

6492

REPORT ON DIAMOND DRILLING

IN COPPER PROSPECT

Lat. $56^{\circ}15'N$

Long. $127^{\circ}20'W$

NTS 94D/3

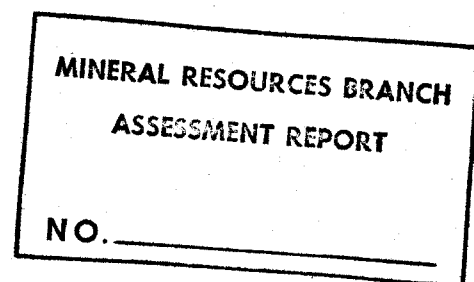
Mining Division: Omineca

Bear Lake Area, Central, BC.

Work was done: July 31 - August 14, 1977.

October 13, 1977

D. A. Silversides



SUMMARY STATEMENT

A program of diamond drilling was carried out by Cities Service Minerals Corporation on the IN Copper Prospect (see fig. 1 for location) during July 31-August 14, 1977. A total of 1433 feet of BQ wireline (1-7/16" core diameter) diamond drilling was done under contract by J. T. Thomas Drilling Ltd.

Two holes were drilled from the same setup, at an elevation of 2975' on mineral claim IN #4:

- D.D.H. IN -77-1 - drilled at -90°, 887' length.
- D.D.H. IN -77-2 - drilled at -50°, N000N, 546' length.

The project was helicopter supported.

This report contains the statement of costs (Appendix 1) of the program which are applied to the assessment requirements for the properties' claims (figure 2, table 1), the location of drill holes (figure 3) and the supporting drill-core logs (appendix 11).

Diamond drill-core has been stored on the property, at the location of the camp (see figure 3).

Direct drill costs amounted to \$24,126.50 (see supporting statement from J. T. Thomas Diamond Drilling Ltd.) Mobilization and de-mobilization costs by using Okanagan Helicopters amounted to \$15,846.61 (see supporting statements). Total cost was \$39,973.11. A total of \$8,000 of this amount has been applied to one year of assessment requirements on the IN claims as follows:

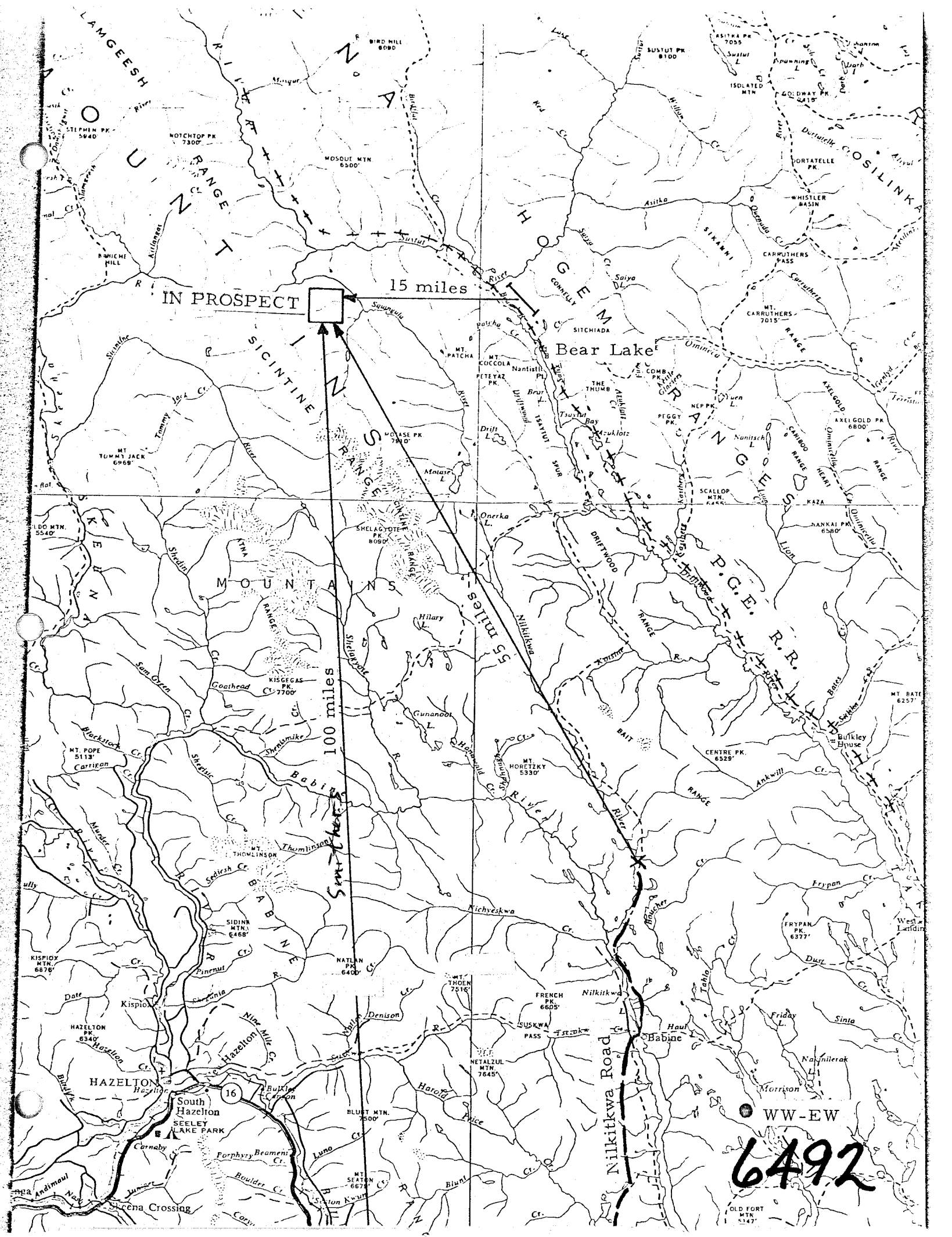
TABLE 1
CLAIMS AND RECORD NUMBERS

<u>CLAIM</u>		<u>RECORD NUMBER</u>
CON - 28	↑ Aug. 11, 1972 ↓	114453
29		114454
30		114455
31		114456
32		114457

