

83-856-12071  
12/84

CRYSTAL CREEK EXPLORATION PROGRAM  
GEOPHYSICS AND DRILLING  
ON COCHRANE JOINT VENTURE CLAIMS  
(Pro 10, Tect 1 to 4, Cog 2)

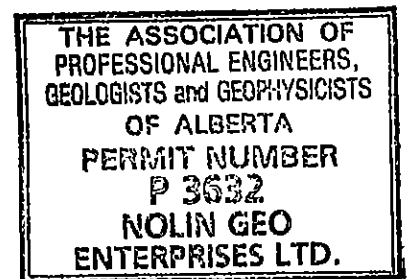
FOR **GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**12,071**

COCHRANE OIL AND GAS LTD.

82-K-14E, 15W, 15E  
Golden Mining Division  
50°48', 117°W

BY:  
NOLIN GEO ENTERPRISES LTD.  
NOVEMBER 1983



*Saroth*

Authors:  
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Alberta Vonhof, Ph.D. P. Eng.

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## 1.0 SUMMARY AND RECOMMENDATIONS

The exploration program conducted by Nolan Geo Enterprises in July and August 1983 consisted of Drilling, Self-Potential (S.P.), Magnetic, and Gravity surveys. The program consisted of three parts. Part I consisted of detailed S.P. and Magnetic surveys with a Gravity survey also done on the North Pro Claims. These surveys were conducted in order to define and locate drill targets and evaluate anomalies located by the 1982 reconnaissance exploration program. Field supervision and interpretation was provided by Mr. T.R.B. Dundas (P.Geoph). Part II consisted of 675 meters of Diamond Core drilling, this was supervised by Dr. J.A. Vonhof. Part III consisted of prospecting traverses along the N.W. boundary of the Tect 4 claim group.

The drilling program evaluated 5 S.P. anomalies on the Tect Grid and one anomaly on Cos II. Definite trends were traceable using S.P. and along these trends drilling indicated several zones containing Zn, Pb, and As mineralization in patches, rods and occasional small veinlets.

The program served to locate new areas of mineralization, and further defines a major zone of weakness along which the Ruth Vermont Mine and several other mineralized zones are located. The S.P. seems to give the best response to mineralization in the area, however it also responds to pyrite which is prevalent along this trend.

A program of geochemistry, S.P. and Magnetic surveys are recommended to extend the Tect Grid and a program of trenching and bulk sampling is recommended to evaluate the high grade veins located near the N.W. Tect claim boundary.

Prospecting traverses were run along the ridge top on the N.W. boundary of the Tect 4 claims and adjacent to the Ruth Vermont claims. Several high grade veins, two of which appeared to be over a foot in width were located near the N.W. boundary of the Cochrane property.

## 2.0 INTRODUCTION

The Crystal Creek Project was acquired through an option agreement dated August 5, 1981 between Bluesky Mining Ltd., and Cochrane Oil and Gas Ltd. Bluesky was the operator for the 1981 exploration program and has returned the ownership back to Cochrane for the 1982 and 1983 programs. Cochrane econtacted Nolin Geo Enterprises Ltd., to conduct the 1982 exploration program, and the 1983 follow up program.

The program was to cover reconnaissance geochemistry and SP anomalies obtained in 1982 over three grids: (1) Tect, (2) North Pro, (3) Cog II. In order to establish which of the reconnaissance targets warranted drilling and to accurately define and locate drill targets, a program of detailed SP and VLF was run over the three areas and drill targets were selected over the Cog II and Tect Grids. A total of 4000 meters of detailed S.P. was run on the Tect Grid, 650 meters of both S.P. Mag. were run on the Cog II Grid and 750 meters of S.P. and 250 meters of gravity were run on the N. Pro Grid.

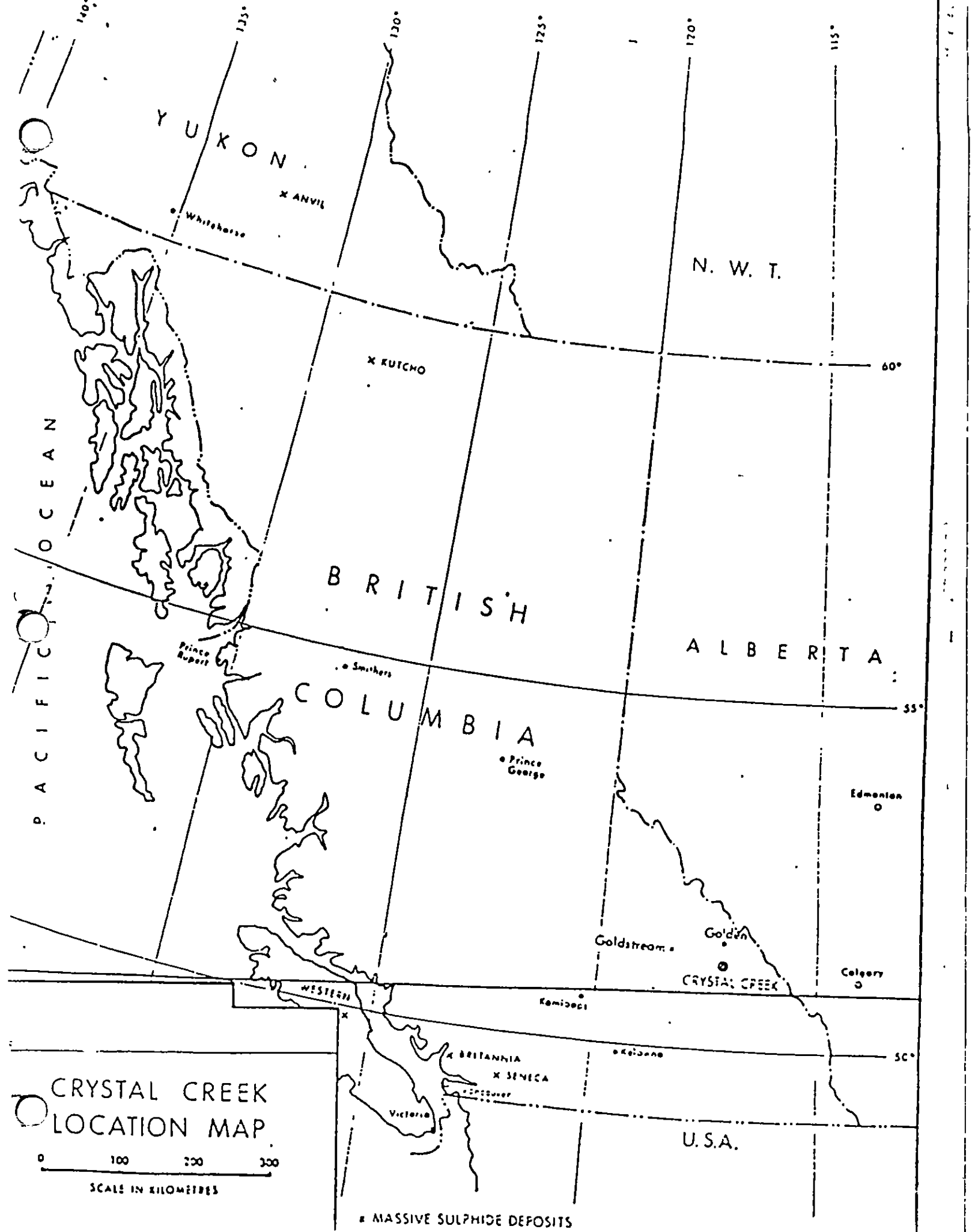
A total of 675.5 meters of drilling was conducted on six different anomalies. No economic concentrations of Pb, Zn, or Ag were located, but high grade Aug, Ag., and Zn mineralization was found near the N.W. boundary of the Tect 4 Claims group.

### 3.0 LOCATION AND ACCESS






The Crystal Creek Project centres on an area located in the Purcell Mountains approximately 40 kilometers south of the town of Golden, British Columbia. The project area lies within the Golden Mining Division of N.T.S. sheets 82-K-14E, 15W, 15E.

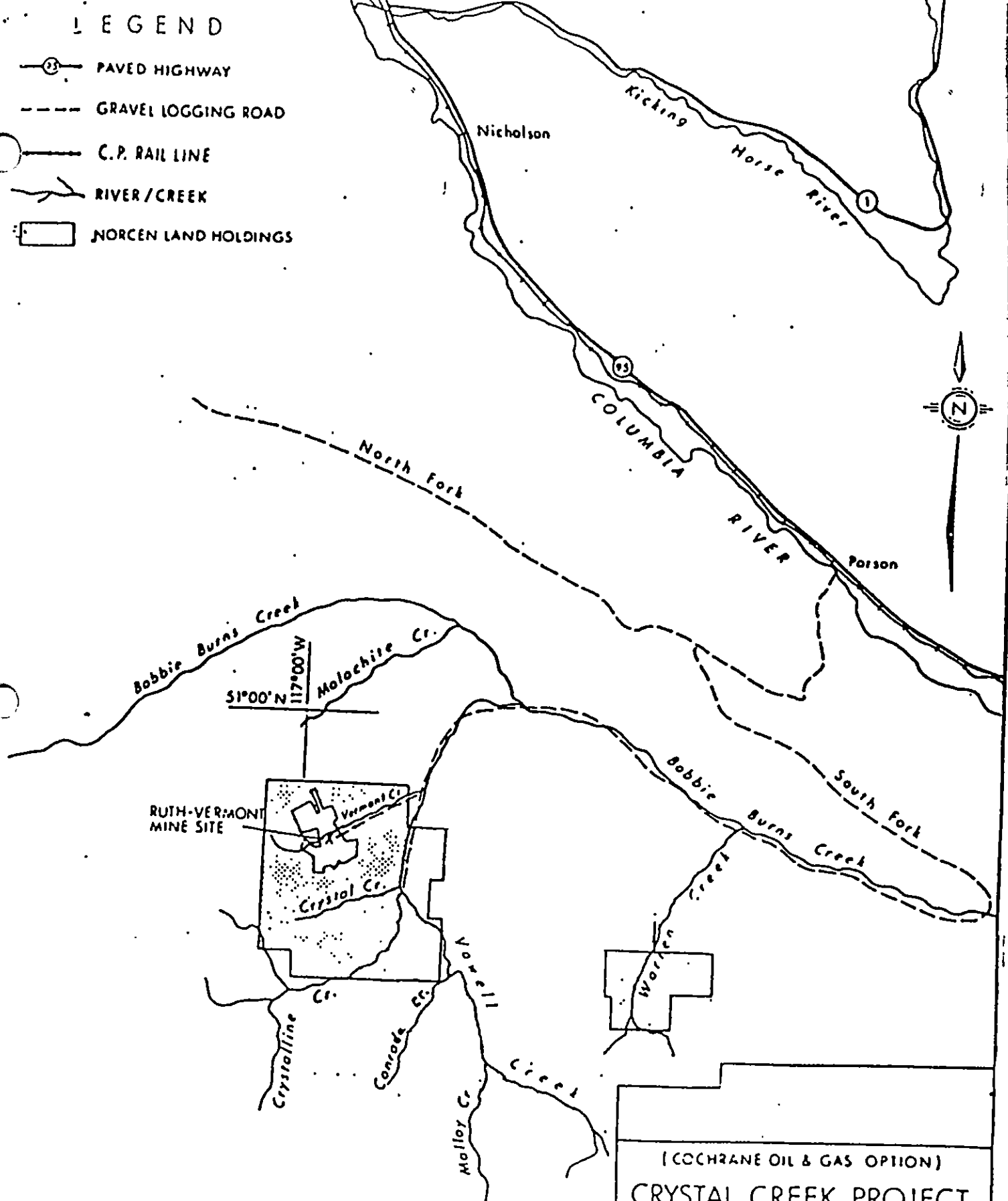
Access to the property is provided by Provincial Highway 95 south from Golden to Parsons, followed by 51 kilometers (32 miles) along a gravel logging road which traverses the same block of claims. Several abandoned logging roads and cat trails also traverse the area and can be travelled by 4-wheel drive vehicles.

Rail services would likely be available on the Canadian Pacific line that the main logging road intersects at Parsons, British Columbia. The topography varies from approximately 1,200 meters above sea level at the creek beds of Vowell, Crystalline, Conrad and Warren Creeks, to approximately 2,700 meters above sea level at the peaks of Azurite and Vermont Mountains.



# LEGEND

-  PAVED HIGHWAY
-  GRAVEL LOGGING ROAD
-  C.P. RAIL LINE
-  RIVER / CREEK
-  NORCEN LAND HOLDINGS



(COCHRANE OIL & GAS OPTION)  
CRYSTAL CREEK PROJECT  
BRITISH COLUMBIA  
LOCATION MAP

0 5 10 Km.

SCALE 1:250,000

N°5 87 E-10 E, 87 E-15 W, 87 E-15 E



#### 4.0 HISTORY

Minings exploration in the Crystal Creek area dates back to the 19th century. Showings were first reported in the Crystal and Vermont valleys. The latter developed into a deposit (Ruth Vermont Mine) and has been sporadically produced since 1898.

The showings on the north side of Crystal Creek were first reported in 1890. These and other showings were located and staked by Mr. R. Renn in 1965.

The property was optioned to Purcell Range Mines Ltd, who completed bulldozer stripings with little success. Ownership of the claims was transferred to Medesto Exploration Ltd. in 1967. They completed a limited amount of trenching and two short diamond drill holes. A soil geochemistry survey and 80 meters of diamond drillings were reported in 1974. In 1978 Medesto became Cochrane Oil and Gas Ltd. Cochrane completed more soil geochemistry surveying, trenching and diamond drillings. The property also covers a copper showing near Warren Creek. This showing was originally discovered in the 1920's and was partially explored by two small tunnels. In 1960 and 1961 airborne and ground geophysics and 1100 meters of diamond drillings, with several good shows, were completed for St. Andrews Minings Co. Further electromagnetic surveying, trenching and 700 meters of diamond was done in 1968. In 1972 and 1973 geological, soil geochemical and self potential surveys were carried out for the Caroline Mines Ltd.

Norcen Energy Resources acquired the Crystal Creek property from Cochrane Oil and Gas Ltd. under an option agreement dated August 14, 1979. Work carried out by Norcen in 1979 was restricted mainly to a gridded area which included the showings north of Crystal Creek. The 1979 exploration included geological mapping, soil geochemical surveying, electromagnetic surveying and diamond drillings of twelve holes, totalling 763 meters. The 1980 Norcen program was similar to 1979 with 530.03 meters of diamond drillings.

Norcen concluded that most geochemical anomalous areas were found to be coincidental with axial plane traces of major folds which have acted to localize mineralization. They believe that for their economics they had discovered no significant mineralization and that most mineralization was related to quartz veins. Norcen allowed their option with Cochrane Oil and Gas to terminate.

Under an agreement dated August 5, 1981 between Bluesky Minings Ltd. and Cochrane Oil and Gas Ltd., Bluesky obtained the Crystal Creek property. In the summer of 1981, Bluesky undertook a program of extensive geochemical sampling, geological mapping and evaluation. They also drilled 440 meters. The 1981 program encountered several areas of mineralization and was used in designing an ongoing program for 1982.

In the summer of 1982, Bluesky returned ownership to Cochrane Oil and Gas Ltd. Cochrane conducted a pilot test study over the base metal deposit of the Ruth Vermont Mine. This initial work consisted of S.P., I.P., Magnetic, MAX-MIN EM., CEM-EM and VLF-EM. The results of the study indicated that the S.P. responded

to mineralization in the area and to some extent VLF-EM, CEM-EM and Magnetic methods were also useful. These methods were employed with reconnaissance grids run over anomalous areas of pre-existing grids on which geochemical soil samplings surveys had been conducted. Several S.P. anomalies were found which were deemed worth a further investigation.

## 5.0 LAND STATUS

The following claims staked under the Modified Grid System were acquired from Cochrane Oil and Gas Ltd. by option under the terms of the August 5, 1981 agreement.

