	ob	overburden
bx	breccia	pa	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

Kidd Creek Mines Ltd.	JD PROPERTY PIT GRID TRENCH J83P-06	Project 04
	NTS 31E/6E	drawn by: G.T.
	M.M., L.L.	date: OCT 31, 1983
		scale in metres 0 5 10
		Figure: 7

J83P-06

metres

0
5
10
15
20
25
30
35
40
45
50
55

MM 114 — Ie, A3
A5
A5
local A4
Ie, A3
local quartz-pyrite (1-3%) - sericite alteration
A4
A5
A6
A5
mn stain
Ie, A3
MM 115
moderate - intense quartz - pyrite - sericite alteration
10% pyrite
MM 116
mn stain
C4, A4, A3, C1, f@
C3
35°
broken andesite
C11-4
C11, C3
A7
MM 204 (2-20% pyrite, blebs, quartz veinlets)
MM 117 (29.7m)
A7
5%py
30° (30.2m)
2. A2, br
stringers 2(?)
C4, A4 trace
C8
MM 118
irregular clay seams
2. A3
hematite on fractures
(46.5m)
35°
(48m)
2c
2. A2
(55.5m)
Floor
Side Panels

24634
24635
24636
24637
26392
26393
26394
26395
26396
26397
26398
26399
26400
26401
26402
26403
26404
26405
26406
26407
26408
26409
26410
26411
26412
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26414
26415
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26247
26248
26249
26250

J83P-06 (0m @ 1+20W, 0+68.5N, 56.8m @ 219°)

Geology by L. Lavie (July 15, 1983)

Au	Ag	
0.010	1.1	(ppm)
0.015	1.1	
0.025	1.8	
0.015	1.2	
0.5	1.5	(g/t)
	19.5	
0.05	2.0	
0.05	0.5	
0.05	0.5	
0.05	1.5	
0.05	2.5	
0.05	3.5	
0.05	2.5	
0.15	2.5	
0.85	22.5	
0.40	4.5	
0.05	3.0	
0.05	2.0	
0.05	4.0	
0.05	2.5	
0.20	2.5	
0.20	10.0	
0.50	19.5	
0.10	4.5	
0.25	3.5	
0.10	3.5	
0.05	3.0	
0.05	4.0	
0.20	4.0	
0.10	4.5	
0.20	5.5	
0.35	7.0	
0.40	7.5	
	51.5	
0.65	18.5	
1.80	29.5	
2.05	4.5	
0.10	2.5	
2.80	49.5	
1.10	22.5	
0.40	12.5	
2.25	17.5	
1.15	11.0	
0.55	4.0	
0.15	1.5	
0.35	2.0	
0.55	3.5	
0.10	1.5	
1.30	1.5	
2.75	2.0	
	4.0	
0.25	0.5	
0.10	1.5	
0.0065	0.9	(ppm)
0.0045	1.0	
0.010	0.8	
0.005	0.3	
0.015	0.4	
0.035	0.3	
0.795	26	
0.030	1.0	
0.45	0.5	(g/t)
0.05	0.5	
0.10	0.5	
0.05	0.5	
0.05	0.5	

LEGEND

Lithologies

1 — Hornblende - biotite - plagioclase - phyric andesite (2-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (±2cm); aphanitic groundmass. Ia massive flow often with flaggy jointing, local auto-breccia. Ib coarse volcaniclastic rocks (lahars). Ic fine volcaniclastic rocks (tuffaceous)

2 — Hornblende - plagioclase - phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (lahars). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black - dark green, with trace - 5% round - ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase - phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2 - patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz - pyrite - sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite - quartz - galena - sphalerite - pyrite - chalcopyrite ± native gold veins present

Minerals

py - pyrite
mn - manganite
hem - hematite
cpy - chalcopyrite
gn - galena
qtz - quartz
lim - limonite
cc - calcite
sph - sphalerite
mal - malachite
az - azurite
la - laumonite

Symbols

contact: observed (abrupt), inferred, gradational
bedding attitude, vertical
dyke/vein attitude, vertical
joint attitude, vertical
fault attitude, vertical, relative motion
fault - teeth on upper block
outcrop

frag - fragments
br - broken
bx - breccia
fr - fracture casting
fg - fault gouge
o.b - overburden
p.e. - position approximate
@ - sample location

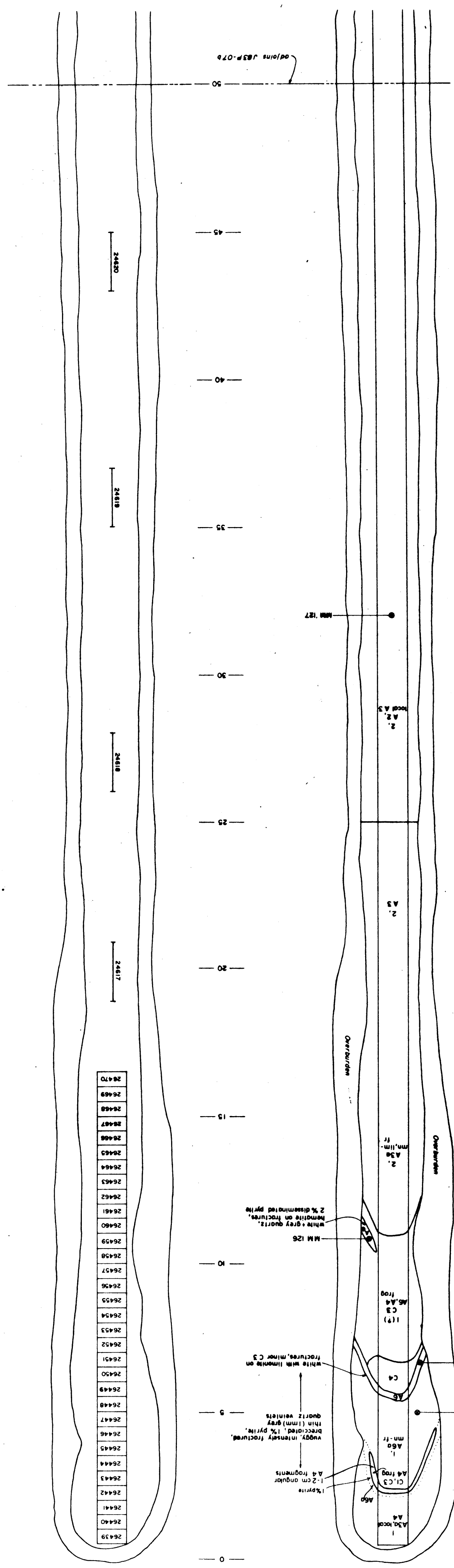
0 1 2 5m

GRAB SAMPLE

Sample No	Tag No	Au	Ag
MM 77	25986	6.40	185.0 (g/t)

J83P-07a (Om @ 1+71W, 0+71S,
107.7m @ 230°)

Geology by L. Louie (July 15, 1983)



GRAB SAMPLES						
Sample No	Tag No	Au	Ag(g/t)	Cu	Pb	Zn(%)
MM 86	25991	2.20	14.5			
MM 87	25992	0.25	0.5			
MM 88	25993	0.90	0.5			
MM 89	25994	1.65	13.0			
MM 90	25995	3.80	35.0			
MM 125	28022	35.20	2583			
MM 126	28018	3.35	19.5	0.08	2.80	5.16

LEGEND

Lithologies

0.10/6.0	(g/t)	
0.05/3.5		
0.10/4.0		
0.05/40		
0.25/16.5		
0.25/15.5		
0.10/6.5		
0.10/50		
0.60/18.5		
0.50/22.0		
0.55/22.5		
0.75/25.0		
0.15/5.5		
0.10/4.5		
0.10/1.5		
0.05/4.0		
0.05/4.5		
0.05/3.0		
0.15/11.5		
0.05/4.5		
0.35/3.5		
b.45/15.0		
1.30/6.0		
0.35/2.0		
0.05/5.5		
0.10/0.5		
0.05/0.5		
0.15/10		
0.05/1.5		
0.05/0.5		
0.05/0.5		

Alteration

A1	Unaltered, very weak hematization
A2	Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase
A3	Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass
A4	Argillization ± silicification ± pyritization
A5	Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite
A6	Silicification Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass
A7	Intense silicification + quartz veining

C		Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)
	(ppm)	Calcite - quartz - galena - sphalerite - pyrite - chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	lo	laumontite

Symbols

	contact: observed (obrupt), inferred, gradational
so/	bedding attitude, vertical
vein/	dyke/vein attitude, vertical
so//	joint attitude, vertical
so/ fault/	fault attitude, vertical, relative motion
	fault-teeth on upper block
	outcrop.
freg	fragments
br	broken
bx	breccia
fr	fracture
fg	fault gouge
o.b.	overburden
p.e.	position approximate
●	sample location

0 1 2 3m

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-07a

NTS 94E/6E

DRAWN BY	DRAWING BY	DATE
L.L.	G.T.	OCT. 25, 1983

Project 04

SCALE IN METRES 0 1 2 3 4

Figure: 8a

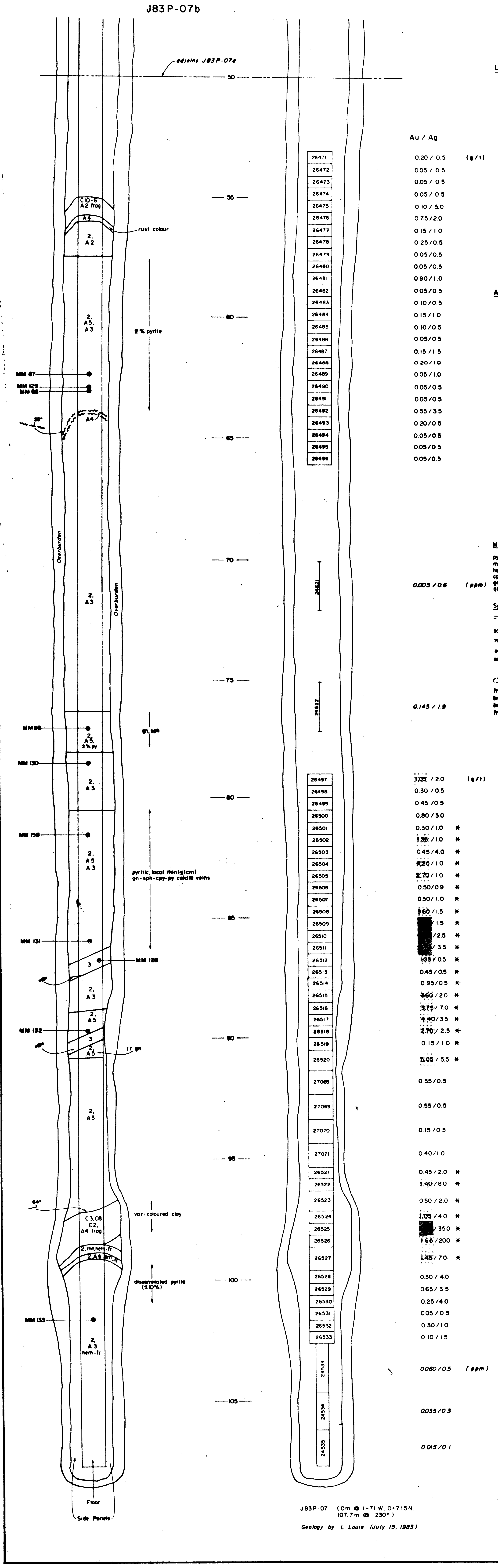
Kidd Creek Mines Ltd.

J D PROPERTY
PIT GRID
TRENCH J83P-07b

Project 04 · Date NOV 7, 1983 · NTS 94E/6E · Scale in metres

Figure: 8b

J83P-07b



J83P-07 (0m @ 1+71 W, 0+71.5 N, 107.7m @ 230°)

Geology by L Louie (July 15, 1983)

LEGEND

Lithologies

1 Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a. massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (laharic). 2c. fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 Aphyric diabase dyke. Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules. Magnetic

4 Plagioclase-phyric rhyolite dyke. 8% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 Unaltered, very weak hematization

A2 Hematization. Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase

A3 Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a. weak propylitization, with A2-patchy green and grey groundmass

A4 Argillization ± silicification ± pyritization

A5 Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 Silicification. Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass.

A7 Intense silicification + quartz veining

C Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py - pyrite	lim - limonite
mn - manganite	cc - calcite
hem - hematite	sph - sphalerite
cpy - chalcopyrite	mal - malachite
gn - galena	az - azurite
qtz - quartz	la - laumonite

Symbols

contact: observed (abrupt), inferred, gradational
80° bedding attitude, vertical
70° dyke/vein attitude, vertical
80° joint attitude, vertical
80° fault attitude, vertical, relative motion
fault-teeth on upper block
outcrop

frag - fragments	fg - fault gouge
br - broken	o.b. - overburden
bx - breccia	p.a. - position approximate
fr - fracture coating	● - sample location

0 1 2 3m

* Duplicate Analyses

GRAB SAMPLES

Sample No	Tag No	Au	Ag(g/t)	Cu	Pb	Zn(%)
MM 86	25991	2.20	14.5			
MM 87	25992	0.25	0.5			
MM 88	25993	0.50	0.5			
MM 158	26018	3.36	19.5	0.08	2.80	5.16

Kidd Creek Mines Ltd.

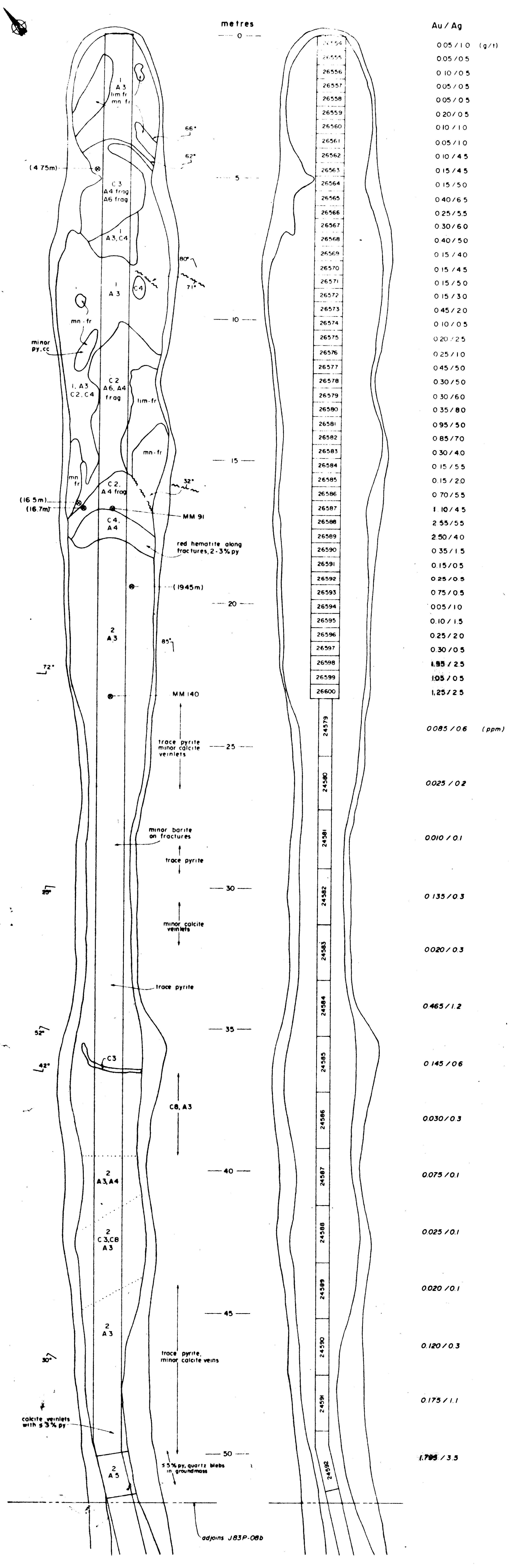
JD PROPERTY
PIT GRID
TRENCH J83P-08a

Project 04

NTS 94E/6E | WORK BY L H | DRAWN BY G T | DATE NOV 7, 1983

SCALE IN METRES 0 1 2 3 4

Figure: 9a



LEGEND

Lithologies

1 Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥ 2cm); aphanitic groundmass 1a massive flow often with floggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite
2a massive flow, often with floggy jointing, local auto-breccia
2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 Aphyric diabase dyke Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules Magnetic

4 Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 Unaltered, very weak hematization

A2 Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 Argillization ± silicification ± pyritization

A5 Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass Disseminated pyrite

A6 Silicification. Intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 Intense silicification + quartz veining

C Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py - pyrite
mn - manganite
hem - hematite
cpy - chalcopyrite
gn - galena
qtz - quartz
lim - limonite
cc - calcite
sph - sphalerite
mal - malachite
az - azurite
la - laumontite

Symbols

contact observed (abrupt), inferred, gradational
50° bedding attitude, vertical
70° dyke/vein attitude, vertical
80° joint attitude, vertical
60° fault attitude, vertical, relative motion
fault-teeth on upper block
outcrop

frag - fragments
br - broken
bx - breccia
fr - fracture coating
fg - fault gouge
o.b - overburden
p.a - position approximate
● - sample location

0 1 2 3m

GRAB SAMPLES

Sample No	Tag No	Au	Ag
MM 91	25996	0.75	4.5 (g/t)

J83P-08 (0m @ 0+99E, 1+00N, 50m @ 220°, 46m @ 206°

Geology by L. Haering (July 13, 1983)

GEOLOGICAL BRANCH ASSESSMENT REPORT

11,843

PART 2 OF 2

J83P-08b

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-08b

NTS 94E/6E' Project 04

WORK BY L.H. DRAWN BY G.T. DATE NOV 7, 1983

SCALE IN METRES 0 1 2 3 4

Figure: 9b

adjoins J83P-08a

2
A3,
minor cc
veins,
tr py

35°

38°

minor barite
veinlets

≤5% pyrite
trace py, malachite
in calcite veinlets

2
A3a,A2
local cc,
barite,
veinlets

(68.2 m)

Overburden

Overburden

2
A3
tr py,
minor cc
veinlets

≤3% py, tr. malachite
in cc veinlets

2,
A3,
A5
≤5% py

Floor

Side Panels

Au / Ag
0.805 / 2.2 (ppm)
0.410 / 2.4
1.880 / 2.8
0.230 / 0.7
0.080 / 0.8
0.125 / 2.8
0.065 / 1.2
0.240 / 0.8
0.085 / 0.4
0.105 / 0.9
0.035 / 0.4
0.325 / 1.1
0.070 / 0.7
0.045 / 1.1
0.095 / 0.9
0.170 / 1.0
0.040 / 1.0
0.055 / 0.8
0.040 / 0.7
0.025 / 0.9
0.045 / 1.0
0.030 / 0.6

Sample	From	To	Length
24593	50	51	1
24594	51	52	1
24595	52	53	1
24596	53	54	1
24597	54	55	1
24598	55	56	1
24599	56	57	1
24600	57	58	1
24601	58	59	1
24602	59	60	1
24603	60	61	1
24604	61	62	1
24605	62	63	1
24606	63	64	1
24607	64	65	1
24608	65	66	1
24609	66	67	1
24610	67	68	1
24611	68	69	1
24612	69	70	1
24613	70	71	1
24614	71	72	1

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite
2a. massive flow, often with flaggy jointing, local auto-breccia.
2b coarse volcaniclastic rocks (laharic). 2c. fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace-5% round-ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py - pyrite	lim - limonite
mn - manganite	cc - calcite
hem - hematite	sph - sphalerite
cpy - chalcopyrite	mal - malachite
gn - galena	az - azurite
qtz - quartz	la - laumonite

Symbols

- contact: observed (abrupt), inferred, gradational
- 80°/ bedding attitude, vertical
- 70°/ dyke/vein attitude, vertical
- 80°/ joint attitude, vertical
- 60°/ fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag - fragments	fg - fault gouge
br - broken	o.b. - overburden
bx - breccia	p.e. - position approximate
fr - fracture coating	● - sample location

0 1 2 3m

J83P-08 (0m @ 0+99E, 1+00N, 50m @ 220°, 46m @ 206°

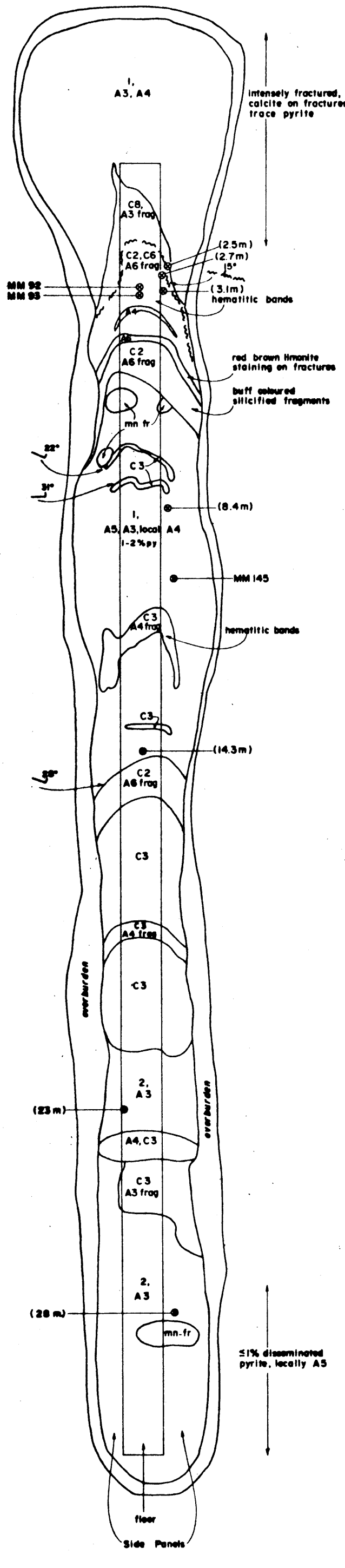
Geology by L. Hoering (July 13, 1983)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

Kidd Creek Mines Ltd.	JD PROPERTY PIT GRID TRENCH J83P-09 NTS 34E/6E Project 04	DRAWN BY: G T	DATE: OCT 21, 1983	SCALE IN METRES: 0 1 2 3 4	Figure: 10