<u>CLAIM</u>		<u>RECORD NUMBER</u>
IN - 1		104742
2		104743
3 fraction		104744
4		104745
5		104746
6 fraction		104747
7		104748
8		104749
9 fraction		104750
10		104751
11	Recorded Sept. 20/71	104752
12		104753
13		104754
14 fraction		104755
15		104756
16		104757
17 fraction		104758
18		104759
19		104760
20 fraction		104761
21		104762
22		104763
23		104764
24		104765
25 fraction		104766
26		104767
27		104768
28 fraction		104769
29		104770
30		104771
62		114295
63	Recorded Aug. 8, 1972	114296
64		114297
65 fraction		114298
66 fraction		114299

all of which are situated approximately one mile southwest of the confluence of Jake Creek and the Squingula River in the Ominica Mining Division, Province of British Columbia.

J. A. Silversides



IN PROSPECT

15 miles

Bear Lake

100 miles

55 miles

HAZELTON

South Hazelton
SEELEY LAKE PARK

Nilkitwa Road

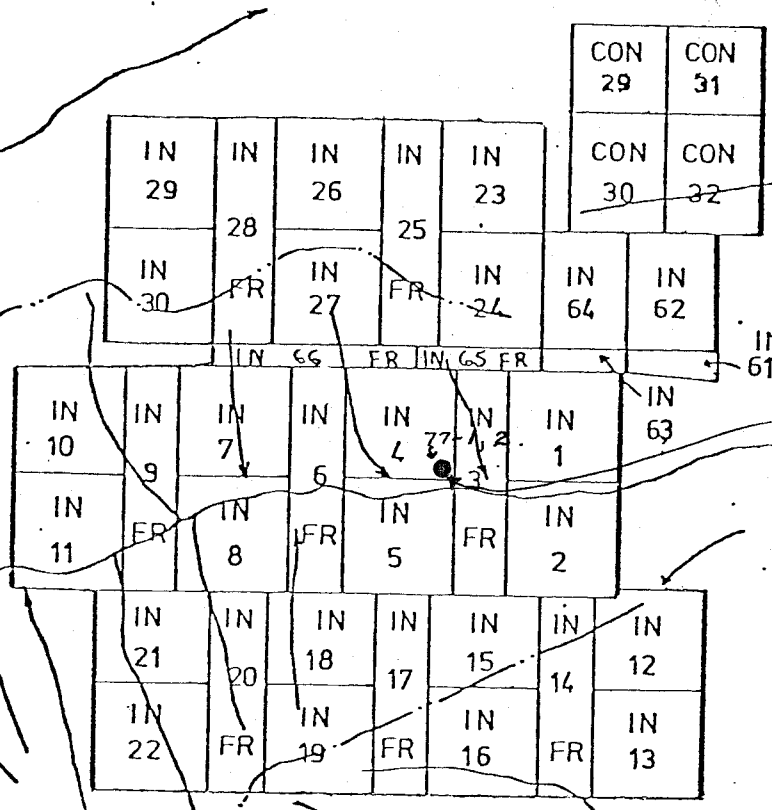
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WW-EW

OLD FORT MTN 5147'



SQUINGULA RIVER



Drill-holes - 1977.

Note: sufficient work credits and rental have been applied to maintain all claims in good standing to at least 1983