Claim Name	Record Number	Expiry Date
Pro 1	429	September 28, 1984
Pro 6	430	September 28, 1981
Pro 7	431	September 28, 1981
Pro 8	432	September 28, 1981
Pro 9	433	September 28, 1981
Pro 10	434	September 28, 1981
Pro 11	435	September 28, 1981
Pro 12	436	September 28, 1981
Pro 13	437	September 28, 1981
Tect 1	410	September 14, 1983
Tect 2	411	September 14, 1983
Tect 3	412	September 14, 1990
Tect 4	413	September 14, 1986
No one L542	406	September 07, 1981
Diamonds L543	407	September 07, 1981
Monitor L651	408	September 07, 1981
Cos 5	324	June 18, 1986
Cos 7	326	June 18, 1987
Cos 14	333	June 18, 1988
Cos 15	334	June 18, 1987
Cos 6	325	June 18, 1982
Cos 8	327	June 18, 1982
Cos 10	329	June 18, 1982
Cos 12	331	June 18, 1982
Cos 13	332	June 18, 1982
WC 2	307	June 18, 1982
WC 3	308	June 18, 1982
WC 4	309	June 18, 1982
Cos 4	323	June 18, 1987
Cos 1	320	June 18, 1987
Cos 2	321	June 18, 1987
Cos 3	322	June 18, 1987

## 6.0 GEOLOGY

The Crystal Creek Project lies within an area underlain by Proterozoic Windermere rock of the Horsethief Creek Group. J.E. Ressor of the Geological Survey of Canada mapped the Lardeau area ( within which is the Crystal Creek Property ) on a scale of 1:250,000 ( approximately 1 inch to 4 miles ).

Ressor described the Horsethief Creek Group as a "thick sequence ( 3,000 to 8,000 feet ) of slate, argillite and phyllite as well as lesser amounts of quartzite, greywacke and limestone. In addition, it contains considerable thicknesses of quartz pebble conglomerate and pebbly grit".

In general, the lower part of the Horsethief Creek consists dominantly of argillite and slate with some limestone. The middle part is characterized by quartzite, grit and pebble conglomerate along with the slate and phyllite. The upper portion is predominately purple and red slate with siltstone and minor limestone.

The regional metamorphic grade of the Horsethief Creek within the Crystal Creek Project area is lower to middle greenschist facies. The level of metamorphism increases southward as the Bugaboo intrusive is approached. Locally, contact metamorphism, superimposed on the regional metamorphism, has given rise to lower almandine-amphibolite facies.

The mesozoic structure patterns within the Crystal Creek Project area are dominated by the Purcell anticlinorium. It is essentially a very complicated belt consisting of open folds in successions of relatively competent strata and more complex tighter folds in less competent, thinner bedded sections. The structural picture is often further disturbed by local faulting.

### 6.1 Local Geology

The former reports and maps of the property, predominately those of Norcen and Cochrane Resources, Nolin's geological reports and maps for Bluesky, area reports, as well as the grid controlled mapping and geological traverses were utilized in formulating a preliminary geological description and interpretation of the property.

### 6.2 Lithology

Several rock types were identified including a variety of argillites, phyllites, limestones, arkose, quartzite, grits and pebble quartz conglomerates. A brief

description of the major geologic units are given below:

1. Argillite (and it's foliated equivalent phyllite) is the predominant rock type located on the grid. Several variations are present ranging from light gray to near black in color and from massive and structureless to thinly laminated, bedded, and sometimes varved varieties. The darker red argillites frequently contain pyrite or marcasite crystals. The many varieties are commonly interbedded and may not be calcareous. Soft sediment and structural deformation is often visible in the laminated and bedded varieties.
2. Limestone is not abundant on the property. Typically the limestone is dark colored, fine grained, impure and interbedded with thin beds of argillite. In several areas, calcareous arkosic or sandy layers were identified and these may represent an impure coarse variety of the limestone.

### 6.3 Stratigraphy and Structure

A unique calcareous unit was located in the eastern portion of the grid. The rock appears to contain oolites or pistolites as well as angular clasts of a variety of rock types common to the local area. The current interpretation is that this represents slump brecciation within a shallow water environment. This carbonate breccia has a thickness of 3 to 5 meters (perhaps locally up to 10 meters) and represents a marker horizon. It appears to mark a very sharp change in the depositional regime during Horsethief Creek time. Below the limestone, the sediments are dominated by relatively coarse grained clastics such as arenites and conglomeration, occurring in fining upward cycles of various thicknesses.

Overlying the limestone are thick sequences of predominantly greywacke with subordinate arenite and shale. All are fine grained and reflect an increase in the amount of clay being supplied to the area. Graded bedding and fining upward sequences are common. Higher in the section black shales become more common, as opposed to the grey and green shales lower down.

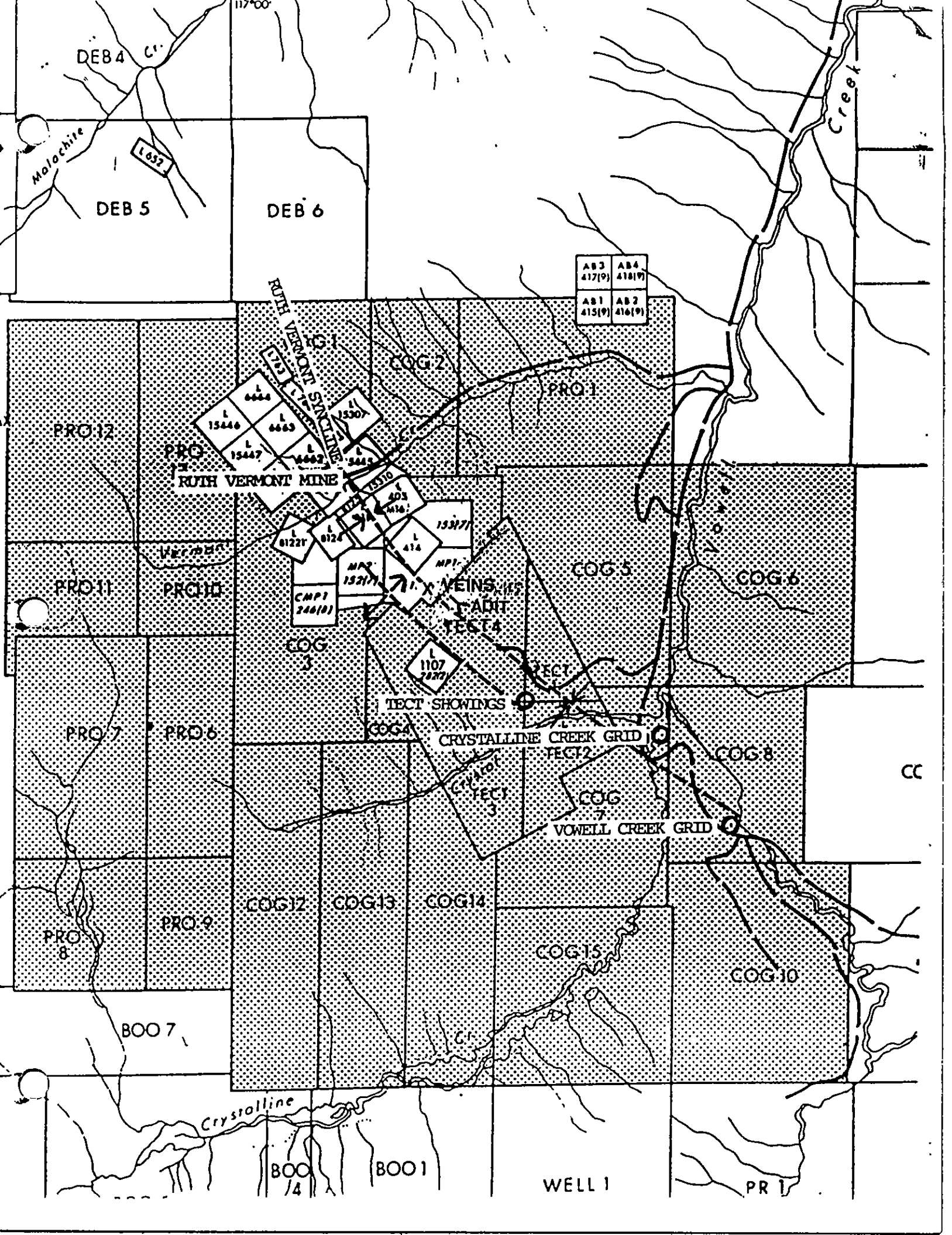
Certain of the shale horizons have a varved appearance suggestive of differential settling and a suspended sediment load. These are the features of deep water deposition. Hence, it would appear that after the deposition of the limestone, the area experienced extensive transgression creating the deep water sediments observed in the western portion of the property.

The major fold on the property is an anticlinorium whose axis, or more precisely, axial area, runs through the Ruth Vermont Mines deposit and through the showings on the north side of Crystal Creek. This fold is well exposed on the north and south sides of the Vermont Creek and it was found that, while structure was easily definable within the flanks, the central and axial area was

highly foliated and contorted. This zone was some 1.5 kilometers wide. Along the strike, the zone is largely obscured by the overburden within the Vowell Creek but may be recognized in isolated outcrops by an associated strong foliation. Such a major anticlinorium should have adjacent synclinoria. The one to the southwest was not observed, being out of the area of interest. The one to the northeast is within the property boundaries but is not documented.

The secondary folds in the limbs of these major structures are generally parallel and upright. The wavelength of these folds appears to be in the order of 0.5 kilometers. They seem to plunge either north or south or to have horizontal axes. It was observed in the western portion of the property that some anticlines die out to the north by changing along strike from anticlines to structural terraces. At those points the folds had a gently northerly plunge.

Fracturing was observed in most folds parallel to the axial planes. These fractures seem to have localized quartz veinings which in turn is often accompanied by sulphide mineralization. It was also observed that anticlinal axial planes were often highly altered and hematized.



DEB 4

DEB 6

DEB 5

L 657

Molochite

Creek

RUTH VERMONT MINE  
L 644  
L 645  
L 646  
L 647  
L 648

PRO 12

PRO 11

RUTH VERMONT MINE

PRO 11

PRO 10

PRO 9

VEINS

COG 5

COG 6

COG 3

L 1107

TECT SHOWINGS

PRO 7

PRO 6

CRYSTALLINE CREEK GRID

COG 8

CC

PRO 8

PRO 9

COG 12

COG 13

COG 14

COG 15

COG 10

VOWELL CREEK GRID

BOO 7

BOO 4

BOO 1

WELL 1

PR 1

Crystalline

## 7.0 GEOPHYSICAL SURVEYS AND DRILLING

### 7.1 Tect Grid and Diamond Drill Holes

A self-potential (S.P.) survey was conducted over part of the the Tect Claims and the results are shown in Figure 1. The survey was carried out after a 1982 survey showed distinct anomalies where known mineralization occurred. The present survey was conducted in greater detail with 10 meter station intervals along 50 meter lines with the addition of cross lines to the 1982 survey lines. A much longer cable length (2000 feet) was used in order to minimize readings errors due to the movement of the base reference electrode. The complete survey was conducted using two different reference stations which were accurately tied together.

The results show a number of anomalies, some of which are located in areas of known mineralization. An anomaly occurs in the area of the extensively drilled area around Hole 77-3, with a possible extension to the southeast and other possible extensions as indicated on the map. The strongest and probably most extensive anomaly was located parallel and to the west of the northwest trending baseline. There had been no drilling done in the area of this anomaly, although there is a local lead/zinc geochemical anomaly. This anomaly was considered to be high priority and the trend and location were important as they would extend to the northwest beyond the present survey area where mineralization has been located in drill holes and trenches.

Drill holes were recommended to intersect the better anomalies, the collar locations being dictated by field conditions as all S.P. sources are considered to be vertical. Diamond Drill Holes 1 to 5 did intersect several zones of Pb, Zn, and Ag mineralization with sample values as follows:

Hole	Interval	Width	Au	Ag	Cu	Pb	Zn
85-5	55.12-55.20m	.08m	.001oz/t	3.15oz/t	--	3.95%	5.75%
85-5	55.60-58.64m	.04m	.005oz/t	.496oz/t	.61%	3.98%	18.2%
85-5	59.42-59.48m	.06m	.003oz/t	5.87oz/t	.28%	6.95%	11.6%
83-1	81.50-81.75m	.25m	.003oz/t	1.41oz/t	--	0.42%	0.005%
83-1	82.15-82.35m	.20m	.004oz/t	2.61oz/t	--	2.06%	0.044%
83-1	86.34-86.43m	.09m	.003oz/t	13.1oz/t	--	4.37%	0.019%

The Ag,Pb, and Zn mineralization appeared to be mostly in rods, patches and occasionally very small veinlets. Drilling indicates this mineralization is uneconomic and in most instances, not continuous. The drill hole strip logs and assay values are included as appendices. The S.P. did generally respond to a large zone of weakness trending 135 degrees and filled with massive quartz which was often pyrite bearing. Other areas along this zone warrant further investigation and the Tect grid should be extended and explored in all directions and evaluated with soil sampling, S.P. and prospecting.



## 7.2 Cos II Grid and Diamond Drill Hole

Detailed S.P. and Magnetic surveys ( Figure 2 ) were conducted along the escape road at the Ruth Vermont Mine after indications of anomalies were obtained in 1982. The surveys were conducted using 10 meter station intervals. A long cable (2000ft) was used for the S.P. survey to provide more accurate results than the 1982 survey. The entrance to the Ruth Vermont Mine was used as the zero chainage for the line.

The S.P. results show a distinct anomaly at 585 meters, near which some mineralization in quartz veins were located as float in the road cut. A drill hole was recommended to test this source. There are indications of a change in the background magnetic results at this location, suggesting some change in rock type. A weaker S.P. response, possible due to a deeper source is located at 1000 meters.

The S.P. background level changes towards the Ruth Vermont Mine - possible due to rock type change with minor variations caused by metal materials on the surface associated with the mine activity.

The anomaly may have been explained by conductive ground water and the thick zone of large boulders in the overburden as described in the drill log of DDH 83-6.

## 7.3 North Pro

Self Potential and Gravity surveys were conducted over the North Pro Grid based on encouraging results from the 1982 survey. The results are presented as Figure 1. Three lines were surveyed with S.P., but the survey was restricted to the south side of the river due to the very high water level at the time. A gravity survey was conducted on one line only to check any possible correlation with the S.P. data.

### 7.3.1 S.P. Survey -

The results at 10 meter intervals are not corrected for topography which will affect the results when a source is present. It was not possible to estimate the correction and the variation of 'overburden' on the steep talus slope may which also produce some variation in the results.

The following conclusions can be made on the results: (a) a self-potential source is located on line 750E-170S, probably striking parallel to the baseline.

(b) a change in the self-potential response occurs on all lines at approximately 290S may indicate limits to the S.P. anomaly but could be due to a similar overburden/rock type change on all lines.

### 7.3.2 Gravity Survey -

Line 750E was surveyed using gravity and computed at a density of 2.0 gms/cc. A transit was used for the vertical control, a Worden Master meter for the gravity survey. The results show very little variation and the fact that no definite anomaly was obtained over the area of the S.P. source does not rule out the possibility of a massive type ore body as overburden variations may mask any potential anomaly. Drilling of the North Pro anomaly was not recommended until the source of the anomaly in the other areas had been evaluated.

## 7.4 Tect Ridge Traverses

### 7.4.1 Geology Review --

The geology of the Tect claims is essentially the same as on the Ruth Vermont. Previous mappings has indicated a series of low amplitude synclines passing southeast through the Tect claims. It would appear that these local folds are minor flexures and part of a larger structure, probably the Ruth syncline. The most important structural element at the Ruth Vermont Mine is the Ruth syncline which occurs within the hinge zone of the major anticline. The Ruth syncline has mineralization associated with quartz veins obliquely intruding limestone on the lower (southwest) limb. The B.C. government mining report on the Ruth Vermont Mine (1966) give the Ruth syncline as striking 135 degrees plunging shallow to the southeast and having an axial plane dipping 75 degrees north.

7.4.2 Prospecting Results - The Ruth syncline has been plotted on an enclosed figure and it is projected through the Tect mineralization, previously drilled. Along this trend, two massive auriferous argentiferous galena and boulangerite veins each apparently over one foot wide have been located very close to the N.W. boundary of Tect 4. Example samples from the veins assayed as followed:

Hole	Au	Ag	Cu	Pb	Zn	Sb
RV-2	.11oz/t	23.36oz/t	.13%	53.25%	.68%	10.2%
GB-12	.18oz/t	44.82oz/t	1.07%	44.50%	2.63%	12.6%

Trenching, bulk sampling and shallow drilling are recommended to assess the continuity and extent, true width and economic worth of these veins. Due to the

high grade values encountered, this program could possible pay for itself as well as fund continued exploration.

