

REPORT ON DIAMOND DRILLING AND  
EXAMINATION OF DRILL CORE

by

I.G. Sutherland, B.Sc.

from the

JD M.C.

(in the JD-81 Group)

situated near Moosehorn Creek  
in the Omineca Mining Division

57°26'W, 127°09'W

NTS 94E/6E

Owned and Operated by: Kidd Creek Mines Ltd.

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

November 1982

Vancouver, B.C.

**10,739**  
**PART 2 of 3**

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## INTRODUCTION

### Location, Access and Terrain

The 'JD-81' claim group is located east of the Stikine River and north of the Toodoggone River in north-central British Columbia (Figure 1). The nearest supply and transportation centres are Smithers, 300 km due south, and Watson Lake in the Yukon, 300 km to the north.

Access to the claims is by a combination of fixed wing aircraft from Smithers or Watson Lake to the Sturdee Valley Airstrip, 30 km southeast of the property, and helicopter thereafter. There is no road access although it has been suggested that the Omineca mining road to the south may be extended into the Toogoddone River area in the future.

The claim group is situated at the eastern boundary of the Spatsizi Plateau and covers moderate to steep ridges between the broad valleys of Moosehorn and McClair Creeks (Figure 2). All trenching was carried out on the JD mineral claim on the slopes of a steep, east-west ridge and on a rounded hill immediately to the south (Figures 3 and 4). 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.

### Property History and Definition

Attention was first focussed on McClair Creek in 1931 when Chas. McClair was reported to have taken several thousand dollars worth of gold from placer workings near the confluence of this creek and the Toodoggone River. The remains of the placer workings are still to be found along the lower portion of McClair Creek.