J83P-09



26601	0.15 / 0.5
26602	0.30 / 0.5
26603	0.05 / 0.5
26604	0.30 / 0.5
26605	0.05 / 1.5
26606	2.25 / 12.5
26607	[illegible] / 15.5
26608	3.05 / 13.0
26609	1.85 / 17.5
26610	1.05 / 9.5
26611	[illegible] / 13.5
26612	1.10 / 5.5
26613	1.20 / 6.5
26614	1.40 / 7.5
26615	3.05 / 11.5
26616	3.20 / 17.5
26617	3.85 / 33.0
26618	3.80 / 109.0
26619	1.30 / 90.0
26620	2.80 / 41.0
26621	0.90 / 18.5
26622	0.70 / 11.5
26623	1.70 / 25.0
26624	0.95 / 17.5
26625	0.30 / 11.5
26626	0.65 / 22.5
26627	[illegible] / 28.5
26628	1.95 / 69.5
26629	4.25 / 176.5
26630	[illegible] / 78.5
26631	[illegible] / 154.5
26632	4.00 / 64.5
26633	1.40 / 23.5
26634	5.25 / 6.5
26635	[illegible] / 7.5
26636	2.65 / 19.5
26637	2.40 / 18.5
26638	1.50 / 13.5
26639	1.35 / 17.0
26640	1.60 / 18.5
26641	1.90 / 16.0
26642	1.30 / 15.5
26643	1.05 / 12.5
26644	0.45 / 4.0
26645	0.45 / 6.0
26646	0.45 / 4.0
26647	3.90 / 21.5
26648	4.25 / 18.5
26649	3.30 / 15.0
26650	2.40 / 10.5
26651	1.95 / 7.5
26652	2.50 / 9.0
26653	0.80 / 7.0
26654	0.95 / 8.5
26655	1.45 / 11.5
26656	0.30 / 4.5
26657	3.20 / 16.0
26658	0.50 / 5.5
26659	[illegible] / 10.0
26660	0.95 / 10.5
26661	[illegible] / 11.5
26662	0.75 / 7.0
26663	0.80 / 5.5

J83P-09 (0m @ 0+02E, 0+81N; 31.5m @ 212°)

Geology by L. Heering (July 14, 1983)

LEGEND

Au/Ag (g/t)

Lithologies

- 1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (lahoric). 1c fine volcaniclastic rocks (tuffaceous)
- 2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a. massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (lahoric). 2c. fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants.
- 3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules. Magnetic
- 4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

- A1 — Unaltered, very weak hematization
- A2 — Hematization Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase
- A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a. weak propylitization, with A2-patchy green and grey groundmass
- A4 — Argillization ± silicification ± pyritization
- A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite
- A6 — Silicification Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass.
- A7 — Intense silicification + quartz veining
- C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)
- Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- 50°/ bedding attitude, vertical
- 70°/ dyke/vein attitude, vertical
- 80°/ joint attitude, vertical
- 60°/ fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b.	overburden
bx	breccia	p.a.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

GRAB SAMPLES

Sample No	Tag No	Au	Ag
MM 92	25997	4.10	6.5 (g/t)
MM 93	25998	1.55	8.0

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-10

NTS 94E/6E | Project 04

WORK BY	DRAWN BY	DATE
MM, RV	GT	NOV 7, 1983

SCALE IN METRES

Figure: 11

J83P-10 (0m @ 2+27W, 0+35N, 66.8m @ 225°)

Geology by R Vandenbrink (July 14, 1983)
M Morrice (Aug 23, 1983)

LEGEND

Lithologies

1 Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite.
2a. massive flow, often with flaggy jointing, local auto-breccia.
2b coarse volcaniclastic rocks (laharic). 2c. fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 Aphyric diabase dyke. Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules. Magnetic

4 Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 Unaltered, very weak hematization

A2 Hematization Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase

A3 Propylitization Dark green chloritic groundmass Orange plagioclase. A3a. weak propylitization, with A2-patchy green and grey groundmass.

A4 Argillization ± silicification ± pyritization

A5 Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass. Disseminated pyrite

A6 Silicification Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 Intense silicification + quartz veining

C Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py - pyrite	lim - limonite
mn - manganite	cc - calcite
hem - hematite	sph - sphalerite
cpy - chalcopyrite	mal - malachite
gn - galena.	az - azurite
qtz - quartz	la - laumonite

Symbols

contact: observed (abrupt), inferred, gradational
60° bedding attitude, vertical
70° dyke/vein attitude, vertical
80° joint attitude, vertical
60° fault attitude, vertical, relative motion
fault-teeth on upper block
outcrop

frag - fragments	fg - fault gouge
br - broken	o.b. - overburden
bx - breccia	p.a. - position approximate
fr - fracture coating	● - sample location

0 1 2 3m

GRAB SAMPLES

Sample No	Tag No	Au	Ag(g/t)	Cu	Pb	Zn(%)
MM 94	25999	0.10	1.5			
MM 95	26000	0.05	0.5			
MM 96	26001	1.25	37.0			
MM 97	26002	0.85	1.0			
MM 98	26003	1.25	9.0			
MM 189	26052	2.80	5.5	0.08	0.83	1.25
MM 289	24623	0.005	0.3(ppm)			
MM 290	24624	0.005	0.3 "			

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843

PART 2 OF 2

Kidd Creek Mines Ltd.	
JD PROPERTY PIT GRID TRENCH J83P-11	Project 04
NTS 94E/6E	
WORK BY: M.M., R.V.	DRAWN BY: G.T.
DATE: NOV. 10, 1983	SCALE IN METRES: 0 1 2 3 4
Figure: 12	

J83P-11

J83P-11 (0m @ 2+08W, 0+14N; 96.7 m @ 227°)

Geology by R. Vandenbrink July 16, 1983
M. Morrice Sept 15, 1983

Sample	Au / Ag	Units
27157	0.05/0.5	g/t
27158	0.05/0.5	
27159	0.05/0.5	
27160	0.15/0.5	
27161	0.30/0.5	
27162	0.05/0.5	
27163	0.05/0.5	
27164	0.05/0.5	
27165	0.05/0.5	
27166	0.35/0.5	
27167	0.05/0.5	
27168	0.40/0.5	
27169	0.70/1.5	
27170	1.75/2.5	
27171	1.65/3.0	
27172	0.85/2.0	
27173	0.25/2.0	
27174	0.85/1.0	
27175	1.10/0.5	
27176	0.65/3.5	
27177	0.55/1.5	
24176	*0.480/1.7*	ppm
24641	*0.490/1.2*	
24642	*0.955/0.8*	
27178	2.55/2.0	g/t
27179	2.15/5.5	
27180	25.30/26.0	
27181	1.40/0.5	
27182	4.05/3.5	
27183	3.70/1.5	
27184	7.50/4.5	
27185	7.70/4.0	
27186	2.90/2.5	
27187	2.25/2.0	
27188	1.40/2.0	
27189	2.30/3.0	
27190	1.60/3.5	
27191	1.00/1.5 *	
27192	1.95/5.5 *	
27193	2.30/5.0 *	
27194	1.40/3.0 *	
27195	1.60/3.0 *	
27196	1.30/3.0 *	
27197	1.15/3.5 *	
27198	0.55/7.5 *	
27199	0.40/2.0 *	
27058	10.70/3.5 *	
27059	7.80/1.5 *	
27060	9.40/2.5 *	
27061	3.50/3.5 *	
27062	1.75/1.0 *	
27063	8.00/4.0 *	
27064	13.00/6.0 *	
27065	35.70/11.5 *	
27066	43.50/11.0 *	
27067	33.10/7.5 *	
26901	10.75/2.5 *	
26902	6.80/4.0 *	
26903	0.45/1.5	
26904	0.10/0.5	
26905	0.65/3.5	
26906	0.45/1.5	
26907	0.30/0.5	
26908	0.75/1.0	
26909	0.15/0.5	
26910	0.15/0.5	
26911	0.40/0.5	
26912	0.30/0.5	
26913	0.05/0.5	
26914	0.05/0.5	
26915	0.05/0.5	
26916	0.05/0.5	
26917	0.15/0.5	
26918	0.10/0.5	
26919	0.15/0.5	
26920	0.05/0.5	
26921	0.05/0.5	
26922	0.10/0.5	
26923	0.05/0.5	
26924	0.05/0.5	
26925	0.05/0.5	
26926	0.05/0.5	
26927	0.05/0.5	
26928	0.45/3.5	
26929	0.05/0.5	
26930	0.05/0.5	
26931	0.05/0.5	
26932	0.05/0.5	

* average of 2 analyses

GRAB SAMPLES

Sample No	Tag No	Au	Ag(g/t)	Cu	Pb	Zn(%)
MM 100	26005	19.5	38.50			
MM 101	26006	41.5	29.50			
MM 102	26007	12.5	8.50			
MM 103	26026	98.25	37.5	0.02	2.79	3.18
MM 104	26020	13.25	8.0	0.03	0.07	0.75
MM 157	26017	216.95	62.5	0.03	2.39	5.90
MM 186	26051	0.25	0.5			
MM 194	26053	6.80	9.5	0.01	0.67	0.84

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite
2a massive flow, often with flaggy jointing, local auto-breccia
2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass Disseminated pyrite

A6 — Silicification Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

(box) — Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py - pyrite	lim - limonite
mn - manganite	cc - calcite
hem - hematite	sph - sphalerite
cpy - chalcopyrite	mal - malachite
gn - galena	az - azurite
qtz - quartz	la - laumonite

Symbols

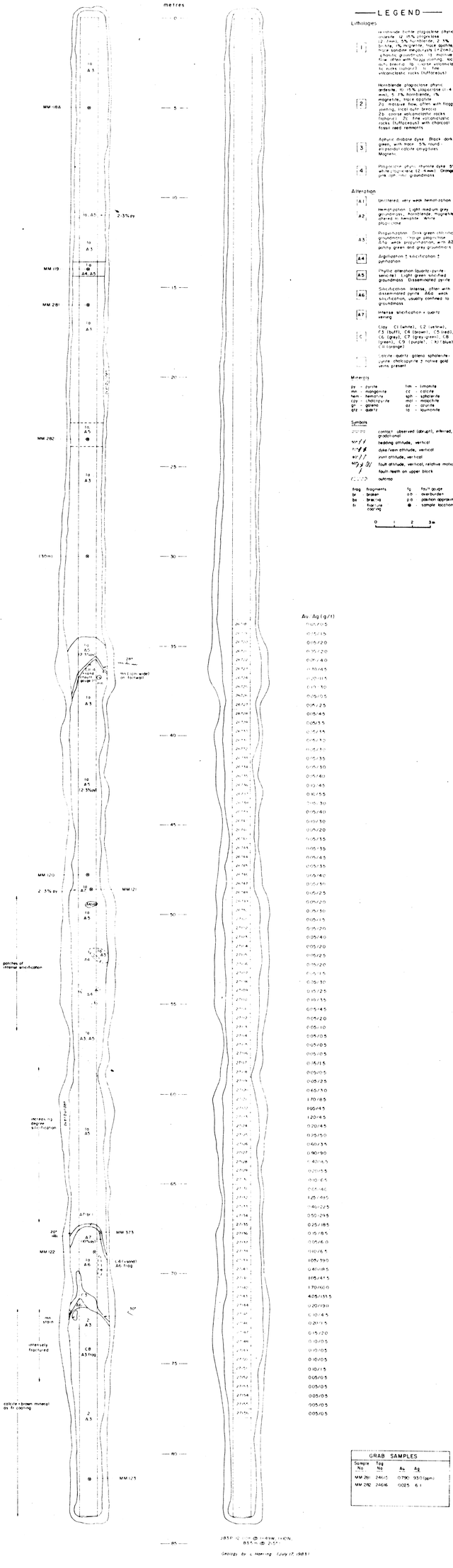
contact observed (abrupt), inferred, gradational
50° bedding attitude, vertical
70° dyke/vein attitude, vertical
80° joint attitude, vertical
60° fault attitude, vertical, relative motion
fault-teeth on upper block
outcrop

frag - fragments	fg - fault gouge
br - broken	o.b. - overburden
bx - breccia	p.a. - position approximate
fr - fracture coating	● - sample location

0 1 2 3m

Kidd Creek Mines Ltd.
JD PROPERTY
PIT GRID
TRENCH J83P 12
Figure 13

J83P-12



GEOLOGICAL BRANCH ASSESSMENT REPORT

11,843

PART 2 OF 2

Kidd Creek Mines Ltd.
JD PROPERTY
PIT GRID
TRENCH J83P-13a
NTS 94E/6E
Project C4
MM, RV | GT | NOV 10, 1983
Figure: 14a.

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with floggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite 2a massive flow, often with floggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass Disseminated pyrite

A6 — Silicification intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

contact observed (abrupt), inferred, gradational
50° bedding attitude, vertical
dyke/vein attitude, vertical
60° joint attitude, vertical
60° fault attitude, vertical, relative motion
fault-teeth on upper block
outcrop

frag	fragments	fg	fault gouge
br	broken	ob	overburden
bx	breccia	pa	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

GRAB SAMPLES

Sample No	Tag No	Au	Ag	Cu	Pb	Zn
MM 105	26021	3.20	18.5(g/t)			
MM 197	26054	6.80	9.5	0.01	0.67	0.84 %
MM 291	24625	0.010	0.6(ppm)			
MM 292	24626	0.005	0.4			
MM 293	24627	0.005	0.3			
MM 294	24628	0.005	0.4			(ppm)
MM 302	26811	11.700	8.9	505	14321	6281
MM 303	26812	2,350	7.4			

J83P-13 (0m @ 2+51W, 0+42N; 123 m @ 218°)

Geology by R Vandenbrink July 16, 1983
M.Morrice Sept 16, 1983

GEOLOGICAL BRANCH
ASSESSMENT REPORT

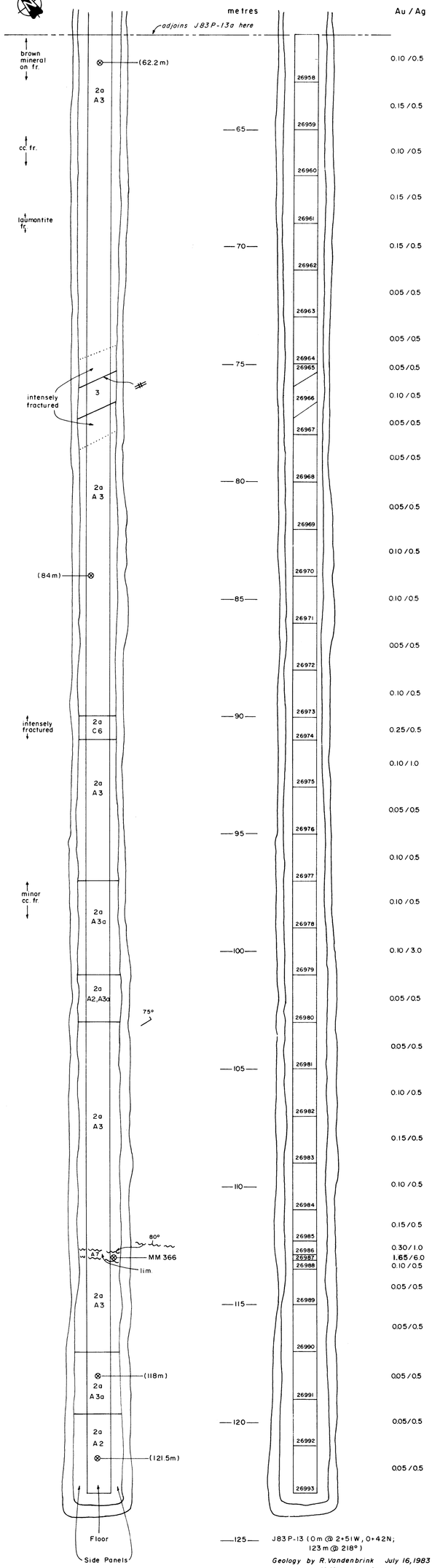
11,843
PART 2 OF 2

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-13b

Project 04
NOV 10, 1983
NTS 94E/6E
MM, NW
Figure 14b.

J83P-13b



Geology by R. Vandenbrink July 16, 1983
M. Morrice Sept 16, 1983

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite (2-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sandine megacrysts (±2cm); aphanitic groundmass to massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (lahars); 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite (10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite
2a massive flow, often with flaggy jointing, local auto-breccia
2b coarse volcaniclastic rocks (lahars) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round - elongated calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase ±3% weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green sericitized groundmass. Disseminated pyrite

A6 — Silicification intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay. C1 (white); C2 (yellow); C3 (buff); C4 (brown); C5 (red); C6 (grey); C7 (grey-green); C8 (green); C9 (purple); C10 (blue); C11 (orange)

Calcite - quartz - galena - sphalerite - pyrite - chalcopyrite ± native gold veins present

Minerals

py - pyrite
mn - manganite
hem - hematite
cpy - chalcopyrite
gn - galena
qtz - quartz
lim - limonite
cc - calcite
sph - sphalerite
mal - malachite
qz - quartz
la - laumontite

Symbols

contact observed (abrupt), inferred, gradational
bedding attitude, vertical
dyke/vein attitude, vertical
joint attitude, vertical
fault attitude, vertical, relative motion
fault tests on upper block
cut/cut
frag - fragments
br - broken
bx - breccia
fr - fracture coating
fg - fault gouge
ob - overburden
pa - position approximate
● - sample location

0 2 3m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843

PART 2 OF 2

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-14

NTS 94E/6E — Project 04

WORK BY	DRAWN BY	DATE
M.M., L.H.	G.T.	NOV 12, 1983

SCALE IN METRES 0 1 2 3 4

Figure: 15

J83P-14

Sample	Au / Ag (g/t)
27200	0.05 / 1.0
27201	0.05 / 0.5
27202	0.05 / 0.5
27203	0.05 / 1.0
27204	0.05 / 1.5
27205	0.05 / 1.0
27206	0.05 / 2.5
27207	0.05 / 2.5
27208	0.05 / 2.0
27209	0.05 / 1.5
27210	0.10 / 4.0
27211	0.10 / 3.5
27212	0.10 / 2.5
27213	0.3 / 2.0
27214	0.05 / 3.5
27215	0.20 / 0.5
27216	0.05 / 0.5
27217	0.05 / 0.5
27218	0.05 / 0.5
27219	0.10 / 0.5
27220	0.20 / 2.5
27221	0.15 / 0.5
27222	0.10 / 0.5
27072	0.15 / 0.5
27073	0.05 / 0.5
27074	0.05 / 0.5
27075	0.05 / 0.5
27076	0.05 / 0.5
27077	0.15 / 0.5
27078	0.05 / 0.5
27079	0.05 / 0.5
27080	0.05 / 0.5
27081	0.05 / 0.5
27082	0.05 / 0.5
27083	0.05 / 0.5
27084	0.10 / 0.5
27085	0.05 / 0.5
27086	0.05 / 0.5
27087	0.05 / 0.5
27088	2.05 / 4.5
27089	1.15 / 2.5
27090	0.10 / 0.5
27091	0.05 / 0.5
24225	0.05 / 0.5
24226	0.05 / 1.0
24227	1.70 / 6.5
24228	0.05 / 0.5
24229	0.05 / 0.5
24230	0.05 / 0.5
24231	0.05 / 0.5
24232	0.05 / 0.5
24233	0.05 / 1.0
24234	0.05 / 0.5
24235	0.05 / 0.5
24236	0.05 / 0.5
24237	0.05 / 0.5
24238	0.05 / 1.5
24239	0.05 / 0.5
24240	0.05 / 0.5
24241	0.05 / 0.5
24242	0.05 / 0.5
24243	0.05 / 0.5
24244	0.05 / 0.5
24245	0.05 / 0.5
24246	0.05 / 0.5
24247	0.05 / 0.5
24248	0.05 / 0.5
24249	0.05 / 0.5
24250	0.05 / 0.5
24251	0.05 / 0.5
24252	0.25 / 0.5
24253	0.05 / 0.5
24254	0.05 / 0.5
24255	0.05 / 0.5
24256	0.10 / 0.5
24257	0.05 / 0.5
24258	0.05 / 0.5
24259	0.40 / 0.5

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-5% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass 1a massive flow often with floggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite
2a massive flow, often with floggy jointing, local auto-breccia
2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass Disseminated pyrite

A6 — Silicification intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

contact observed (abrupt), inferred, gradational
50° bedding attitude, vertical
70° dyke/vein attitude, vertical
80° joint attitude, vertical
60° fault attitude, vertical, relative motion
fault-teeth on upper block
outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.a	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

GRAB SAMPLES

Sample No	Tag No	Au	Ag
MM 134	26025	0.20	6.0 (g/t)

J83P-14 (0m @ 1+51W, 0+20N, 95m @ 221°)