## 8.0 CONCLUSIONS

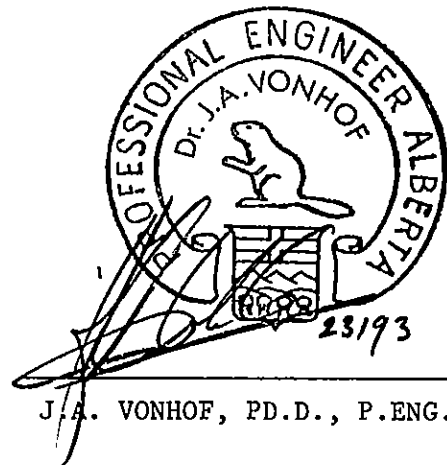
The mineralization at Tect, Cos and North Pro have the following common features with the Ruth Vermont Property: (1) Abundant quartz veining, both barren and sulphide bearing. (2) Limestone and coarse carbonate. (3) Near by phyllite with coarse pyrite and associated schists. (4) Favorable structure, southern limb and below limestone within Ruth and adjacent syncline. (5) Argentiferous galena and sphalerite in clean white quartz, fine grained replacement sulphides in carbonate rocks. The geophysical work has located a number of very strong anomalies on the various survey grids and when compared to the test results over the ore body at the Ruth Vermont Mine, suggests a much greater economic potential than the ore body that was recently being mined.

The prime geophysical method is that of Self Potential and although slow to operate has been the most definitive in locating the possible source of the geochemical anomalies. Drillings results encountered high grade mineralization but widths were narrow and no continuity could be proved. A more regional program of geology, geochemistry and geophysics has been recommended to continue exploration in the vicinity of former drillings on the Tect claims. Trenching, sampling and shallow drilling on 2 high grade veins near the N.W. boundary of the Tect claims is also recommended. This work will serve to explore and develop what appears to be the continuation of the Ruth syncline and mineralization.

CERTIFICATE OF QUALIFICATION

I, Jan Albert VonHof, Geological Engineer in the City of Calgary, in the Province of Alberta, hereby certify:

1. THAT I am a practising Geological Engineer with a residence at 5228 Veronica Road N.W. Calgary, Alberta
2. THAT I am a post-graduate of the University of Saskatchewan, Saskatoon, Saskatchewan, and have been granted the degrees of Master of Science and Doctor of Philosophy in the Geological Sciences.
3. THAT I have been practising my profession as a geological engineer for fifteen (15) years.
4. I am a member of the Association of Professional Engineers, Geologists, and Geophysicists of Alberta.
5. That I have no interest directly or indirectly in this property, or in Cochrane Oil & Gas Ltd.




J.A. VONHOF, PD.D., P.ENG.

CERTIFICATE OF QUALIFICATION

I, Trevor R.B. Dundas, Professional Geophysicist in the City of Calgary, in the Province of Alberta, hereby certify:


1. THAT I am a Registered Professional Geophysicist in the Province of Alberta and reside at 68 Brampton Crescent S.W., Calgary, Alberta.
2. THAT I am a graduate with a Master's degree in Geophysics from Imperial College, University of London, England and that I have practised in this profession for a period of sixteen (16) years.
3. THAT I have conducted and supervised geophysical surveys on this property during June - September 1983.
4. THAT to the best of my knowledge, all available data pertinent to this property was examined during the preparation of this report.
5. That I have no interest directly or indirectly in this property or Cochrane Oil and Gas Ltd.

  
TREVOR R.B. DUNDAS, P. GEOPH.  
THE ASSOCIATION OF PROFESSIONAL GEOPHYSICISTS OF ALBERTA  
130000

CERTIFICATE OF QUALIFICATION

I, Gary A. Nolan, Professional Geologist in the City of Calgary, in the Province of Alberta, hereby certify:

1. THAT I am a Registered Professional Geologist in the Province of Alberta and reside at 68 Woodborough Crescent S.W., Calgary, Alberta.
2. THAT I am a graduate with a Bachelor's degree in Geology from Western Washington State University in Bellingham, Washington and that I have practised in this profession for a period of eleven (11) years.
3. THAT I am familiar with and have physically examined this property on numerous occasions as a consequence of directing this program as well as the overall program conducted in 1981.
4. THAT I have no interest in this property, or Cochrane Oil & Gas Ltd.
5. THAT to the best of my knowledge, all available data pertinent to this property was examined during the preparation of this report.

  
\_\_\_\_\_  
GARY A. NOLIN, P. GEOL.

10.0

EXPENDITURES



CRYSTAL CREEK PROGRAM

1983 EXPENDITURES

ASSESSABLE EXPENDITURES:

Geology and Geophysics	\$ 26,467.00	
Drilling and Associated Costs	63,634.97	
Sample Analysis	3,452.95	
Helicopter Services	1,085.00	
Field Supervision	<u>3,500.00</u>	\$ 98,139.92

NON-ASSESSABLE EXPENDITURES:

Grouping Fees	20.00	} No. TK
Recording Fees	4,880.00	
Overhead at 10%	<u>10,303.99</u>	\$ <u>15,203.99</u>

TOTAL EXPENDITURES

\$ 113,343.91

\$ 107,953.92

Microfilming  
no required.  
T.K

# NOLIN GEO ENTERPRISES LTD.

1900, 520 - 5TH AVENUE S.W.  
CALGARY, ALBERTA T2P 3R6  
TELEPHONE (403) 264-2742

I N V O I C E

November 9/83

In Account With

Cochrane Oil & Gas Ltd.  
2340 - 1 Avenue N.W.  
Calgary, Alberta  
T2N 0B8

Attention: Mr. George Isfan  
President

---

RE: Crystal Creek, British Columbia

With regards to the above, we submit this final invoice for geological and geophysical interpretation, map and report preparation as follows:

T. Dundas - Geophysicist		
2 days @ \$350.00 per day		\$ 700.00
G. Nolin - Geologist		
3 days @ \$350.00 per day		<u>\$1,050.00</u>
TOTAL AMOUNT DUE THIS INVOICE:		<u>\$1,750.00</u>

---

NOLIN GEO ENTERPRISES LTD.



Gary A. Nolin, P. Geol.  
President

**NOLIN GEO ENTERPRISES LTD.**

1900, 520 - 5TH AVENUE S.W.  
 CALGARY, ALBERTA T2P 3R6  
 TELEPHONE (403) 264-2742

I N T E R I M

I N V O I C EAugust 23, 1983

Page 1 of 4

TO: Cochrane Oil & Gas Ltd.  
 2340 - 1 Avenue N.W.  
 Calgary, Alberta  
 T2N 0B8

Attention: Mr. George Isfan  
 President

RE: Crystal Creek Project  
 Summer 1983

We invoice you as follows:

G. Nolin Pre-Project Administration 2 days @ \$350.00 per day.....	\$ 700.00
T. Dundas Geophysicist June 9 & 10, 1983 Pilot Geophysical Study and Field Orientation 2 days @ \$350.00 per day.....	\$ 700.00
G. Nolin Geologist July 9 & 10, 1983 Field Work and Drill Site Orientation with Drilling Contractor Personnel 2 days @ \$350.00 per day.....	\$ 700.00
Field Camp Expenses + Food 2 days @ \$35.00 per day.....	\$ 140.00
One SP Unit Rental 2 days @ \$15.00 per day.....	\$ 30.00
One 4 x 4 Jeep Project/Calgary Return 700 kilometers @ \$.40 per kilometer.....	\$ 280.00
SUB-TOTAL.....	<u>\$ 2,550.00</u>

Detailed Mag - SP - Gravity

G. Nolin Geologist 1 Field Day, 1/2 Day Interpretation, 1/2 Day Field Management 2 days total @ \$350.00 per day.....	\$ 700.00
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#CRY-01

# NOLIN GEO ENTERPRISES LTD.

1900, 520 - 5TH AVENUE S.W.  
CALGARY, ALBERTA T2P 3R6  
TELEPHONE (403) 264-2742

I N T E R I M

I N V O I C E

August 23, 1983

Page 2 of 4

TO: Cochrane Oil & Gas Ltd.  
Attention: Mr. George Isfan  
RE: Crystal Creek Project  
Summer 1983

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## Detailed Mag - SP - Gravity (continued)

T. Dundas Geophysicist Field July 16, 17, 19, 20, 23 & 24, 1983  
6 days @ \$350.00 per day.....\$ 2,100.00  
2 day Interpretation @ \$350.00 per day.....\$ 700.00

One Senior Technician July 23 & 24, 1983  
2 days @ \$175.00 per day.....\$ 350.00

One Junior Geologist July 12 - 21, 1983  
10 days @ \$175.00 per day.....\$ 1,750.00

Two Field Assistants  
10 days @ \$125.00 per day.....\$ 2,500.00

One Mag Rental July 12 - 21, 1983  
10 days @ \$22.00 per day.....\$ 220.00

One SP Unit Rental  
10 days @ \$15.00 per day.....\$ 150.00

One Gravity Unit With Transit  
2 days @ \$135.00 per day.....\$ 270.00

## Vehicle Charged - Breakdown

One 4 x 4 Jeep Calgary/Project Return  
700 kilometers (200 km. field use, 900 km. balance)  
total 700 kilometers @ \$.40 per kilometer.....\$ 360.00

2nd 4 x 4 Jeep Calgary/Project 3 Return Trips  
2100 kilometers @ \$.40 per kilometer.....\$ 840.00

Truck for Camp Mobilization and De-Mobilization  
Calgary/Project 2 Return Trips  
1400 kilometers @ \$.40 per kilometer.....\$ 560.00

#CRY-01

# NOLIN GEO ENTERPRISES LTD.

1900, 520 - 5TH AVENUE S.W.  
CALGARY, ALBERTA T2P 3R6  
TELEPHONE (403) 264-2742

I N T E R I M

I N V O I C E

August 23, 1983

Page 3 of 4

TO: Cochrane Oil & Gas Ltd.  
Attention: Mr. George Isfan  
RE: Crystal Creek Project  
Summer 1983

---

## Vehicles Charged - Breakdown (continued)

Field Camp Expenses + Food  
35 man days @ \$35.00 per day.....\$ 1,225.00  
SUB-TOTAL.....\$14,275.00

## Drilling and Final Geological Traverses

G. Nolin Geologist Project Management  
2 days @ \$350.00 per day.....\$ 700.00

Albert Von Haff Geologist July 22 - August 8, 1983  
18 days @ \$350.00 per day.....\$ 6,300.00  
One 4 x 4 Jeep Calgary/Project Return  
500 kilometers field use + 700 balance  
1200 kilometers total @ \$.40 per kilometer.....\$ 480.00

G. Nolin Geologist Detailed Mag on Cog II and Project  
Management Field Trip With Mr. George Isfan of  
Cochrane Oil & Gas Ltd. July 30 & 31, 1983  
2 days @ \$350.00 per day.....\$ 700.00  
Vehicle Mileage Calgary/Project Return  
700 kilometers @ \$.40 per kilometer.....\$ 280.00  
Mag Rental  
1 day @ \$22.00 per day.....\$ 22.00

G. Nolin Geologist Field Traverses and Project Supervision  
August 6 & 7, 1983  
2 days @ \$350.00 per day.....\$ 700.00

Two Junior Geologist August 6 & 7, 1983  
2 days @ \$175.00 per day.....\$ 700.00  
One 4 x 4 Jeep Calgary/Project Return  
700 kilometers @ \$.40 per kilometer.....\$ 280.00

#CRY-01

# NOLIN GEO ENTERPRISES LTD.

1900, 520 - 5TH AVENUE S.W.  
CALGARY, ALBERTA T2P 3R6  
TELEPHONE (403) 264-2742

I N T E R I M

I N V O I C E

August 23, 1983

Page 4 of 4

TO: Cochrane Oil & Gas Ltd.  
Attention: Mr. George Isfan  
RE: Crystal Creek Project  
Summer 1983

---

Drilling and Final Geological Traverses (continued)

Truck for Final Transport of Core and Gear to Calgary  
700 kilometers @ \$.40 per kilometer.....\$ 280.00  
(driver no charge)

P L E A S E R E M I T.....GRAND TOTAL THIS INVOICE.....\$24,717.00

---

*G. A. Nolin*

Gary A. Nolin, P.Geol.

AUG 24 1983

# WEIR BROS. HEAVY HAULING LTD.

NAME KERRY WILMER

## DAILY TRIP REPORT

DATE JULY 27/83

P.O. No. \_\_\_\_\_

TRUCK No. 902

EMPLOYEES	HOURS			
	TOT.	S.T.	O.T.	
<u>ASO ALUSK</u>				<u>770 FROM SOUTH FORK</u>
<u>COLUMBIA LTD.</u>				<u>3412 MILES TO GOLDEN.</u>
				<u>4 HRS @ \$60.00</u>

PERMIT

TOTAL \$ 240.00

Alberta Miles \_\_\_\_\_

Approved by \_\_\_\_\_

AUG 21

# WEIR BROS. HEAVY HAULING LTD.

NAME L. R. H. R. E. L. R. T. H. R. P.

## DAILY TRIP REPORT

DATE JUL 25/83

P.O. No. \_\_\_\_\_

TRUCK No. 904

EMPLOYEES	HOURS				
	TOT.	S.T.	O.T.		
<u>MICHO RIVER</u>					
<u>LOGGING LTD.</u>				<u>D7G FROM GORDON TO</u>	
				<u>SOUTH FORK 34 1/2 MILE</u>	<u>1/2 \$60.00</u>
				PERMIT	
				TOTAL	<u>\$240.00</u>

Alberta Miles \_\_\_\_\_

Approved by \_\_\_\_\_



AUG 24 1983

STATEMENT

REO RIVER LOGGING LTD.  
BOX 108 GOLDEN B.C.  
VUA 110 PH.344-2421  
344-5557

DATE July 28 1983

Nolin Geological Enterprises Ltd

Suite 540 707-7th Ave. S.W. Calgary, Alta. T2P 0Z2

DATE	DETAILS	DEBIT	CREDIT	BALANCE
	DIG Crews Rental			
July 25/83	9 hours			
26	6 ✓			
	15 hours	86.50		1247.50
	hourbed, pens attached (			480.00
				1777.50
	Re Crystal Creek			

0.01

AUG 24 1983



**D.W. COATES**  
**ENTERPRISES LTD.**  
DIAMOND DRILLING CONTRACTORS

2560 A Simpson Road, Richmond, B.C. V6X 2P9

Phone: (604) 273-0985

Telex No.: 04357618

Nolan Geological Enterprises Ltd.  
Suite 540  
707 Seventh Avenue, S.W.  
Calgary, Alberta  
T2P 0Z2

INVOICE NO.: 2519

JOB NO.: 502

DATE: August 9, 1983

RE: Parson, B.C. Drilling

PERIOD: July 16-31, 1983

Drilling Detail	\$27,114.80
Mobilization	5,703.20
Moving Between Holes	198.80
Drilling with Mud	704.89
Core Boxes	541.42
Hole Stabilizing	1,139.60
Tractor Rental	664.40
Travel Time	568.00
Testing	288.30
Board and Lodging	<u>723.33</u>
	<u>\$37,646.74</u>

AUG 24 1983

- 2 -

DRILLING DETAIL

<u>Hole #</u>	<u>Size</u>	<u>From</u>	<u>To</u>	<u>Footage</u>	<u>Rate</u>	<u>Amount</u>
83-1	BQ	0	21	21	19.00	\$ 399.00
83-1	BQ	21	445	424	19.10	8,098.40
83-2	BQ	0	20	20	19.00	380.00
83-2	BQ	20	225	205	19.10	3,915.50
83-3	BQ	0	10	10	19.00	190.00
83-3	BQ	10	225	215	19.10	4,106.50
83-4	BQ	0	17	17	19.00	323.00
83-4	BQ	17	500	483	19.10	9,225.30
83-4	BQ	500	501	1	19.70	19.70
83-5	BQ	0	10	10	19.00	190.00
83-5	BQ	10	24	<u>14</u>	19.10	<u>267.40</u>
				1,420		<u>\$27,114.80</u>