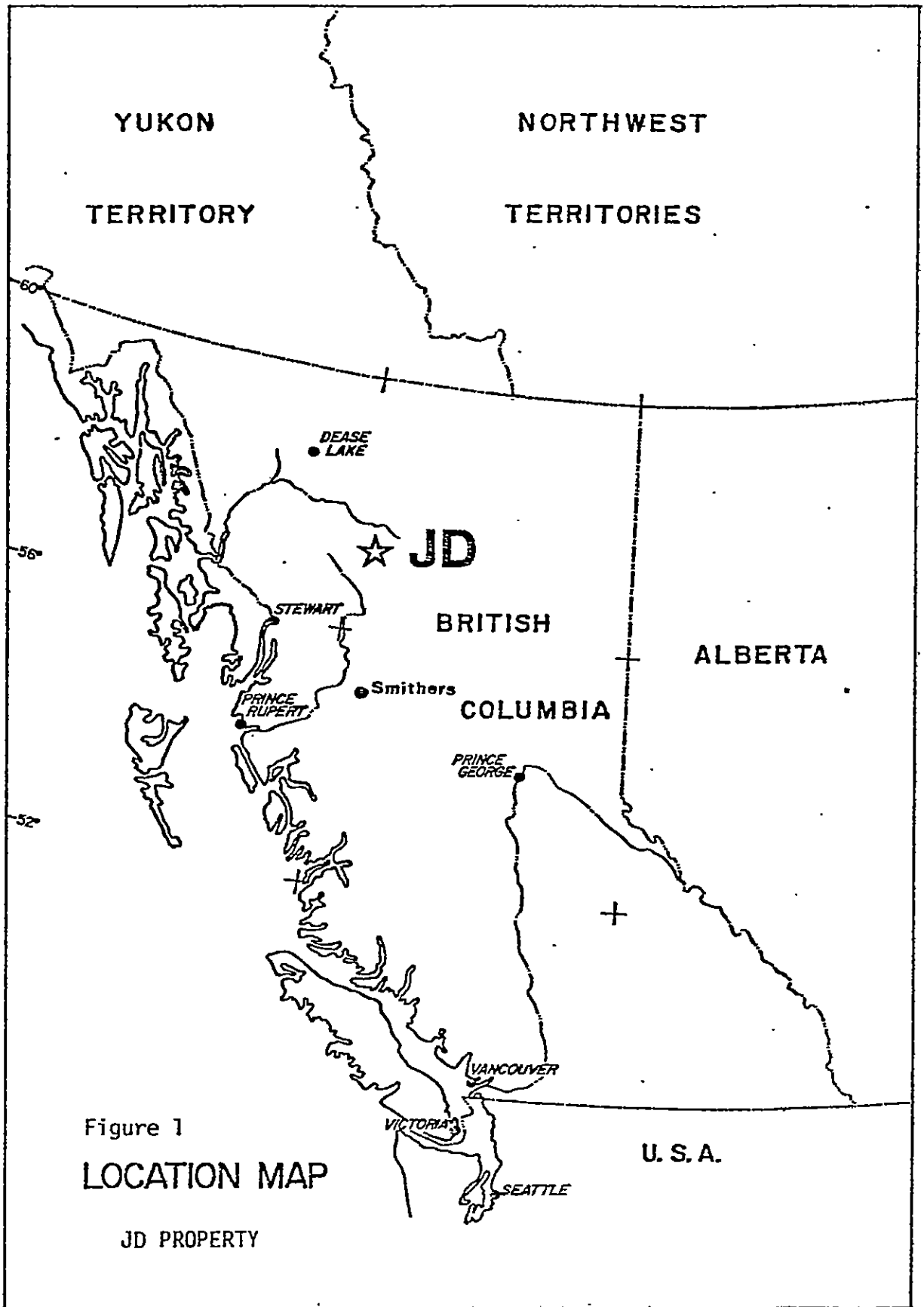
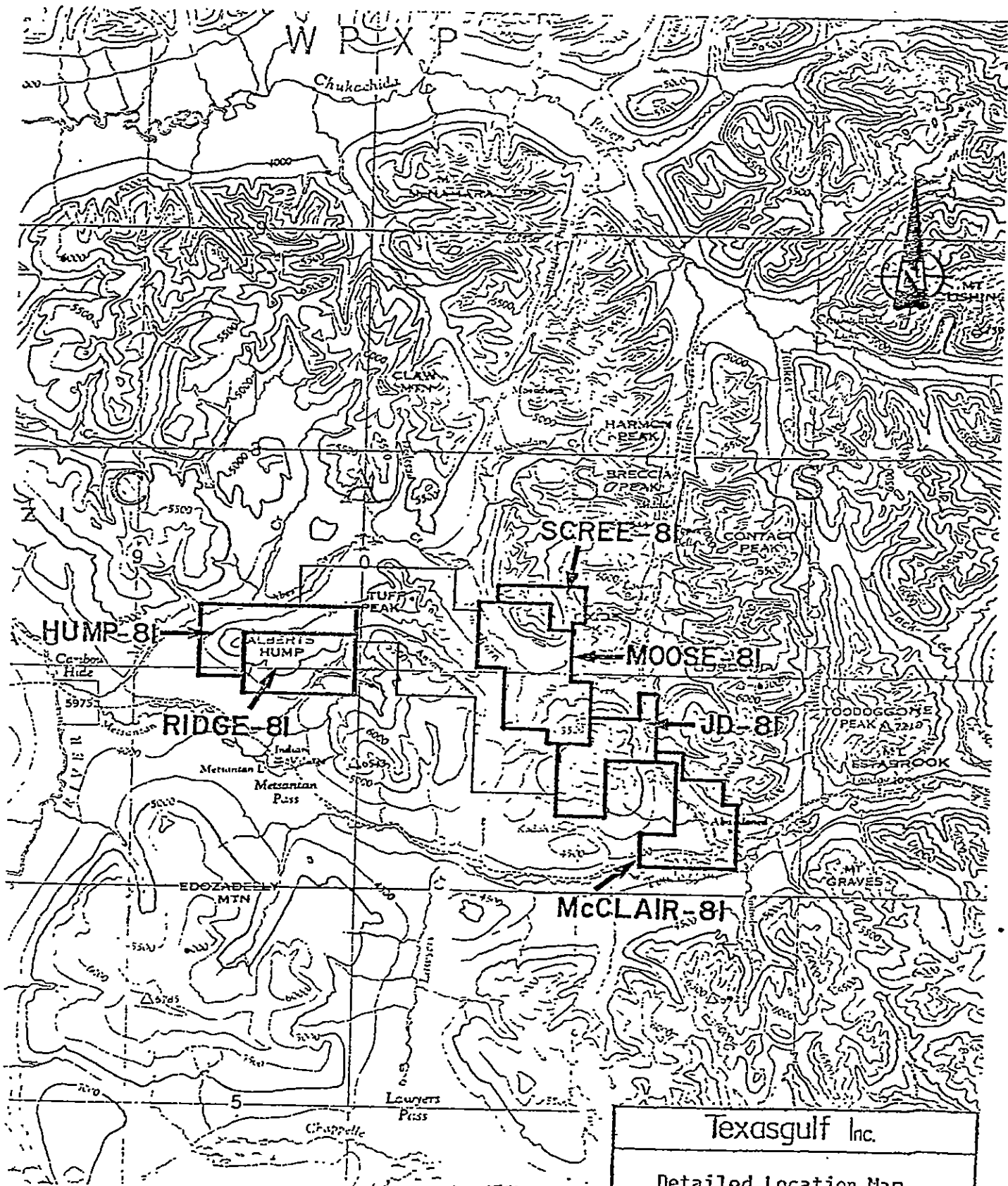