Geology by L. Haering July 16, 1983
M. Morrice Sept 17, 1983

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

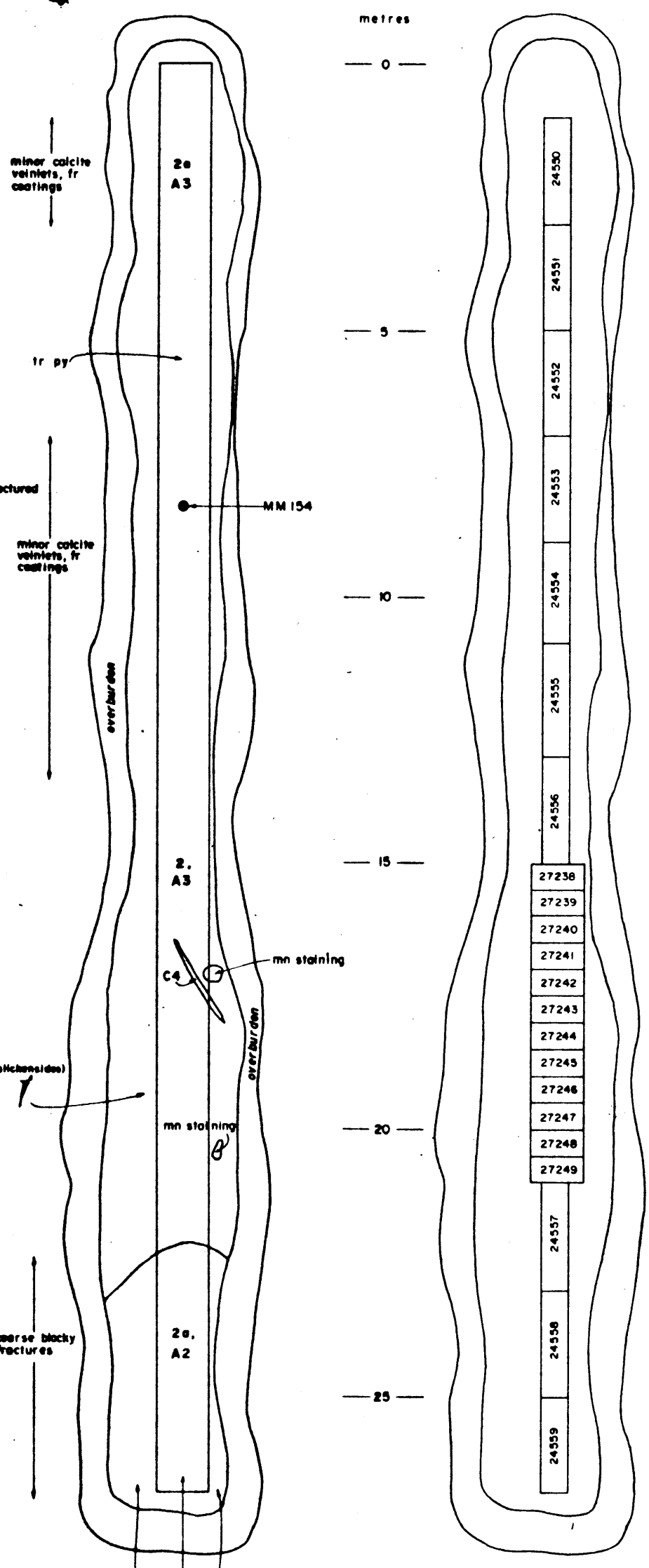
Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-15

NTS 94E/6E

DRAWN BY: G T
DATE: OCT 12, 1983
SCALE IN METRES: 0 1 2 3 4

Figure: 16



	Au/Ag	
	0.025/0.7	(ppm)
	0.020/0.7	
	0.020/0.8	
	0.150/1.2	
	0.045/0.3	
	0.050/0.8	
	0.235/11	
	1.35/3.0	(g/t)
	0.05/1.5	
	0.15/1.0	
	0.20/0.5	
	0.10/2.0	
	0.05/1.0	
	0.05/0.5	
	0.05/0.5	
	0.05/1.0	
	0.05/1.5	
	0.05/2.5	
	0.05/1.5	
	0.010/1.3	(ppm)
	0.020/1.5	
	0.035/1.3	

J83P-15 (0m @ 0+49W, 0+15N, 26.8m @ 220°)

Geology by L. Haering (July 17, 1983)

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a. massive flow, often with flaggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (laharic). 2c. fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase. A3a. weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact: observed (abrupt), inferred, gradational
- 50°/ bedding attitude, vertical
- 70°/ dyke/vein attitude, vertical
- 80°/ joint attitude, vertical
- 60°/ fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

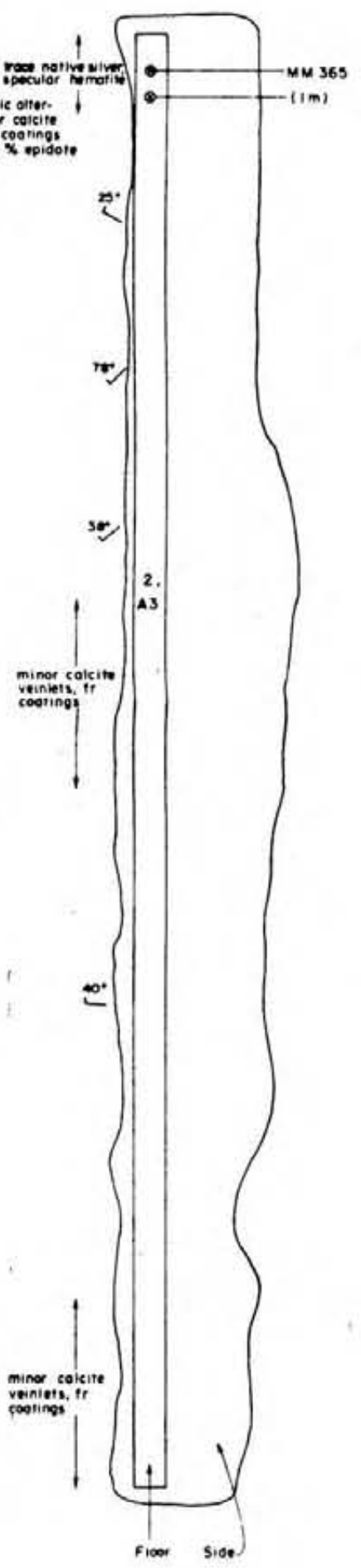
frag	fragments	fg	fault gouge
br	broken	o.b.	overburden
bx	breccia	p.a.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-17

Project 04
NTS 94E/6E
DRAWN BY: G.T.
DATE: OCT 26, 1983
LH
SCALE IN METRES: 0 1 2 3 4
Figure 17



	Au / Ag
	0.690 / 59.8 (ppm)
	0.070 / 1.2
	0.120 / 1.2
	0.035 / 0.9
	0.060 / 2.3
	0.125 / 0.9
	0.135 / 0.5
	0.050 / 0.8
	0.065 / 0.4
	0.045 / 0.8
	0.015 / 0.6
	0.030 / 0.7

J83P-17 (0m @ 2+81W, 0+05N, 23m @ 220°)

Geology by L. Haering, (August 24, 1983)

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (±2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (lahoric). 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (lahoric). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a. weak propylitization, with A2 - patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

□ — Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumontite

Symbols

- contact observed (abrupt), inferred, gradational
- 90°/ bedding attitude, vertical
- 70°/ dyke/vein attitude, vertical
- 60°/ joint attitude, vertical
- 60°/ fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.a	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843

PART 2 OF 2

Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID

TRENCH J83P-17A

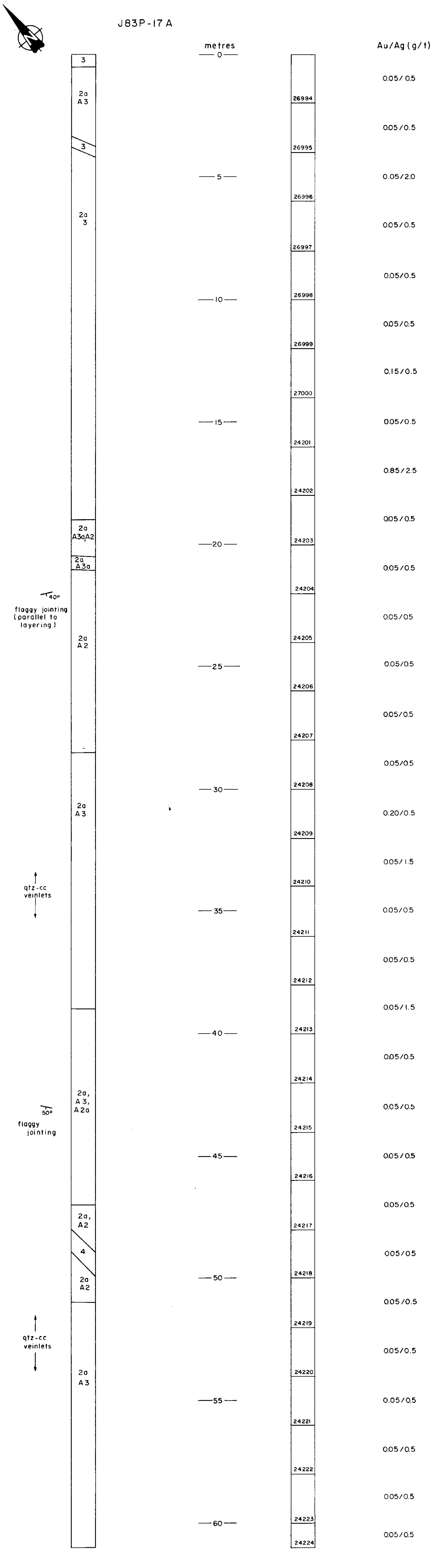
NTS 94E/6E Project 04

Work by	Drawn by	Date
A.B.	G.T.	NOV. 10, 1983

Scale in metres: 0 1 2 3 4

Figure: 18

J83P-17A



LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≥2cm), aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite 2a massive flow, often with flaggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass Disseminated pyrite

A6 — Silicification Intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumontite

Symbols

contact observed (abrupt), inferred, gradational

bedding attitude, vertical

dyke/vein attitude, vertical

joint attitude, vertical

fault attitude, vertical, relative motion

fault-teeth on upper block

outcrop

frag	fragments	fg	fault gouge
br	broken	ob	overburden
bx	breccia	pa	position approximate
fr	fracture coating	●	sample location

0 2 3m

J83P-17A (0m @ 2+81W, 0+18S; 61m @ 220°)

Geology by A. Boronowsky Sept. 17, 1983

GEOLOGICAL BRANCH
ASSESSMENT REPORT

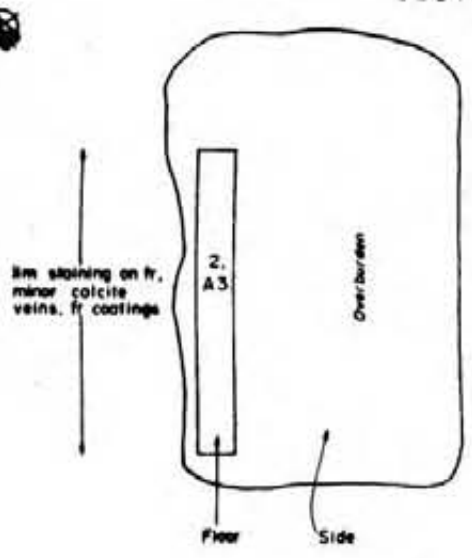
11,843
PART 2 OF 2

Kidd Creek Mines Ltd.	JD PROPERTY PIT GRID TRENCHES J83P-18 to 20	Project 094 NTS 94E/6E WORK BY: MM, L.H DRAWN BY: GT DATE: NOV 8, 1983 SCALE IN METRES: 0 1 2 3 4	Figure: 19

GRAB SAMPLES

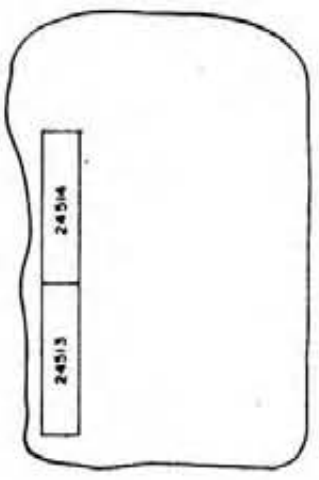
Sample No	Tag No	Au	Ag
MM 300	24175	0065	1 9 (ppm)

J83 P-18



metres
0
2
4

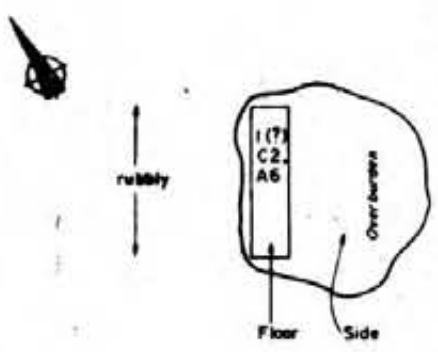
Au / Ag (ppm)
0.010 / 0.9
0.045 / 0.5



J83P-18 (0m @ 2+81W, 0+18N, 4m @ 220°)

Geology by L Hoering Aug 24, 1983

J83 P-19



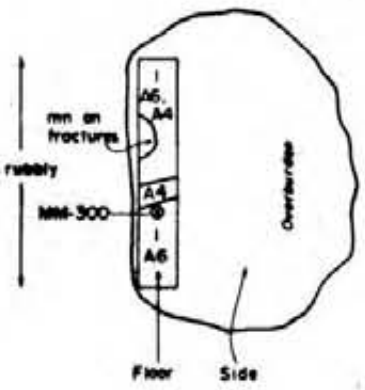
metres
0
2

Au / Ag (ppm)
0.740 / 8.6

J83P-19 (0m @ 2+46W, 0+99N, 2m @ 208°)

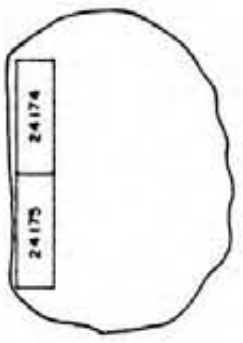
Geology by M Marrice Aug 24, 1983

J83 P-20



metres
0
2
4

Au / Ag (ppm)
0.085 / 2.7
0.065 / 1.9



J83P-20 (0m @ 2+45W, 1+14N, 3m @ 210°)

Geology by M Marrice Aug 24, 1983

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≤2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (lahoric) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a. massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (lahoric) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke. 8% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite.

A6 — Silicification. Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- 90°/ bedding attitude, vertical
- 70°/ dyke/vein attitude, vertical
- 90°/ joint attitude, vertical
- 90°/ fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.a.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

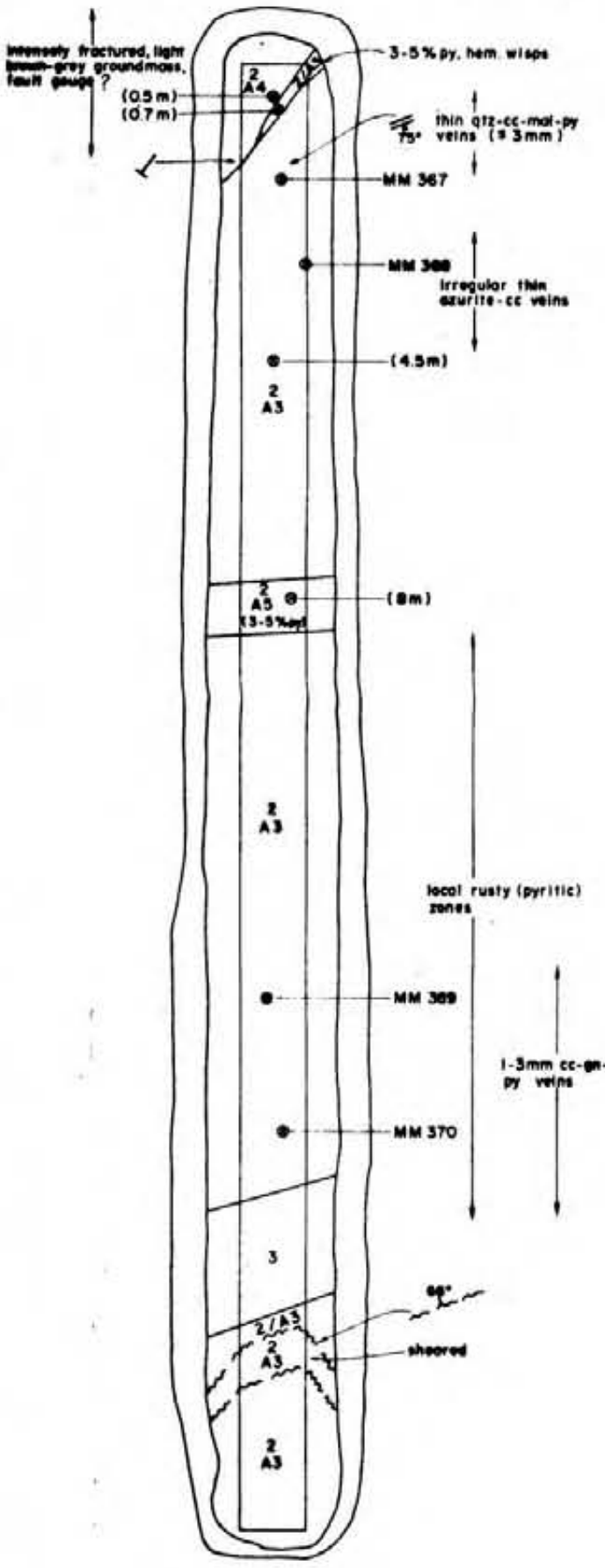
11,843
PART 2 OF 2

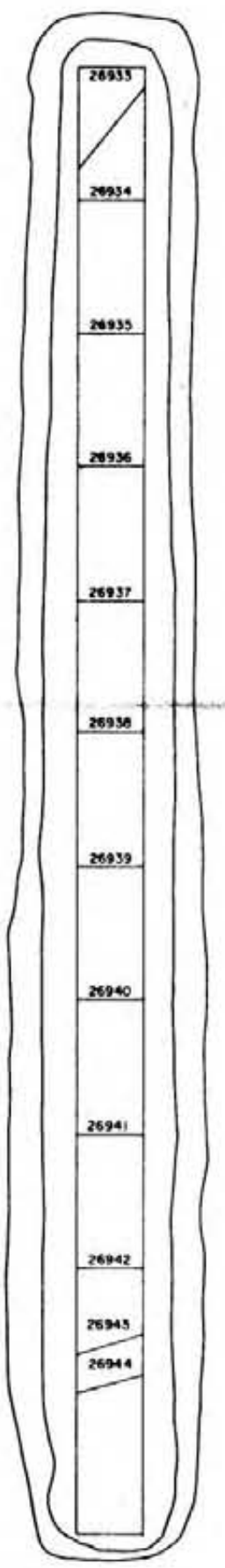
Kidd Creek Mines Ltd.

JD PROPERTY
PIT GRID
TRENCH J83P-21

NTS 94E/6E | Project 04 | DATE: OCT 25, 1983 | DRAWN BY: GT | SCALE IN METRES 1:50 | Figure: 20

J83P-21





Au / Ag (g/t)
0.35 / 2.5
0.15 / 1.5
0.55 / 3.0
0.70 / 0.5
4.10 / 10.0
2.65 / 7.5
1.75 / 4.0
2.25 / 11.0
2.75 / 2.5
3.10 / 2.0
0.10 / 0.5
0.75 / 2.5

J83P-21 (0m @ 2+21.5W, 0+07S; 22m @ 232°)

Geology by M.G. Morrice (Sept 15, 1983)

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (±2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite) Light green silicified groundmass Disseminated pyrite

A6 — Silicification intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

□ — Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact: observed (abrupt), inferred, gradational
- bedding attitude, vertical
- dyke/vein attitude, vertical
- joint attitude, vertical
- fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.a.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

Kidd Creek Mines Ltd.

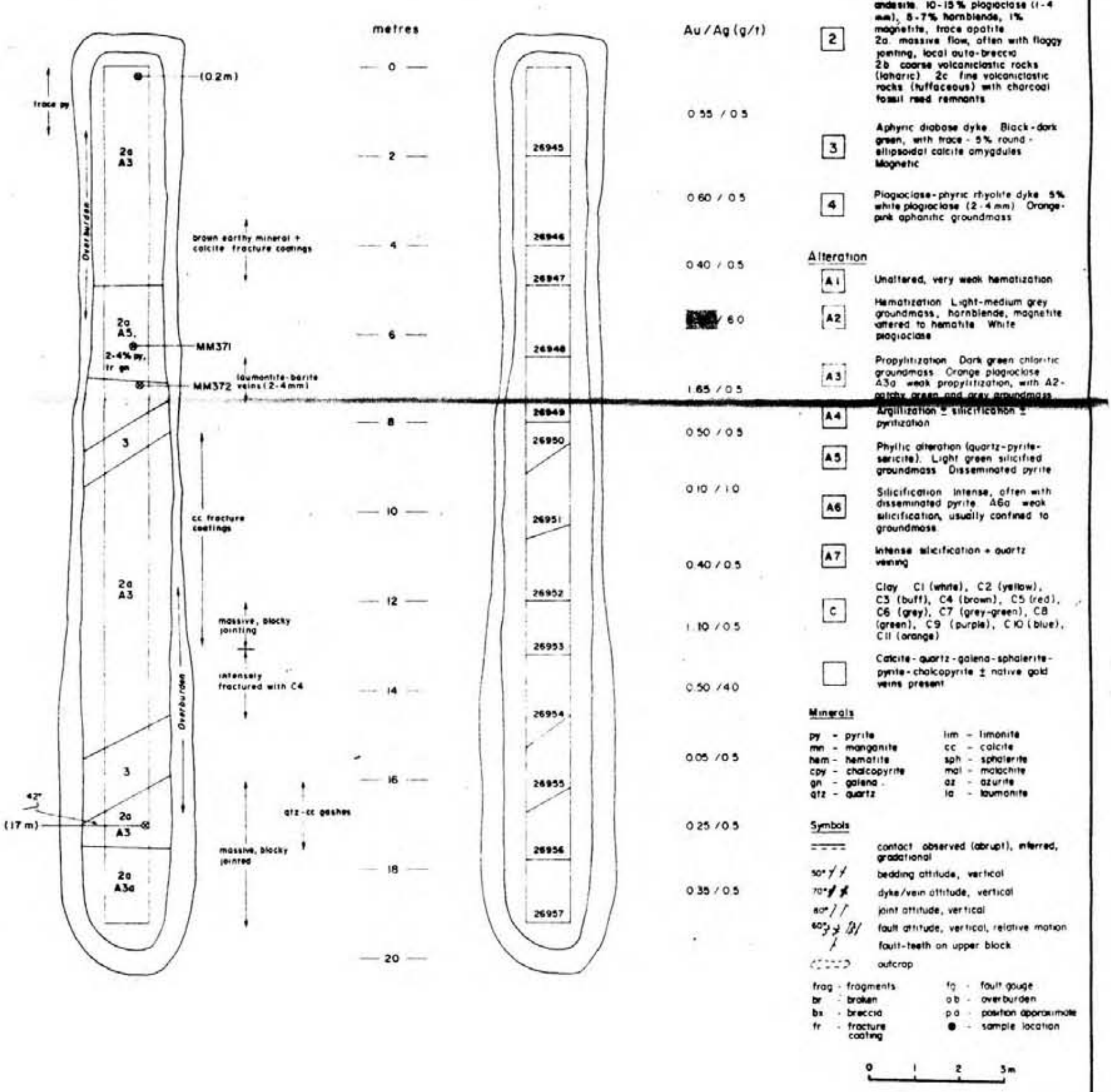
JD PROPERTY
PIT GRID
TRENCH J83P-22

NTS 94E/6E

Project 04

Figure: 21

J83P-22
(0m @ 2+02W, 0+095S, 192m @ 237°)
Geology by M.G. Morrice (September 17, 1983)