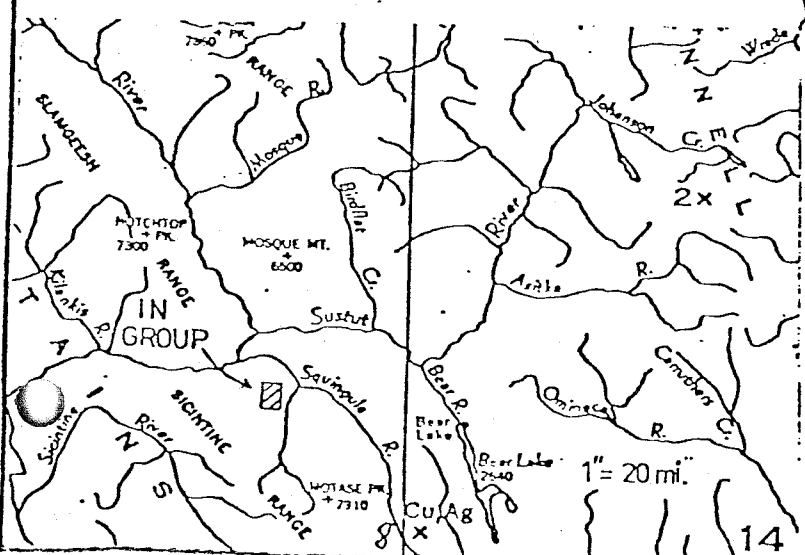
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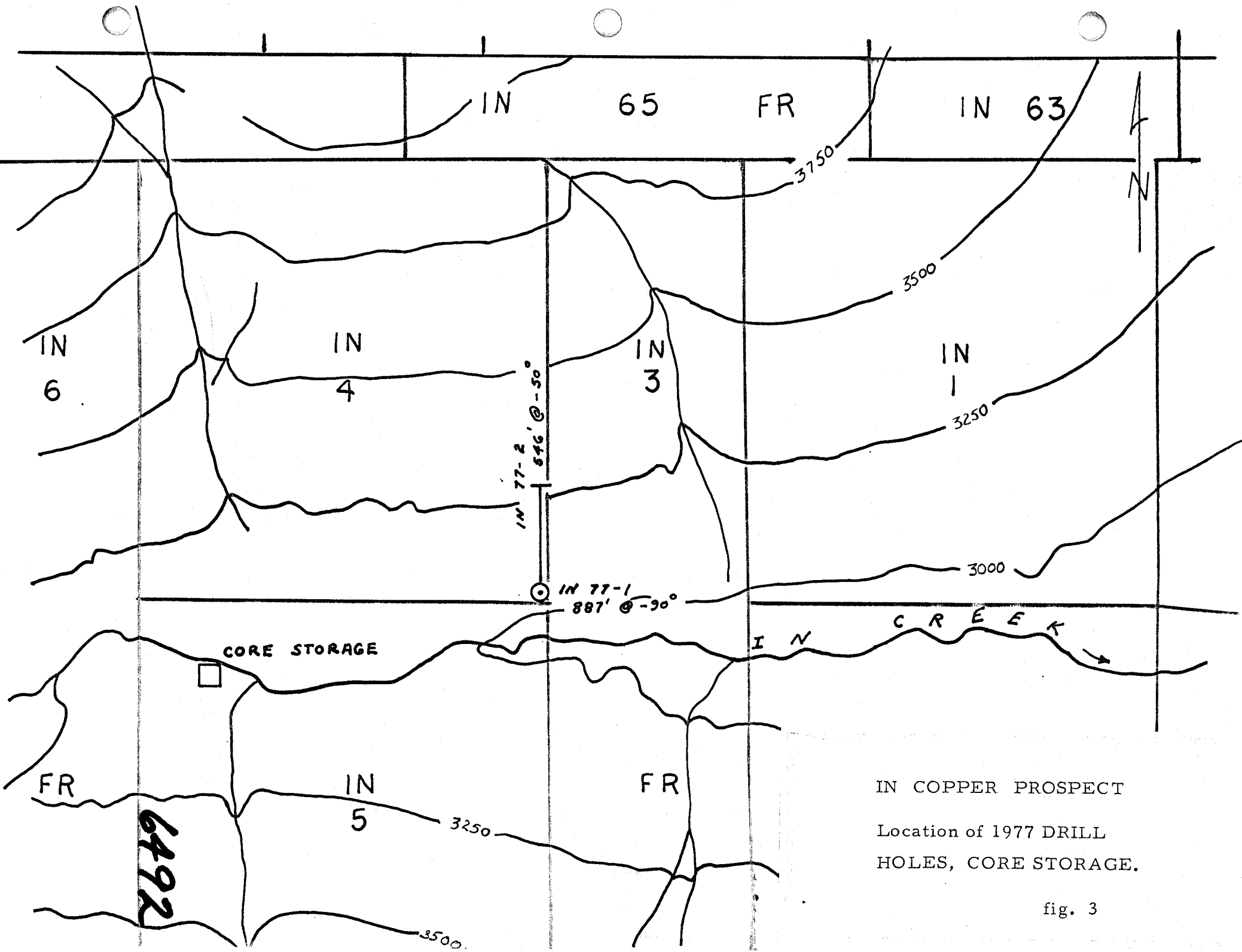
CANADIAN SUPERIOR EXPLORATION LIMITED
SMITHERS REGIONAL OFFICE

IN GROUP
NTS 94 D13 W

Fig 2.

DRAUGHTSMAN J.B. SCALE 1" = 1/2 mi. DATE Oct. /77.





IN COPPER PROSPECT
 Location of 1977 DRILL
 HOLES, CORE STORAGE.

fig. 3

APPENDIX 1

STATEMENT OF COSTS - IN PROSPECT

J.T. THOMAS DIAMOND DRILLING LTD.

P.O. Box 394, Smithers, B.C.

Invoice No. 77-1

Property Bear Lake - IN

Size EQ

To: Cities Service Minerals Corporation
405 - 1200 West Pender Street
Vancouver, B. C. V6E 2S9

August 16, 1977

This invoice is for diamond drilling and other services on the above property per contract.

Hole No.	Date		Overburden		Coring		Total Footage	Rate	Amount		
	From	To	From	To	From	To					
1	Aug 01	- 03	0	-	37		37	\$11.00	\$ 407.00		
						37	-	500	463	13.00	6,019.00
2	03	- 05	0	-	20	500	-	887	367	14.00	5,418.00
						20	-	500	480	13.00	6,240.00
						500	-	546	46	14.00	644.00

Mobilization: 1,400.00

Demobilization: -

Moving Costs: 229 hours @ \$12.50 2,862.50

Mud Costs: 6 bags Quick Gel @ \$5.75 34.50

1 bag Calseal @ \$35.00 35.00

Cementing Costs: 1 bag Portland @ \$8.50 8.50

Tractor Rentals: 1 hour @ \$20.00 20.00

Core Box: 100 @ \$3.00 300.00

Testing Hole: #1 and #2 48.00

Casing and Shoes Left in Hole: #1 17 feet plus 1 shoe 188.00

Camp Provision: Offset by provision of cook by Cities Service -

Downtime: -

Flytime: Included in moving -

Other: - Plank floor and roof 40.00

- 1 BQ rod used for anchor 42.00

Invoice Total - Transportation of aviation fuel to road end 200.00

The above calculations are agreed to by: \$24,126.50

C S MINERALS CORPORATION		POST PAID	
VANCOUVER		DATE REC.	
CANADIAN \$		8/19/77	
CO. NO.	DEL. DATE	CL. & APPR.	CC
246-34	9/2/77		