MOBILIZATIONA) Lump Sum

Transport Drill Equipment and Personnel From Base to Truck Discharge Point

50% x 3,000.00                      \$1,500.00

B) Labour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hrs.</u>	<u>Tractor</u>	<u>4 x 4</u>
July 20D	Move to First Hole	28	5	4
July 21D	Move to First Hole	46	10	8
July 22D	Move to First Hole	46	8	-
July 22N	Move to First Hole	<u>8</u>	<u>-</u>	<u>-</u>
		128	23	12

Labour:	128 hours @ \$28.40 per hour	\$3,635.20	
Tractor:	23 hours @ \$20.00 per hour	460.00	
4 x 4:	12 hours @ \$ 9.00 per hour	<u>108.00</u>	4,203.20
			<u>\$5,703.20</u>

AUG 24 1983

- 4 -

MOVING BETWEEN HOLES

Labour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hrs.</u>	
July 25D	Move to Hole #83-2	10	
July 25N	Move to Hole #83-2	<u>12</u>	
		22	
	Less Coates Ent. Portion	<u>20</u>	2
July 26N	Move to Hole #83-3	8	
July 27D	Move to Hole #83-3	<u>15</u>	
		23	
	Less Coates Ent. Portion	<u>20</u>	3
July 28N	Move to Hole #83-4	6	
July 29D	Move to Hole #83-4	<u>16</u>	
		22	
	Less Coates Ent. Portion	<u>20</u>	2
July 31D	Move to Hole #83-5	6	
July 31N	Move to Hole #83-5	<u>8</u>	
		14	
	Less Coates Ent. Portion	<u>14</u>	<u>0</u>
			7

Labour: 7 hours @ \$28.40 per hour

\$198.80

DRILLING WITH MUDMaterials

19 - Super-Gel @ \$ 8.24/bag	\$156.56	
1 - Alcomer 120L	<u>187.25</u>	
	343.81	
2000 lb. @ \$14.85/100	<u>297.00</u>	
	640.81	
Plus 10%	<u>64.08</u>	<u>\$704.89</u>

Core Boxes

58 - BQ Core Boxes @ \$ 5.40 per box	313.20	
58 - Lids @ \$2.19 per lid	<u>127.02</u>	
	440.22	
Freight: 350 lb. @ \$14.85 per 100	<u>51.98</u>	
	492.20	
Plus 10%	<u>49.22</u>	<u>\$541.42</u>

AUG 24 1983

HOLE STABILIZING

A) Labour & Equipment

<u>Date</u>	<u>Hole #</u>	<u>Memo</u>	<u>Man Hrs.</u>	<u>Drill</u>
July 31N	83-5	Recover Core Barrel	<u>6</u>	<u>3</u>

Labour:	6 hours @ \$28.40 per hour	\$170.40	
Drill:	3 hours @ 20.00 per hour	60.00	
Pump:	3 hours @ 2 x 2.50 per hour	<u>15.00</u>	<u>\$245.40</u>

133 24 1983

B) Materials

<u>Date</u>	<u>Hole #</u>	<u>Item</u>	<u>Amount</u>
July 31N	83-5	1-BQ Core Bit #8606-31	369.15
July 31N	83-5	1-BQ Reaming Shell #1L3085D	220.59
July 31N	83-5	1-3 7/8" Tricone	<u>208.65</u>
			798.39
	Plus 12%		<u>95.81</u> 894.20
			<u>\$1,139.60</u>



TRACTOR RENTALLabour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hrs.</u>	<u>Tractor</u>
July 25D	Move to Hole #83-2	2	2
July 27D	Move to Hole #83-3	5	5
July 29D	Move to Hole #83-4	2	2
July 31D	Move to Hole #83-5	<u>2</u>	<u>2</u>
		11	11

Labour: 11 hours @ \$28.40 per hour	\$312.40	
Tractor: 11 hours @ 32.00 per hour	<u>352.00</u>	<u>\$664.40</u>

TRAVEL TIME

Labour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hrs.</u>
July 22	Travel to and from Drill	1
July 23	Travel to and from Drill	2
July 24	Travel to and from Drill	2
July 25	Travel to and from Drill	2
July 26	Travel to and from Drill	2
July 27	Travel to and from Drill	2
July 28	Travel to and from Drill	2
July 29	Travel to and from Drill	3
July 30	Travel to and from Drill	2
July 31	Travel to and from Drill	<u>2</u>
		20

Labour: 20 hours @ \$28.40 per hour \$568.00

Testing

Hole #83-1	Acid Test @ 260 ft.	3 ft. x 19.10	57.30	
Holt #83-1	Acid Test @ 445 ft.	3 ft. x 19.10	57.30	
Hole #83-2	Acid Test @ 225 ft.	3 ft. x 19.10	57.30	
Hole #83-3	Acid Test @ 225 ft.	3 ft. x 19.10	57.30	
Hole #83-4	Acid Test @ 501 ft.	3 ft. x 19.70	<u>59.10</u>	<u>\$288.30</u>

Board & Lodging

20 2/3 days @ \$35.00 per day \$723.33

**D.W. COATES**  
ENTERPRISES LTD.  
DIAMOND DRILLING CONTRACTORS

2560 A Simpson Road, Richmond, B.C. V6X 2P9  
Phone: (604) 273-0985  
Telex No.: 04357618

Nolan Geological Enterprises Ltd.  
Suite 540  
707 Seventh Avenue, S.W.  
Calgary, Alberta  
T2P 0Z2

INVOICE NO.: 2529  
JOB NO.: 502  
DATE: August 22, 1983

Parson, B.C. Drilling

August 1 - 10, 1983

Drilling Detail	\$15,680.40
Demobilization	3,612.80
Moving Between Holes	1,980.80
Drilling With Mud	51.70
Core Boxes	349.76
Reaming Casing and Hole Stabilizing	690.40
Travel Time	468.60
Testing	114.60
Board and Lodging	<u>781.67</u>
	<u>\$23,730.73</u>

DRILLING DETAIL

<u>Hole #</u>	<u>Size</u>	<u>From</u>	<u>To</u>	<u>Footage</u>	<u>Rate</u>	<u>Amount</u>
83-5	BQ	0	5	5	\$19.00	\$ 95.00
83-5	BQ	5	356	351	19.10	6,704.10
83-6	BQ	0	2	2	19.00	38.00
83-6	BQ	2	465	<u>463</u>	19.10	<u>8,843.30</u>
				821		<u>\$15,680.40</u>

DEMOBILIZATION

A) Lump Sum

Transport Drill Equipment and Personnel from truck load point to base

50% x \$3,000.00

\$1,500.00

B) Labour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hours</u>	<u>Tractor</u>
August 7N	Move to Truck Load Point	2	-
August 8D	Move to Truck Load Point	28	6
August 9D	Move to Truck Load Point	<u>32</u>	<u>5</u>
		62	11

Labour: 62 hours @ \$28.40 per hour

\$1,760.80

Tractor: 11 hours @ \$32.00 per hour

352.00

\$2,112.80

\$3,612.80

MOVING BETWEEN HOLES

Labour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hrs.</u>		<u>Tractor</u>
August 1N	Move to Hole #83-5A	6		-
	Less Coates Ent. Portion	<u>0</u>	6	-
August 3D	Move to Hole #83-6	18		1
August 4D	Move to Hole #83-6	40		5
August 5D	Move to Hole #83-6	<u>18</u>		<u>5</u>
		76		11
	Less Coates Ent. Portion	<u>20</u>	<u>56</u>	<u>0</u>
			62	<u>11</u>

Labour: 62 hours @ \$28.40 per hour

\$1,760.80

Fractor: 11 hours @ \$20.00 per hour

220.00

\$1,980.80

DRILLING WITH MUD

Materials

3 - Super-Gel @ \$8.24 per bag	\$ 24.72	
Freight: 150 lbs. @ \$14.85/100	<u>22.28</u>	
	47.00	
Plus 10%	<u>4.70</u>	<u>\$ 51.70</u>

Core Boxes

37 - BQ Core Boxes @ \$ 5.40 per box	\$199.80	
37 - Lids @ \$2.19 per lid	<u>81.03</u>	
	280.83	
Freight: 250 lbs. @ \$14.85/100	<u>37.13</u>	
	317.96	
Plus 10%	<u>31.80</u>	<u>\$349.76</u>



REAMING CASING AND HOLE STABILIZING

A) Labour & Equipment

<u>Date</u>	<u>Hole #</u>	<u>Memo</u>	<u>Man Hrs.</u>	<u>Drill</u>
August 1D	83-5	Recover Bit and Shell	4	2
August 6D	83-6	Ream Casing 2 ft. to 64 ft.	<u>10</u>	<u>5</u>
			14	7

Labour:	14 hours @ \$28.40 per hour	\$397.60		
Drill:	7 hours @ \$20.00 per hour	140.00		
Pump:	7 hours @ 2x\$2.50 per hour	35.00		
Casing Usage:	62 feet @ \$ 1.90 per foot	<u>117.80</u>	<u>\$690.40</u>	

TRAVEL TIME

Labour & Equipment

<u>Date</u>	<u>Memo</u>	<u>Man Hrs.</u>
August 1	Travel To and From Drill	2½
August 2	Travel To and From Drill	2
August 3	Travel To and From Drill	2
August 4	Travel To and From Drill	2
August 5	Travel To and From Drill	2
August 6	Travel To and From Drill	2
August 7	Travel To and From Drill	2
August 8	Travel To and From Drill	<u>2</u>
		16½

Labour: 16½ hours @ \$28.40 per hour

\$468.60

Testing

Hole #83-5	Acid Test @ 356 ft.	3 ft. x \$19.10	\$57.30	
Hole #83-6	Acid Test @ 465 ft.	3 ft. x \$19.10	<u>57.30</u>	<u>\$114.60</u>

Board and Lodging

22 1/3 days @ \$35.00 per day				<u>\$781.67</u>
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# BARRINGER MAGENTA LIMITED

304 CARLINGVIEW DRIVE  
METROPOLITAN TORONTO  
REXDALE, ONTARIO  
CANADA M9W 5G2  
PHONE 416-675-3870  
TELEX 06-989183

SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

DATE: August 31, 1983

PROJECT: 104.51

PERIOD COVERED:

SALES ORDER:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 83-5395

FED. SALES TAX: exempt

ONT. SALES TAX: exempt

- Nolin Geo Enterprises,  
540-707-7th Ave.S.W.
- CALGARY, Alberta  
T2P 0Z2
- 

TERMS: NET 30 days

AUTHORITY: G. Nolin

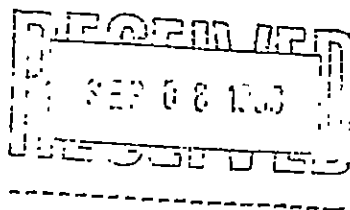
Project: Crystal Creek

TO:

79	AU & AG assays	@ \$ 11.00	\$ 869.00
37	PB assays	7.25	268.25
41	ZN assays	7.75	317.75
79	Rock sample preparation	3.20	<u>252.80</u>

Total invoice

\$1,707.80



INVOICE No 9426



# BARRINGER MAGENTA LIMITED

304 CARLINGVIEW DRIVE  
METROPOLITAN TORONTO  
REXDALE, ONTARIO  
CANADA M9W 5G2  
PHONE. 416-675-3870  
TELEX 06-989183

SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

DATE: August 31, 1983

PROJECT: 104.51

PERIOD COVERED:

SALES ORDER:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 83-5384

FED. SALES TAX: exempt

ONT. SALES TAX: exempt

- Nolin Geo Enterprises,  
540-707-7 Ave.S.W.
- CALGARY, Alberta
- T2P 3R6

TERMS: NET 30 days

AUTHORITY: G. Nolin

Project: Crystal Creek

TO:

52	AU & AG assays	@ \$ 11.00	\$ 572.00
26	PB assays	7.25	188.50
26	ZN assays	7.75	201.50
52	Rock sample preparation	3.20	<u>166.40</u>

Total invoice

\$1,128.40

INVOICE N<sup>o</sup> 9425



304 CARLINGVIEW DRIVE  
METROPOLITAN TORONTO  
REXDALE, ONTARIO  
CANADA M9W 5G2  
PHONE 416-675-3870  
TELEX. 06-989183

SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

DATE: September 30, 1983

PROJECT: 104.51

PERIOD COVERED:

SALES ORDER:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 83-5418

FED. SALES TAX: exempt

ONT. SALES TAX: exempt

Nolin Geo Enterprises,  
540-707-7 Ave.S.W.  
CALGARY, Alberta  
T2P 0Z2

TERMS: NET 30 days

AUTHORITY: G. Nolin

CRYSTAL

TO:

2 Au, Ag assays	@ \$ 11.00	\$ 22.00	
2 Pb assays	7.25	14.50	
2 Zn assays	7.75	15.50	
1 Sb assays	11.75	11.75	
2 Rock sample preparation	3.20	6.40	
Total invoice			\$ <u>70.15</u>

**PAID**

Chcque # \_\_\_\_\_

Date \_\_\_\_\_

INVOICE N<sup>o</sup> 9453

OCT 28 1983



# BARRINGER MAGENTA LIMITED

304 CARLINGVIEW DRIVE  
METROPOLITAN TORONTO  
REXDALE, ONTARIO  
CANADA M9W 5G2  
PHONE 416-675-3870  
TELEX 06-989183

SERVICES FOR THE EARTH AND ENVIRONMENTAL SCIENCES

DATE: September 30, 1983

PROJECT: 104.51

PERIOD COVERED:

SALES ORDER:

PROGRESS BILLING:

SHIPPING REPORT:

WORK REPORT: 83-5419

FED. SALES TAX: exempt

ONT. SALES TAX: exempt

- Nolin Geo Enterprises,  
540-707-7 Ave.S.W.
- CALGARY, Alberta  
T2P 0Z2
- 

TERMS: NET 30 days

AUTHORITY: G. Nolin

Project: Crystal Creek

TO:

15	Au, Ag assays	@ \$ 11.00	\$ 165.00
3	Au assays	9.25	27.75
11	Pb assays	7.25	79.75
13	Zn assays	7.75	100.75
6	Sb assays	12.00	72.00
7	Cu assays	6.25	43.75
18	Rock sample preparation	3.20	57.60

Total invoice

\$ 546.60

PAID

Cheque # \_\_\_\_\_

Date \_\_\_\_\_

INVOICE N<sup>o</sup> 9462

canadian mountain holidays  
\$\$\$\$ INVOICE \$\$\$\$

116 6694



P.O. BOX 1660  
BANFF, ALBERTA T0L0C0  
TEL. (403) 762-4531

AUGUST 31, 1983

NOLIN GEO ENTERPRISES LTD.  
1900 520 5 AVE S.W.

CALGARY, ALBERTA  
T2P 3R6

6 AUGUST 1983	FR 12805K	1.3 HRS	
7 AUGUST 1983	FR 12807K	.8 HRS	
	TOTAL	2.1 HRS	@\$450.00
FUEL 2.1 HRS @24 GAL HR.X\$2.79			\$945.00
16 AUGUST 1983	FR 12815K	1.0 HRS.	@\$450.00
FUEL 1.0 HRS @24 GAL HR.X\$2.79			140.00
			450.00
			<u>66.96</u>

TOTAL DUE

\$1601.96

< 516 96 > NOLIN

1085 00

THANK YOU

PAULINE CARR-GANES

TERMS: 1.5% PER MONTH OVER 28 DAYS

POSTED DATE: 7/17/83  
 REF: 2154-03 08  
 CODE: P21E

**PAID**

Cheque # 764 COG

Date 27/09/83





# COCHRANE RESOURCES LTD.

1-403-270-2715

2340 - 1st Avenue N.W.  
CALGARY, ALBERTA T2N 0B8  
Telephone: (403) 270-2715

## INVOICE

No 2942

TO: Cochrane Oil & Gas Ltd.,  
2340 - 1st Avenue N.W.,  
CALGARY, Alberta,  
T2N 0B8

DATE: November 30, 1983

INVOICE

SERVICES PERFORMED	TOTAL
<p data-bbox="284 871 1015 934"><u>RE: CRYSTAL CREEK EXPLORATION PROGRAM - 1983</u></p> <p data-bbox="170 987 1144 1092">2 Senior Geologists - G. Isfan and B. Edgar at \$350.00/day per man on July 23, 24, 30, 31 and August 6, 1983 (Total of 10 man hours) for total invoice = \$ 3,500.00</p> <p data-bbox="852 1480 1144 1522">TOTAL THIS INVOICE</p>	<p data-bbox="1356 1480 1518 1543"><u>\$ 3,500.00</u></p>

TERMS: PAYABLE UPON RECEIPT

Interest at the rate of 2% per month or 24% per annum will be charged on all invoices owing 30 days after date of invoice.