Au/Ag (g/t)

0.55 / 0.5
0.60 / 0.5
0.40 / 0.5
6.0
1.65 / 0.5
0.50 / 0.5
0.10 / 1.0
0.40 / 0.5
1.10 / 0.5
0.50 / 4.0
0.05 / 0.5
0.25 / 0.5
0.35 / 0.5

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (±2cm); aphanitic groundmass 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (lithoric) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite 2a massive flow, often with flaggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (lithoric) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke Black-dark green, with trace-5% round-ellipsoidal calcite amygdules Magnetic

4 — Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm) Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization Light-medium grey groundmass, hornblende, magnetite altered to hematite White plagioclase

A3 — Propylitization Dark green chloritic groundmass Orange plagioclase A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass Disseminated pyrite

A6 — Silicification Intense, often with disseminated pyrite A6a weak silicification, usually confined to groundmass

A7 — Intense silicification + quartz veining

C — Clay C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- 50°/ bedding attitude, vertical
- 70°/ dyke/vein attitude, vertical
- 80°/ joint attitude, vertical
- 60°/ fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	ob	overburden
bx	breccia	pa	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

Kidd Creek Mines Ltd

JD PROPERTY
PIT GRID

TRENCH J83P-23

NTS 94E/6E — Project 04

M M	G T	DATE OCT 28, 1983

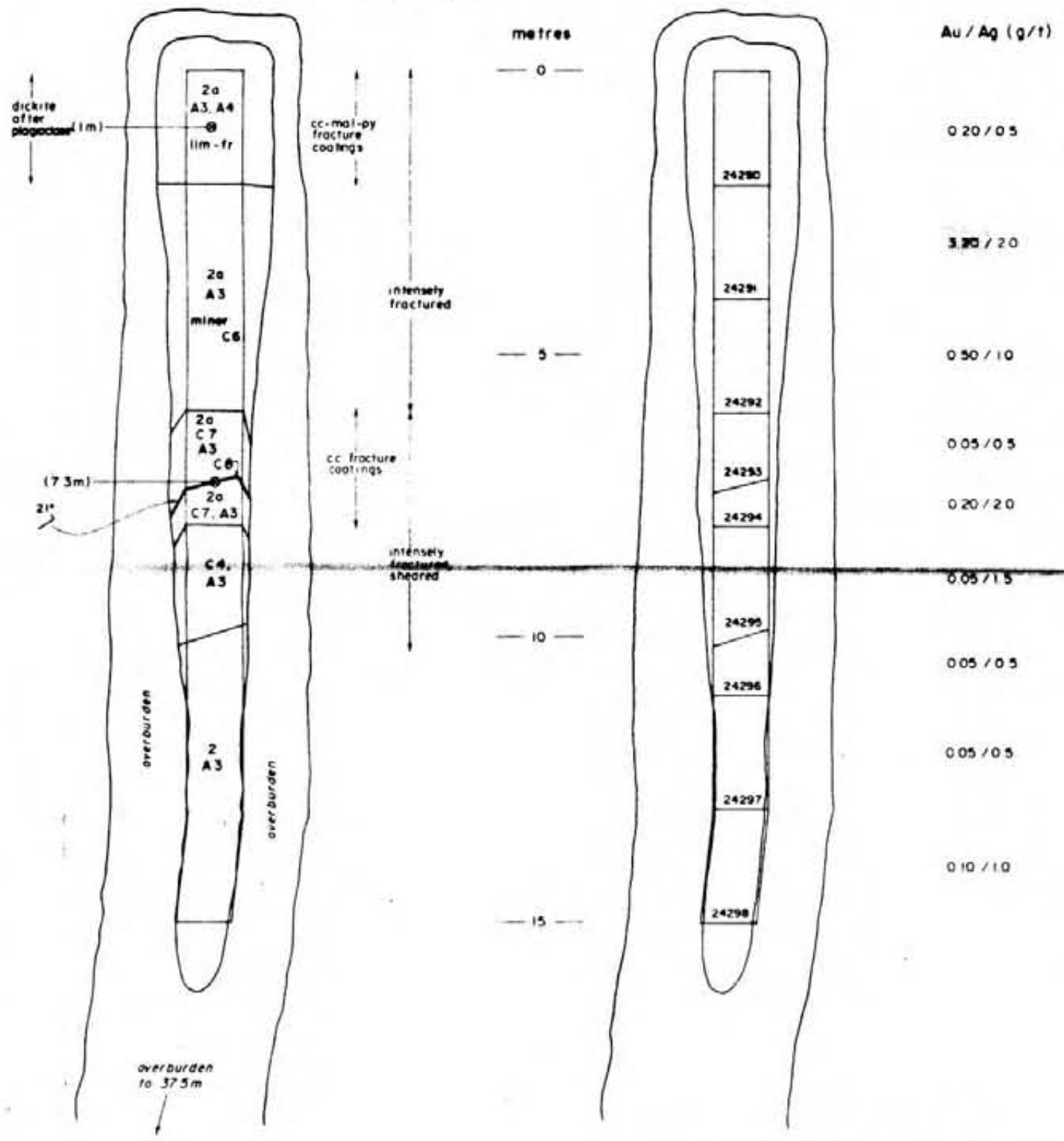
0 1 2 3 4
SCALE IN METRES

Figure: 22

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

J83P-23



LEGEND

Lithologies

1 Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≤2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite
2a massive flow, often with flaggy jointing, local auto-breccia
2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 Aphyric diabase dyke. Black-dark green, with trace-5% round-ellipsoidal calcite amygdules. Magnetic

4 Plagioclase-phyric rhyolite dyke 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 Unaltered, very weak hematization

A2 Hematization. Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase

A3 Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass

A4 Argillization ± silicification ± pyritization

A5 Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 Silicification. Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 Intense silicification + quartz veining

C Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumonite

Symbols

- contact observed (abrupt), inferred, gradational
- bedding attitude, vertical
- dyke/vein attitude, vertical
- joint attitude, vertical
- fault attitude, vertical, relative motion
- fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	o.b	overburden
bx	breccia	p.o	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

J83P-23 (0m @ 0+16E, 0+03N, 13m @ 300°, 24.5m @ 294°)

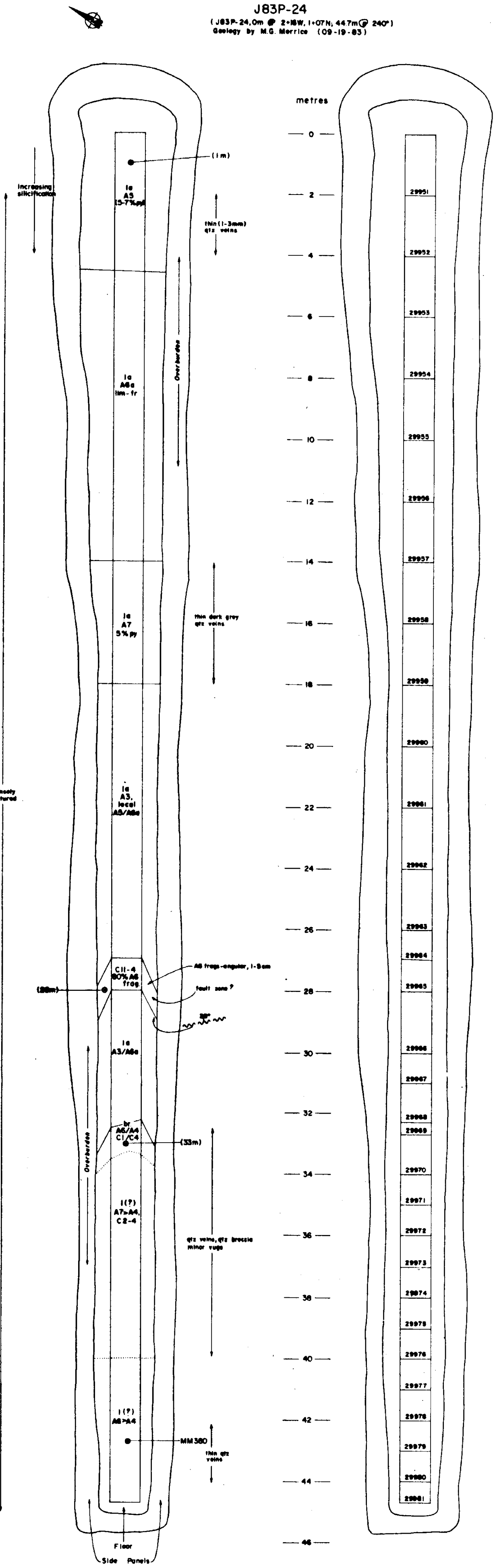
Geology by MG Morrice (September 18, 1983)

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

Kidd Creek Mines Ltd.	JD PROPERTY PIT GRID TRENCH J83P-24	Project 04
NTS 94E/6E	DRAWN BY: GT	DATE: OCT 12, 1983
WORK BY: M.M., L.L.	SCALE AS SHOWN: 0 1 2 3 4	Figure: 23

J83P-24
(J83P-24,0m @ 2+18W, 1+07N; 44.7m@ 240°)
Geology by M.G. Merrice (09-19-83)



LEGEND

Au/Ag (g/t)

Lithologies

- 0.05 / 0.5 — **1** — Hornblende-biotite-plagioclase-phyric andesite. 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (≤2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia. 1b coarse volcaniclastic rocks (laharic). 1c fine volcaniclastic rocks (tuffaceous)
- 0.20 / 8.0 — **2** — Hornblende-plagioclase-phyric andesite. 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite. 2a massive flow, often with flaggy jointing, local auto-breccia. 2b coarse volcaniclastic rocks (laharic). 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants
- 0.30 / 4.5 — **3** — Aphyric diabase dyke. Black-dark green, with trace - 5% round-ellipsoidal calcite amygdules. Magnetic
- **4** — Plagioclase-phyric rhyolite dyke. 8% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

- 0.10 / 1.5 — **A1** — Unaltered, very weak hematization
- **A2** — Hematization. Light-medium grey groundmass; hornblende, magnetite altered to hematite. White plagioclase
- 0.25 / 0.5 — **A3** — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass
- 0.10 / 1.5 — **A4** — Argillization ± silicification ± pyritization
- **A5** — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite
- 0.20 / 3.5 — **A6** — Silicification. Intense, often with disseminated pyrite. A6a. weak silicification, usually confined to groundmass
- **A7** — Intense silicification + quartz veining
- 0.10 / 2.5 — **C** — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)
- 0.10 / 0.5 — Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py	pyrite	lim	limonite
mn	manganite	cc	calcite
hem	hematite	sph	sphalerite
cpy	chalcopyrite	mal	malachite
gn	galena	az	azurite
qtz	quartz	la	laumontite

Symbols

- 0.75 / 3.5 — contact observed (abrupt), inferred, gradational
- bedding attitude, vertical
- dyke/vein attitude, vertical
- joint attitude, vertical
- 0.95 / 2.5 — fault attitude, vertical, relative motion; fault-teeth on upper block
- outcrop

frag	fragments	fg	fault gouge
br	broken	ob	overburden
bx	breccia	ap.	position approximate
fr	fracture coating	●	sample location

0 1 2 3m

0.50 / 1.0
0.25 / 2.5
0.30 / 3.5
0.05 / 2.5
0.05 / 2.0
0.05 / 3.5
0.30 / 11.0
0.20 / 15.0
0.30 / 13.0
0.20 / 12.0
0.35 / 13.0
0.90 / 12.5
0.55 / 7.0
0.65 / 8.5
0.55 / 7.0
0.20 / 6.5
0.25 / 7.5
0.65 / 14.0
0.60 / 25.5

APPENDIX B

ANALYTICAL RESULTS

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED AUG 13 1983

DATE REPORTS MAILED Aug 19/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # 83-1621 PAGE# 1

SAMPLE	CU %	PB %	ZN %	AG GM/TNE	AU GM/TNE
AA-26037	-	-	-	.5	.05
AA-26038	-	-	-	1.5	.05
AA-26039	-	-	-	1.5	.05
AA-26040	-	-	-	.5	.05
AA-26041	-	-	-	.5	.05
AA-26042	-	-	-	.5	.05
AA-26043	-	-	-	19.5	.30
AA-26044	-	-	-	12.5	.15
AA-26045	.01	.01	.05	2.0	.15
AA-26046	.01	.20	.13	1.5	.05
AA-26047	.01	.05	.07	2.0	.10
AA-26048	.01	.01	.03	.5	.05
AA-26049	.01	.01	.06	.5	.05
AA-26050	.01	.29	.24	2.5	.05

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26663	5.5	.80
AA-27056	13.5	2.85
AA-27057	.5	.05
AA-27068	.5	.55
AA-27069	.5	.55
AA-27070	.5	.15
AA-27071	1.0	.40
AA-27072	.5	.15
AA-27073	.5	.05
AA-27074	.5	.05
AA-27075	.5	.05
AA-27076	.5	.05
AA-27077	.5	.15
AA-27078	.5	.05
AA-27079	.5	.05
AA-27080	.5	.05
AA-27081	.5	.05
AA-27082	.5	.05
AA-27083	.5	.05
AA-27084	.5	.10
AA-27085	.5	.05
AA-27086	.5	.05
AA-27087	.5	.05
AA-27088	4.5	2.05
AA-27089	2.5	1.15
AA-27090	.5	.10
AA-27091	.5	.05

* NOTE - GM/TNE = GRAM/TONNE

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED JULY 28 1983

DATE REPORTS MAILED Aug 3/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK FILE # 83-1401 Project # 04 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26639	17.0	1.35
AA-26640	18.5	1.60
AA-26641	16.0	1.90
AA-26642	15.5	1.30
AA-26643	12.5	1.05
AA-26644	4.0	.45
AA-26645	6.0	.45
AA-26646	4.0	.45
AA-26647	21.5	3.90
AA-26648	18.5	4.25
AA-26649	15.0	3.30
AA-26650	10.5	2.40
AA-26651	7.5	1.95
AA-26652	9.0	2.50
AA-26653	7.0	.80
AA-26654	8.5	.95
AA-26655	11.5	1.45
AA-26656	4.5	.30
AA-26657	16.0	3.20
AA-26658	5.5	.50
AA-26659	10.0	7.65
AA-26660	10.5	.95
AA-26661	11.5	1.00
AA-26662	7.0	.75
AA-26664	1.0	.05
AA-26665	.5	.05
AA-26666	.5	.05
AA-26667	.5	.05
AA-26668	.5	.05
AA-26669	.5	.10
AA-26670	.5	.05
AA-26671	1.0	.05
AA-26672	16.5	1.25
AA-26673	21.5	1.90
AA-26674	20.0	2.70
AA-26675	10.5	.90
AA-26676	5.0	.40

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26677	6.5	.20
AA-26678	1.5	.15
AA-26679	3.0	.10
AA-26680	4.0	.05
AA-26681	3.0	.05
AA-26682	2.0	.05
AA-26683	1.0	.05
AA-26684	1.0	.05
AA-26685	1.5	.40
AA-26686	.5	.25
AA-26687	2.0	.55
AA-26688	1.5	.55
AA-26689	.5	.25
AA-26690	1.5	.30
AA-26691	2.0	.50
AA-26692	2.5	.55
AA-26693	7.5	.30
AA-26694	2.5	.50
AA-26695	1.5	.15
AA-26696	1.5	.10
AA-26697	1.5	.20
AA-26698	2.5	.20
AA-26699	2.5	.60
AA-26700	1.5	.30
AA-26701	5.0	3.60
AA-26702	4.0	1.30
AA-26703	3.5	2.95
AA-26704	8.5	8.35
AA-26705	2.0	.15
AA-26706	3.0	1.25
AA-26707	5.5	2.80
AA-26708	4.5	.60
AA-26709	14.5	5.30
AA-26710	13.5	10.10
AA-26711	7.0	2.20
AA-26712	12.5	6.50
AA-26713	3.5	.35
AA-26714	2.5	.40

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26715	4.5	.45
AA-26716	1.5	.20
AA-26717	3.5	.25
AA-26718	.5	.05
AA-26719	1.5	.05
AA-26720	2.0	.05
AA-26721	2.0	.05
AA-26722	4.0	.05
AA-26723	4.5	.70
AA-26724	11.5	.20
AA-26725	3.0	.10
AA-26726	.5	.05
AA-26727	2.5	.05
AA-26728	4.5	.05
AA-26729	3.5	.05
AA-26730	3.5	.05
AA-26731	3.0	.05
AA-26732	3.0	.05
AA-26733	3.5	.05
AA-26734	3.0	.05
AA-26735	4.0	.05
AA-26736	4.5	.10
AA-26737	5.5	.10
AA-26738	3.0	.05
AA-26739	4.0	.05
AA-26740	3.0	.10
AA-26741	2.0	.05
AA-26742	3.5	.05
AA-26743	3.5	.05
AA-26744	4.5	.05
AA-26745	3.5	.05
AA-26746	4.0	.05
AA-26747	3.0	.05
AA-26748	2.5	.05
AA-26749	2.0	.05
AA-26750	3.0	.05

* NOTE - GM/TNE = GRAM/TONNE

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED JULY 29 1983
DATE REPORTS MAILED Aug 3/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD FILE # 83-1417 PROJECT # 04 PAGE# 1

SAMPLE	CU %	PB %	ZN %	AG GM/TNE	AU GM/TNE
AA-27058	-	-	-	4.5	9.80
AA-27059	-	-	-	2.5	9.60
AA-27060	-	-	-	3.5	3.80
AA-27061	-	-	-	3.0	1.70
AA-27062	.01	.18	.16	1.5	1.65
AA-27063	.04	.76	.28	3.5	3.50
AA-27064	.03	1.64	.42	6.0	13.30
AA-27065	.03	.80	.89	11.5	30.50
AA-27066	-	-	-	9.5	37.60
AA-27067	-	-	-	7.0	25.80

* NOTE - GM/TNE = GRAM/TONNE

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED JULY 29 1983

DATE REPORTS MAILED Aug 3/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD FILE # 83-1416 PROJECT # 04 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-27051	2.5	3.30
AA-27052	3.0	1.75
AA-27053	4.5	1.95
AA-27054	9.5	2.80
AA-27055	35.5	27.40

* NOTE - GM/TNE = GRAM/TONNE

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852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED JULY 30 1983

DATE REPORTS MAILED Aug 6/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # 83-1423 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-27101	1.5	.05
AA-27102	2.0	.05
AA-27103	4.0	.05
AA-27104	2.0	.05
AA-27105	2.5	.05
AA-27106	2.0	.05
AA-27107	1.5	.05
AA-27108	3.0	.05
AA-27109	2.5	.15
AA-27110	3.5	.10
AA-27111	4.5	.05
AA-27112	2.0	.05
AA-27113	1.0	.05
AA-27114	.5	.05
AA-27115	.5	.05
AA-27116	.5	.05
AA-27117	1.5	.05
AA-27118	.5	.05
AA-27119	2.5	.05
AA-27120	3.0	.65
AA-27121	8.5	1.70
AA-27122	4.5	1.05
AA-27123	4.5	1.20
AA-27124	4.5	.20
AA-27125	5.0	.25
AA-27126	3.5	.60
AA-27127	9.0	.90
AA-27128	16.5	.40
AA-27129	5.5	.20
AA-27130	6.5	.10
AA-27131	4.0	.05
AA-27132	49.5	1.25
AA-27133	22.5	.40
AA-27134	29.5	.50
AA-27135	18.5	.25
AA-27136	8.5	.15
AA-27137	6.0	.05
AA-27138	6.5	.10

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-27139	39.0	1.05
AA-27140	18.5	.40
AA-27141	43.5	1.05
AA-27142	60.0	1.70
AA-27143	133.5	4.05
AA-27144	19.0	.20
AA-27145	4.5	.10
AA-27146	1.5	.20
AA-27147	2.0	.15
AA-27148	.5	.10
AA-27149	.5	.10
AA-27150	.5	.10
AA-27151	1.5	.10
AA-27152	.5	.05
AA-27153	.5	.05
AA-27154	.5	.05
AA-27155	.5	.05
AA-27156	.5	.05
AA-27157	.5	.05
AA-27158	.5	.05
AA-27159	.5	.05
AA-27160	.5	.15
AA-27161	.5	.30
AA-27162	.5	.05
AA-27163	.5	.05
AA-27164	.5	.05
AA-27165	.5	.05
AA-27166	.5	.35
AA-27167	.5	.05
AA-27168	.5	.40
AA-27169	1.5	.70
AA-27170	2.5	1.75
AA-27171	3.0	1.65
AA-27172	2.0	.85
AA-27173	2.0	.25
AA-27174	1.0	.85
AA-27175	.5	1.10
AA-27176	3.0	.65

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-27177	1.5	.55
AA-27178	2.0	2.55
AA-27179	5.5	2.15
AA-27180	26.0	25.30
AA-27181	.5	1.40
AA-27182	3.5	4.05
AA-27183	1.5	3.70
AA-27184	4.5	7.50
AA-27185	4.0	7.70
AA-27186	2.5	2.90
AA-27187	2.0	2.25
AA-27188	2.0	1.40
AA-27189	3.0	2.30
AA-27190	3.5	1.60
AA-27191	2.5	1.10
AA-27192	6.5	2.20
AA-27193	5.5	2.30
AA-27194	3.5	1.50
AA-27195	4.0	1.70
AA-27196	4.5	1.30
AA-27197	4.5	.90
AA-27198	10.5	.70
AA-27199	3.0	.45
AA-27200	1.0	.05
AA-27201	.5	.05
AA-27202	.5	.05
AA-27203	1.0	.05
AA-27204	1.5	.05
AA-27205	1.0	.05
AA-27206	2.5	.05
AA-27207	2.5	.05
AA-27208	2.0	.05
AA-27209	1.5	.05
AA-27210	4.0	.10
AA-27211	3.5	.10
AA-27212	2.5	.10
AA-27213	2.0	.30