Figure 1  
LOCATION MAP

JD PROPERTY



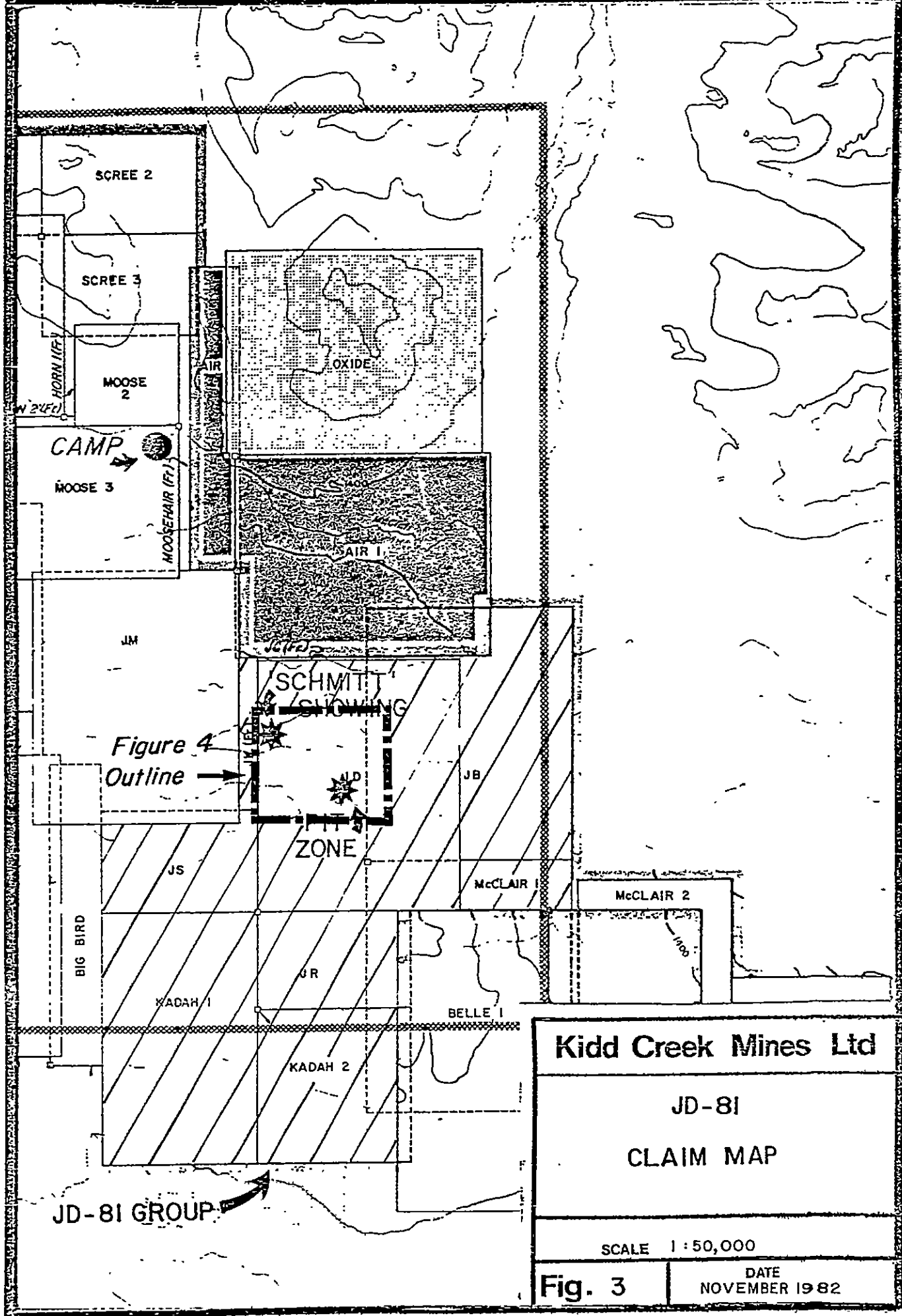
Texasgulf Inc.

Detailed Location Map  
MOOSE and JD Claims

WORK BY	DRAWN BY	DATE	CRVO NO.