NAME: Gold Commissioner ADDRESS: P.O. Box 39  
Golden, B.C.  
VoA 1H0

DETAILS:  
Grouping of Crystal Creek Mineral Claims

4 notices to Group @  
\$5.00/group

**PAID**

Cheque # 907 Co.S.  
 Date 14 Dec / 83

AMOUNT DUE:  
\$20.00

DATE:				REF:			
OFF SET SUPPLIER CODE	1	G/L ACCT. NO.		SUB ACCT.	AMOUNT		
	2	COST ACCT NO.	JOB NO.		COST CODE	DR	CR



The First Canadian Bank  
**Bank of Montreal**  
 Shell Centre  
 400 - 4 Avenue S.W.  
 Calgary, Alta. T2P 0J4

Current Account

14th December 1983 No 907

Pay to the order of GOLD COMMISSIONER \$ 20.00

**REGISTERED** R38N81181 **20 DOLS 00 CTS** /100 Dollars

Grouping of mineral claims at  
 Crystal Creek

COCHRANE OIL & GAS LTD.

*[Handwritten Signature]*

⑆06439⑆00⑆⑆

⑆000⑆⑆739⑆⑆

NAME: Gold Commissioner ADDRESS: P.O. Box 39  
Golden, B.C.  
Y0A 1H0

DETAILS: Recording fee for  
work done on Crystal Creek  
mineral claims in 1983

DATE:		REF:				
OFF SET SUPPLIER CODE	1	G/L ACCT. NO.		SUB ACCT.	AMOUNT	
	2	COST ACCT NO.	JOB NO.	COST CODE	DR	CR

**PAID**

Cheque # 911 C O G  
Date 20 Dec. / 83

AMOUNT DUE: \$ 4700<sup>00</sup>



The First Canadian Bank  
**Bank of Montreal**

Shell Centre  
400 - 4 Avenue S.W.  
Calgary, Alta. T2P 0J4

Current Account

20th December 1983 No 911

Pay to the order of GOLD COMMISSIONER \$4,700.00

REGISTERED  
R38N81161 **4700 DOLLS 00 CTS**

/100 Dollars

Recording fee for work done on  
Crystal Creek mineral claims  
in 1983.

COCHRANE OIL & GAS LTD.  
*George James [Signature]*

⑆06439⑆00⑆ ⑆000⑆739⑆

APPENDIX I

EQUIPMENT SPECIFICATIONS

## EQUIPMENT SPECIFICATIONS

The specification for the equipment used was as follows:

### (1) Magnetic survey

Instrument	-Geometrics G-816 Proton Magnetometer S/N
Reading accuracy	-1 Gamma
Repeatability	-1 Gamma on pole -5 Gammas with backpack
Range	-20,000 - 90,000 Gammas
Gradient tolerance	-150 Gammas/ft.

### (2) Self Potential survey

Instrument	-Fluke Digital Volt Meter
Reading accuracy	-0.1 millivolts
Input impedance	-50 M OHM+
Ground contact	-Copper Sulphate - Porous pots

### (3) Gravity survey

Instrument	-Worden Master Gravity Meter -Wild T16 Transit
Accuracy	-(+) or (-) 0.01 milligal - gravity -elevation 0.05 ft.

APPENDIX II

SURVEY SPECIFICATIONS

## SURVEY SPECIFICATIONS

### (1) Magnetic Survey

Readings were normally taken at 10 meter station intervals in a series of loops closed to establish base stations and corrected for sraft and base level shift in the normal manner. All survey work was carried out with the sensor on staff producing a re-peatibility of about 1 gamma.

### (2) Self Potential Survey

The two contact electrodes were calibrated at the start of each survey loop by taking a reading at each station. Maximum distances between the two electrodes was 150 meters, the base electrode was moved when necessary. Each survey area was covered in a series of closed loops which were tied together and corrected for calibration and drift.

### (3) Gravity Survey

#### (a) Elevation

Elevations at each station were measured with a transit from an arbitrary elevation. Vertical angles and distances computed from the rod readings and the elevations computed in the normal manner. All stations were read from two transit locations.

#### (b) Gravity

Stations were surveyed in a closed loop and corrected for Earth tides and drift. Bouguer gravity was computed using a density of 2.0 gms./c.c. as the majority of local topographic relief is in overburden or broken rock.

APPENDIX III

DIAMOND DRILL HOLE LOGS



# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-1

SHEET NUMBER 1 -

SECTION FROM 0 TO 15.80

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 93°

ULTIMATE DEPTH 135.6 m (445 ft)

ELEVATION \_\_\_\_\_

DIP 50°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
0 - 6.4	Casing.							
6.4 - 7.09	Quartzite, v. f. gr. - m. gr., gy to brn, w/ occ. c. gr. grains grading into Grit. Lower contact 50°; occ. fracture @ 28° fracture face ex; tr. py							
7.09 - 7.48	Grit, fine < 8mm, w/ bluish elong. gtz grains    to shear dir. ex on both sides of fractures; 30°							
7.48 - 7.75	Quartzite, gy to brn, max. ex, f. gr., w/ occ. c. grns, occ. fract. @ 30°. fracture face ex							
7.75 - 8.00	Quartzite a.n. argil. massive, srt. max. gy, w/ X crossing quartz veins ± 3mm, 25° & 160°, yellowish. ex, tr. py in gtz.							
	SAMPLE: 7.75- 8.00 m	1176	.25 m	.001	.001	.002	.012	
8.00 - 15.80	Quartzite, pred. f. m. gr., ltgy. m. gy, max. argil. in places, w/ thin quartz veinlets, 15-20°, in places, fractures at 11.6m; 35°, In places graded bedding; 30°, gen. coarser w/ depth, tr. py.							

LF C 128

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-1

SHEET NUMBER 2

SECTION FROM 15.80 TO 30.95

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 95°

ULTIMATE DEPTH 135.6 m (445 Ft)

ELEVATION \_\_\_\_\_

DIP 50°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
15.80 - 16.85	Quartzite, m.g. i Grit fine < 8mm, H.gy. max. w/ several barren wh. quartz veins, 5mm-20mm, 20° i lenses of atz in places atz const. 10% of core. no visible min.							
16.85 - 17.30	a.a. w/out quartz veins, at 17.15-17.30 in inclusions of pelite, dkgy. contorted, occ fract. 35°, fracture face ex.							
17.30 - 19.00	Grit, H.gy - bluish gy, < 8mm, w/ bluish quartz pebbles, bedding 40°.							
19.00 - 20.00	Quartzite, m.-v.c.gy, brn gy, ex, porous in places i Grit a.a. tr. limonite. Lower Contact; 10-15°							
20.00 - 20.75	Quartz, wh-yel, milky, ex in places, badly broken, vuggy. w/ cub. qtz XX, shear zone? tr. py near quartz							
	SAMPLE: 20.00-20.50 + 20.60-20.75	1177	.75	.001	.001	-	-	-
20.75 - 30.95	Grit, fine, pebbles up to 8mm, max. ex, w. sstd. interbedded sequence of ex. i max zones							

LF C-1256

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-1

SHEET NUMBER 3

SECTION FROM 30.95 TO 42.25

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 95°

ULTIMATE DEPTH 135.6 m (445 Ft)

ELEVATION \_\_\_\_\_

DIP 50°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE NO.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	OX zones: 20.75-21.10; 21.74-21.90; 23.08-22.22; 24.15-24.40; 24.75-25.90; 28.50-29.10; 29.50-30.00; 30.15-30.45 at 26.50-26.70 small shears w/ gouge ex. 5mm thick @ 45°. tr. py throughout. occ. thin qtz veinlet < 2mm.							
30.95 - 31.70	Quartzite m-cgr. max-ox, gy-brn, ox: 30.95-31.00 Shear zone: 31.25-31.30 w/ 1-2% py min, fractures @ 35° Lower contact: 25°	1178	.25 m	.001	.001	-	-	-
	SAMPLE: 26.75-27.00							
		1179	.25 m	.001	.001	-	-	-
31.70 - 38.40	Grit 5-10mm pebbles w/ bluish qtz grains, max-ox, w/ occ milky barren qtz vein, up to 15mm, 30-35° OX-zones: 32.15-32.35, from 32.40-32.50 badly broken fractures @ 30°, 34.10-34.75, 35.00-35.60, 35.60-35.70, 36.40-37.00 badly ox & fractured, blocky. From 37.00-38.40 several ex fract: 35° towards bottom of section sediment finer (more quartzitic.)							
	SAMPLE 35.00-35.40	1180	.4 m	.001	.001	-	.001	.002
38.40 - 42.25	Quartzite m-cgr ↔ Grit (pebbly qtzid) ltgy-gy, max-ox, w/ occ. gteartz vein, milky wh. barren, up to							

LF C-129C

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 4 SECTION FROM 42.25 TO 62.40 STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6m (445 Ft)

ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	20 mm @ 25°. Section ex. from: 40.10-40.20, 40.30-40.60 ; 41.00 - 41.15. Occasional tr. py. Lower Contact 40°							
42.25 - 45.50	Quartzite, m gr, gy, unex w/ occ. fractures @ 50° grading into pebbly v.c.gr. quartzite. tr. py							
45.50 - 62.90	Quartzite, v.c.gr. pebbly to fine, c 6mm, Grit Hgy- gy, unex, from 50.50-51.00 inclusions of dkgy pelite, from 52.15-52.95, ex w/ fractures @ 65°, occ. incl. of pelite, dkgy & thin milky wh. quartz veins up to 10mm, barren to few % py near contact w/ pelite, from 56.70-59.70 dkgy pelite incl, from 57.20-57.25 ; 57.40-57.65 ex, also ex, from 58.35-58.85 w/ several ex. fractures 60°. From 61.70-62.50 badly broken ex fragments w/ thin ungy wh-yel. quartz veins < 10 mm, tr.py							
	SAMPLE: 52.40 - 52.80	1181	.4	.011	.012	-	-	-
	61.80 - 62.45	1182	.65	.001	.001	-	-	-

LF C-1286

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 5 SECTION FROM 62.90 TO 70.50 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6 m (445 m)  
 ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
62.90 - 63.60	Pelite dk gy - var. slty in places, bedding @ 12°, tr. euh. py throughout.							
63.60 - 68.18	Grit (f. gravel) up to 8mm, w/ occ thin beds, < 5cm, of blk pelite, sl. graphitic also in fragments in Grit, bedding @ 40°. fractures in grit, ox facies @ 25°. Tr. py. primarily in pelite							
68.10 - 68.70	Quartz, milky wh - yellow (fracture faces), contacts: 35-40° tr. py at contacts, i. tr. Fe oxide throughout. Sampled across contacts: SAMPLE 68.10-.25/68.60-.75	1183	.3 m	.001	.012	-	-	-
68.70 - 68.92	Pelite dk gy - brn i. Quartzite, gy. : shear zone (healed) w/ tr. py. shear dir: 35° SAMPLE: 68.75 - 69.05	1184	.3 m	.001	.001	-	-	-
68.92 - 69.05	Quartz, milky white, barren.							
69.05 - 70.50	Quartzite, m.-v. gr. to Grit fine, < 0.7cm, gy, var w/ graph. pelite fragments in places, between contact pelite/Quartzite cons. py/ma. (stringers, blebs)							

LF C-1296

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 6 SECTION FROM 70.50 TO 80.65 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6 m (445 Ft)  
 ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	SAMPLE: 69.50 - 69.60	1185	.3 m	.001	.066	-	-	-
70.50 - 70.65	Pelite dkgy-blk, highly contorted bedding							
70.65 - 70.80	Pelite a.m. w/ fragments of quartzite, healed w/ quartz, tr. py							
	SAMPLE: 70.60 - 70.85	1186	.25 m	.001	.036	-	-	-
70.80 - 79.25	Quartz, milky wh, fract. appearance, from 71.20-71.30 incl. of quartzite, m. gr. qtz. from 71.30-71.85 core broken i ox., no apparent min.							
	SAMPLE: 71.18 - 71.45	1187	.27 m	.001	.018	-	-	-
	71.45 - 71.85	1188	.4 m	.001	.001	-	-	-
	77.00 - 79.25	1189	.25 m	.001	.001	-	-	-
	quartz barren to 79.10. from 79.10 - 79.25, tr. py increasing to thin massive stringers near lower contact, tr. ga i sphal.							
	SAMPLE: 79.15 - 79.25	1190	.15 m	.001	.006	-	.001	.006
79.25 - 80.65	Quartzite m.-v.c.gr. to Grit fine, < 8mm, w/ bluish quartz pebbles, w/ several quartz veins (< 20mm)							

LF C-1296

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 7 SECTION FROM 80.65 TO 87.75 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6 m (445 Ft)  
 ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz. / ton		percent		
				Au	Ag	Cu	Pb	Zn
	section appears badly sheared @ 45° tr. py incr. toward lower contact (10% near lower contact)							
	SAMPLE: 79.46 - 79.66	1191	.2 m	.003	.001	-	.001	.008
	: 80.55 - 80.80	1192	.25 m	.001	.03	-	-	-
80.65 - 83.90	Quartz, milky wh. to yell., quartz v. porous; XX fine in places tr. py ("massive") in stringers & blebs. tr. ga & sphal. throughout in places ga concentrated in small veinlets, <5mm, indiv. blebs & venter on fractures in quartz core badly broken over min. section. From 81.50 - 82.10 quartz oxi, Lower contact: 45°							
	SAMPLE: <del>80.80 - 81.20</del> 81.20	1193	.4 m	.001	.018	-	.011	.043
	<del>81.50 - 82.10</del> 81.50 81.75	1194						
	82.15 - 82.35 <del>82.15 - 82.35</del>	1195	.25 m	.003	1.41	-	.420	.005
	83.80 - 83.92	<del>1196</del>	.25 m	.004	2.61	-	2.06	.044
83.90 - 87.75	Grit fine, < 0mm, to v.c. gr. pebbly quartzite. gy. mnr strongly fol. @ 40°. quartz veins, 10-20mm thick @ 40° at 85.00, 87.00, 87.13. at 87.13, "massive" py in quartz. at 86.38, 10mm. ga, py & quartz vein ga + py = 75%. Lower contact: 60°	1196	.12 m	.004	.030	-	.018	.001
	SAMPLE: 87.00 - 87.15	1198	.15 m	.003	1.92	-	.31	.15
	86.34 - 86.43	1197	.1 m	.003	13.1	-	4.37	.019

LF C-1296

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SIGNED .....

# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 8 SECTION FROM 87.75 TO 95.80 m STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6 m (445 Ft)

ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE NO	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
87.75 - 92.40	Quartz, milky wh, from 87.75-88.20 incl. of fragments in thin beds, <20mm, of pelitic dk gray-mgy, tr. py & ga (py > ga). From 88.20-92.40 essentially no min. in quartz.							
	SAMPLE: 87.75 - 88.15	1199	.4	.003	.144	-	.009	.001
92.40 - 93.70	Quartz, milky wh, in Grit, fine, in quartzite, "inter bedded", contacts irregular (healed shear zone? breccia?) in places near contact quartz - metasedi- ments, consid. emb. py, several py XX w/ calcite tr.							
	SAMPLE: 92.40 - 93.00	1200	.6	.003	.078	-	-	-
	93.40 - 93.70	1201	.3	.001	.024	-	.003	.001
93.70 - 95.80	Quartz, milky wh, vuggy in places, occ. blebs of py at 94.45-94.60. Thin irr. stringer, 3mm, of ga, py at 95.48. from 95.75-95.80 approx 5% py & tr. "wiry" ga.							
	SAMPLE: 94.45 - 94.60	1202	.15	.003	.030	-	.003	-.001
	95.75 - 95.82	1203	.7	.002	1.86	-	.170	-.001

LF C-1296

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 9 SECTION FROM 95.80 TO 107.00 STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6 m (445 Ft)

ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
95.80 - 96.25	Quartz, milky wh w/ inclusions of grit i. v.c.gr. pebbly quartzite within inclusions 5-10% enh. py.							
96.25 - 99.40	Quartz, milky wh w/ occ. stringer (< 5mm) of py i. tr. ga.							
	SAMPLE 98.22 - 98.45	1204	.23	.001	.759	-	.003	.001
99.40 - 99.50	Quartz, milky white w/ fragments of pelite, dk gy within pelite & 2-3% enh. py							
99.50 - 100.10	Quartz, milky white, barren.							
100.10 - 105.30	Quartz, milky white, w/ incl. of dk gy, pelite, grit fin. i quartzite m.v.c.gr., gy py (enh) mineralization concentrated in inclusions 1-3%, In places calcite-siderite blebs i stringers in quartz.							
	SAMPLE: 100.10 - 100.75	1205	.65	.002	.030	-	-	-
	102.82 - 103.20	1206	.38	.006	.018	-	-	-
105.30 - 107.00	Quartz, milky white, barren.							