581F-K Drilling

D. A. Silverides
Company Representative

Jean Thomas
J.T. Thomas Diamond Drilling Ltd



OKANAGAN HELICOPTERS LTD.
 HEAD OFFICE:
 4291 AGAR DRIVE, INTERNATIONAL AIRPORT SOUTH
 VANCOUVER, B.C. V7B 1A5
 TEL. (604) 278-5502 TELEX: 04-508883

ACCOUNT NUMBER		10710		20543	
FLIGHT DATE	DAY	MONTH	YEAR	INVOICE DATE	TYPE OF
	7	07	77	AUG 04 1977	
BASE NO.	BASE	AIRCRAFT TYPE	CONTRACT NUMBER	FLIGHT LOCATION	FLIGHT LO NUMB
702		H-1205	0902	Smithers	05
CITIES SERVICE MINERALS CORP.			TYPE OF CONTRACT	PILOT 1	PILOT 2
7445 1200 W. Kender			X	McDonagh	046
Vancouver B.C. V6E 2S9			30 DAYS OR MORE		
			PILOT 1	PILOT 2	
			03	Ed K. Nelson	745
			ENG. NAME 1		
			Miyazaki		
			ENG. NAME 2		

CHARTERER'S BILLING ADDRESS

INVOICE

OPERATION				TAKE-OFF	LAND	FLYING T
Smithers - Hazelton				0710	0745	
Hazelton - Smithers				0830	2025	4
C S MINERALS CORPORATION				DIS. APPR. <i>[Signature]</i>		
VANCOUVER CANADIAN \$				DATE REL. 8/05/77		
581F-14-D/Keller						
CO-DIV. 246-34				DUE DATE	CUMM. CODE	MC
9/6/77						
PRINT NAME OF PERSON AUTHORIZED TO SIGN				REV. HRS.	TOTAL HOURS	
				10.5	10	
EXTRA CHARGES OR ADJUSTMENTS				TARIFF	AMOUNT	
				700.00	7350	
NOT PAID WITHIN 30 DAYS.				OUR FUEL	GALS. @	
				157	95	142
				OUR FUEL	GALS. @	
				1		
THE CARRIAGE OF PASSENGERS, BAGGAGE AND GOODS BY OKANAGAN HELICOPTERS LTD. IS SUBJECT TO THE TERMS, CONDITIONS AND LIMITATIONS OF LIABILITY SET FORTH IN ITS TARIFFS. LIABILITY FOR LOSS OR DAMAGE TO GOODS IS LIMITED TO 50 CENTS PER POUND. FILED WITH THE ATC AN EXTRACT OF WHICH IS AVAILABLE FOR EXAMINATION AT THE OFFICE OF OKANAGAN HELICOPTERS LTD.				OUR OIL	HRS. @	
				0.5	1.25	13
SIGNED FOR CHARTERER BY				EXTRA CHARGES OR ADJUSTMENTS		
<i>N.A. Silverside</i>				TOTAL \$ 7505		
SIGNED FOR CARRIER BY				<i>[Signature]</i>		



KANAGAN HELICOPTERS LTD.
 HEAD OFFICE:
 11 AGAR DRIVE, INTERNATIONAL AIRPORT SOUTH
 VANCOUVER, B.C. V7B 1A5
 TEL. (604) 278-5502 TELEX: 04-508883

ACCOUNT NUMBER **10710 206913**

FLIGHT DATE **150877** DAY **08** TH **77** YEAR **77** INVOICE DATE **77** TYPE OF FLYING

BASE NO. **902** BASE **VANCOUVER** AIRCRAFT TYPE **BELL 205A-1** CONTRACT NUMBER **0902** FLIGHT LOCATION **SMITHERS** FLIGHT LOCATION NUMBER **054**

TYPE OF CONTRACT **X** PILOT 1 **F NELSON** PILOT 1 NO. **7484**
 CITIES SERVICE MINERALS COOP.
 SUITE 405 1700 W KENDER
 VANCOUVER B.C.
 V6E 2S9
 PILOT 2 **03 GOKQ** PILOT 2 NO.

ENG. NAME 1 **BRIAN MINAZINI** ENG. NAME 2
 PURCHASE ORDER NO. NO. OF PASSENGERS FREIGHT LBS.

OPERATION	DISC. MIN.	TAKE-OFF	LAND	FLYING TIME
SMITHERS → CAMP (PASS 4 DRUMS DRILLING)		68/9/77		12
CAMP → DRILL → ROAD (SLING LOAD) → SET DOWN				5
ROAD → DRILL → ROAD (SLING LOAD) (REFUEL)	246.34	9/18/77		12
ROAD → DRILL → ROAD (SLING LOAD) (REFUEL)			10.54	11
PUMP ON TRUCK → DRILL (NET LOAD) → CAMP			11.8	6
CAMP → ROAD INT LOAD 4 PASS SLING LOAD			13.2	9

PRINT NAME OF PERSON AUTHORIZED TO SIGN **SMITHERS** 13.5 140 5

EXTRA CHARGES OR ADJUSTMENTS	AMOUNT	NON-REV. HRS.	REV. HRS.	TOTAL HOURS	TARIFF AMOUNT
OUR TERMS ARE DUE & PAYABLE WITHIN 30 DAYS FROM DATE OF DEPARTURE			63	63	
INTEREST OF 1% PER MONTH ON UNPAID BALANCE IF NOT PAID WITHIN 30 DAYS.					700 - 4410.00
OUR FUEL			9.5		4425.7
OUR FUEL					
OUR OIL			12.5		788
EXTRA CHARGES OR ADJUSTMENTS					

SIGNED FOR CHARTERER BY **A. Silverman** SIGNED FOR CARRIER BY **J. S. [Signature]**
 TOTAL \$ **4866.75**

CHARTERER BILLING ADDRESS

INVOICE

THIS CARRIAGE OF PASSENGERS, BAGGAGE AND GOODS BY KANAGAN HELICOPTERS LTD. IS SUBJECT TO THE TERMS, CONDITIONS AND LIMITATIONS OF LIABILITY SET FORTH IN ITS TARIFFS. LIABILITY FOR LOSS OR DAMAGE TO GOODS IS LIMITED TO INDEMNIFY THE CARRIER TO THE EXTENT OF THE CARRIER'S LIABILITY FOR EXAMINATION AT THE OFFICE OF KANAGAN HELICOPTERS LTD.