Scale in Meters

Map Sheet 94E "Toodoggone River" Figure 2



**Kidd Creek Mines Ltd**

JD-81

**CLAIM MAP**

SCALE 1:50,000

**Fig. 3**

DATE  
NOVEMBER 1982

The present property area was originally staked in 1971 to cover showings discovered by Sullivan and Rodgers, consultants who were undertaking a reconnaissance program for Sumac Mines Ltd. Geochemical surveys and trenching in the area of the showings outlined two Zn, Ag and Au anomalous zones separated by a steep-sided valley. In 1974, the anomalies were tested by one 122 m BQ diamond drill hole; additional work was effectively pre-empted by the diversion of Sumac's exploration funds to the newly-found Kutcho Creek massive sulphide deposit. The claims were allowed to lapse in 1977, but were restaked the following year by Petra Gem and Energex interests, who completed some additional geochemistry and trenching which served to enlarge the area of interest. In 1980, work by Texasgulf Inc. outlined a zone of mineralized silicified breccia float with significant Au and Ag values and carried out further soil sampling. In 1981, work was done by Texasgulf Inc. on behalf of its wholly owned subsidiary Texasgulf Canada Ltd., the registered owner of the claims at the time the work was done. A recent name change has resulted in a transfer of ownership to Kidd Creek Mines Ltd. Recent work has included trenching in addition to a limited soil geochemical survey, additional geological mapping and diamond drilling (as described here).

#### Summary of Work Completed

##### Diamond drilling

During the period June 18 to July 13, 1982, a total of 16 NQ diamond drill holes, totalling 1445 m, were completed on the JD property. All 1,463 core samples were geochemically analysed for Au,



Ag, Cu, Pb and Zn and 131 samples were assayed for these same five elements.

#### Work Distribution

The work described herein was carried out entirely on the JD M.C., part of the 'JD-81' claim.

#### GEOLOGY

##### Regional Setting

The property lies near the eastern margin of a Mesozoic volcanic arc assemblage bounded on the west and south by the Sustut and Bowser basin assemblages and to the east by the Omineca Crystalline Belt. The property is underlain by a sequence known informally as "Toodoggone" volcanic rocks. Mapping was initially carried out by Gabrielse et al. from 1971-1975 with a summary by Carter (1972) of the geology as understood in 1971.

More recent mapping by Schroeter (1982) summarizes the regional geology as follows:

The Toodoggone volcanic sequence consists of a pile of complexly intercalated and varicoloured subaerial andesitic, dacitic, and trachytic tuffs, ash flow sheets, and minor epiclastic rocks that is 1000 metres or more in thickness. They are tentatively correlated with very Early Jurassic rocks of the Hazelton Group. K-Ar and Sb-Sr dates obtained from whole rock and mineral samples, including alunite from Alberts Hump (which is believed to be contemporaneous with the major pulse of epithermal mineralization), range between 179 and 190 ± Ma.

### Property Geology

The geology of the JD property was originally mapped at a scale of 1"=400' by T. Rodgers in 1972. Mapping (1:5000) by H.R. Schmitt in 1980 attempted to define in greater detail some of the differences in lithology, alteration and mineralization. Mapping, in 1981, also at a scale of 1:5000, reinterpreted the lithologies and their variations in terms of a tuffaceous subaerial volcanic environment. A comprehensive interpretation of the geology is limited by scarcity of outcrop and by the rapid changes in lithologies characteristic of these subaerial volcanics.

In summary, the claims are underlain by a thick succession of Lower to Middle Jurassic feldspar-hornblende, andesitic crystal and crystal-lapilli tuffs, tuff breccias and flows along with lesser dyke equivalents. The general lack of exposed contacts makes differentiation of these lithologies difficult. These rocks are greyish-green to orange-grey on the fresh surface and consist of up to 35% white to pink subhedral feldspar grains with less than 5% each of euhedral biotite flakes and subhedral, prismatic hornblende crystals. The crystal fragments or phenocrysts are less than 3 mm on average and are set in a grey to locally maroon, fine-grained andesitic matrix.

Tuff breccias, where recognizable, are generally of the same composition as their tuffaceous matrix and often can only be distinguished on clean, slightly weathered exposures. The general lack of such outcrops has made definition of these and other units most difficult.

## Structure

The sequence of volcanic rocks has a prominent northwest strike with shallow to moderate, east and northeast dips.