LF C-125c

DRILLED BY \_\_\_\_\_

SIGNED \_\_\_\_\_

# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-1

SHEET NUMBER 10 SECTION FROM 107.00 TO 126.30 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 95° ULTIMATE DEPTH 135.6 m (445 m)  
 ELEVATION \_\_\_\_\_ DIP 50° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
107.00 - 111.10	Quartz w/ inclusions of m-dk gy pelite; dk gy-blk graph. pelite w/ contorted bedding (beds < 3mm); Grit fine < 8mm, f-v.c. gr quartzite tr. py (primarily associated w/ pelite) Lower Contact: 45°							
	SAMPLE: 109.80 - 110.10	1207	.3 m	.002	.03	-	.007	.001
	110.70 - 111.10	1208	.3 m	.001	.018	-	-	-
111.10 - 112.00	Grit fine, < 8mm, to v.c. gr, pebbly quartzite, gy, mx, w/ occ. thin < 20mm, quartz vein, milky sh; tr. py. Lower Contact: 18°							
112.00 - 112.80	Pelite, m.-dk gy, mx, graph. in places, banded, & speckled, tr. eh. py							
112.80 - 113.58	Grit fine, gy, pelite, gy-dk gy, & quartz veins brecciated (healed w/ quartz) tr. py (primarily in pelite) at 113.10 tr. sphat. & ga.							
	SAMPLE: 112.80 - 113.20	1209	.4 m	.016	.066	-	.140	.001
113.58 - 126.30	Grit fine, < 5mm, gy w/ bluish gtz pebbles, tr. eh. py throughout. Barron quartz veins at							

LF C-1296

DRILLED BY \_\_\_\_\_

SIGNED \_\_\_\_\_

# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-1

SHEET NUMBER 11

SECTION FROM 126.30 TO 135.60

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 95°

ULTIMATE DEPTH 135.6 m (445 Ft)

ELEVATION \_\_\_\_\_

DIP 50°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	114.08 (3cm); 114.35 (15cm); 114.90 (10cm); 122.45 (5cm); 125.30 (3cm) and 125.45 (6cm). angle qtz veins 40-45°. Lower contact: 18°							
126.30 - 127.95	Pelite, dkgy, graph. w/ contorted bedding w/ inclusions of quartzite, f. v.cgr., irregular quartz lenses wh. to greenish at 127.5. Lower contact: 32°							
127.95 - 128.20	Quartzite, m. gr., massive bedded, w. s.t.d., m. gy. max. Lower contact: 32°							
128.20 - 131.80	Grit, fine, < 8mm, m. gy, w/ occ. thin (< 2cm) quartz veins w/ calcite incl.							
131.80 - 135.60	Pelite, mgy-blk, max, w/ contorted bedding. lt gray silty beds; dk gray arg. beds.							
	Angle: 0 m. 50° 0 Ft							
	99.5 m. 48 1/2 260 Ft							
	135.6 m 42 445 Ft							

LF C-1296

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK B.C. HOLE NO. 83-2

SHEET NUMBER 1-2 SECTION FROM 0 TO 48.50 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 135° ULTIMATE DEPTH 68.6 m (225 Ft)  
 ELEVATION \_\_\_\_\_ DIP 45° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
0 - 6.10	Casing							
6.1 - 19.15	Pelite, gy to blk, badly broken in places, ex. along fractures, fractures at approx 30°, From 10.4 - 11.8 m deeply ex., bedding 7-10°, in places speckled, and/or banded, in places bedding highly contorted, tr. py min., primarily emb. XX, several w/ calcite rim, majority aligned // to bedding							
19.15 - 20.90	Quartzite, f.-m. gr., several thin, < 5 mm, calcite veinlets throughout section: 30-35°; no mineralization Lower contact: 5-10°							
20.90 - 27.15	Pelite, silty, massive, in places argil. w/ blk & white banding, tr. py throughout. Lower contact: 10°							
27.15 - 29.45	Quartzite, v.f.-f. gr, gy, occ. thin, < 5mm, calcite stringer and occ. shear: 30°. tr. py. Lower contact: 8-10°							
29.45 - 48.50	Pelite, gy-dk gy, arg. & aren. & silty in places, in places banded, speckled and in places contorted banding. Calcite veinlets (< 5mm) prominent in places							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. B3-2

SHEET NUMBER 2-2 SECTION FROM 48.50 TO 68.6 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 135° ULTIMATE DEPTH 68.6 m (225 Ft)  
 ELEVATION \_\_\_\_\_ DIP 45° Dip @ 68.6: 41.5° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	approx 3% of core, no core min.; from 41.00-44.30 m badly broken, fractures @ 30-40°, fracture faces ex. sl. graph.; tr. py throughout w/ indiv. ex. XX up to 8mm several py XX w/ calcite rim. Lower Contact; 8°							
48.50 - 57.80	Quartzite, v.f.gr, argil. to aren. pelite, lt gy-m.gy. w/ occ. thin, < 5mm, dk gy pelite bed. 15-20°, occ. fracture @ 70°; parallel to bedding, fracture faces ex., in places 1-2 cm of ex. rock on both sides of shear.							
57.80 - 58.10	a.a. badly broken w/ 10cm thick milky wh. quartz vein, tr. py; tr. ga.							
		SAMPLE: 57.80-58.10 m	1227	.3 m	.001	.001	-	.009 .015
58.10 - 59.00	Quartzite, v.f.gr, interbedded w/ m.gy-dk.gy banded and/or speckled pelite, contorted.							
59.00 - 68.60	a.a. w/ thin dk.gy pelite beds, 35° increasing to 30° toward bottom of hole; most pelite beds speckled.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-3

SHEET NUMBER 1

SECTION FROM 0 TO 16.30 m

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 61°

ULTIMATE DEPTH 68.6 m. (225 Ft)

ELEVATION \_\_\_\_\_

DIP 45°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
0 - 3.06	Casing							
3.06 - 10.45	Grit, fine < 7mm, to v.c. gr. pebbly quartzite, gy - lt gy brn. unox - ox, ox in irregular bands. from 5.70 - 5.77, dk gy pelite, beddy 40°. Occ. fracture @ 20°. in places sericitic sediment becomes finer with depth. at 10.08 5cm quartz vein, vuggy, xx line & ox at 10.25 thin quartz vein, 10cm, white. Occ. trace py in section							
10.45 - 10.88	Quartzite, c. gr. gy. unox, w. sst. Lower contact 45°							
10.88 - 11.10	Pelite dk gy - brn, unox - ox, badly broken							
11.10 - 16.30	Grit, fine < 10mm, gy - mottled brn, ox along foliation/ bedding, large blue gtz pebbles, bottom part of section prim ox., broken core, at 15.12 - 15.32, a white vuggy quartz vein w/ limonite in vugs, irregular contacts, one 6mm, ga xx. Tr. py & limonite throughout.							
	SAMPLE: 15.35 - 15.60	1210	.25 m	.001	.001	-	.001	.003

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-3

SHEET NUMBER 2 SECTION FROM 16.30 TO 17.35 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 61° ULTIMATE DEPTH 68.6 m (225 Ft)  
 ELEVATION \_\_\_\_\_ DIP 45° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
16.30 - 17.35	Badly broken section v.p. core recovery 45%, pieces of badly sheared grit w/ 5-10% sub.py. & thin blocks of pelite w/ talc. & 2-3% sub.py. near lower contact 16 cm section of 30-50% py (massive) w/ pelite & dol. fragments. Lower contact: 90°							
	SAMPLE: 16.30 - 17.19?	1211	.89 m	.001	.018	-	.004	.007
	17.19 - 17.35	1212	.16 m	.001	.054	-	.041	.001
17.35 - 33.75	Quartz, milky white - yellow, numerous irregular fract. Fe ox on fractures, vuggy in places, near upper contact tr. py. From 27.67-28.00 quartzite frag. w/ 1-3% sub.py, upper contact 90° lower contact irregular. From 28.45-28.60 quartzite fine gr, lt gy. max, upper contact 80° lower contact 50°. From 29.22-29.27 badly sheared quartzite, blocky core w/ 5-10% py with considerable carbonate in filling from 29.15-29.22. From 32.80-32.86 lt-dkgy. banded pelite quartz near upper contact w/ pelite yellowish, 2-3% sub.py in pelite. at 33.06 10 mm thick sphal. & py layer. w/ tt ga. contacts at 65°. At 33.64 10 mm thick massive py.							
	SAMPLE: 17.35 - 17.55	1213	.2 m	.003	.018	-	-	-

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-3

SHEET NUMBER 3

SECTION FROM 17.35 TO 36.60 m

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 61°

ULTIMATE DEPTH 68.6 m (225 Ft)

ELEVATION \_\_\_\_\_

DIP 45°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent			
				Au	Ag	Cu	Pb	Zn	
	SAMPLE: 23.20 - 23.60	1214	.4	.001	.001	-	-	-	
	27.60 - 28.10	1215	.5	.004	.018	-	-	-	
	29.15 - 29.35	1216	.2	.003	.036	-	.011	.001	
	33.02 - 33.10	1217	.08	.003	.24	-	.003	5.85	
	33.60 - 33.75	1218	.15	.048	.001	-	-	-	
33.75 - 34.40	Quartzite, v.c.gr. pebbly - Grit. fine < 5mm, lt. gy. mass, tr. sub. py. at 33.90-33.95 milky wh. quartz vein w/ 1-2% sub. py.	SAMPLE: 33.75 - 34.20	1219	.45	.005	.024	-	-	-
34.40 - 35.58	Quartz, milky wh. fractured @ 50° at 35.05 a 1cm thick, contorted pelite bed w/ sil/dol. & tr. py. Lower contact @ 40°								
35.58 - 35.95	Quartzite v.c.gr. pebbly, lt. gy. mass w/ thin pelite beds from 35.81-35.83. tr. py. From 35.83-35.95 quartz barren. Lower contact 50°								
35.95 - 36.60	Quartz, milky wh. w/ occ. thin < 1cm, contorted dk. gy. pelite beds & irregular blebs of dol. tr. py. L. Contact: 35°	SAMPLE: 35.95 - 36.40	1220	.45	.001	.012	-	-	-

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-3

SHEET NUMBER 4

SECTION FROM 36.60 TO 43.75 m

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 61°

ULTIMATE DEPTH 68.6 m (225 Ft)

ELEVATION \_\_\_\_\_

DIP 45°

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent-		
				Au	Ag	Cu	Pb	Zn
36.60 - 36.90	Grit, fine, < 8mm, gy, max w/ occ. thin, < 1cm, m.gy pelite bed @ 60°							
36.90 - 37.00	Quartz, milky wh, barren.							
37.00 - 38.42	Grit fine, < 8mm, gy, max w/ thin, < 2cm, dkgy, pelite beds throughout core. total pelite ≈ 5% ; fract. red in places @ 50° // to bedding							
38.42 - 38.67	Quartz, milky wh, barren, L. contact @ 50°							
38.67 - 41.20	Grit fine, < 10mm, m-ltgy, max, w/ irregular dk gy pelite inclusion (≈ 3%) ; occ. quartz lens barren to tr. euh. py. from 41.00 - 41.20 2-3% euh. py. lower contact irregular.							
41.20 - 43.75	Quartz, milky wh, vuggy in places, from 41.20 - 41.40 irr. stringers of pelitic material w/ euh. py. from 42.30 - 42.90 irregular stringers of py, both euh & massive, siderite & dol. py. sid/dol ≈ 5-10% of section.							
SAMPLE : 40.95 - 41.40		(221)	.45 m	.003	.012	-	-	-

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-3

SHEET NUMBER 5 SECTION FROM 43.75 TO 63.50 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 61° ULTIMATE DEPTH 68.6 m (225 Ft.)  
 ELEVATION \_\_\_\_\_ DIP 45° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	SAMPLE: 42.30 - 42.90	1222	.6 m	.004	.018	-	-	-
43.75 - 63.50	Quartzite, m- v.c. gr. pebbly in places, lt. gy. max. occ. fracture @ 30-40° tr. eh. py throughout, from 47.00-47.50 broken. Grading into Grit fine <10mm at 49.30 to 50.10. From 50.10 to 63.50, v.c. gr. quartzite w. srted, lt. gy. max. At 51.30-51.36, milky wh. quartz vein w/ tr. eh. py near contacts. At 51.83 - 15mm quartz vein w/ 3mm py (massive - eh.) stringer. Dkgy. pelite beds and inclusions at: 53.60(2cm), 53.60 (5cm), 53.71(4cm), 54.00(3cm), 55.15(1cm), 55.30(3cm). From 56.65-57.10 pelite const. 50% of core. At 57.60-57.20 quartz vein w/ irregular contacts i tr. ga. At 62.94 a quartz rich zone, 2cm, w/ thin stringers, <2mm, of sphal. w/ tr. ga.							
	SAMPLE: 45.55 - 45.85	1223	.30	.004	.012	-	-	-
	51.77 - 51.88	1224	.11	.015	.001	-	.001	.001
	62.90 - 63.00	1225	.1	.001	.156	-	.15	1.18
	57.00 - 57.20	1226	.2	.003	.048	-	.04	.002
63.50 - 64.10	Quartz, milky wh, barren.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 1 SECTION FROM 0.0 TO 12.90 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 54° ULTIMATE DEPTH 152.6 (SDI Ft.)  
 ELEVATION \_\_\_\_\_ DIP 45° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET (m)	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
0 - 5.2	Casing							
5.2 - 10.90	Quartzite, v.c. gr. pebbly to Grit, <10mm, interbedded & grading into each other, lt gy-brn, max-ox, Grit & quartzite ox in bands of various width from 5.2 - 6.08; 7.4 - 7.6 & 7.95 - 9.85. occ. fractures @ 30-40° From 6.08 - 6.24 & 10.53 - 10.70 thin beds of pelite, ox. brn, speckled, ox    to bedding (40°) Upper & Lower contacts 40-45°. Arenaceous sediment becomes finer w/ depth toward bottom of section f. v. gr, gy, max quartzite. tr. py & lim.							
	SAMPLE: 5.90 - 6.10	1228	.2	.001	.001	-	.001	.004
10.90 - 12.90	Pelite, dk gy-brn, max-ox, a sequence of primarily thinly bedded arg. pelite in places w/ contorted bedding, with thin beds of silty pelite & v.f. gr. lt gy. quartzite. Bedding @ 50° occ. thin, < 5mm, thin barren quartz veinlets. parallel to bedding & in places highly contorted. tr. py primarily in py.							
	SAMPLE 11.26 - 11.50	1229	.24	.001	.001	-	.001	.01