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-27214	3.5	.05
AA-27215	.5	.20
AA-27216	.5	.05
AA-27217	.5	.05
AA-27218	.5	.05
AA-27219	.5	.10
AA-27220	2.5	.20
AA-27221	.5	.15
AA-27222	.5	.10
AA-27223	.5	.10
AA-27224	.5	.50
AA-27225	4.0	1.00
AA-27226	5.5	3.80
AA-27227	1.5	.10
AA-27228	3.5	1.05
AA-27229	3.5	1.55
AA-27230	1.5	1.20
AA-27231	.5	.20
AA-27232	2.0	.95
AA-27233	10.5	2.95
AA-27234	3.5	1.50
AA-27235	5.0	1.35
AA-27236	4.0	.20
AA-27237	.5	.10
AA-27238	3.0	1.35
AA-27239	1.5	.05
AA-27240	1.0	.15
AA-27241	.5	.20
AA-27242	2.0	.10
AA-27243	1.0	.05
AA-27244	.5	.05
AA-27245	.5	.05
AA-27246	1.0	.05
AA-27247	1.5	.05
AA-27248	2.5	.05
AA-27249	1.5	.05

* NOTE - GM/TNE = GRAM/TONNE

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

To: Kidd Creek Mines Ltd.,
701 - 1281 W. Georgia St.,
Vancouver, B.C.
V6E 3J7

File No. 83-1285
Type of Samples Rock
Disposition

ASSAY CERTIFICATE

Project : 04

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26477	1.0	.15						1
2	26478	.5	.25						2
3	26479	.5	.05						3
4	26480	.5	.05						4
5	26481	1.0	.90						5
6	26482	.5	.05						6
7	26483	.5	.10						7
8	26484	1.0	.15						8
9	26485	.5	.10						9
10	26486	.5	.05						10
11	26487	1.5	.15						11
12	26488	1.0	.20						12
13	26489	1.0	.05						13
14	26490	.5	.05						14
15	26491	.5	.05						15
16	26492	3.5	.55						16
17	26493	.5	.20						17
18	26494	.5	.05						18
19	26495	.5	.05						19
20	AA-26496	.5	.05						20

DATE SAMPLES RECEIVED July 20, 1983
DATE REPORTS MAILED July 31, 1983
ASSAYER D. Toye

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

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Assaying & Trace Analysis
852 E. Hastings St., Vancouver, B.C. V6A 1R6
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To: Kidd C :k Mines Ltd.,

File No. 83-1285

Type of Samples Rock

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ASSAY CERTIFICATE

2

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26497	2.0	1.05						1
2	26498	.5	.30						2
3	26499	.5	.45						3
4	26500	3.0	.80						4
5	26501	1.5	.35						5
6	26502	1.5	1.80						6
7	26503	4.5	.40						7
8	26504	2.0	4.55						8
9	26505	1.5	1.95						9
10	26506	1.0	.60						10
11	26507	1.5	.45						11
12	26508	2.0	2.75						12
13	26509	2.0	6.60						13
14	AA-26510	4.0	11.00						14
15	26511	4.5	11.60						15
16	26512	.5	.70						16
17	26513	.5	.80						17
18	AA-26514	.5	.80						18
19									19
20									20

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To: Kidd Creek Mines Ltd.,

83-1285
File No. _____
Type of Samples Rock
Disposition _____

ASSAY CERTIFICATE

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26515	3.0	3.30						1
2	26516	7.5	2.90						2
3	26517	4.0	3.85						3
4	26518	2.5	3.05						4
5	26519	1.5	.15						5
6	26520	5.0	4.20						6
7	26521	3.0	.60						7
8	26522	10.0	1.20						8
9	26523	3.0	.65						9
10	26524	5.0	1.05						10
11	26525	34.5	5.40						11
12	26526	22.5	1.65						12
13	26527	7.5	1.70						13
14	26528	4.0	.30						14
15	26529	3.5	.65						15
16	26530	4.0	.25						16
17	26531	.5	.05						17
18	26532	1.0	.30						18
19	26533	1.5	.10						19
20	AA-26534	2.0	.35						20

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To: Kidd Creek Mines Ltd.,

File No. 83-1285

Type of Samples Rock

Disposition

ASSAY CERTIFICATE

4

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26535	3.5	.45						1
2	26536	4.0	1.40						2
3	26537	8.5	.85						3
4	26538	9.0	5.30						4
5	26539	6.5	2.40						5
6	AA-26540	6.5	1.05						6
7									7
8	AA-26541	11.5	4.05						8
9	26542	5.0	2.05						9
10	26543	3.5	1.50						10
11	26544	3.0	.60						11
12	26545	2.5	.35						12
13	26546	12.5	.50						13
14	26547	6.0	2.70						14
15	26548	4.0	.80						15
16	26549	4.5	1.60						16
17	26550	6.0	2.20						17
18	26551	7.0	10.70						18
19	AA-26552	6.5	1.10						19
20									20

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To: Kidd Creek Mines Ltd.,

File No. 83-1285
Type of Samples Rock
Disposition

ASSAY CERTIFICATE

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26553	4.5	2.20						1
2	26554	1.0	.05						2
3	26555	.5	.05						3
4	26556	.5	.10						4
5	26557	.5	.05						5
6	26558	.5	.05						6
7	26559	.5	.20						7
8	AA-26560	1.0	.10						8
9									9
10	AA-26561	1.0	.05						10
11	26562	4.5	.10						11
12	26563	4.5	.15						12
13	26564	5.0	.15						13
14	26565	6.5	.40						14
15	26566	5.5	.25						15
16	26567	6.0	.30						16
17	26568	5.0	.40						17
18	26569	4.0	.15						18
19	AA-26570	4.5	.15						19
20									20

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To: Kidd Creek Mines Ltd.,

ACME ANALYTICAL LABORATORIES LTD.
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File No. 83-1285
Type of Samples Rock
Disposition

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No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26571	5.0	.15						1
2	26572	3.0	.15						2
3	26573	2.0	.45						3
4	26574	.5	.10						4
5	26575	2.5	.20						5
6	26576	1.0	.25						6
7	26577	5.0	.45						7
8	26578	5.0	.30						8
9	26579	6.0	.30						9
10	26580	8.0	.35						10
11	26581	5.0	.95						11
12	26582	7.0	.85						12
13	26583	4.0	.30						13
14	26584	5.5	.15						14
15	26585	2.0	.15						15
16	26586	5.5	.70						16
17	26587	4.5	1.10						17
18	26588	5.5	2.55						18
19	26589	4.0	2.50						19
20	AA-26590	1.5	.35						20

DATE SAMPLES RECEIVED July 20, 1983
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To: Kidd Creek Mines Ltd.,

File No. 83-1285
Type of Samples Rock
Disposition

ASSAY CERTIFICATE

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26591	.5	.15						1
2	26592	.5	.25						2
3	26593	.5	.75						3
4	26594	1.0	.05						4
5	26595	1.5	.10						5
6	26596	2.0	.25						6
7	26597	.5	.30						7
8	26598	2.5	1.95						8
9	26599	.5	1.05						9
10	26600	2.5	1.25						10
11	26601	.5	.15						11
12	26602	.5	.30						12
13	26603	.5	.05						13
14	26604	.5	.30						14
15	26605	1.5	.05						15
16	26606	12.5	2.25						16
17	26607	15.5	6.95						17
18	26608	13.0	3.05						18
19	26609	17.5	1.85						19
20	AA-26610	9.5	1.05						20

DATE SAMPLES RECEIVED July 20, 1983
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ASSAYER D. Toye

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Telephone:253 - 3158

To: Kidd Creek Mines Ltd.,

File No. 83-1285
Type of Samples Rock
Disposition

ASSAY CERTIFICATE

8

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26611	13.5	6.95						1
2	26612	5.5	1.10						2
3	26613	6.5	1.20						3
4	26614	7.5	1.40						4
5	26615	11.5	3.05						5
6	26616	17.5	3.20						6
7	26617	33.0	3.85						7
8	26618	109.0	3.80						8
9	26619	90.0	1.30						9
10	26620	41.0	2.80						10
11	26621	18.5	.90						11
12	26622	11.5	.70						12
13	26623	25.0	1.70						13
14	26624	17.5	.95						14
15	26625	11.5	.30						15
16	26626	22.5	.65						16
17	26627	28.5	6.60						17
18	AA-26628	69.5	1.95						18
19									19
20									20

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Telephone:253 - 3158

To: Kidd Creek Mines Ltd.,

File No. 83-1285
Type of Samples Rock
Disposition

ASSAY CERTIFICATE

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-26629	176.5	4.25						1
2	26630	78.5	6.60						2
3	26631	154.5	7.05						3
4	26632	64.5	4.00						4
5	26633	23.5	1.40						5
6	26634	6.5	5.25						6
7	26635	7.5	6.95						7
8	26636	19.5	2.85						8
9	26637	18.5	2.40						9
10	AA-26638	13.5	1.50						10
11									11
12									12
13									13
14									14
15									15
16									16
17									17
18									18
19									19
20									20

DATE SAMPLES RECEIVED July 20, 1983
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ASSAYER

DEAN TOYE, B.Sc.
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ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED JULY 16 1983

DATE REPORTS MAILED July 26/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # 83-1230 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26244	.5	.25
AA-26245	1.5	.10
AA-26246	.5	.45
AA-26247	.5	.05
AA-26248	.5	.10
AA-26249	.5	.05
AA-26250	.5	.05
AA-26308	24.5	1.60
AA-26309	135.5	4.70
AA-26310	175.0	6.40
AA-26311	164.5	3.85
AA-26312	149.5	4.85
AA-26313	56.5	12.80
AA-26314	29.5	5.60
AA-26315	7.5	1.05
AA-26316	2.5	.45
AA-26317	6.5	.25
AA-26318	10.5	.65
AA-26319	13.0	1.05
AA-26320	7.0	.65
AA-26321	5.5	.95
AA-26322	3.0	.35
AA-26323	3.0	1.75
AA-26324	2.5	.10
AA-26325	4.0	.20
AA-26326	6.5	.70
AA-26327	5.0	.65
AA-26328	5.5	.30
AA-26329	3.5	.20
AA-26330	1.5	.05
AA-26331	8.0	.50
AA-26332	5.5	.35
AA-26333	2.5	.10
AA-26334	3.5	.65
AA-26335	11.5	1.40
AA-26336	23.5	2.85
AA-26337	15.5	1.45

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26338	20.5	3.30
AA-26339	4.5	1.05
AA-26340	6.5	.55
AA-26341	4.5	.20
AA-26342	4.0	.55
AA-26343	2.5	.05
AA-26344	2.5	.05
AA-26345	3.5	.25
AA-26346	4.0	.55
AA-26347	3.5	.05
AA-26348	3.5	.15
AA-26349	3.0	.05
AA-26350	3.5	.05
AA-26351	4.0	.05
AA-26352	5.0	.05
AA-26353	4.5	.05
AA-26354	3.5	.05
AA-26355	4.5	.50
AA-26356	5.0	.10
AA-26357	4.0	.20
AA-26358	3.5	.05
AA-26359	8.5	.05
AA-26360	7.0	.25
AA-26361	4.0	.15
AA-26362	4.0	.15
AA-26363	18.5	41.50
AA-26364	2.5	.30
AA-26365	2.5	.25
AA-26366	2.5	.25
AA-26367	2.5	1.80
AA-26368	2.0	1.90
AA-26369	2.5	.40
AA-26370	4.5	.20
AA-26371	2.5	.05
AA-26372	3.5	.45
AA-26373	9.5	3.55
AA-26374	10.5	2.15

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26375	5.0	.40
AA-26376	8.5	4.40
AA-26377	3.0	.85
AA-26378	4.5	1.05
AA-26379	1.5	1.10
AA-26380	3.0	2.45
AA-26381	6.0	9.60
AA-26382	4.5	3.95
AA-26383	3.5	.90
AA-26384	2.5	.25
AA-26385	1.5	.10
AA-26386	2.5	.05
AA-26387	2.5	.05
AA-26388	1.5	.05
AA-26389	2.5	.05
AA-26390	3.5	.40
AA-26391	1.5	.05
AA-26392	1.5	.05
AA-26393	19.5	7.55
AA-26394	2.0	.05
AA-26395	.5	.05
AA-26396	.5	.05
AA-26397	1.5	.05
AA-26398	2.5	.05
AA-26399	3.5	.05
AA-26400	2.5	.05
AA-26401	2.5	.15
AA-26402	22.5	.85
AA-26403	4.5	.40
AA-26404	3.0	.05
AA-26405	2.0	.05
AA-26406	4.0	.05
AA-26407	2.5	.05
AA-26408	2.5	.20
AA-26409	10.0	.20
AA-26410	19.5	.50
AA-26411	4.5	.10
AA-26412	3.5	.25

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26413	3.5	.10
AA-26414	3.0	.05
AA-26415	4.0	.05
AA-26416	4.0	.20
AA-26417	4.5	.10
AA-26418	5.5	.20
AA-26419	7.0	.35
AA-26420	7.5	.40
AA-26421	51.5	8.20
AA-26422	18.5	.65
AA-26423	29.5	1.80
AA-26424	4.5	2.05
AA-26425	2.5	.10
AA-26426	49.5	2.60
AA-26427	22.5	1.10
AA-26428	12.5	.40
AA-26429	17.5	2.25
AA-26430	11.0	1.15
AA-26431	4.0	.55
AA-26432	1.5	.15
AA-26433	2.0	.35
AA-26434	3.5	.55
AA-26435	1.5	.10
AA-26436	1.5	1.30
AA-26437	2.0	2.75
AA-26438	4.0	12.75
AA-26439	6.0	.10
AA-26440	3.5	.05
AA-26441	4.0	.10
AA-26442	4.0	.05
AA-26443	16.5	.25
AA-26444	15.5	.25
AA-26445	6.5	.10
AA-26446	5.0	.10
AA-26447	18.5	.60
AA-26448	22.0	.50
AA-26449	22.5	.55
AA-26450	25.0	.75

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26451	5.5	.15
AA-26452	4.5	.10
AA-26453	1.5	.10
AA-26454	4.0	.05
AA-26455	4.5	.05
AA-26456	3.0	.05
AA-26457	11.5	.15
AA-26458	4.5	.05
AA-26459	3.5	.35
AA-26460	15.0	5.45
AA-26461	6.0	1.30
AA-26462	2.0	.35
AA-26463	5.5	.05
AA-26464	.5	.10
AA-26465	.5	.05
AA-26466	.5	.05
AA-26467	1.0	.15
AA-26468	1.5	.05
AA-26469	.5	.05
AA-26470	.5	.05
AA-26471	.5	.20
AA-26472	.5	.05
AA-26473	.5	.05
AA-26474	.5	.05
AA-26475	5.0	.10
AA-26476	2.0	.75

* NOTE - GM/TNE = GRAM/TONNE

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DATE RECEIVED JULY 11 1983

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ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK FILE # 83-1159 PROJECT # 04 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26184	28.5	5.10
AA-26185	23.5	6.45
AA-26186	4.5	1.05
AA-26187	27.5	4.30
AA-26188	13.5	3.60
AA-26189	29.5	3.65
AA-26190	16.5	3.80
AA-26191	66.0	4.40
AA-26192	53.5	5.90
AA-26193	7.0	1.70
AA-26194	10.0	1.20
AA-26195	2.5	.90
AA-26196	11.5	1.10
AA-26197	13.0	3.05
AA-26198	22.0	2.60
AA-26199	40.5	4.05
AA-26200	24.0	2.85
AA-26201	12.5	1.15
AA-26202	16.5	1.20
AA-26203	17.5	1.00
AA-26204	92.5	4.25
AA-26205	56.0	1.50
AA-26206	98.5	2.10
AA-26207	48.5	3.10
AA-26208	27.5	6.30
AA-26209	12.5	2.60
AA-26210	13.0	2.05
AA-26211	10.0	1.40
AA-26212	9.5	1.45
AA-26213	17.5	3.25
AA-26214	20.5	2.65
AA-26215	17.5	2.05
AA-26216	44.5	3.20
AA-26217	20.5	1.75
AA-26218	6.5	2.50
AA-26219	16.5	1.75
AA-26220	15.5	2.80

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26221	17.5	3.40
AA-26222	14.5	1.25
AA-26223	51.5	6.05
AA-26224	16.0	.80
AA-26225	57.5	4.20
AA-26226	19.0	1.05
AA-26227	65.5	7.85
AA-26228	60.0	7.05
AA-26229	35.5	2.80
AA-26230	67.5	3.35
AA-26231	119.5	70.20
AA-26232	13.5	3.80
AA-26233	7.0	1.60
AA-26234	5.0	.75
AA-26235	5.5	.15
AA-26236	3.0	.30
AA-26237	2.0	.95
AA-26238	.5	.15
AA-26239	.5	.40
AA-26240	.5	.30
AA-26241	.5	.10
AA-26242	.5	.20
AA-26243	69.5	.65
AA-26251	10.0	1.85
AA-26252	11.5	1.80
AA-26253	17.5	11.95
AA-26254	5.5	1.95
AA-26255	19.5	2.20
AA-26256	4.0	.50
AA-26257	7.0	.60
AA-26258	15.0	4.65
AA-26259	18.5	4.45
AA-26260	24.5	1.90
AA-26261	36.5	2.95
AA-26262	13.0	1.40
AA-26263	17.5	2.00
AA-26264	18.0	7.10

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26265	13.5	8.40
AA-26266	13.0	1.20
AA-26267	11.0	1.35
AA-26268	4.5	.60
AA-26269	7.5	.95
AA-26270	13.5	1.15
AA-26271	19.5	1.05
AA-26272	4.5	.35
AA-26273	12.5	.55
AA-26274	22.5	1.75
AA-26275	8.5	1.05
AA-26276	4.5	.45
AA-26277	7.0	.75
AA-26278	13.5	1.15
AA-26279	22.5	1.50
AA-26280	1.5	.50
AA-26281	21.0	1.85
AA-26282	12.0	1.80
AA-26283	10.0	2.80
AA-26284	5.0	.75
AA-26285	8.0	1.40
AA-26286	6.0	.65
AA-26287	1.0	.15
AA-26288	6.0	1.30
AA-26289	12.0	.10
AA-26290	.5	.05
AA-26291	.5	.05
AA-26292	.5	.30
AA-26293	.5	.05
AA-26294	.5	.05
AA-26295	.5	.05
AA-26296	1.5	.25
AA-26297	1.5	.35
AA-26298	1.0	.15
AA-26299	1.5	.20
AA-26300	1.5	.35

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26301	1.5	.40
AA-26302	3.0	.95
AA-26303	10.5	1.60
AA-26304	2.0	.75
AA-26305	.5	.50
AA-26306	6.0	1.75
AA-26307	13.5	1.40

* NOTE - GM/TNE = GRAM/TONNE

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ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINE PROJECT # 04 FILE # 83-1158B PAGE# 1

SAMPLE	CU %	PB %	ZN %	AG GM/TNE	AU GM/TNE
AA-25974	.01	.62	.55	1790.0	5.25
AA-25976	.05	.34	.29	14.0	.15

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26177	5.0	2.05
AA-26178	2.5	1.15
AA-26179	11.0	3.70
AA-26180	20.0	15.80
AA-26181	6.5	3.45
AA-26182	8.5	9.40

* NOTE - GM/TNE = GRAM/TONNE

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ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK PROJECT # 04 FILE # 83-1029 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26101	8.5	.10
AA-26102	13.5	.65
AA-26103	2.5	2.75
AA-26104	27.5	4.25
AA-26105	29.5	8.10
AA-26106	5.5	2.45
AA-26107	3.5	1.05
AA-26108	4.0	2.95
AA-26109	7.0	3.05
AA-26110	28.5	40.70
AA-26111	7.0	2.40
AA-26112	13.5	4.95
AA-26113	17.5	3.90
AA-26114	7.5	2.30
AA-26115	16.5	5.90
AA-26116	16.0	4.50
AA-26117	8.0	2.95
AA-26118	7.5	2.05
AA-26119	6.5	1.90
AA-26120	15.0	6.55
AA-26121	9.0	3.10
AA-26122	19.0	5.45
AA-26123	12.5	2.80
AA-26124	28.5	5.70
AA-26125	20.0	4.35
AA-26126	26.5	.05
AA-26127	205.0	.30
AA-26128	50.5	.25
AA-26129	76.5	1.30
AA-26130	27.0	1.05
AA-26131	20.5	.80
AA-26132	289.0	.30
AA-26133	1320.0	3.05
AA-26134	548.0	.75
AA-26135	336.0	.80
AA-26136	40.0	.75
AA-26137	13.0	.15

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26138	23.5	.35
AA-26139	20.5	.10
AA-26140	35.5	.20
AA-26141	5.0	.05
AA-26142	99.5	1.15
AA-26143	8.5	.05
AA-26144	30.5	.25
AA-26145	16.5	.15
AA-26146	10.5	.15
AA-26147	10.5	.15
AA-26148	6.5	.15
AA-26149	17.5	.50
AA-26150	2.5	.05
AA-26151	3.5	.05
AA-26152	2.5	.05
AA-26153	1.5	.05
AA-26154	2.0	.05
AA-26155	2.5	.05
AA-26156	1.5	.05
AA-26157	6.5	.10
AA-26158	30.5	.30
AA-26159	29.5	.35
AA-26160	34.5	.60
AA-26161	67.5	1.25
AA-26162	134.5	.90
AA-26163	78.5	4.70
AA-26164	7.0	.05
AA-26165	15.0	.25
AA-26166	10.5	.10
AA-26167	7.5	.05
AA-26168	4.5	.05
AA-26169	1.5	.05
AA-26170	1.5	.05
AA-26177	5.0	2.05
AA-26178	2.5	1.15
AA-26179	11.0	3.70
AA-26180	20.0	15.80
AA-26181	6.5	3.45
AA-26182	8.5	9.40

* NOTE - GM/TNE = GRAM/TONNE

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GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : AG.
SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.
AU* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD PROJECT # 04 FILE # 83-2001 PAGE# 1

SAMPLE	AG PPM	AU* PPB
AA-24151	.1	15
AA-24152	.5	10
AA-24153	.5	5
AA-24154	.1	20
AA-24155	.3	10
AA-24156	1.4	240
AA-24157	.7	60
AA-24158	2.3	540
AA-24159	6.6	1760
AA-24160	1.9	1780
AA-24161	2.2	260
AA-24162	.2	30
AA-24163	.1	10
AA-24164	.5	5
AA-24165	.5	5
AA-24166	.2	10
AA-24167	.3	5
AA-24168	.8	25
AA-24169	.9	20
AA-24170	.5	65
AA-24171	.7	20
AA-24172	.1	40
AA-24173	8.6	740
AA-24174	2.7	85
AA-24175	1.9	65
AA-24176	1.7	480

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DATE RECEIVED AUG 31 1983

DATE REPORTS MAILED Sept 9/83

GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : AG.
SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.
AU* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.