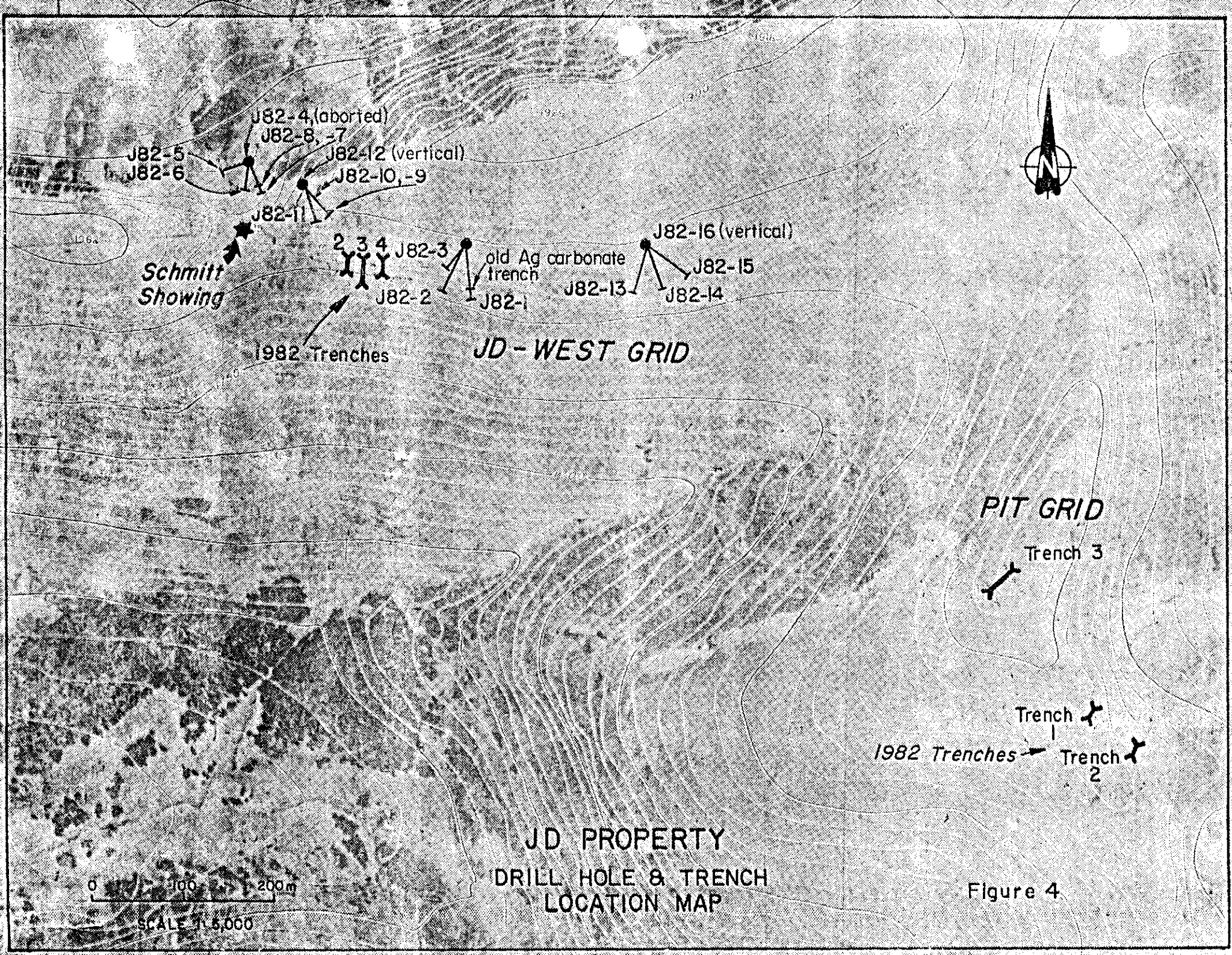
Various joint and fracture trends in the volcanic rocks reflect local and regional fault trends, especially those related to block faulting. The most prominent joint set corresponds with the main, regional structural orientations. It strikes northwest ( $125^{\circ}$  to  $140^{\circ}$ ) with moderate southwest dips of about  $60^{\circ}$ .

Two other fracture sets are recognized and reflect additional fault activity. One of these strikes at  $070^{\circ}$  to  $110^{\circ}$  dipping north at  $60^{\circ}$  to  $80^{\circ}$ . This structural trend transects much of the 'JD-West Vein' area (Figure 4) and serves to host this mineralized vein system.

The third fracture trend strikes  $350^{\circ}$  to  $020^{\circ}$  and dips west at  $45^{\circ}$  to  $80^{\circ}$ . This fracture system appears to be related to block faulting which has been important in the repeated displacements of the 'JD-West Vein' and, possibly, of the 'Pit Vein'.

## DIAMOND DRILLING

This report concerns the results of the complete 1982 diamond drilling program on the JD property. Sixteen NQ holes are considered as follows:



J82-4, (aborted)  
J82-8, -7  
J82-12 (vertical)  
J82-10, -9  
J82-11  
J82-5  
J82-6  
J82-3  
J82-2  
J82-1  
J82-13  
J82-14  
J82-15  
J82-16 (vertical)