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 2 SECTION FROM 12.90 TO 28.85 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m.	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
12.90 - 13.66	Grit. f-m, <15mm, blgy, interbedded w/ thin beds of pelite, dkgy, sl.graph, <5cm. Bedding & fractures @ 60° tr.py. occ. large, v.10mm, euh. py.							
13.66 - 18.35	Grit. f-m, <15mm, ltgy-brn, max-ox, w/ occ. thin bed of m-dkgy, speckled pelite @ 14.95-15.25; 16.00-16.02; Core badly broken at: 15.75-15.85, 17.12-17.20, 17.45-17.70. (broken core ox). tr. euh.py.							
	SAMPLE: 16.70 - 17.00	1230	.3	.001	.001	-	-	-
18.35 - 49.13	Quartzite, ltgy-gy, f-m gr, w/ occ. sl. coarser, c-v.e.gr quartzite beds. From 25.50-49.13 v.f.gr w. silty ltgy; quartzite. In places arg. & silty quartzite. Bedding & fractures @ 60° at 20.12, 10cm qtz vein, ox, lin. coating, porous at 22.05 8cm qtz vein, brn-yell, Fe ox. staining, porous. at 24.88 4cm qtz vein, m.wh, tr. py. at 25.00 3cm qtz vein, m.wh, barren at 25.34 2cm qtz vein, m.wh, barren. at 28.85 1cm qtz vein, m.wh, w/ 30% mers.py. From 28.85-29.00 approx. 3% euh.py in quartzite.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 3 SECTION FROM 28.85 TO 50.90 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	from 33.35 - 33.60 2 small < 5cm. vuggy, barren gtz veins within quartzite over this interval ≈ 3% py. enh.							
	at 35.00, 4cm thick dk.gy pelite similarly from 35.27 - 35.31							
	from 35.31 - 35.40 5-10% enh py in quartzite.							
	at 35.60, 4cm in. wh. barren gtz vein, at 36.43 and 37.36 3cm thick, vuggy, in. wh. barren quartz veins							
	at 38.41 - 38.53 arg. quartzite, v.f.gr. bedding 50° w/ tr. enh. py. At 49.00 vx fract. @ 10° In general fractures    to bedding i.e. 50°							
	SAMPLE: 24.80 - 25.43	1231	.63 m	.005	.001	-	-	-
	28.82 - 29.00	1232	.18 m	.003	.048	-	-	-
	33.25 - 33.60	1233	.35 m	.001	.001	-	-	-
	35.31 - 35.40	1234	.18 m	.001	.001	-	-	-
49.13 - 86.76	An interbedded sequence of: thinly bedded - lam., arg. dk.gy pelite, silty & arg. thin (< 2mm) lt dk.gy. pelite and occ. thin v.f.gr., arg. massive bedded quartzite, lt.gy. mx. Pelites in places highly contorted & graph.							
	49.30 - 49.50 Intra form. breccia w/ ≈ 5% finely cl. py.							
	49.50 - 50.90 prim. lt-dk.gy interbedded arg. & silty pelite few enh py XX up to 12mm, bedding 40°							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 4 SECTION FROM 50.90 TO 61.00 STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)

ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
50.90 - 51.46	v.f.gr. lt.gy. arg. quartzite							
51.46 - 51.90	lt-dk gy. interbedded silty & arg. pelite. tr. py							
51.90 - 52.15	v.f.gr. lt.gy. arg. quartzite							
52.15 - 52.45	lgy-blk interb. silty & arg. pelite, graph. L.C. 50°							
52.45 - 52.60	v.f.gr. lt.gy. arg. quartzite w/ tr. arsenopyrite							
52.60 - 52.87	a.a. w/ cross cutting, 2cm. m.wh. quartz vein w/ 1-2% py & 2-2% arsenopyrite							
52.87 - 55.43	Interbedded sequence of thin beds of lt-dkgy. silty & arg. pelite, v.f.gr. dtl gy. arg. quartzite, speckled pelite, graph. pelite, graph. pelite w/ contorted bedding w/ occ. irregular quartz stringer tr. cub. py							
55.43 - 55.70	graph. pelite w/ 40% contorted qtz veins & stringers. tr. dol/sid in quartz							
55.70 - 61.00	lt-dkgy. arg. & silty pelite with a few beds, <10cm. of v.f.gr. lt.gy. arg. quartzite from 57.53-57.56 quartz vein m.wh.-yel. w/ dol/red. & thin sum bed of mass. py. from 57.45-57.53 tr. arsenopyrite in arg. graph. pelite. From 57.95-58.10 irr. veins, stringers & blebs of m.wh. quartz.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-4

SHEET NUMBER 5

SECTION FROM 61.00 TO 76.98

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING \_\_\_\_\_

ULTIMATE DEPTH 152.6m (501 Ft)

ELEVATION \_\_\_\_\_

DIP \_\_\_\_\_

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	barran.							
61.00 - 67.88	Speckled, lt gy - dk gy, arg. & silty interbedded pelite, graph. in places, occ. thin, < 1cm, barren quartz veins, tr. enh. py.							
67.88 - 68.50	Graph. blk. pelite w/ 20% irr. quartz veins barren, tr. dol/sid. in quartz.							
68.50 - 72.28	Speckled, lt gy - dk gy, interbedded arg - silty pelite, graph. in places. From 69.60 - 69.85 fairly dense py ≈ 5%. Irregular quartz vein, < 1cm, blebs & stringers from 69.85 - 70.28; 71.08 - 71.11, & 71.27 - 71.35. Quartz m. wh, barren tr. dol/sid.							
72.28 - 73.50	Pelite, dk gy - blk. graph. contorted in places & quartz, m. wh. brecciated.							
73.50 - 76.25	Pelite, speckled, arg. dk gy & lt gy silty pelite, interbedded, 50°, w/ several irr. quartz veins, stringers & blebs. min. absent to tr. enh. py							
76.25 - 76.98	Brecciated section of arg. speckled pelite, bedded pelite, speckled arg. graph. pelite & Quartz. Quartz contains 10%							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 6 SECTION FROM 76.98 TO 88.85 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	dol/sid. in places, tr. py in section							
76.98 - 86.76	Pelite, speckled, m.-dk gr, graph. in places, massive occ. bedding on thin < 15cm, v.f. gr. arg quartzite beds, occ thin < 2cm, irregular, barren m. wh. quartz veins & stringers, min. enh. py spotty & tr. only. Quartz vein from 84.90 - 85.10. barren, m. wh., lower contact 45°							
	SAMPLE: 49.30 - 49.60	1235	30 cm	.001	.001	-	-	-
	52.60 - 52.82	1236	22	.004	.048	-	-	-
	55.43 - 55.70	1237	27	.001	.015	-	-	-
	57.45 - 57.56	1238	11	.053	.001	-	-	-
	67.90 - 68.18	1239	28	.001	.03	-	-	-
	69.60 - 69.85	1240	25	.005	.036	-	-	-
	73.15 - 73.45	1241	30	.001	.001	-	-	-
	76.25 - 76.60	1242	35"	.001	.001	-	.001	.004
86.76 - 88.85	Quartzite, f. m. gr. lt. gy, max. w. silt, massive bedded. occ. thin dk gy pelite bed. < 4mm, Occ. gr. wh. Quartz vein, < 1cm, barren, tr. enh. py irr. distribution							
	SAMPLE: 86.90 - 87.10	1243	20 cm	.028	.001	-	-	-

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 7 SECTION FROM 88.85 TO 91.95 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
88.85 - 89.28	Pelite, aren., gy-dk gy, speckled graph, w/ contorted bedding. Few irr. m.wh quartz veins < 1cm. Lower contact: 70°							
89.28 - 90.10	Quartzite, f.-m. gr, max. lt gy, w. srt'd, w/ numerous irr. thin, < 1cm, m.wh. barren qtz. veins dr. sub. py. SAMPLE: 89.90 - 90.10	1244	20 cm	.001	.001	-	-	-
90.10 - 90.30	Pelite, dk gy, speckled bedded, w/ 5-10% sub. py/mm thin 2mm stringer of py near lower contact. (60°) SAMPLE: 90.10 - 90.30	1245	20 cm	.001	.001	-	.001	.001
90.30 - 90.86	Quartzite, f.-m. gr, lt. gy, max, w. srt'd, massive.							
90.86 - 91.10	Pelite aren. & arg., gy to dk gy, contorted bedding							
91.10 - 91.44	Quartzite, f.-m. gr, arg. in places, lt. gy, max, tr py							
91.44 - 91.57	Quartz, m. wh, vuggy, w/ quartz xx, barren							
91.57 - 91.95	Pelite, aren & arg, interb. gy to dk gy, contorted bedding							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER B SECTION FROM 91.95 TO 102.60 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
91.95 - 93.68	Quartzite, v.f. - m.gr., lt. gy. mnx. arg. in places, occ. thin irr. barren m. wh. quartz vein							
93.68 - 93.95	Pelite arg. & graph. aren. in places w/ 40% m. wh. quartz. tr. enh. py & dol/sid.							
	SAMPLE: 93.68 - 93.90	1246	22 cm	.001	.015	.004	.002	
93.95 - 98.00	Quartzite v.f. - m.gr., lt. gy. mnx. arg. in places w/ numerous highly contorted quartz veinlets, & occ. thin 10cm, gy pelite bed., bedding 70°, tr. enh. py in places.							
	SAMPLE: 97.40 - 97.70	1247	.3 m	.001	.001	-	-	-
98.00 - 98.60	Pelite, graph., contorted bedding w/ irr. quartz veins, m. wh. barren. L. Contact 75°							
98.60 - 102.60	Quartzite, f. - m.gr., lt. gy. mnx. sl. arg. in places. w/ 1% enh. py in places. From 99.50 - 99.85 quartz rich & 5cm thick graph. contorted pelite bed. 2-3% enh. py							
	SAMPLE: 99.50 - 99.85	1248	35 cm	.001	.001	-	-	-

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK B.C. HOLE NO. 83-4

SHEET NUMBER 9 SECTION FROM 102.60 TO 113.60 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
102.60 - 103.10	Sequence of quartzite a.a. contorted graph. pelite i m.wh. irr. veins of quartz. tr. py							
	SAMPLE 102.60 - 103.10	1249	50cm	.001	.001	-	-	-
103.10 - 105.90	Quartzite a.a. grading into aren. m.gy pelite from 105.50 - 105.90. core broken.							
105.90 - 107.25	Pelite, dk gy-blk, graph. occ. tr. py i quartz stringers. from 106.50 - 107.25 badly broken core.							
107.25 - 108.80	Quartzite, v.f. gr., arg and aren. silty Pelite, lt gy- m.gy w/ occ. thin irr. quartz stringer. min. absent to tr. enh. py.							
108.80 - 113.35	Pelite arg. m.gy i aren. silty lt.gy pelite, contorted bedding i mass bedding graph. in places.							
113.35 - 113.60	Pelite, dk gy-blk, graph. highly contorted bedding w/ 60% quartz. m.wh. tr. enh. py							
	SAMPLE 113.35 - 113.60	1250	25cm	.001	.001	-	.004	.004

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-41

SHEET NUMBER 10 SECTION FROM 113.60 TO 124.22 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
113.60 - 119.48	Pelite, m.-dk gy, speckled, graph. in places, pred. mass bedded, in places contorted. w/ thin quartz stringers.							
119.48 - 119.60	Quartz, m. wh. - cream, w/ dol/sid. & tr. arsenopy & euh. py. SAMPLE: 119.48 - 119.60	1251	12 cm	.003	.001	-	-	-
119.60 - 119.95	Pelite, a.a. v. graph. in places.							
119.95 - 123.50	Quartzite, v.f. gr. arg. in places, lt.-m. gy w/ about 25% quartz (veins, irregular blebs etc) appears as healed shear zone. From 122.65 - 123.50 & 5% prim. euh. py							
	SAMPLE: 121.25 - 121.50	1252	25 cm	.001	.001	-	-	-
	123.00 - 123.50	1253	30 cm	.001	.001	-	.001	.001
123.50 - 123.77	Pelite, speckled, thinly bedded, w/ <math>\approx 10\%</math> euh. py near lower contact & mm mass. py SAMPLE: 123.50 - 123.77	1254	27 cm	.001	.006	-	.001	.001
123.77 - 124.22	Quartzite f.-m. gr. lt. gy fragments in matrix of m. wh. quartz, & 20% py, euh. i. matrix, lower contact 60°. SAMPLE: 123.77 - 124.22	1255	45 cm	.001	.006	-	.002	.001

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-4

SHEET NUMBER 11 SECTION FROM 124.22 TO 144.50 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 152.6m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
124.22 - 131.15	Pelite, m-dk gy, prim. massive bedded, in places speckled, near upper contact thinly bedded. From 124.22 - 124.50 ± 10% eh. py decreasing to tr. w/ depth at 130.28, 10cm irr quartz vein w/ tr. dol/mid. barren., bedding pelite: 80° grading into	1256	28cm	.001	.024	-	.001	.001
131.15 - 138.30	Thinly bedded sequence of lt. gy. silty and dk. gy. arg. Pelite. from 131.72 - 131.85 v.f. gr. arg. quartzite, lt. gy. w/ tr. eh. py							
138.30 - 138.41	Quartz, wh, irregular contacts, w/ 5% sphal, tr. 1% arse. no py ± 5% py	1257	11cm	.023	1.65	-	1.43	8.35
138.41 - 144.20	Pelite, dk. gy. blk, graph, speckled, mass. bedded, occ. thin in wh. quartz vein, aren. in places. tr. eh. py							
144.20 - 144.50	Shear zone, brecciated pelite a.a. healed w/ quartz ± carb. graph. tr. py	1258	30cm	.001	.03	-	.01	.024

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. B3-4

SHEET NUMBER 12 SECTION FROM 144.50 TO 152.6 m STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 540 ULTIMATE DEPTH 152.6 m (501 Ft)  
 ELEVATION \_\_\_\_\_ DIP 450 PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
144.50 - 152.60	Pelite a.a. w/ zones of bedded stty & arg. pelite bedding @ 50°. Irregular stringers of quartz in places. graph. in places. Small shear zone at 149.15 w/ 2cm gouge calc. tr. py in places. sub py up to 10 mm.							
	Angle 0 m 45° 0 Ft 152.6 m 32 1/2 501 Ft							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. B3-5

SHEET NUMBER 1 SECTION FROM 0 TO 27.50 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 48° ULTIMATE DEPTH 108.5m (356 Ft.)  
 ELEVATION \_\_\_\_\_ DIP 47 1/2 PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
0 - 1.52	Casing							
1.52 - 20.15	Interbedded sequence of Grit fine < 8mm, v.c. qtz. pebbly quartzite & m-c. qtz. quartzite. no sharp contacts. (gradational) coarser sediment generally more ex. from 10.90 to bottom of section. prim. Grit, badly weathered, crumbly & porous, broken. Fe oxide up to 5% in places. occ. fract. @ 10° or sections: 1.52-5.70; 6.70-7.50; 8.80-10.97; 11.95-12.20; 12.40-12.60; 12.80-15.75; & 16.00-20.15. Quartz veins, yell. & stained at 8.85 (2cm) & 9.45 (2cm) @ 20°							
20.15 - 39.50	Quartz, prim. yell. brn, minor milky wh, or staining along fractures, tr. sericite on fractures, porous in places w/ qtz XX in veins badly broken from 20.15 - 21.50. From 24.00 - 26.50 brn ox. From 26.50 - 27.50 broken & ox. occ. irr. small inclusions of m-dk grey, arm. pelite & lt gy quartzite. At 21.55 irregular stringer, 3-5mm, of mass. & cub py. & sphal. w/ sil/dol.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-5

SHEET NUMBER 2

SECTION FROM 27.50 TO 39.50 m

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING \_\_\_\_\_

ULTIMATE DEPTH 108.5 m (356ft)

ELEVATION \_\_\_\_\_

DIP \_\_\_\_\_

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	- From 30.65 - 30.80 arg. qz. Grit fine c. 5mm & lt qz v.c.gr. pebbly quartzite. upper cont. irr. Lower contact @ 50° min: near upper contact thin c. 5mm. mass py stringer w/ tr. arsenopy. Within meta sedi. ments < 5% enh. py.							
	- From 33.05 - 33.13 arg. c. gr. lt qz quartzite irr. contacts w/ 5% enh. py.							
	- At 33.65 irr. inclusion of arm. pelite 2-5cm w/ 30% mass & enh. py.							
	- From 33.80 - 34.35 (irr. contacts) lt. qz. m. gr. quartzite w/ 5% enh. py.							
	- At 35.15, 5-7 cm inclusion of lt. m. gy. arm. pelite w/ 3% enh. py.							
	- At 35.40 tr. gal & sphal. & few blebs of py.							
	- From 36.65 - 36.90 lt. m. gy. arm. pelite & arg. m. gr. quartzite w/ 3-5% enh. py near upper contact 1-3mm thick stringers of mass. enh. py							
	- At 37.05 inclusion(?) of irr. shaped dol/calc w/ 2% py.							
	- From 37.20 to 39.50 quartz barren.							
	Mineralization in this section restricted							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-5