ASSAYER DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD PROJECT # 04 FILE # 83-1933 PAGE# 1

SAMPLE	AG PPM	AU* PPB
AA-24501	.7	30
AA-24502	.6	15
AA-24503	.8	45
AA-24504	.4	65
AA-24505	.8	50
AA-24506	.5	135
AA-24507	.9	125
AA-24508	2.3	60
AA-24509	.9	35
AA-24510	1.2	120
AA-24511	1.2	70
AA-24512	59.8	690
AA-24513	.5	45
AA-24514	.9	10
AA-24515	.7	225
AA-24516	.7	10
AA-24517	.5	35
AA-24518	.4	30
AA-24519	.3	50
AA-24520	.3	50
AA-24521	.4	25
AA-24522	.4	30
AA-24523	1.3	50
AA-24524	.3	70
AA-24525	.5	65
AA-24526	.5	35
AA-24527	.6	40
AA-24528	.2	20
AA-24529	.4	20
AA-24530	.3	35
AA-24531	.4	160
AA-24532	.7	165
AA-24533	.5	60
AA-24534	.3	35
AA-24535	.1	15
AA-24536	1.8	25
AA-24537	1.6	40

SAMPLE	AG PPM	AU* PPB
AA-24538	.3	5
AA-24539	.8	20
AA-24540	2.0	65
AA-24541	1.1	75
AA-24542	.6	240
AA-24543	.9	10
AA-24544	.1	30
AA-24545	1.2	10
AA-24546	.3	15
AA-24547	.3	50
AA-24548	.4	10
AA-24549	.4	30
AA-24550	.7	25
AA-24551	.7	20
AA-24552	.8	20
AA-24553	1.2	150
AA-24554	.3	45
AA-24555	.8	50
AA-24556	1.1	235
AA-24557	1.3	10
AA-24558	1.5	20
AA-24559	1.3	35
AA-24560	4.2	85
AA-24561	1.5	110
AA-24562	1.2	60
AA-24563	2.2	140
AA-24564	1.3	170
AA-24565	1.5	185
AA-24566	1.7	240
AA-24567	4.8	2470
AA-24568	1.7	155
AA-24569	2.1	1800
AA-24570	1.3	970
AA-24571	1.9	1100
AA-24572	2.8	4200
AA-24573	3.9	795
AA-24574	1.3	330

SAMPLE	AG PPM	AU* PPB
AA-24575	1.4	330
AA-24576	1.3	480
AA-24577	.7	565
AA-24578	.9	70
AA-24579	.6	85
AA-24580	.2	25
AA-24581	.1	10
AA-24582	.3	135
AA-24583	.3	20
AA-24584	1.2	465
AA-24585	.6	145
AA-24586	.3	30
AA-24587	.1	75
AA-24588	.1	25
AA-24589	.1	20
AA-24590	.3	120
AA-24591	1.1	175
AA-24592	3.5	1795
AA-24593	2.2	805
AA-24594	2.4	410
AA-24595	2.8	1580
AA-24596	.7	230
AA-24597	.8	80
AA-24598	2.8	125
AA-24599	1.2	65
AA-24600	.8	240
AA-24601	.4	85
AA-24602	.9	105
AA-24603	.4	35
AA-24604	1.1	325
AA-24605	.7	70
AA-24606	1.1	45
AA-24607	.9	95
AA-24608	1.0	170
AA-24609	1.0	40
AA-24610	.8	55
AA-24611	.7	40

SAMPLE	AG PPM	AU* PPB
AA-24612	.9	25
AA-24613	1.0	45
AA-24614	.6	30
AA-24629	.3	5
AA-24630	.4	15
AA-24631	.3	35
AA-24632	2.6	795
AA-24633	1.0	30
AA-24634	1.1	10
AA-24635	1.1	15
AA-24636	1.8	25
AA-24637	1.2	15
AA-24638	.9	65
AA-24639	1.0	45
AA-24640	.6	10
AA-24641	1.2	490
AA-24642	.8	955
AA-24643	.4	10
AA-24644	.6	5
AA-24645	.3	20
AA-24646	.4	10
AA-24647	.4	5
AA-24648	.4	65
AA-24649	.5	15
AA-24650	.4	5

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GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : AG.
SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.
AU* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINE PROJECT # 04 FILE # 83-1158A PAGE# 1

SAMPLE	AG PPM	AU* PPB
AA-25959	.1	5
AA-25960	1.3	5
AA-25961	.1	5
AA-25962	1.1	765
AA-25963	2.8	760
AA-25964	2.9	825
AA-25965	6.9	835
AA-25966	29.5	340
AA-25967	20.9	45
AA-25968	3.3	185
AA-25969	.4	5
AA-25970	.1	5
AA-25971	.2	5
AA-25972	5.5	180
AA-25973	3.9	40
AA-25975	12.9	520

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

To: Kidd Creek Mines Ltd.,
701 - 1281 W. Georgia St.,
Vancouver, B.C.
V6E 3J7

File No. 83-1159

Type of Samples Rock

Disposition

Project : 04

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.	Ag	Au ppb	
AA-26184	31.5	*	1
26185	25.8	*	2
26186	5.4	590	3
26187	29.3	*	4
26188	15.0	*	5
26189	36.0	*	6
26190	18.6	*	7
26191	*	*	8
26192	*	*	9
26193	7.6	910	10
26194	11.9	840	11
26195	3.4	620	12
26196	13.0	900	13
26197	14.2	*	14
26198	24.5	*	15
26199	*	*	16
AA-26200	25.8	*	17
			18
AA-26201	15.2	700	19
26202	19.5	870	20
26203	21.5	890	21
26204	*	*	22
26205	*	*	23
26206	*	*	24
26207	*	*	25
26208	30.8	*	26
26209	14.5	*	27
26210	14.2	*	28
26211	11.6	*	29
26212	10.5	*	30
26213	19.5	*	31
26214	22.8	*	32
26215	20.6	*	33
26216	*	*	34
26217	22.4	*	35
26218	8.2	*	36
26219	18.7	*	37
AA-26220	17.6	*	38
			39
			40

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

DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 11, 1983

DATE REPORTS MAILED July 22, 1983

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: Kidd Creek Mines Ltd.,

File No. 83-1159
Type of Samples Rock
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.	Ag
AA-26221	18.9
26222	17.5
26223	*
26224	16.5
26225	*
26226	21.5
26227	*
26228	*
26229	*
26230	*
26231	*
26232	14.6
26233	7.8
26234	5.3
26235	6.0
26236	3.7
26237	2.8
26238	.9
26239	1.3
26240	1.5
26241	1.6
26242	1.2
AA-26243	*
AA-26251	11.5
26252	13.6
26253	19.6
26254	6.3
26255	20.8
26256	5.0
26257	9.2
26258	18.6
26259	19.8
26260	28.6
26261	*
26262	14.1
26263	19.8
AA-26264	18.6

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 11, 1983

DATE REPORTS MAILED July 22, 1983

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: Kidd Creek Mines Ltd.,

File No. 83-1159
Type of Samples Rock
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.	Ag
AA-26265	17.5
26266	16.5
26267	14.6
26268	5.6
26269	9.3
26270	16.6
26271	23.8
26272	5.9
26273	14.6
26274	24.6
26275	10.2
26276	5.8
26277	7.8
26278	15.8
26279	26.8
AA-26280	2.8
AA-26281	24.3
26282	13.8
26283	11.9
26284	6.0
26285	9.8
26286	7.2
26287	1.9
26288	6.7
26289	14.1
26290	.5
26291	.3
26292	.6
26293	.7
26294	.4
26295	.5
26296	1.4
26297	1.9
26298	1.8
26299	1.5
AA-26300	1.7

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 11, 1983
DATE REPORTS MAILED July 22, 1983
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: Kidd Creek Mines Ltd.,

File No. 83-1159
Type of Samples Rock
Disposition

GEOCHEMICAL ASSAY CERTIFICATE

SAMPLE No.	Ag
AA-26301	1.5
26302	3.1
26303	8.1
26304	2.0
26305	1.3
26306	7.5
AA-26307	14.6

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DIGESTION:

DETERMINATION:

DATE SAMPLES RECEIVED July 11, 1983
DATE REPORTS MAILED July 22, 1983
ASSAYER D. Toye

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

SAMPLE	AG PPM	AU* PPB
AA 24615	93.0	790
AA 24616	6.1	25
AA-24617	1.3	15
AA-24618	.3	5
AA-24619	.3	5
AA-24620	.1	5
AA-24621	.6	5
AA-24622	1.9	145
AA-24623	.3	5
AA-24624	.3	5
AA-24625	.6	10
AA-24626	.4	5
AA-24627	.3	5
AA-24628	.4	5

TABLE OF RESULTS
Micrograms per sample

C_1 = Methane; C_2 = Ethane; C_3 = Propane
C_4+ = Butane + higher compounds

SAMPLE	C_1	C_2	C_3	C_4+	CO_2	CS_2	COS	SO_2	H_2S
04-001	.01	.01	.10	.22	11	.01	ND	ND	ND
04-002	.01	.007	.12	.18	6.8	T	ND	ND	ND
04-003	.02	.01	.18	.18	9.9	T	ND	ND	ND
04-004	.03	.03	.33	.32	18	.03	ND	ND	ND
04-005	.02	.02	.30	.16	17	.03	.02	ND	ND
04-006	.03	.02	.30	.31	12	T	ND	ND	ND
04-007	.01	.001	.21	.21	6.7	.02	ND	ND	ND
04-008	.04	.02	.38	.32	29	.01	ND	ND	ND
04-009	.01	.008	.18	.20	6.3	T	ND	ND	ND
04-010	.01	.01	.15	.20	12	T	ND	ND	ND
04-011	.05	.04	.43	.60	21	.005	ND	ND	ND
04-012	.03	.02	.28	.27	14	.02	ND	ND	ND
04-013	.001	.02	.39	.54	27	T	T	ND	ND
04-014	.03	.01	.33	.32	9.7	T	ND	ND	ND
04-015	.05	.04	.35	.43	20	.004	T	.003	ND

TABLE OF RESULTS
Micrograms per sample

C_1 = Methane; C_2 = Ethane; C_3 = Propane
C_4+ = Butane + higher compounds

SAMPLE	C_1	C_2	C_3	C_4+	CO_2	CS_2	COS	SO_2	H_2S
04-016	.04	.03	.33	.40	17	.01	T	.002	ND
04-017	.01	.004	.17	.19	5.8	T	ND	ND	ND
04-018	.02	.01	.20	.25	9.4	T	ND	ND	ND
04-019	.02	.01	.22	.27	9.4	T	ND	ND	ND
04-020	.01	.004	.13	.14	7.2	T	ND	ND	ND
04-021	.02	.01	.06	.31	32	T	T	ND	ND
04-022	.01	.007	.13	.19	9.3	T	T	ND	ND
04-023	.01	.009	.15	.19	8.5	T	T	ND	ND
04-024	.01	.006	.05	.24	40	T	ND	ND	ND
04-025	.01	.007	.10	.19	9.3	T	ND	ND	ND
04-026	.02	.008	.05	.21	7.8	T	ND	ND	ND
04-027	.03	.02	.16	.30	18	.007	T	1.5	ND
04-028	N O S A M P L E S E N T								
04-029	.03	.02	.34	.38	10	T	ND	2.2	ND
04-030	.03	.02	.28	.29	9.3	T	T	1.4	ND

TABLE OF RESULTS
Micrograms per sample

C_1 = Methane; C_2 = Ethane; C_3 = Propane
C_4+ = Butane + higher compounds

SAMPLE	C_1	C_2	C_3	C_4+	CO_2	CS_2	COS	SO_2	H_2S
04-031	.14	.09	1.1	.73	24	.02	T	2.6	ND
04-032	.02	.008	.19	.21	8.0	.007	ND	2.0	ND
04-033	.01	.001	.14	.13	4.5	T	ND	ND	ND
04-034	.02	.01	.11	.23	11	T	ND	1.3	ND
04-035	.03	.03	.14	.35	25	.007	T	ND	ND
04-036	.03	.02	.13	.38	16	T	ND	1.4	ND
04-037	.08	.05	.51	.77	18	.008	ND	ND	ND
04-038	.12	.08	.78	.92	22	.005	ND	ND	ND
04-039	.11	.08	.75	.89	17	.004	T	1.6	ND

TABLE OF RESULTS
Micrograms per sample

SAMPLE	CS_2	SO_2	COS	CO_2	H_2S	C_3
04-40	TR	ND	ND	176	ND	ND
04-42	TR	ND	ND	177	ND	ND
04-43	TR	ND	ND	96	ND	ND
04-44	TR	ND	ND	144	ND	ND
04-45	0.94	ND	ND	174	ND	ND
04-46	TR	ND	ND	147	ND	ND
04-47-1	TR	ND	ND	159	ND	ND
04-47-2	ND	ND	ND	148	ND	ND
04-48	ND	ND	ND	121	ND	ND
04-49	ND	ND	ND	171	ND	ND
04-50	ND	ND	ND	201	ND	ND
04-51	ND	ND	ND	100	ND	ND

ACME ANALYTICAL LABORATORIES LTD.
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PH:253-3158 TELEX:04-53124

DATE RECEIVED AUG 3 1983

DATE REPORTS MAILED Aug 9/83

ASSAY CERTIFICATE

SAMPLE TYPE : REJECT Re-Assay

ASSAYER DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # RE:83-1281 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26005	18.5	32.80
AA-26006	28.5	14.50
AA-26007	14.0	7.60

* NOTE - GM/TNE = GRAM/TONNE

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PH:253-3158 TELEX:04-53124

DATE RECEIVED AUG 3 1983

DATE REPORTS MAILED Aug 8/83

ASSAY CERTIFICATE

SAMPLE TYPE : REJECT

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # RE:83-1159 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26229	40.0	5.25
AA-26231	113.5	67.90
AA-26243	86.5	1.20
AA-26265	14.0	2.65
AA-26268	5.5	.90
AA-26279	18.5	1.35

* NOTE - GM/TNE = GRAM/TONNE

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PH:253-3158 TELEX:04-53124

DATE RECEIVED AUG 3 1983

DATE REPORTS MAILED Aug 8/83

ASSAY CERTIFICATE

SAMPLE TYPE : REJECT re sample.

ASSAYER DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # RE:83-1230 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26311	182.5	3.65
AA-26313	55.5	8.30
AA-26316	4.5	.70
AA-26363	.5	.65
AA-26364	1.0	.60

* NOTE - GM/TNE = GRAM/TONNE

Second Rerun (FROM Rejects).

26363	1.5	.45
26364	1.5	.60

To: Kidd Creek Mines Ltd.,
701 - 1281 W. Georgia St.,
Vancouver, B.C.
V6E 3J7

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

File No. 83-1346A

Type of Samples Rock

Disposition

Project : 04

ASSAY CERTIFICATE

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
6	SD-03981	10.0	1.05					Soil	6
7									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 July 25, 1983

DATE REPORTS MAILED July 31, 1983

ASSAYER D. Toye

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

ACME ANALYTICAL LABORATORIES LTD.
852 E. HASTINGS, VANCOUVER B.C.
PH:253-3158 TELEX:04-53124

DATE RECEIVED JULY 5 1983

DATE REPORTS MAILED July 9/83

GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : AG.
SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.
AU* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.
AU OZ/TON RUN BY FIRE ASSAY

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK PROJECT# 03 FILE # 83-1063 PAGE# 1

SAMPLE	AG PPM	AU* PPB	AU** OZ/TON
AA-25951	.2	5	-
AA-25952	.4	5	-
AA-25953	.3	5	-

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DATE RECEIVED JULY 13 1983

DATE REPORTS MAILED July 19/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK FILE # 83-1190 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-25987	5.5	.40
AA-25988	12.5	.85
AA-25989	9.5	5.25
AA-25990	9.0	5.10
AA-25991	14.5	2.20
AA-25992	.5	.25
AA-25993	.5	.50
AA-25994	13.0	1.65
AA-25995	35.0	3.80
AA-25996	4.5	.75
AA-25997	6.5	4.10
AA-25998	8.0	1.55

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26174	698.0	.10
AA-26175	94.5	.05
AA-26176	137.0	.05
AA-26171	193.5	2.40
AA-26172	113.0	2.25
AA-26173	190.0	4.20

* NOTE - GM/TNE = GRAM/TONNE

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

To: Kidd Creek Mine Ltd.,
701 - 1281 W. Georgia St.,
Vancouver, B.C
V6E 3J7

File No. 83-1346B

Project : 04

ASSAY CERTIFICATE

Type of Samples Rock

Disposition

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-25977	2.5	.10						1
2	25978	6.5	1.45						2
3	25979	3.5	.35						3
4	25980	3.5	.15						4
5	25981	1.5	.15						5
6	25982	5.5	.40						6
7	25983	288.0	23.70						7
8	25984	13.5	11.40						8
9	25985	8.5	.20						9
10	AA-25986	185.0	6.40						10
11									11
12	AA-26183	18.0	2.90						12
13									13
14									14
15									15
16									16
17									17
18									18
19									19
20									20

DATE SAMPLES RECEIVED July 25, 1983

DATE REPORTS MAILED July 31, 1983

ASSAYER

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

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

To: Kidd Creek Mines Ltd.,
701 - 1281 W. Georgia St.,
Vancouver, B.C.
V6E 3J7

File No. 83-1346A

Type of Samples Rock

Disposition

ASSAY CERTIFICATE

Project : 04

No.	Sample	Ag gm/tonne	Au gm/tonne						No.
1	AA-25955	19.0	.30						1
2	25956	178.0	3.05						2
3	25957	98.5	1.50						3
4	AA-25958	10.5	.20						4
5									5

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DATE RECEIVED JULY 20 1983
DATE REPORTS MAILED July 26/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD FILE # 83-1281 PROJECT-04 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-25999	1.5	.10
AA-26000	.5	.05
AA-26001	37.0	1.25
AA-26002	1.0	.85
AA-26003	9.0	1.25
AA-26004	5.5	.45
AA-26005	19.5	38.50
AA-26006	41.5	29.50
AA-26007	12.5	8.50

* NOTE - GM/TNE = GRAM/TONNE

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PH: 253-3158 TELEX: 04-53124

DATE RECEIVED AUG 26 1983

DATE REPORTS MAILED Aug 31/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # 83-1841 PAGE# 1

SAMPLE	CU %	PB %	ZN %	AG GM/TNE	AU GM/TNE
AA-26051	-	-	-	.5	.25
AA-26052	.08	.83	1.25	5.5	2.80
AA-26053	.01	.38	.32	4.0	3.50
AA-26054	.01	.67	.84	9.5	6.80
AA-26055	.03	2.06	1.53	10.5	1.90
AA-26056	.19	4.08	6.50	14.5	2.45
AA-26057	-	-	-	2.0	1.40
AA-26058	-	-	-	2.5	4.60
AA-26059	-	-	-	1.5	.15
AA-26060	-	-	-	2.5	2.30
AA-26061	-	-	-	124.5	1.85
AA-26062	-	-	-	85.5	1.05
AA-26063	-	-	-	14.5	.25
AA-26064	-	-	-	6.5	.05
AA-26065	-	-	-	4.0	.30
AA-26066	-	-	-	.5	.05
AA-26067	.06	1.38	2.76	3650.0	5.30
AA-26068	-	-	-	39.0	16.05
AA-26069	-	-	-	33.5	10.80
AA-26070	-	-	-	30.5	79.20
AA-26071	-	-	-	24.5	7.85
AA-26072	-	-	-	.5	.20
AA-26073	-	-	-	267.0	.50
AA-26074	-	-	-	6.0	.30
AA-26075	.12	.22	.34	4.5	6.30
AA-26076	-	-	-	.5	.05
AA-26077	-	-	-	.5	.05
AA-26078	-	-	-	39.5	.25
AA-26079	-	-	-	5.0	.05

* NOTE - GM/TNE = GRAM/TONNE

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PH:253-3158 TELEX:04-53124

DATE RECEIVED AUG 7 1983

DATE REPORTS MAILED Aug 11/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FIEL # 83-1517 PAGE# 1

SAMPLE	CU %	PB %	ZN %	AG GM/TNE	AU GM/TNE
AA-26008	-	-	-	1348.0	18.55
AA-26009	-	-	-	239.5	4.10
AA-26010	-	-	-	23.5	.40
AA-26011	-	-	-	14.0	1.45
AA-26012	-	-	-	23.0	5.70
AA-26013	-	-	-	2.5	.50
AA-26014	-	-	-	5.5	.05
AA-26015	-	-	-	2.5	1.40
AA-26016	-	-	-	4.5	.10
AA-26017	.03	2.39	5.90	62.5	216.95
AA-26018	.08	2.80	5.16	19.5	3.35
AA-26019	-	-	-	1.5	3.00
AA-26020	.03	.07	.75	8.0	13.25
AA-26021	-	-	-	18.5	3.20
AA-26022	-	-	-	258.5	35.20
AA-26023	-	-	-	172.5	4.95
AA-26024	-	-	-	104.5	2.30
AA-26025	-	-	-	6.0	.20
AA-26026	.02	2.79	3.18	37.5	98.25
AA-26027	-	-	-	2.0	.10