ORCANACAN HELICOPTERS LTD.
 HEAD OFFICE:
 AGAR DRIVE, INTERNATIONAL AIRPORT SOUTH
 COUVER, B.C. V7B 1A5
 TEL. (604) 278-5502 - TELEX: 04-508883

ACCOUNT NUMBER		10710		245972	
FLIGHT DATE	DAY	M	YEAR	INVOICE DATE	TYPE OF FLYING
140877					
BASE NO.	BASE	AIRCRAFT TYPE	CONTRACT NUMBER	FLIGHT LOCATION	FLIGHT LOCATION NUMBER
902	VANCOUVER	BELL 305A-1	0902	SMITHERS	054
TYPE OF CONTRACT		X	PILOT 1		PILOT 1 NO.
HOLLY		DAILY MINIMUM 1 TO 29 DAYS	30 DAYS OR MORE	F. NELSON	7484
IND. CLASS. NO.	AIRCRAFT CALL SIGN	PILOT 2		PILOT 2 NO.	
	03GOKQ				
PURCHASE ORDER NO.		NO. OF PASSENGERS		FREIGHT LBS.	
ENG. NAME 1		BRIAN MINAZAK		0968	
ENG. NAME 2					

ADDRESS

CITIES SERVICE MINERALS COOP
 SUITE 405 1800 W FENDER
 VANCOUVER B.C. V6E 2S9

OPERATION	TAKE-OFF	LAND	FLYING TIME
SMITHERS → ROAD 4 DRUMS FUEL 2 Pass →	CORPC CANADIAN		11
ROAD → (SLING LOAD → ROAD (RESUEL)	VANCOUVER	DATE REC.	7
ROAD → ROAD → ROAD (SLING LOAD) (RESUEL)	CANADIAN S	8/19/77	13
ROAD → ROAD	CO. DIV.	9/18/77	4
ROAD → ROAD INTERNAL LOAD 2 Pass f 1200#	240-30		5
ROAD → SMITHERS INTERNAL LOAD 2 Pass	FC		5

PRINT NAME OF PERSON AUTHORIZED TO SIGN: 581F-14 Drilling

EXTRA CHARGES OR ADJUSTMENTS	AMOUNT	NON REV. HRS.	REV. HRS.	TOTAL HOURS	AMOUNT
OUR TERMS ARE DUE & PAYABLE WITHIN 30 DAYS FROM DATE OF INVOICE. INTEREST OF 12% PER MONTH APPL. IF NOT PAID WITHIN 30 DAYS.			4.5	700.00	3150.00
TARIFF ZONE CODE		CUST. SUP. FUEL HRS.	OUR FUEL GALS. @	95	32063
			OUR FUEL GALS. @		
			OUR OIL 4.5 HRS. @	125	562
			EXTRA CHARGES OR ADJUSTMENTS		
			TOTAL	\$	3476.24

THE CARRIER OR PASSENGERS, BAGGAGE AND GOODS ON AN ORCANACAN HELICOPTER IS SUBJECT TO THE TERMS, CONDITIONS AND LIMITATIONS OF LIABILITY SET FORTH IN ITS TARIFFS. LIABILITY FOR LOSS OR DAMAGE TO GOODS IS LIMITED TO 100 CENTS PER POUND OR LESS, WHICHEVER IS AN EXTRACT OF WHICH IS AVAILABLE FOR EXAMINATION AT THE OFFICE OF ORCANACAN HELICOPTERS LTD.

SIGNED FOR CHARTERER BY: D.A. Silverman

SIGNED FOR CARRIER BY: J. S. [Signature]

APPENDIX 11

DIAMOND DRILL CORE LOGS

IN 77-1

IN 77-2

D.D.H. IN 77 - 1

DIAMOND DRILL CORE LOG

IN

Company Cities Service Minerals Corp. Project _____ Bearing _____ Sheet 1 of 8 Hole No. 77-
 Mining _____ Property IN Incline -90° Coordinates _____
 Division Omineca - 9AD 3/W. Started Aug 1, 1977 _____ 85,790.0 N
 Geographic _____ Completed Aug 3, 1977 _____ 139,760.0 E.
 Coordinates _____ Logged by: D.A. Silversides Depth 887' Altitude 3025'