Schmitt Showing

1982 Trenches

JD - WEST GRID

old Ag carbonate trench

PIT GRID

Trench 3

Trench 1

1982 Trenches

Trench 2

JD PROPERTY  
DRILL HOLE & TRENCH  
LOCATION MAP

0 100 200m  
SCALE 1:5,000

Figure 4

<u>D.D.H.</u>	<u>Azimuth</u>	<u>Dip</u>	<u>Length</u>
J 82- 1	175°	-60°	121.0 m
J 82- 2	210°	-60°	108.8 m
J 82- 3	220°	-75°	133.2 m
J 82- 4	250°	-60°	9.1 m
J 82- 5	250°	-75°	130.1 m
J 82- 6	190°	-60°	59.7 m
J 82- 7	160°	-60°	72.2 m
J 82- 8	160°	-70°	81.4 m
J 82- 9	135°	-60°	84.4 m
J 82-10	135°	-80°	74.1 m
J 82-11	160°	-60°	78.3 m
J 82-12	-	-90°	72.2 m
J 82-13	195°	-60°	106.1 m
J 82-14	160°	-60°	96.0 m
J 82-15	125°	-60°	108.8 m
J 82-16	-	-90°	108.8 m

All holes were drilled on 'JD' M.C.

The drill hole locations are indicated in Figure 4 with logs and geochemical analyses outlined in Appendix D. Additional assays are tabulated in Appendix C. The core is stored at the main camp on the Moose 3 M.C., a short distance north of the JD property.

All holes were drilled to test the possible down-dip extension of a mineralized structure that hosts a complexly altered and variably mineralized quartz-hematite-pyrite, 'breccia-vein' system. The holes were drilled from four separate drill pads all of which were constructed for this sole purpose.

### GEOCHEMISTRY

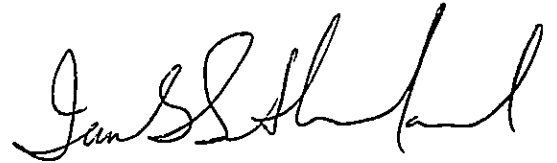
Drill core was routinely split and sampled, the standard sample interval being approximately 1.0 m. Changes in alteration and/or lithology also influenced this sample interval considerably. A total of 1,463 samples were shipped to Min-En Laboratories Ltd. in North Vancouver where they were analysed geochemically for Au, Ag, Cu, Pb and Zn. A summary of the extraction and analytical techniques for these metals follows:

<u>Element</u>	<u>Extraction</u>	<u>Analysis</u>
Ag, Pb, Zn, Cu	Nitric, perchloric digestion	Atomic Absorption
Au	Hot Aqua Regia	Atomic Absorption

In addition, 131 of these samples were assayed also for Au, Ag, Cu Pb and Zn by Min-En Laboratories.

CONCLUSIONS

The results shown in the logs and summaries of assays indicate that the structure was intersected in the majority of the holes but the nature and degree of the mineralization and associated alteration are highly unpredictable. Grades encountered for Au are clearly sub economic though Ag values were very encouraging, at least in certain sections. Further work is unlikely on this part of the mineralized system in the immediate future.



Ian G. Sutherland

APPENDIX A

Statements of Qualifications



## Statements of Qualifications

### I.G. Sutherland - Geologist

I.G. Sutherland holds a B.Sc. (Hons) Degree in Geology from the University of Western Ontario, granted in 1976. Since that time he has held several positions in Industry and Government, and has been employed by Kidd Creek Mines Ltd. in Vancouver since March 1981.

### J.R. Clark - Geologist

J.R. Clark holds a B.Sc. (Hons) Degree in Geology from McGill University, granted in 1979. He has wide exploration experience and was employed by Kidd Creek Mines Ltd. for the 1981 and 1982 field seasons. He is presently enrolled in a M.Sc. program at McGill, where his research will concern aspects of the geology of properties in this region.

### P.D. Leriche - Geologist

P.R. Leriche holds a B.Sc. Degree in Geology from McMaster University, granted in 1980. He has considerable experience in Industry and has held his present position with Kidd Creek Mines Ltd. since March 1982.

### D.W. Piroshco - Geologist

Darwin Piroshco obtained his B.Sc. degree in Geology from the University of Calgary in 1981. He joined Kidd Creek Mines Ltd. as a temporary employee in Vancouver, in May 1981, immediately after graduation.

APPENDIX B

Statement of Expenditures

Statement of Expenditures

(Diamond Drilling)

SALARIES AND FRINGE BENEFITS, KIDD CREEK MINES LTD.