* NOTE - GM/TNE = GRAM/TONNE

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DATE RECEIVED AUG 2 1983

DATE REPORTS MAILED Aug 4/83

ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD PROJECT # 04 FILE # 83-1432 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26028	19.5	.45
AA-26029	16.0	.25
AA-26030	2.5	.10
AA-26031	3.0	.35
AA-26032	11.5	1.15
AA-26033	11.5	26.20
AA-26034	1.5	1.60
AA-26035	.5	.30
AA-26036	2.5	.50

* NOTE - GM/TNE = GRAM/TONNE

ACME ANALYTICAL LABORATORIES LTD.
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DATE RECEIVED SEPT 12 1983

DATE REPORTS MAILED Sept 21/83

GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : CU, PB, ZN, AG.
SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.
AU* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD PROJECT # 04 FILE # 83-2094 PAGE# 1

SAMPLE	CU PPM	PB PPM	ZN PPM	AG PPM	AU* PPB
AA-26080	-	-	-	13.6	370
AA-26081	-	-	-	1.9	5
AA-26082	-	-	-	68.0	445
AA-26083	-	-	-	31.0	90
AA-26084	-	-	-	67.0	540
AA-26086	-	-	-	28.0	320
AA-26087	-	-	-	1.6	5
AA-26088	-	-	-	1.3	45
AA-26089	-	-	-	1.0	5
AA-26090	35	13	43	.9	5
AA-26091	15	8	44	.6	5
AA-26092	5	33	4	.1	5
AA-26093	4	11	8	.1	5
AA-26094	6	9	72	.1	5
AA-26095	10	47	3	.2	5
AA-26096	5	6	3	.1	10
AA-26097	4	5	2	.1	5
AA-26098	1	3	4	.1	5
AA-26099	8	9	50	.3	5
AA-26100	84	24	93	1.0	5
AA-26801	-	-	-	5.0	510
AA-26802	-	-	-	1.4	35
AA-26803	-	-	-	1.1	70
AA-26804	-	-	-	2.7	50
AA-26805	-	-	-	5.8	810
AA-26806	-	-	-	.4	10
AA-26807	-	-	-	.9	5
AA-26808	-	-	-	.3	5
AA-26809	-	-	-	2.2	200
AA-26810	-	-	-	.8	5
AA-26812	-	-	-	7.4	2350
AA-26820	-	-	-	3.5	90
AA-26825	-	-	-	.8	15
AA-26826	8	9	71	.5	5
AA-26827	-	-	-	.4	10
AA-26828	-	-	-	56.0	1250
AA-26829	9	99	47	6.6	430

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ICP GEOCHEMICAL ANALYSIS

A .500 GRAM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER.
THIS LEACH IS PARTIAL FOR: Ca,P,Mg,Al,Ti,La,Na,K,W,Ba,Si,Sr,Cr AND B. Au DETECTION 3 ppm.
AU* ANALYSIS BY AA FROM 10 GRAM SAMPLE.
SAMPLE TYPE - ROCK CHIPS

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK FILE # 83-2385 PAGE# 1

SAMPLE	CU ppm	PB ppm	ZN ppm	AG ppm	Au* ppb
AA-25201	841	11197	1121	6.5	800
AA-25202	35	687	779	1.0	375
AA-27092	40	4261	3063	20.5	7200
AA-27096	1609	8366	2204	30.8	60900
AA-27097	196	88	1864	2.3	525
AA-27098	232	338	1096	2.3	475
AA-27099	162	793	1676	1.7	1525
AA-27100	20	106	1572	3.9	9450
AA-25203	48	2244	2022	4.5	185
AA-25204	13	46	72	3.1	100
AA-25205	16	170	181	2.5	975
AA-25206	10	208	24	13.8	250
AA-26849	16	91	338	1.9	425
AA-26850	7	34	71	1.9	25
AA-27093	2	1	8	.2	5
AA-27094	4	46	209	.1	5
AA-27095	45	3099	1433	21.5	925
STD A-1	30	39	183	.3	-

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ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD PROJECT # 03 FILE # 83-2220 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26901	3.0	11.40
AA-26902	4.5	6.40
AA-26903	1.5	.45
AA-26904	.5	.10
AA-26905	3.5	.65
AA-26906	1.5	.45
AA-26907	.5	.30
AA-26908	1.0	.75
AA-26909	.5	.15
AA-26910	.5	.15
AA-26911	.5	.40
AA-26912	.5	.30
AA-26913	.5	.05
AA-26914	.5	.05
AA-26915	.5	.05
AA-26916	.5	.05
AA-26917	.5	.15
AA-26918	.5	.10
AA-26919	.5	.15
AA-26920	.5	.05
AA-26921	.5	.05
AA-26922	.5	.10
AA-26923	.5	.05
AA-26924	.5	.05
AA-26925	.5	.05
AA-26926	.5	.05
AA-26927	.5	.05
AA-26928	3.5	.45

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ASSAY CERTIFICATE

SAMPLE TYPE : ROCK - CRUSHED AND PRULVERIZED TO -100 MESH.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES LTD PROJECT # 04 FILE # 83-2391 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-24201	.5	.05
AA-24202	2.5	.85
AA-24203	.5	.05
AA-24204	.5	.05
AA-24205	.5	.05
AA-24206	.5	.05
AA-24207	.5	.05
AA-24208	.5	.05
AA-24209	.5	.20
AA-24210	1.5	.05
AA-24211	.5	.05
AA-24212	.5	.05
AA-24213	1.5	.05
AA-24214	.5	.05
AA-24215	.5	.05
AA-24216	.5	.05
AA-24217	.5	.05
AA-24218	.5	.05
AA-24219	.5	.05
AA-24220	.5	.05
AA-24221	.5	.05
AA-24222	.5	.05
AA-24223	.5	.05
AA-24224	.5	.05
AA-24225	.5	.05
AA-24226	1.0	.05
AA-24227	6.5	1.70
AA-24228	.5	.05
AA-24229	.5	.05
AA-24230	.5	.05
AA-24231	.5	.05
AA-24232	.5	.05
AA-24233	1.0	.05
AA-24234	.5	.05
AA-24235	.5	.05
AA-24236	.5	.05
AA-24237	.5	.05
AA-24238	1.5	.05

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-24239	.5	.05
AA-24240	.5	.05
AA-24241	.5	.05
AA-24242	.5	.05
AA-24243	.5	.05
AA-24244	.5	.05
AA-24245	.5	.05
AA-24246	.5	.05
AA-24247	.5	.05
AA-24248	.5	.05
AA-24249	.5	.05
AA-24250	.5	.05
AA-24251	.5	.05
AA-24252	.5	.25
AA-24253	.5	.05
AA-24254	.5	.05
AA-24255	.5	.05
AA-24256	.5	.10
AA-24257	.5	.05
AA-24258	.5	.05
AA-24259	.5	.40
AA-24260	.5	.05
AA-24261	.5	.05
AA-24262	.5	.05
AA-24263	.5	.05
AA-24264	.5	.05
AA-24265	1.0	.20
AA-24266	.5	.15
AA-24267	1.0	.10
AA-24268	1.0	.05
AA-24269	15.0	.45
AA-24270	22.5	.55
AA-24271	2.5	.60
AA-24272	1.0	.05
AA-24273	2.0	.10
AA-24274	1.5	.15
AA-24275	8.5	.85
AA-24276	3.5	.20

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-24277	5.5	1.45
AA-24278	1.0	.25
AA-24279	.5	.15
AA-24280	1.0	.20
AA-24281	.5	.05
AA-24282	.5	.05
AA-24283	.5	.45
AA-24284	.5	.05
AA-24285	.5	.05
AA-24286	.5	.05
AA-24287	1.0	.05
AA-24288	.5	.05
AA-24289	.5	.05
AA-24290	.5	.20
AA-24291	2.0	3.20
AA-24292	1.0	.50
AA-24293	.5	.05
AA-24294	2.0	.20
AA-24295	1.5	.05
AA-24296	.5	.05
AA-24297	.5	.05
AA-24298	1.0	.10
AA-26929	.5	.05
AA-26930	.5	.05
AA-26931	.5	.05
AA-26932	.5	.05
AA-26933	2.5	.35
AA-26934	1.5	.15
AA-26935	3.0	.55
AA-26936	.5	.70
AA-26937	10.0	4.10
AA-26938	7.5	2.65
AA-26939	4.0	1.75
AA-26940	11.0	2.25
AA-26941	2.5	2.75
AA-26942	2.0	3.10
AA-26943	.5	.10
AA-26944	2.5	.75

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26945	.5	.55
AA-26946	.5	.60
AA-26947	.5	.40
AA-26948	6.0	6.50
AA-26949	.5	1.65
AA-26950	.5	.50
AA-26951	1.0	.10
AA-26952	.5	.40
AA-26953	.5	1.10
AA-26954	4.0	.50
AA-26955	.5	.05
AA-26956	.5	.25
AA-26957	.5	.35
AA-26958	.5	.10
AA-26959	.5	.15
AA-26960	.5	.10
AA-26961	.5	.15
AA-26962	.5	.15
AA-26963	.5	.05
AA-26964	.5	.05
AA-26965	.5	.05
AA-26966	.5	.10
AA-26967	.5	.05
AA-26968	.5	.05
AA-26969	.5	.05
AA-26970	.5	.10
AA-26971	.5	.10
AA-26972	.5	.05
AA-26973	.5	.10
AA-26974	.5	.25
AA-26975	1.0	.10
AA-26976	.5	.05
AA-26977	.5	.10
AA-26978	.5	.10
AA-26979	3.0	.10
AA-26980	.5	.05
AA-26981	.5	.05
AA-26982	.5	.10

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26983	.5	.15
AA-26984	.5	.10
AA-26985	.5	.15
AA-26986	1.0	.30
AA-26987	6.0	1.65
AA-26988	.5	.10
AA-26989	.5	.05
AA-26990	.5	.05
AA-26991	.5	.05
AA-26992	.5	.05
AA-26993	.5	.05
AA-26994	.5	.05
AA-26995	.5	.05
AA-26996	2.0	.05
AA-26997	.5	.05
AA-26998	.5	.05
AA-26999	.5	.05
AA-27000	.5	.15
AA-29951	.5	.05
AA-29952	8.0	.20
AA-29953	4.5	.30
AA-29954	1.5	.10
AA-29955	.5	.25
AA-29956	1.5	.10
AA-29957	3.5	.20
AA-29958	2.5	.10
AA-29959	.5	.10
AA-29960	1.0	2.30
AA-29961	3.5	.75
AA-29962	2.5	.95
AA-29963	1.0	.50
AA-29964	2.5	.25
AA-29965	3.5	.30
AA-29966	2.5	.05
AA-29967	2.0	.05
AA-29968	3.5	.05
AA-29969	11.0	.30

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-29970	15.0	.20
AA-29971	13.0	.30
AA-29972	12.0	.20
AA-29973	13.0	.35
AA-29974	12.5	.90
AA-29975	7.0	.55
AA-29976	8.5	.65
AA-29977	7.0	.55
AA-29978	6.5	.20
AA-29979	7.5	.25
AA-29980	14.0	.65
AA-29981	25.5	.60

* NOTE - GM/TNE = GRAM/TONNE

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GEOCHEMICAL ASSAY CERTIFICATE

A .500 GM SAMPLE IS DIGESTED WITH 3 ML OF 3:1:3 HCL TO HNO3 TO H2O AT 90 DEG.C. FOR 1 HOUR.
THE SAMPLE IS DILUTED TO 10 MLS WITH WATER. ELEMENTS ANALYSED BY AA : AG.
SAMPLE TYPE : REJECT
AU* - 10 GM, IGNITED, HOT AQUA REGIA LEACH MIBK EXTRACTION, AA ANALYSIS.

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # 83-2123A PAGE# 1

SAMPLE	AG PPM	AU* PPB
AA-26700	1.4	150
AA-26701	5.9	2500
AA-26702	2.3	700
AA-26703	4.4	1800
AA-26704	3.0	5100
AA-26705	1.1	145
AA-26706	1.5	500
AA-26707	3.9	2100
AA-26708	3.1	570
AA-26709	10.8	4000
AA-26710	8.2	3900
AA-26711	5.5	1400

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ASSAY CERTIFICATE

SAMPLE TYPE : REJECT

ASSAYER _____ DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # 83-2123B

SAMPLE	AG GM/TNE	AU GM/TNE
AA-24523	1.0	.05
AA-24524	.5	.05
AA-24525	.5	.05
AA-24526	.5	.30
AA-26501	.5	.20
AA-26502	.5	.90
AA-26503	3.5	.50
AA-26504	.5	3.90
AA-26505	.5	3.45
AA-26506	.5	1.25
AA-26507	.5	.60
AA-26508	1.5	4.50
AA-26509	1.0	7.30
AA-26510	1.5	9.50
AA-26511	2.5	10.60
AA-26512	.5	1.45
AA-26513	.5	.15
AA-26514	.5	1.10
AA-26515	1.5	3.90
AA-26516	6.5	4.60
AA-26517	3.0	4.95
AA-26518	2.5	2.30
AA-26519	.5	.15
AA-26520	6.0	5.90
AA-26521	1.0	.35
AA-26522	6.5	1.65
AA-26523	.5	.40
AA-26524	3.0	1.10
AA-26525	36.0	7.70
AA-26526	17.0	1.70
AA-26527	7.0	1.20
AA-27058	2.5	11.60
AA-27059	.5	5.60
AA-27060	1.5	15.05
AA-27061	4.5	5.35
AA-27062	.5	1.85
AA-27063	4.5	12.40

* NOTE - GM/TNE = GRAM/TONNE

SAMPLE	AG GM/TNE	AU GM/TNE
AA-27064	6.5	12.60
AA-27065	11.5	41.00
AA-27066	12.5	49.50
AA-27067	8.0	40.50
AA-27191	.5	.95
AA-27192	4.5	1.75
AA-27193	4.0	2.25
AA-27194	2.0	1.30
AA-27195	2.5	1.55
AA-27196	2.0	1.35
AA-27197	2.5	1.35
AA-27198	5.0	.40
AA-27199	1.0	.35

* NOTE - GM/TNE = GRAM/TONNE

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ASSAY CERTIFICATE

SAMPLE TYPE : PULP

ASSAYER D. Toye DEAN TOYE, CERTIFIED B.C. ASSAYER

KIDD CREEK MINES PROJECT # 04 FILE # RE: 83-2228 PAGE# 1

SAMPLE	AG GM/TNE	AU GM/TNE
AA-26901	2.5	10.10
AA-26902	4.0	7.20

* NOTE - GM/TNE = GRAM/TONNE

APPENDIX C

STATEMENT OF QUALIFICATIONS

APPENDIX C

STATEMENT OF QUALIFICATIONS

M. G. Morrice -Geologist

M.G. Morrice graduated from the University of Manitoba with a BSc (Hons) and an MSc before receiving a PhD in 1982 from the University of California, Santa Cruz. He has worked continuously with many industry, government and research groups over the past 17 years. Dr. Morrice has worked with Kidd Creek Mines Ltd. since May 1983.

APPENDIX D
STATEMENT OF EXPENDITURES

STATEMENT OF EXPENDITURES

A. WORK COMPLETED: June 19 - September 1, 1983.

1) PHYSICAL WORK

Sherman Jaycox - Backhoe Operator			
Period: July 3 to 14			
	115.6 hrs backhoe trenching @ $45	$ 5,200.00	
Blake Richard- Blaster			
Period: Aug 19-20	2 days @ $400	800.00	
		6,000.00	$ 6,000.00

2) GEOLOGICAL SURVEYS

M.G. Morrice - Geologist			
Period: June 19-Aug 31	15 days @ $115/day	1,725.00	
I.G. Sutherland - Geologist			
Period: June 27-Aug 6	3 days @ $136/day	408.00	
J. Black - Assistant			
Period: Aug 31	1 day @ $54/day	54.00	
L. Haering - Assistant			
Period: June 27-Aug 31	4.5 days @ $67/day	301.50	
D. Horvat - Assistant			
Period: Aug 29-31	2 days @ $54/day	108.00	
L. Louie - Assistant			
Period: June 19-20	2 days @ $67/day	134.00	
R. Vandenbrink - Assistant			
Period: June 21-30	2 days @ $62/day	124.00	
		2,854.50	$ 2,854.50

3) SOIL GAS GEOCHEMICAL SURVEYS

J. Leigh - Assistant			
Period: July 3-4	2 days @ $60/day	120.00	
L. Louie - Assistant			
Period: June 23	.5 day @ $67/day	33.50	
K. Norris - Assistant			
Period: June 23	.5 day @ $58/day	29.00	
R. Vandenbrink - Assisant			
Period: July 3-4	2 days @ $62/day	124.00	
		306.50	$ 306.50

STATEMENT OF EXPENDITURES

4) TRENCH MAPPING AND SAMPLING

J. Black - Assistant Period: July 15-Aug 25	6 days @ $54/day	324.00	
D. Coolidge - Assistant Period: July 6-Aug24	8 days @ $65/day	520.00	
L. Haering - Assistant Period: July 5-Aug 25	16.5 days @ $67/day	1,105.50	
D. Horvat - Assistant Period: July 5-Aug 25	14 days @ $54/day	756.00	
J. Leigh - Assistant Period: July 6-Aug 24	13.5 days @ $60/day	810.00	
L. Louie - Assistant Period: July 5-Aug 25	11 days @ $67/day	737.00	
M.G. Morrice - Geologist Period: July 5-Aug 25	25 days @ $115/day	2,875.00	
K. Norris - Assistant Period: July 6-Aug 24	15.5 days @ $58/day	899.00	
I.G. Sutherland - Geologist Period: July 7-Aug 24	3 days @ $136/day	408.00	
R. Vandenbrink - Assistant Period: July 5-Aug 24	17 days @ $62/day	1,054.00	
J.F. Macdougall - Geologist Period: July 13-25	3 days @ $185/day	555.00	
		10,043.50	$10,043.50

5) ROOM AND BOARD

S. Jaycox	12 man-days @ $80	840.00	
B. Richard	2 man-days @ $80	160.00	
Kidd Creek Mines Personnel	167 man-days @ $80	13,360.00	
		14,360.00	$14,360.00

STATEMENT OF EXPENDITURES

6) HELICOPTER SUPPORT - PERSONNEL

ALC Hughes 500D	20.8 hrs @ $510/hr		$10,608.00

7) SAMPLE SHIPPING

a)	HELICOPTER TO AIRSTRIP ALC Hughes 500D 14.0 hrs @ $510/hr	7,140.00	
b)	FIXED-WING TO SMITHERS Central Mountain Air Service, "Islander" - 12, half trips @ $375	4,500.00	
c)	GREYHOUND BUS TO VANCOUVER 25,600 lbs @ $0.28/lb	7,168.00	
		18,808.00	$18,808.00

8) ANALYTICAL COSTS

298 Au and Ag geochemical analyses @ $5.60	1,668.80	
986 Au and Ag assays @ $10.00	9,860.00	
23 Cu, Pb, and Zn assays @ $10.50	241.50	
1284 rock sample preparations @ $2.50	3,210.00	
13,100 lbs "over weight" charges @ $0.25/lb	3,282.70	
12 soil gas analyses @ $17.00	204.00	
38 soil gas analyses @ $20.00	760.00	
	19,227.00	$19,227.00

9) GEOPHYSICAL SURVEYS (see accompanying report) $15,660.00

SUBTOTAL for June 19-Sept 1 **$97,867.50**

STATEMENT OF EXPENDITURES

B. WORK COMPLETED: Sept 4 - Dec 2, 1983

1) PHYSICAL WORK

Sherman Jaycox - Backhoe Operator Period: Sept 14-19	30.5 hrs @ $45/hr		$ 1,372.50

2) TRENCH MAPPING AND SAMPLING

A.J. Boronowski - Geologist Period: Sept 17-18	2 days @$185/day	370.00	
M.G. Morrice - Geologist Period: Sept 4-19	6.5 days @ $115/day	747.50	
B. Anderson - Assistant Period: Sept 14-19	5.5 days @ $55/day	302.50	
D. Coolidge - Assistant Period: Sept 14-19	5.5 days @ $65/day	357.50	
D. Horvat - Assistant Period: Sept 14-19	5.5 days @ $54/day	297.00	
A. Hunt - Assistant Period: Sept 14-17	4 days @ $55/day	220.00	
M. Logan - Assistant Period: Sept 14-19	4 days @ $46/day	184.00	
M. Neave - Assistant Period: Sept 14-19	5.5 days @ $46/day	253.00	
K. Norris - Assistant Period: Sept 4	1 day @ $58/day	58.00	
		2,789.50	$ 2,789.50

3) ROOM AND BOARD

S. Jaycox -	6 man-days @ $80.00	480.00	
Kidd Creek Personnel	39.5 man-days @ $80.00	3,160.00	
		3,640.00	$ 3,640.00

4) HELICOPTER SUPPORT

ALC Hughes 500D	6.1 hrs @ $510	$ 3,094.00

STATEMENT OF EXPENDITURES

5) SAMPLE SHIPPING

a)	HELICOPTER TO AIRSTRIP ALC Hughes 500 D 3.4 hrs @ $510	1,734.00	
b)	FIXED-WING TO SMITHERS Central Mountain Air Services, "Islander" 3.5, half trips @ $375	1,312.50	
		3,046.50	$ 3,046.50

6) ANALYTICAL COSTS

112	Au and Ag geochemical analyses @ $5.60	627.20
267	Au and Ag assays @ $10.50	2,670.00
13	Cu, Pb and Zn assays @ $10.00	136.50
49	Cu, Pb and Zn geocheical analyes @ $5.50	214.50
379	rock sample preparations @ $2.50	947.50
		4,595.70

	$ 4,595.70
SUBTOTAL FOR Sept 4-Dec 2	$18,538.20
TOTAL EXPENDITURES	**$116,405.70**

APPENDIX E

SOIL GAS GEOCHEMICAL PROCEDURES

Charles G. Clifton, President
EXPLORATION RESEARCH LABORATORIES
P. O. Box 9086, University Station
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Tel. (702) 329-1088

Soil Gas Collection Procedure

A vapor-phase (gas) geochemical anomaly is associated with most types of ore deposits. This includes low and high temperature, epigenetic or syngenetic. Primary gas dispersion haloes are often developed in wall rocks as deposits are formed. The gases originate in the hydrothermal solutions or are products of mineral dissolution reactions. Secondary gas dispersion haloes are produced in two ways: during oxidation of sulfides or organic carbon-bearing compounds; or through natural dissipation of volatile species such as mercury or helium, light hydrocarbons, or radioactive daughter products. Secondary gas dispersion products are collectively termed soil gases.