Footage	Core Rec	% Cu	% Mo	Oz. Ag/Ton	REMARKS
113'-6" - 119'					- Breccia 0'-38' - casing in overburden - weathered bedrock, no core.
135'-6" - 145'					- Breccia
145' - 155'					- Breccia 38'-64' - plagioclase porphyry, pale green, medium-grained, vague crystal boundaries to phenocrysts, ragged muscovite phenocrysts (after biotite?), trace of diss. pyrite, rare, red hematite flakes. Fibres of cpy in thin py-hem-qtz veinlets, hairline to 1/8", spacing 6"-1". Spec. @ 49'.
205'-6" - 210'					- Breccia
447' - 457'					} Plagioclase porphyry, qtz-py-epy stockworks.
457' - 467'					
467' - 477'					} plagioclase porphyry - silt stone, qtz vein stockworks.
477' - 487'					
487' - 497'	100		N.A.		64'-67' - plagioclase porphyry, pale green, medium-grained, feldspars have sharp crystal outline, are altered to white clay. No pyrite or cpy. Spec. @ 65'.
497' - 507'					} plagioclase porphyry - silt stone, qtz vein stockworks.
531' - 547'					
547' - 557'					67'-77' - plagioclase porphyry, pale green, sensitized, vague phenocryst outline. Spec. @ 73'.
557' - 567'					} plagioclase porphyry - silt stone, qtz vein stockworks.
743' - 753'					
753' - 763'					77'-83' - plagioclase porphyry, pale green, clay alteration of plagioclase phenocrysts. Spec. @ 79'.
763' - 773'					} plagioclase porphyry - silt stone, qtz vein stockworks.
773' - 778'					
					83'-96' - plagioclase porphyry, alternating from sensitized to clay altered, vague to sharp crystal outlines, in core lengths of 12"-3'.
					96'-103'-6" - biotite plagioclase porphyry, medium grained, relatively unaltered, dark green biotite books, white plagioclase phenocrysts, light red-brown aphanitic matrix. Fades to sensitized plagioclase porphyry.

IN

Company _____ Project _____ Bearing _____ Sheet 2 of 8 Hole No. 77-
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec					REMARKS
							with vague crystal outlines by 103'-6", biotite becomes chloritized by 100'. ∴ sericitized plagioclase porphyry and clay altered porphyry are altered equivalents of biotite-plagioclase porphyry. Spec @ 97', 102'.
							103'-6" - 111'-6" - plagioclase porphyry, sericitized, vague crystal outlines.
							111'-6" - 112'-6" - breccia - pervasively sericitized, crushed porphyry, with porphyry fragments to 1", set in dark grey matrix, 3-8% disseminated pyrite, trace of cpy. lower contact sharp, at 30' to core axis.
							112'-6" - 118'-6" - plagioclase porphyry, sericitized.
							113'-6" - 119' - breccia, same as above, but contains considerably more quartz - pyrite - chalcopyrite veinlets, some veinlets show displacement. Spec. @ 114'.
							119' - 135'-6" - plagioclase porphyry, grey-brown color, stal grey hematite flakes (after biotite?) - Spec - 126
							135'-6" - 155' - Breccia, same as above, contains some bleached argillite fragments. @ 140', 1/2" pyrite vein.

Company _____ Project _____ Bearing _____ Sheet 3 of 8 Hole No. 77-1
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec					REMARKS
							@ 141' - 3" quartz-calcite vein @ 10° to core axis
							@ 151' - 5" fragment of bleached siltstone.
							Breccia contact at 155' marked by 1/2" gouge seam at 30° to core axis. Spec. @ 140', 141', 152'.
							155'-205'-6" - plagioclase porphyry, alternating sericitization to clay alteration, wavy to sharp phenocryst outlines, cut by qtz-pyrite- cpy veinlets spaced 3' apart on average.
							@ 166' - 1/4" pyrite-qtz-calcite vein 10° to core axis
							@ 170' - 1/2" pyrite-qtz-calcite vein 10° to core axis
							@ 180'-6" , gouge for 6", pyrite-galena cubes in gouge, with rock from 176'-181'6" strongly sericitized, 5% disseminated pyrite.
							@ 193'-195' - trace of biotite left. Spec. @ 168', 175', 178', 194'.
							205'-6"-210' - breccia - same as above, contact at 205'-6" is @ 45° to core axis, contact at 210' is at 10° to core axis. Spec. @ 208'.
							210'-213' - plagioclase porphyry, sericitized.
							213'-214'-6" - breccia - same as above, contact at 213' @ 30° to core axis, contact at 214'-6" at 10° to core axis.

Company _____ Project _____ Bearing _____ Sheet 4 of 8 Hole No. 77-1
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec						REMARKS
								214'-6" - 219' - plagioclase porphyry, sericitized, grading into biotite-plagioclase porphyry.
								219' - 264' - biotite-plagioclase porphyry, contains disseminated hematite after biotite from 219' - 226', relatively unaltered to 264', grading into clay alteration at 264'. Spec. @ 242', 263'.
								264' - 273' - plagioclase porphyry, strong clay alteration of plagioclase phenocrysts? Spec. @ 267'.
								273' - 295' - biotite-plagioclase porphyry, with patchy clay-sericite alteration in intervals of 6" to 2'. Pyrite-hematite-cpy-quartz veinlets at 4' spacing. Spec @ 298'.
								295' - 300'-6" - plagioclase porphyry, sericitized, disseminated hematite flakes. Spec @ 298'
								300'-6" - 309' - biotite-plagioclase porphyry Spec. @ 309
								309' - 316' - plagioclase porphyry, strongly sericitized, 5% disseminated and veinlet pyrite, trace of cpy.
								316' - 422' - biotite-plagioclase porphyry, patchy sericite and clay alteration, quartz-pyrite-cpy veinlets 1-3' spacing. At 408', hematite flakes after biotite, Spec. @ 361', 380', 393', 419'

Company _____ Project _____ Bearing _____ Sheet 5 of 8 Hole No. 77-1
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec					REMARKS
							sericitization increases, rock devoid of biotite by 422'.
							422'-428' - plagioclase porphyry, strongly sericitized.
							428'-433'-6" - breccia, same as above, 3-5% disseminated pyrite, minor quartz - pyrite - chalcocopyrite veinlets. Spec. @ 430'
							433'-6"-447' - plagioclase porphyry, sericitized.
							447'-507' - plagioclase porphyry, strong, pervasive sericitization, pale cream overall color, porphyry cut by quartz vein stockworks, veinlets have trace py, spy, and at all angles, vary from hairline to 1/2", and are spaced 1/2" apart. @ 470' - 2" gouge at 45° to core axis @ 475' - 1/4" pyrite - chalcocopyrite seam. @ 489' - 6" of pale cream, bleached siltstone. @ 493' - 1" of pyrite at 20° to core axis. 499'-501'-6" - pyrite gouge, seams at 20° to core axis. Qtz vein spacing decreases at 500' to 1-3" apart, by 507', 2-3' spacing Spec. @ 476, 495, 497,
							507'-525' - plagioclase porphyry, pale cream color, sericitized, no sulphides, cut by irregular grey qtz veinlets Spec. @ 524', 525