I.G. Sutherland - Geologist Period: June 27-29, 1982	3 days @ \$160.00	480.00	
J.R. Clark - Geologist Period: July 11-13	3 days @ \$105.00	315.00	
P.R. Leriche - Geologist Period: June 28-July 18	21 days @ \$ 95.00	1,995.00	
D.W. Piroshco - Geologist Period: July 9-19	11 days @ \$ 85.00	935.00	
		<u>3,725.00</u>	3,725.00

ROOM AND BOARD

Kidd Creek personnel	38 days @ \$80/day	3,040.00	
D.W. Coates personnel	104 days @ \$80/day	8,320.00	
		<u>11,360.00</u>	11,360.00

HELICOPTER

ALC Hughes 500D	60 hrs @ \$492/hour (incl. fuel)		29,520.00
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DIAMOND DRILLING

D.W. Coates invoice charges for drilling, survey, core boxes, supplies and equipment, moving time, etc. applicable to the holes covered in this report. 133,478.46

Mobilization costs (40% pro-rate of \$11,915.50)	4,766.20		
	<u>138,244.66</u>		138,244.66

ANALYTICAL COSTS

1463 Au,Ag,Cu,Pb and Zn analyses @ \$12.20	17,848.60		
131 Au,Ag,Cu,Pb and Zn analyses @ \$37.50	4,912.50		
	<u>22,761.10</u>		<u>22,761.10</u>
			<u>\$205,610.76</u>

Note: A total of \$150,000 has been claimed for this work.

APPENDIX C

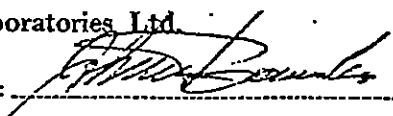
Assay Results

### Certificate of Assay

TO: Kidd Creek Mines,  
701-1281 W. Georgia St.,  
Vancouver, B.C.

PROJECT No. \_\_\_\_\_  
 DATE: Sept. 28/82.  
 File No. \_\_\_\_\_

SAMPLE No.	Cu %	Pb %	Zn %	Ag	Au
				oz/ton	oz/ton
061	.004	.01	.03	.10	.004
076	.004	.03	.05	1.78	.009
148	.009	.12	.03	.50	.100
163	.005	.01	.03	.08	.011
164	.004	.01	.03	.10	.009
165	.003	.01	.02	.09	.010
166	.047	.32	.27	.64	.368
167	.007	.01	.16	.10	.009
168	.005	.01	.10	.10	.011
169	.008	.05	.11	.11	.010
170	.092	.47	1.32	.18	.049
175	.050	.48	.40	.45	.059
176	.028	.24	.27	.33	.029
177	.046	.21	.29	1.34	.041
178	.124	.64	.60	4.25	.164
179	.101	.75	.32	2.72	.039
180	.150	1.12	.32	6.37	.048
181	.110	.72	.26	.53	.050
182	.079	.52	.14	.42	.039
183	.074	.43	.09	2.52	.094
184	.097	.53	.28	2.72	.070
185	.054	.08	.60	.78	.011
186	.003	.07	.41	.40	.084
187	.004	.20	.34	.88	.230
319	.027	.04	.05	.09	.020
320	.010	.04	.07	.16	.132
321	.040	.42	.29	.69	.056
322	.058	.52	.33	.68	.060
323	.059	.41	.20	.92	.051

MINE-EN Laboratories Ltd.  
 CERTIFIED BY: 

## MIN-EN LABORATORIES LTD.

705 WEST 15TH STREET, NORTH VANCOUVER, B.C. V7M 1T2

PHONE: (604) 980-5814 OR (604) 988-4524

## Certificate of Assay

TO: Kidd Creek Mines,  
701-1281 W. Georgia St.,  
Vancouver, B.C.

PROJECT No. \_\_\_\_\_

DATE: Oct.1/82.File No. 2-292R

SAMPLE No.	Cu %	Pb %	Zn %	Ag	Au
				oz/ton	oz/ton
418	.004	.11	.06	1.92	.001
419	.005	.09	.05	1.88	.002
420	.006	.08	.12	1.48	.001
544	.004	.06	.09	2.33	.002
546	.013	.18	.18	1.82	.009
547	.025	1.78	.09	.29	.011
600	.012	.14	.29	2.38	.003
601	.007	.16	.35	2.88	.001
602	.051	.47	.33	13.15	.010
673	.039	.76	.90	5.64	.049
747	.024	.29	.23	8.52	.002
752	.055	1.29	.11	21.15	.010
754	.005	.10	.10	3.27	.003
764	.020	.58	.23	5.83	.010
841	.025	2.10	.62	6.68	.008
915	.003	.15	.14	1.85	.002
916	.005	.22	.20	1.49	.007
921	.004	.26	.48	.62	.003
937	.012	.08	.22	2.51	.041
997	.006	.17	.12	1.32	.008
1000	.042	1.22	.19	29.50	.009
1005	.004	.02	.02	1.34	.003
1008	.006	.02	.08	1.73	.003
10	.007	.02	.05	5.12	.009
14	.005	.11	.52	.72	.002
1085	.015	.19	.23	2.26	.006
1023	.005	.16	.53	1.88	.002
1024	.038	.20	.46	10.30	.123

### Certificate of Assay

TO: Kidd Creek Mines,  
701-1281 W. Georgia St.,  
Vancouver, B.C.