Soil gases may be analyzed directly in the atmosphere or can be collected and analyzed in separate steps. It is well known that instantaneous measurements of soil gases in the atmosphere or shallow subsurface often produce results which are difficult to duplicate from day to day, or hour to hour. This is due to the influence of short-term fluctuations of barometric pressure, temperature, and humidity on vapor flux at the soil-atmosphere interface. In order to obtain a more reliable soil gas sample, it is preferable to collect the gases over a period of time, at a shallow depth below the surface. The result is an integrated or averaged measurement which is more representative of the long-term vertical vapor flux.

The soil gas collection procedure developed by EXPLORATION RESEARCH LABORATORIES includes: (a) a hydrophobic, non-catalytic, non-oxidative porous polymer sorbent selective to a wide range of sulfur and carbon gases; (b) a reusable container for housing the sorbent while buried in the ground; and, (c) a rapid, inexpensive analytical method for identifying the gases collected. Each aspect of the gas collection procedure is a major improvement on older techniques. In addition, the selected sorbent is particularly sensitive to CS_2 and COS, species recently identified as the primary gaseous products of sulfide oxidation (Taylor, Kesler and Cloke, 1982, Journal of Geochemical Exploration, V. 17, pp. 165-185).

The containers which hold the sorbent material, keep it free from contamination, and provide an open space for air circulation have been thoroughly researched. Follow directions carefully for best results.

Data Interpretation

At this time little information is available which relates gas species to the quantity and type of mineralization present at depth. It is suggested that vapor-phase data be treated like any other type of geochemical data. Always try to relate results to a ground truth (known mineralization). Work with gas ratios or total quantities. Be aware of fractures or porous horizons which may channel gases preferentially or locally accentuate oxidation. Make adjustments for varying thicknesses of overburden on results; consider calculation a trend surface and positive residuals.

Analyzed Gases

The sorbent material is selective to the following gases:

CO_2	carbon dioxide
C_3H_8	propane
C_4H_{10}	butane
CS_2	carbon disulfide
COS	carbonyl sulfide
H_2S	hydrogen sulfide
SO_2	sulfur dioxide

Other gases such as mercury, helium, radon, oxygen, nitrogen, methane, ethane, are not collected. Analytical sensitivity is approximately 50 parts per billion for most species. Analysis is by gas chromatography/mass spectrometry at 175°C.

Feel Free to Call

Vapor-phase geochemistry is a relatively new but rapidly expanding field in minerals exploration. Contact me at the above address or phone number for advice or opinion on data interpretation, or information on sample placement or analytical procedure.

Return Address
Charles G. Clifton
EXPLORATION RESEARCH LABORATORIES
P. O. Box 9086, University Station
Reno, Nevada 89507 U.S.A.
Tel. (702) 329-1088

Instructions

General

- Take care not to spill sorbent material from glass vials.
- Do not expose open vials to motor exhaust, aerosols (i.e., spray paint), sulfur-rich atmospheres such as mine air or industrial smoke.
- A minor amount of contaminant (soil, water) in vials will not affect results.
- Short exposure (minutes) of sorbent to air will not affect results.
- Sealed vials can be stored for years without affecting stability of sorbent material.

Placing Vials In Ground

(SEE ASSEMBLED SAMPLE ENCLOSED WITH MATERIALS.)

A. Attach label to each vial while vials are clean and dry. Apply a sample designation to each vial with waterproof ink.

B. Remove cap and rubber stopper from each vial at sample location and immediately prior to burial. Keep all caps and rubber stoppers.

C. After cap and stopper is removed, attach vial to supporter stick with rubber band. Insert vial and stick into plastic bottle, attach a perforated lid to bottle.

D. Plastic bottles, with enclosed vials, can be attached to a 3-4 foot long marker stake with filament tape or wire. Advantages: bottles can be pulled from ground, rather than dug, and stake exactly marks

location of sample. Disadvantages: marker stake can be broken off or pulled up by animals. Alternatively, mark sample location with short, study stake driven into ground a short distance from sample.

E. Bury bottles at least 6 inches deep, 12-20 inches is recommended.

F. For shallow cover (less than 10 feet), leave samples in ground for at least 10 days. For deeper cover, allow up to 30 days. Samples can be left in ground indefinitely; it is impossible to saturate sorbent material with soil gas.

Removing Vials From Ground

A. If bottles are attached to marker stake, pull bottles from ground slowly. If not attached to stake, dig up carefully. Keep bottles upright until glass vial is removed.

B. Pry off perforated lid to bottle with coin or knife, allow supporter stick to drop out into hand and remove vial. Immediately insert rubber stopper and replace cap. Screw cap on firmly. Add sample designation to label if not already done.

C. Replace supported stick and lid to bottle. Keep bottles for future use.

D. Send vials to above address in sturdy cardboard box, well insulated against breakage. Ship airmail, air freight, or bus.

Supplement #1

EXPLORATION RESEARCH LABORATORIES

An Improved Method for Locating
Blind or Buried Sulfide Mineralization

The detection of blind or buried mineralization is the most difficult problem facing the exploration geologist. As the amount of unexplored ground possessing both high mineral potential and good exposure decreases, the requirement for techniques capable of "seeing through" post-mineral cover becomes more acute. In many situations standard geochemical methods are not applicable and geophysical methods too costly to be applied in a reconnaissance fashion.

It is well known that certain gases are produced by oxidizing sulfides and that these gases migrate to the surface through overlying host rock and overburden. The smell of H_2S in the vicinity of sulfide ore is familiar to all geologists. Other gases, including SO_2, CS_2, COS, and CO_2, have also been reported above oxidizing sulfide deposits (Geochemistry in Mineral Exploration, 1979, p. 511). Gas geochemical samples are generally collected in the atmosphere or just below the surface (soil gases). Soil gases are less subject to short-term variations due to changes in atmospheric pressure, humidity, or wind disturbance.

At Exploration Research Laboratories we have perfected a soil gas collecting procedure recently investigated by the U.S. Geological Survey. In studies of buried sulfide mineralization at Johnson Camp, Arizona (Hinkle and Kantor, 1978, J. Geochem. Explor. 9, 209-216) and the Roosevelt Hot Springs geothermal area, Utah (Hinkle et al., 1978, U.S. Geol. Survey J. Res. 6, 563-569), artificial zeolite was left buried in the ground for several months and later analyzed for adsorbed gases. Gas anomalies were identified above target zones in each study. Our research indicates that porous polymer sorbents are superior to artificial zeolite as collecting agents. A range of sorbents have been tested for their ability to adsorb certain gases and their tendency not to catalytically alter the gases during analysis. The sorbents we have selected are also very efficient: significant quantities of gas are adsorbed in days or weeks rather than months.

In Figure 1 (over), gases produced by oxidizing sulfides migrate to the surface. Small bottles containing a specific sorbent are left in the soil or overburden for several days or weeks. The vials are retrieved, capped, and shipped for analysis. In a recent study of an epithermal vein system in Nevada, vials were buried at 100-150 foot intervals along the hanging wall of the host structure and left to equilibrate for 2 weeks (Figure 2). Approximately one-half of the structure was buried by Quaternary alluvium (Qal). The remainder of the structure was difficult to locate due to intense alteration and lack of mineralization. Quartz-pyrite-gold mineralization was exposed only in the area of old workings. The data for CS_2, in particular, shows a strong anomaly above the known mineralization and 2 anomalies on strike, one of which is developed in thick alluvial cover. The anomaly over the old workings extends out into the hanging wall, reflecting the down-dip extension of the known mineralization. Similar results have been obtained on massive sulfide mineralization and an active geothermal field.

Price and Materials

Exploration Research Laboratories provides prepared vials containing gas-adsorbent material, directions for emplacement, capping materials, and analysis of gases by headspace gas chromatography/mass spectrometry. No payment is required until vials are analyzed.

Number of Samples	Unit Price
1-49	$ 20.00
50-99	$ 17.00
100 or more	$ 15.00

Materials are shipped within 5 days of order. Analyses are normally completed within 10 working days.

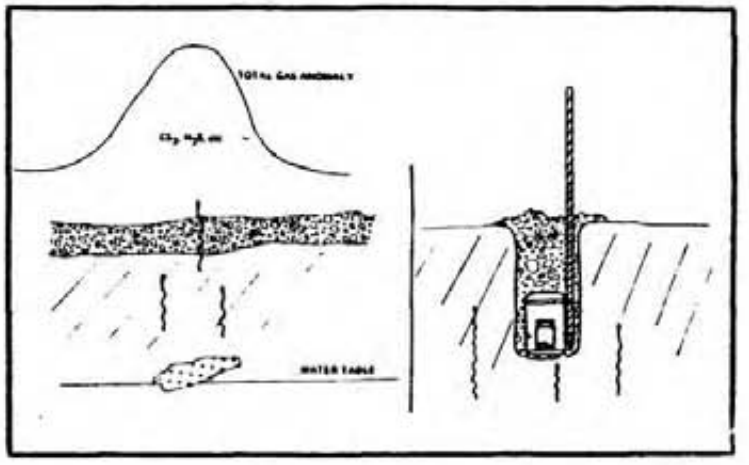

Figure 1. Left: migration of gases produced by oxidizing sulfide mineralization. Right: buried bottle containing vial with gas-adsorbent material.

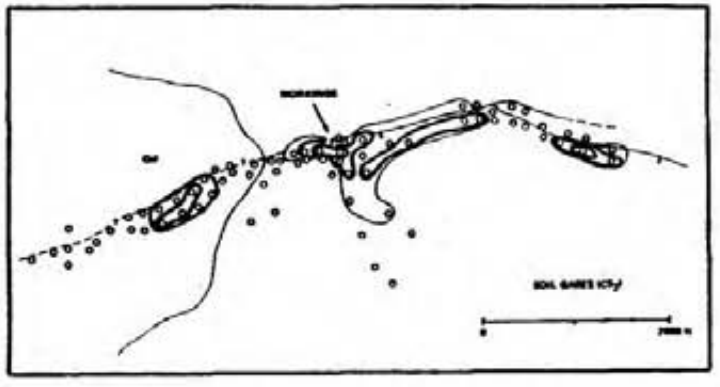

Figure 2. Soil gas anomalies in hanging wall of poorly exposed vein system, Miocene volcanics, Virginia Range, Nevada.

EXPLORATION RESEARCH LABORATORIES
Specializing in Gas Chromatography/Mass Spectrometry
- gases and organic compounds in geochemical samples
- geochemical exploration (minerals, geothermal)
- ore deposit research

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University Station
Reno, Nevada 89507 USA

LEGEND

Lithologies

1 — Hornblende-biotite-plagioclase-phyric andesite 12-15% plagioclase (2-7mm), 5% hornblende, 2-3% biotite, 1% magnetite, trace apatite, trace sanidine megacrysts (±2cm); aphanitic groundmass. 1a massive flow often with flaggy jointing, local auto-breccia 1b coarse volcaniclastic rocks (laharic) 1c fine volcaniclastic rocks (tuffaceous)

2 — Hornblende-plagioclase-phyric andesite 10-15% plagioclase (1-4 mm), 5-7% hornblende, 1% magnetite, trace apatite 2a massive flow, often with flaggy jointing, local auto-breccia 2b coarse volcaniclastic rocks (laharic) 2c fine volcaniclastic rocks (tuffaceous) with charcoal fossil reed remnants

3 — Aphyric diabase dyke. Black-dark green, with trace - 5% round - ellipsoidal calcite amygdules. Magnetic

4 — Plagioclase-phyric rhyolite dyke. 5% white plagioclase (2-4 mm). Orange-pink aphanitic groundmass

Alteration

A1 — Unaltered, very weak hematization

A2 — Hematization. Light-medium grey groundmass, hornblende, magnetite altered to hematite. White plagioclase

A3 — Propylitization. Dark green chloritic groundmass. Orange plagioclase. A3a weak propylitization, with A2-patchy green and grey groundmass

A4 — Argillization ± silicification ± pyritization

A5 — Phyllic alteration (quartz-pyrite-sericite). Light green silicified groundmass. Disseminated pyrite

A6 — Silicification. Intense, often with disseminated pyrite. A6a weak silicification, usually confined to groundmass.

A7 — Intense silicification + quartz veining

C — Clay. C1 (white), C2 (yellow), C3 (buff), C4 (brown), C5 (red), C6 (grey), C7 (grey-green), C8 (green), C9 (purple), C10 (blue), C11 (orange)

Calcite-quartz-galena-sphalerite-pyrite-chalcopyrite ± native gold veins present

Minerals

py - pyrite	lim - limonite
mn - manganite	cc - calcite
hem - hematite	sph - sphalerite
cpy - chalcopyrite	mal - malachite
gn - galena	az - azurite
qtz - quartz	lg - laumonite

Symbols

- ==== contact: observed (abrupt), inferred, gradational
- 50 / / bedding attitude, vertical
- 70 / dyke/vein attitude, vertical
- 60 / / joint attitude, vertical
- 60 / / fault attitude, vertical, relative motion
- fault-teeth on upper block
- ----- outcrop
- frag - frogments
- br - broken
- bx - breccia
- fr - fracture coating
- fg - fault gouge
- ob - overburden
- p.o. - pavilion approximate
- ⊗ - sample location

0 1 2 3m

PART 2 OF 2

GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843

Kidd Creek Mines Ltd.

JD PROPERTY

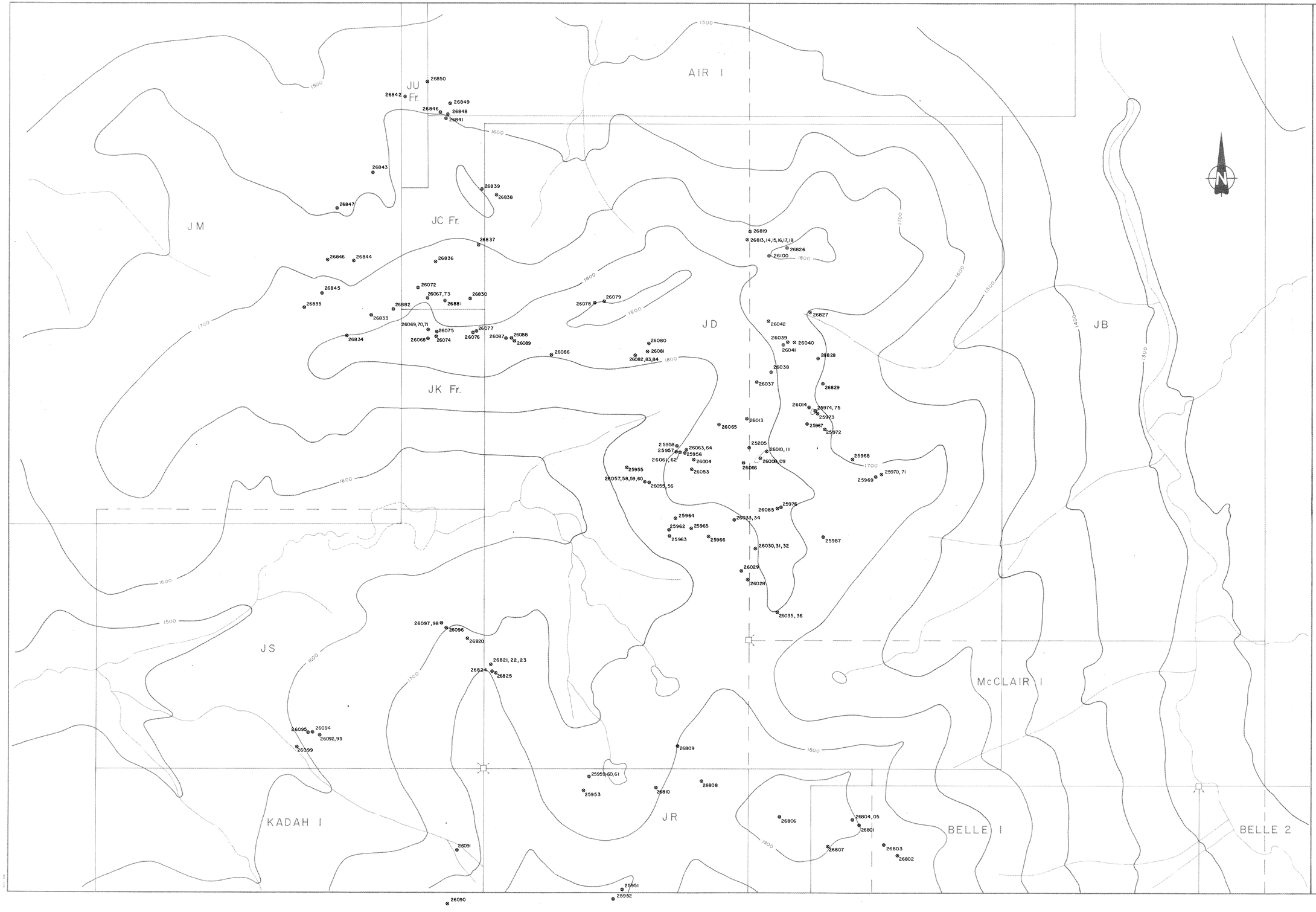
GEOLOGY

NTS 94E/6E — Project 04

WORK BY	DRAWN BY	DATE
M.M.	G.T.	DEC. 2, 1983

SCALE IN METRES

Figure: 3



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

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SAMPLE LOCATIONS
TAG NUMBERS

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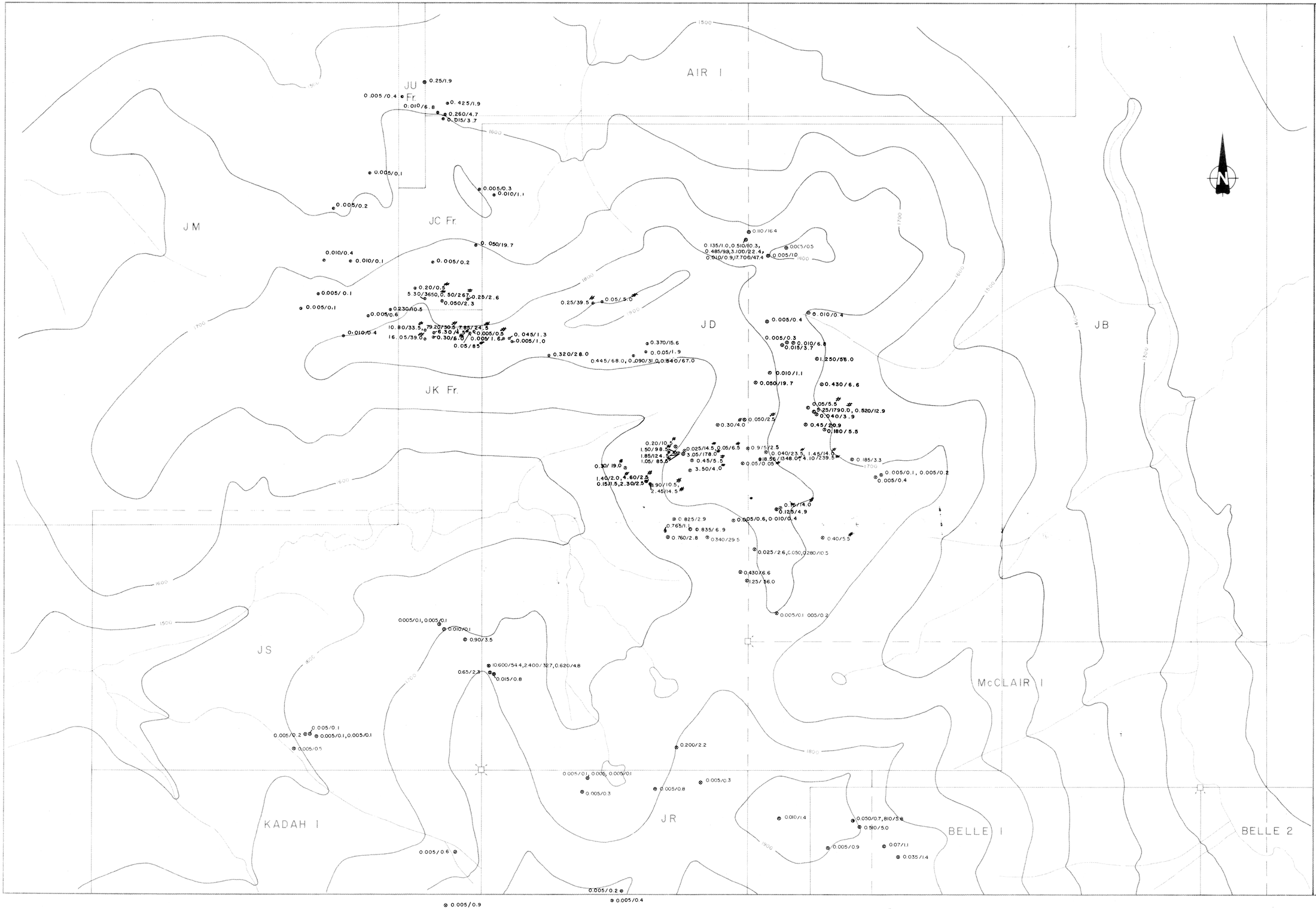
M.M.	G.T.	

SCALE IN METRES

Figure: 4a



GEOLOGICAL BRANCH
ASSESSMENT REPORT

11,843
PART 2 OF 2

Kidd Creek Mines Ltd.

JD PROPERTY

Au / Ag in rocks (ppm)
in grams/tonne

NTS 94E/6E — Project 04

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M.M.	J.S.	

SCALE IN METRES

Figure: 5