Sheet 5 of 8

Company _____ Project _____ Bearing _____ Sheet 6 of 8 Hole No. 77-1
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec	REMARKS						
									525'-541' - plagioclase porphyry, medium green, patchy pervasive sericitization with 2-3% pyrite. Spec. @ 530', 531'.
									541'-549'-6" - plagioclase porphyry, cut by quartz vein stockworks with minor pyrite & cpy, similar to above stockworks. Spec. 543'
									549'-6"-561' - siltstone, sericitized to a salmon color, cut by quartz vein stockworks, veins at 1/2" spacing, 2-3% pyrite, trace of cpy.
									561'-567' - plagioclase porphyry, cut by quartz vein stockworks similar to above, sericite decrease to nil by 567', flakes of hematite after biotite appear.
									567'-589' - plagioclase porphyry, sericitized, abundant flakes of hematite. @ 574', 1/4" hematite vein at 45° to core axis. By 584', rock contains unaltered primary biotite, no sulphides, and minor hematite. Spec. @ 574', 579'
									589'-670' - biotite-plagioclase porphyry, cut by quartz-pyrite-cpy veinlets spaced 3-5' apart, 2"-6" sericite envelopes around veinlets. Spec. @ 594', 607', 628', 637', 651', 670'.

Company _____ Project _____ Bearing _____ Sheet 7 of 8 Hole No. 77-1
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec					REMARKS
							670'-743' - plagioclase porphyry, sericitized, rare biotite phenocrysts. Spec. @ 678', 696', 713', 737'
							743'-750' - siltstone, sericitized, cut by qtz vein stockworks, trace of pyrite, chalcopyrite. Contact at 743' sharp, 20° to core axis, pyrite content ≈ 3%. @ 746, 6" dyke of sericitized plagioclase porphyry Spec. @ 749'.
							750'-765' - plagioclase porphyry, sericitized, cut by quartz vein stockworks, trace cpy, ≈ 3% pyrite. Spec. @ 758'.
							765'-769' - siltstone, sericitized, cut by quartz vein stockworks same as above.
							769'-778' - plagioclase porphyry, sericitized, cut by quartz vein stockworks similar to above. Stockworks faded by 778', pyrite content decreases to < 1/2%.
							778' - 850' - siltstone, sericitized, cut by quartz vein stockworks same as above. Sharp contact at 850' at 30° to core axis. Spec @ 788', 814', 831', 846'
							850'-879' - biotite-plagioclase porphyry, cut by quartz vein stocks decreasing to nil by 879'. Spec. @ 858'.

Company _____ Project _____ Bearing _____ Sheet 8 of 8 Hole No. 77-1 ^{IN}
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Shotage	Core Rec	Rec					REMARKS
							879'-887' - biotite-feldspar porphyry, medium-grained, light red-brown color, unaltered. Spec. @ 887'.
							END OF HOLE - 887'
							ALL RUNS WERE - 10'
							CORE RECOVERY - 100%
							ACID TEST AT 880' = - 90°
							<p><u>GENERAL IMPRESSION</u>: all porphyry was the same in primary texture and color - medium-grained, light grey-red biotite-plagioclase porphyry. Varying intensities of alteration, from pale to medium-green sericitization, to chalky white clay alteration of plagioclase phenos.</p> <ul style="list-style-type: none"> - porphyries are dykes with very steep dips (-70° to vertical to the north). - top section contains breccia dykes, these are composed of quartz veined porphyry, and siltstone fragments, best copper mineralization present in breccia. - quartz vein stockworks associated with porphyry - siltstone contact.

D. D. H. 77-2

DIAMOND DRILL CORE LOG

Company CITIES SERVICE MINERALS CORP Project _____ Bearing N 00° N Sheet 1 of 5 Hole No. 77-
 Mining _____ Property IN Inclination - 50° at Coordinates _____
 Division Omineca - 94 D 3/W Started August 3, 1977 collar, - 44° at 546' 85,790.0 N
 Geographic _____ Completed August 5, 1977 _____ 139,760.0 E
 Coordinates _____ Logged by: D.A. SILVERSIDES Depth 546' Altitude 3025'