PROJECT No. \_\_\_\_\_

DATE: Sept. 28/82.

File No. \_\_\_\_\_

SAMPLE No.	Cu %	Pb %	Zn %	Ag	Au	
				oz/ton	oz/ton	
1106	.030	.20	.06	3.40	.011	
08	.011	.03	.10	2.03	.010	
11	.002	.04	.11	.14	.034	
13	.004	.22	.83	.21	.010	
15	.025	.32	.30	.93	.042	
1116	.093	1.17	.82	4.52	.009	
17	.025	.30	.11	3.96	.018	
18	.034	1.22	.24	1.49	.022	
1119	.018	.42	1.22	.90	.011	
20	.014	.58	.82	.58	.007	
21	.007	.29	.73	.26	.008	
23	.033	.56	1.04	.70	.022	
24	.073	1.03	.89	.95	.020	
25	.024	1.46	1.36	1.04	.011	
1126	.041	.80	1.02	.42	.053	
27	.008	.23	.47	.31	.030	
28	.006	.14	.30	.40	.008	
29	.013	.26	.26	.40	.010	
1130	.110	.29	.26	2.99	.142	
46	.025	.12	.25	.52	.096	
86	.012	.79	.01	3.10	.010	
1197	.024	.06	.09	3.68	.009	

## Certificate of Assay

TO: Kidd Creek Mines,  
701-1281 W. Georgia St.,  
Vancouver, B.C.

PROJECT No. \_\_\_\_\_  
 DATE: Sept. 28/82.  
 File No. \_\_\_\_\_

SAMPLE No.	Cu %	Pb %	Zn %	Ag	Au	
				oz/ton	oz/ton	
1205	.023	.58	.10	.94	.196	
1223	.007	.26	1.15	.22	.004	2-404
24	.014	.13	.43	.15	.011	"
25	.003	.23	.75	.37	.001	"
26	.007	.26	.72	.24	.009	"
27	.005	.20	.87	.15	.002	"
29	.010	.37	.84	.23	.002	"
1230	.015	.25	.54	1.99	.002	
31	.019	.32	.48	1.00	.004	
32	.158	.65	1.19	11.95	.014	
33	.032	.57	.80	2.50	.011	
34	.025	.59	1.14	1.39	.010	
35	.017	.43	.46	.62	.034	
1236	.245	.09	.10	1.78	.023	
72	.004	.06	.12	.69	.002	"
73	.008	.04	.08	.74	.001	"
91	.034	.36	.05	3.20	.004	"
1293	.018	.15	.12	.90	.002	"
1305	.015	.37	.10	3.77	.009	"
06	.014	.21	.09	2.56	.001	"
1314	.004	.02	.13	1.00	.001	"

MINE-EN Laboratories Ltd.

CERTIFIED BY: \_\_\_\_\_



## Certificate of Assay

to: Kidd Creek Mines,PROJECT No. 04701-1281 W. Georgia St.,

DATE: \_\_\_\_\_

Vancouver, B.C.

File No. \_\_\_\_\_

SAMPLE No.	Cu %	Pb %	Zn %	Ag	Au	File
				oz/ton	oz/ton	No.
1347	.003	.05	.48	.19	.001	2-404
1373	.007	.08	.14	.22	.090	
74	.016	.05	.10	.55	.158	
75	.011	.09	.12	.28	.072	
76	.003	.01	.03	.09	.008	
77	.004	.04	.10	.21	.079	
1378	.007	.06	.03	.10	.050	
1382	.008	.20	.08	1.61	.001	
83	.005	.04	.21	.28	.001	
84	.008	.04	.14	2.03	.001	
85	.008	.01	.06	1.70	.001	
86	.009	.01	.04	1.87	.001	
87	.009	.01	.09	1.70	.001	
88	.008	.07	.06	2.66	.001	
89	.007	.06	.06	2.58	.001	
90	.005	.02	.09	1.78	.001	
91	.004	.01	.10	.36	.001	
1392	.004	.02	.09	1.71	.001	
1397	.005	.05	.10	1.33	.001	2-431
1427	.004	.01	.45	.03	.001	
35	.012	.31	.11	2.79	.002	
36	.023	.11	.09	2.80	.032	
1455	.003	.07	.01	1.23	.020	
56	.007	.08	.06	.80	.018	
57	.030	.27	.27	.51	.018	
1458	.012	.23	.11	4.62	.008	
1461	.101	1.45	1.90	1.24	.040	
1462	.012	.06	.18	.12	.012	
1463	.025	.08	.32	.13	.027	
60	.006	.30	.85	.47	.003	
1467	.050	.19	.31	.16	.026	