Footage	Core Rec	% Cu	% Mo	Oz Ag/Ton	REMARKS
36' - 40'					0 - 21' - casing set in overburden, weathered bedrock, no core.
40' - 50'					21' - 35'-6" - plagioclase porphyry, moderate sericitization, patchy clay alteration. Abundant FeOx on fractures, quartz-pyrite - cpy veinlets spaced 3' apart. Spec @ 35', 24'
50' - 60'					
60' - 70'					
70' - 80'					
80' - 90'					35'-6" - 60' - plagioclase porphyry, pervasively sericitized, cut by quartz veinlet stockworks. Trace amounts of Molybdenite, cpy in veinlets and disseminations, pyrite 3-4% in veinlets and disseminations. Veinlets spaced 1/2" apart, from hairline to 1/2" thick. Some red hematite veinlets with cpy. Spec. @ 42', 50', 57'
90' - 100'					
100' - 110'					
110' - 120'					
120' - 130'					60' - 69' - biotite-plagioclase porphyry, dark grey, medium grained, with very fine-grained hydrothermal biotite in matrix, cut by quartz vein stockworks, pyrite, cpy in veins and disseminated in matrix. Spec @ 66'
130' - 140'					
140' - 150'					
150' - 160'					
160' - 166'					69' - 133' - plagioclase porphyry, strongly sericitized, cut by qtz-pyrite-cpy stockworks, 3-5% pyrite same as above. @ 71' - 1/2" vein cpy, pyrite at 30° to core axis. @ 72' - 1/2" vein cpy, pyrite at 45° to core axis. @ 74'-6", 1" angular fragment of silt stone. @ 75', 1/4" vein cpy, pyrite at 30° to core axis. @ 79', siltstone fragments. @ 86', 1/4" vein cpy, pyrite at 10° to core axis.
196' - 208'					
253' - 263'					
263 - 273'					
273 - 283'					plagioclase porphyry, qtz vein stockworks
283' - 293'					
293 - 303'					
303' - 313'					
313 - 319'					plagioclase porphyry - siltstone, qtz vein stockworks
469' - 479'					
479 - 489'					
489' - 499'					
499' - 509'					
509' - 519'					

E ZONE

Company _____ Project _____ Bearing _____ Sheet 2 of 5 Hole No. 77-
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	% Cu	% Mo	Oz Ag/Ton	REMARKS	
519'-529'						
529'-539'						
539'-546'						
						@ 102', patchy hydrothermal biotite appears, continues to 127'-6", quartz veinlets decrease to 4" spacing by 127'-6"
						@ 127'-6", rock is strongly sericitized, veinlets displaced, to 133', qtz veining disappears at 133'
						Spec. @ 70', 77', 86', 107', 110', 113', 121', 124', 130', 128'
						133'-137' - plagioclase porphyry, pervasive sericitization, rock is schistose, schistosity @ 30° to core axis, no quartz veinlets, < 1/2% disseminated pyrite. Spec. @ 135'
						137'-166' - breccia - fragments angular, 1/8" to 1 1/2", of siltstone, plagioclase porphyry, biotite-plagioclase porphyry with hydrothermal biotite in clots and veinlets. Fragments are cut by qtz-pyrite-cpy veinlets, breccia in turn cut by qtz-pyrite-cpy veinlets, total pyrite ≈ 5%. Spec @ 146', 154', 158'
						166'-170' - plagioclase porphyry, chalky white clay alteration of plagioclase, 3-5% disseminated pyrite.
						170'-196' - plagioclase porphyry, mottled medium to pale green, sericitized, some small 1' sections show chlorite after biotite, minor qtz veins, cpy, py. Spec. @ 175'

SHEET 2

Company _____ Project _____ Bearing _____ Sheet 3 of 5 Hole No. IN 77-
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec					REMARKS
							196'-208'-6" - breccia, same as previous breccia.
							@ 198', biotite-plagioclase porphyry dyke, dark gray, fine-grained, very sharp contacts at 30° to core axis. Spec. @ 197', 198', 207'
							208'-6"-253' - plagioclase porphyry, clay alteration of plagioclase phenocrysts, no quartz veinlets, only trace amounts of pyrite. Section 230'-250' contains chlorite after biotite. Contact at 253' very sharp, at 45° to core axis, in contact with plagioclase porphyry. Section 208'-6"-253' - late dyke? Spec. @ 226', 232', 252'
							253'-319' - plagioclase porphyry, pervasive sericitization, cut by quartz vein stockworks, minor pyrite, cpx in veinlets and as disseminations. Veinlets hairline to 2" thick, 1/8" to 1/2" spacing. Spec. @ 256', 266', 277', 291', 299', 316', 303'
							319'-443' - biotite-plagioclase porphyry, 319'-320' is fine-grained (chilled margin), sharp contact. Porphyry unaltered, reddish brown color, has some patchy clay alteration on margins of quartz-pyrite veinlets spaced 3'-8' apart. - late dyke. - Spec. 320', 326', 337', 378', 414', 437', 440'
							443'-453'-6" - plagioclase porphyry, sericitized, cut by quartz-pyrite-cpx stockworks similar to above. Spec. 451', +

PAGE 5 OF 5

Company _____ Project _____ Bearing _____ Sheet 4 of 5 Hole No. 77-1
 Mining _____ Property _____ Inclination _____ Coordinates _____
 Division _____ Started _____
 Geographic _____ Completed _____
 Coordinates _____ Logged by: _____ Depth _____ Altitude _____

Footage	Core Rec	Rec						REMARKS
								453'-6" - 469' - biotite-plagioclase porphyry dyke, cut by gtz-pyrite-cpy veinlets 1/2" thick, spaced 1" apart. Spec. 457.
								469' - 495' - plagioclase porphyry, sericitized, cut by gtz vein stockworks, 2-3% pyrite as disseminations and in veinlets, minor cpy. @ 471'-472' - siltstone, cut by gtz vein stockworks. @ 477'-479' - massive pyrite, cpy vein at angle of 30° to core axis. Spec. @ 478, 485.
								495'-517'-6" - siltstone, sericitized to a pale cream color, cut by gtz vein stockworks, minor cpy in veins, 2-3% pyrite. @ 497' - 8" massive pyrite-cpy at 30° to core axis. @ 500' - 2" massive pyrite-cpy at 30° to core axis. @ 508' - two, 2" massive pyrite-cpy veins @ 30° to core axis. @ 510' - two, 1/2" massive pyrite-cpy veins @ 30° to core axis. Spec. 499', 510', 516'
								517' - 540' - biotite-plagioclase porphyry, patchy sericite alteration, 2-3% pyrite, trace of cpy. Spec 530, 533.