SHEET NUMBER 3 SECTION FROM 39.50 TO 44.55 m STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 108.7 m (356 Ft)

ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	to metasediment inclusions & their contacts w/ quartz							
	SAMPLE: 21.50 - 21.58	1259		.001	.001	-	.001	.001
	29.70 - 30.15	1260		.001	.001	-	-	-
	30.45 - 30.85	1261		.001	.001	-	-	-
	33.55 - 34.00	1262		.002	.009	-	-	-
	35.30 - 35.55	1263		.001	.001	-	.001	.006
	37.00 - 37.12	1264		.001	.009	-	-	-
39.50 - 42.10	Interbedded sequence of m.gy arg. pelite, w/ contorted bedding or laminated, m.-c.gr. lt gy. quartzite, arg. & pebbly in places, w/ several irr. quartz veins, < 5mm. m.wh., & veinlets, min; spotty enh. py @ 70° (bedding?). Upper & lower contacts irregular.							
	SAMPLE: 41.35 - 41.65	1265		.001	.024	-	-	-
42.10 - 42.62	Quartz m.wh. w/ 5-10% dol/sid & dk gy - blk graph. veinlets.							
	SAMPLE: 42.15 - 42.60	1266		.001	.001	-	-	.002
42.62 - 44.55	Grit, fine, < 5mm. gy. arg. in places, occ. quartz							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-5

SHEET NUMBER 4

SECTION FROM 44.55 TO 52.73

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING \_\_\_\_\_

ULTIMATE DEPTH 108.70 m (356 Ft)

ELEVATION \_\_\_\_\_

DIP \_\_\_\_\_

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	vein (2cm/6cm) barren, w/ 1-2% cub py.							
	SAMPLE: 44.20 - 44.55	1267		.002	.001	-	-	.001
44.55 - 45.20	Quartz, m.wh., near upper & lower contact, $\approx$ 1cm thick, man. py. beds, & irr stringers & blebs throughout section.							
	SAMPLE: 44.55 - 45.40	1268		.001	.003	-	-	-
45.20 - 45.40	Quartzite, m.-v.c. gr. lt. gy. sec sheared & quartz m.wh. w/ thin stringers $\leq$ 2mm, of man. py & 5-10% cub. py. near upper contact sheared graph. pelite, 1-2cm, w/ py. both man. & cub.							
45.40 - 51.83	Quartzite, v.f. gr. arg. lt. gy. - v.c. gr. pebbly quartzite, gradational contacts, in places core broken @ 80° (// bedding). Occ. incl. of dk. gy. pelite, & small irr. blebs of qtz. tr. cub py.							
	SAMPLE: 48.55 - 49.00	1269		.001	.001	-	-	-
51.83 - 52.73	Quartz, m.wh., w/ $\approx$ 25% angular fragm. of dk. gy. sl. graph., pelite, tr. cub. py. in pelite.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-5

SHEET NUMBER 5 SECTION FROM 52.73 TO 57.85 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 106.70 m (350 Ft)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
52.73 - 53.30	Quartz, m. wh., dk gy. graph. Pelite (stick-sided) & lt gy. f.-c. gr. quartzite, brecciated zone, tr. py prin. eh.	SAMPLE: 52.73 - 53.30	1270	.001	-.09	-	-	-
53.30 - 54.35	Quartzite, m.-c. gr., lt gy, man. bedded, w. std, w/ occ. thin, m. wh, base quartz vein, Lower Contact: 6° tr. eh. py.							
54.35 - 55.82	Quartz, m. wh., w/ inclusions of fragments of dk gy - blk, graph. pelite, lt. m. gy Grit fine, < 5mm, & m.-c. gr. lt. gy quartzite, 1-2% dol., at 55.17, 1cm vein of sphal & py w/ tr of gal.	SAMPLE: 54.35 - 55.12	1271	.010	.009	-	.001	.001
		55.12 - 55.20	1272	.001	3.15	-	3.95	5.75
		55.20 - 55.60	1273	.002	-.001	-	.005	.007
55.82 - 106.70	Sequence of Grit fine, < 5mm, gy & quartzite m.-c. gr. lt gy. grad. contacts. - From 55.82 - 57.50 Grit. a.a. - At 57.85 1cm thick vein w/ 30% sphal. & py in quartz vein.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-5

SHEET NUMBER 6

SECTION FROM 57.85 TO 78.90 m

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING \_\_\_\_\_

ULTIMATE DEPTH 100.70 m (332 Ft)

ELEVATION \_\_\_\_\_

DIP \_\_\_\_\_

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	- From 57.50 - 59.00 m. c.gr. Hgy. quartzite.							
	- At 58.43, thin, < 5mm, irr. blebs of gal & sphal.							
	- At 58.61 2/8mm thick, cross cutting veins of.							
	prim. sphal. in quartz veins tr. py in matrix.							
	- From 59.00 - 59.60 Grit, a.a.							
	- At 59.44, 1 cm thick, irr. vein of sphal. w/ tr. gal.							
	- From 59.60 - 63.25 v.c.gr. pebbly. Hgy quartzite							
	sl. finer from 61.00 - 63.25							
	- At 59.76 few blebs, < 5mm, of sphal in 1cm							
	quartz vein.							
	- From 63.25 - 65.75 Grit, fine, < 8mm, w/ bl. gy quartz							
	pebbles, arg. in places							
	- From 65.17 - 65.40 Quartz vein, m.wh. barren.							
	- From 65.75 - 68.00 v.c.gr. Hgy. quartzite							
	- From 68.00 - 69.50 Grit, fine, < 5mm, Hgy							
	- From 68.89 - 69.45 Quartz vein, m.wh. barren							
	- From 69.50 - 78.90 v.c.gr. Hgy. quartzite, pebbly							
	& Grit, fine, < 8mm, becoming coarser with depth							
	at 77.50 Grit, < 10mm, bl. gy							
	- From 78.00 - 78.90 core broken & quartz rich							
	~15% quartz, ~1% sub. py.							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C.

HOLE NO. 83-5

SHEET NUMBER 7

SECTION FROM 78.90 TO \_\_\_\_\_

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING \_\_\_\_\_

ULTIMATE DEPTH 108.7 m (356 Ft)

ELEVATION \_\_\_\_\_

DIP \_\_\_\_\_

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	From 78.90 - 80.75 f.-m. gr. lt. gy. quartzite, w. silt grading into Grit, fine, < 8mm. lt. gy. - blk. arg. in places, to T.D.							
	Quartz veins at: 82.36 5 cm, m. wh. barren							
	83.37 7 cm, m. wh. barren							
	84.86 110 cm, m. wh. porous in places, barren to tr. mass. of cub. py at contacts, contacts U.C.L. 75-85°							
	91.87 13 cm barren, irr. contacts							
	93.33 10 cm barren, irr. contacts							
	92.40 13 cm, irr. contacts, barren, loose ?							
	102.40 20 cm, wh. tr. py. a.h.							
	102.96 46 cm, m. wh. barren							
	105.35 85 cm, m. wh. tr. cub. py							
	108.24 6 cm, m. wh. barren							
	SAMPLE : 58.25 - 58.60	1274		.009	.001	-	.006	.231
	58.60 - 58.64	1275		.005	.496	.61	3.98	18.2
	59.42 - 59.48	1276		.003	5.87	.28	6.95	11.6
	59.48 - 60.00	1277		.011	.001	-	.006	.044
	69.50 - 70.00	1278		.001	.015	-	-	-

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CREEK, B.C. HOLE NO. 83-5

SHEET NUMBER 8 SECTION FROM \_\_\_\_\_ TO \_\_\_\_\_ STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING \_\_\_\_\_ ULTIMATE DEPTH 108.6 (356 m)  
 ELEVATION \_\_\_\_\_ DIP \_\_\_\_\_ PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	SAMPLE: 78.00 - 78.90	1279		.004	=001	-	.001	.001
	90.22 - 90.67	1280		=001	=001	-	=001	=001
	93.30 - 93.43	1281		.001	=001	-	-	-
	102.40 - 102.60	1282		.001	=001	-	-	-
		1283		.002	=001	-	-	-
ANGLE 0 m. 47 1/2° 0 Ft								
108.6 m 40 1/2 356 Ft								

LF C-1286

DRILLED BY ..... SIGNED .....

# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CR. B.C. HOLE NO. 83-6

SHEET NUMBER 1 SECTION FROM 0.00 TO 26.68 STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING 37° ULTIMATE DEPTH 141.7 (465 Ft)

ELEVATION \_\_\_\_\_ DIP 45° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
0 - 0.92	Casing							
0.92 - 19.50	Overburden: v. poor core recovery <u>comes</u> pieces of core w/ rapid changes in bedding angles & fractures							
19.50 - 26.68	Pelite dkgy-blk, lam, massive, & pelite lt-m.gy, bedded. @ 70°, contorted bedding in places, several small quartz veinlets & irr. stringers in places. tr. emb. py. From 19.50-20.55: badly broken, v. graph. slickensided. Major Quartz veins: 20.35-20.50 vuggy, some vugs filled w/ Fe. ox.; 20.59-20.61 @ m.wh. w/ 5% galena, tr. cp. py; 20.82-20.89 Quartz rich zone, irr. contacts w/ tr. py; 21.07-21.25 50% Quartz, m.wh. w/ irr. contacts; 21.41-21.46 quartz, m.wh.-yell w/ 30% dol/sid. irr. contacts & pelite inclusions; 23.70-24.05 Quartz, m.wh. w/ sid, tr. ga & py irr. contacts; 26.40-26.45 quartz, m.wh barren							
	SAMPLE: 20.59-20.61	1284	2cm	=001	2.63	1.4	7.8	.040
	23.40 - 23.68	1285	28 cm	=001	=001	-	-	.005
	23.68 - 24.05	1286	37cm	=001	.078	-	1.05	.01

LF C-126

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# DIAMOND DRILL RECORD

PROPERTY Crystal Creek, B.C. HOLE NO. 32-

SHEET NUMBER 2 SECTION FROM 26.68 TO 42.46 STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING 37° ULTIMATE DEPTH 146.7 m (465 ft)

ELEVATION \_\_\_\_\_ DIP 45° PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
26.68 - 31.70	Quartz, m. wh. yell. - gy, large number of quartzite & grit, < 5mm, inclusions w/ depth increase in dk. grey pelite inclusions. From 31.00 - 31.70 20% angular pelite inclusions w/ tr. sub. py							
	SAMPLE: 28.10 - 28.50	1287	40cm	.001	.018	-	-	-
	29.50 - 29.75	1288	25	.001	.001	-	-	-
	31.10 - 31.65	1289	55	.001	.001	-	-	-
31.70 - 34.10	Pelite. It's m. gr, banded, w/ contorted bedding in places. quartz vein 32.38 - 32.65, m. wh. barren w/ irr u. l. contacts							
34.10 - 42.46	Grit, fine < 8mm, < 5mm latter pred. in quartzite m. v. c. gr. pebbly in places, interbedded sequence, Numerous small, < 2cm, m. wh. barren quartz veins at angles 45-80°. Larger quartz veins (porous & vuggy in places) at 34.72 (16cm), 35.91 (29cm) w/ 10cm inclusion of dk. grey pelite w/ tr. sub. py; and 37.63 (10cm).							
	SAMPLE 36.40 - 36.80	1290	40 cm	.001	.001	-	-	-

LF C-1256

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CR., B.C.

HOLE NO. 83-6

SHEET NUMBER 3

SECTION FROM 42.46 TO 60.82

STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_

DATUM \_\_\_\_\_

COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_

BEARING 37°

ULTIMATE DEPTH 141.7m (465 Ft)

ELEVATION \_\_\_\_\_

DIP 45

PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
42.46 - 48.27	Quartz, m. wh - gr, w/ large number of graph. & carb. stringers in places fragments of grit & dk. gy pelite							
	SAMPLE 42.70 - 43.10	1291		.001	.006	-	-	-
	From 43.70 - 43.90 tr. honey comb sphal. in thin, < 2mm, irr. stringer w/ tr. ga.							
	SAMPLE 43.70 - 44.15	1292		.001	.081	-	.14	.13
	47.45 - 47.70	1293		.001	.001	-	-	.001
48.27 - 57.00	Quartzite c. gr. arg. & pebbly in places, w/ numerous quartz veinlets & 10% of core, barren quartzite in general w/ srt'd & massive bedded. In places thin beds < 4cm, & occ. inclusion of pelite. From 55.70 - 56.35 quartz vein, m. wh. barren. Within quartzite min. absent to tr. carb. py. small < 2mm.							
	SAMPLE: 49.35 - 49.65	1294		.001	.001	-	-	-
57.00 - 86.35	Quartzite m. & gr. generally w/ srt'd & Grit, fine < 5mm. It gy. var. interbedded sequence w/ gradational contacts. In places argill. Occ. thin quartz vein < 1cm throughout. At 60.82 2cm quartz vein w/ tr. gal. &							

LF C-1296

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL Cr. B.C. HOLE NO. 83-6

SHEET NUMBER 4 SECTION FROM 60.82 TO 88.10 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 37 ULTIMATE DEPTH 141.7 m (465 Ft)  
 ELEVATION \_\_\_\_\_ DIP 45 PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent			
				Au	Ag	Cu	Pb	Zn	
	hair line fracture filled w/ honey comb spal. From 67.30-67.50 v. vuggy & porous quartz vein w/ quartz X in vugs. From 69.00-71.00 occ. thin < 5cm, pelite bed, dk gy. From 76.49-76.60 v. porous & vuggy quartz, w. wh. barren. At 79.25, 2cm thick bed of dk gy - blk. graph. pelite w/ irr. quartz stringers. U. & L. contact @ 65°. At 85.20 2cm quartz vein w/ xid/dol. w/ irr. veinlet, 2mm, of sphal. & gal. lower contact: 65°								
	SAMPLE: 60.82 - 81.15	1295	33 cm	=001	.03	-	.005	.024	
	75.80 - 76.10	1296	30 cm	=001	=001	-	-	-	
	86.00 - 86.35	1297	35 cm	=001	=001	-	.003	.003	
86.35 - 86.58	Pelite, laminated - banded @ 65°, dk gy - blk. v. graph. in places w/ thin < 2cm, quartz & f. gr. It gy. quartzite beds								
	SAMPLE: 86.35 - 86.58	1298	23 cm	=001	=001	-	=001	.005	
86.58 - 88.10	Quartzite, f. c. gr. several quartz veins, small, w. wh. barren 10% of core, tr. dol/sid. w/ quartz, tr. sub. py								
	SAMPLE: 87.75 - 88.10	1299	35 cm	=101	=001	-	-	-	

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CR. B.C. HOLE NO. 83-6

SHEET NUMBER 5 SECTION FROM 88.10 TO 100.32 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 37 ULTIMATE DEPTH 141.7 m (465 Ft)  
 ELEVATION \_\_\_\_\_ DIP 45 PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
8810 - 94.40	Quartzite, v.f. gr. gy, arg. to v.c. gr. pebbly quartzite, lt. gy. m. w/ occ. thin dk. gy-blk, graph. pelite bed. from 80.60-80.75 & 92.25-92.30. Thin quartz veins 1cm at 92.30 & 93.40. Quartz w. wh. barren. Min. in Quartzite: absent to tr. euh. py							
94.40 - 94.70	Pelite, gy-dk gy, w/ contorted bedding w/ quartz veinlets (sid/dol rich). k. & U. contacts: irr. Tr. euh. py							
94.70 - 99.02	Grit, fine < 5mm, lt. gy. & v.c. gr. quartzite, lt. gy. From 95.24-95.30 bedded dk. gy pelite & occ. quartz vein, 2cm @ 97.45 & 97.55, w/ carb. inclusions. From 98.04-98.22 & 98.37-98.85. pelite inclusions, tr. euh. py in pelite. Lower contact: 80-85°							
99.02 - 100.32	Interbedded sequence of prim. Pelite, gy-blk, laminated, speckled, banded & contorted bedding in places, w/ minor f-v.c. gr. quartzite lt. gy-gy, arg & carb. in places. Irregular veins, veinlets & blebs of quartz; tr. euh. py in pelite. Lower contact: 45°							
	SAMPLE: 99.30 - 99.80	1300	50cm	.001	.001	-	.001	.002

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CR. BC. HOLE NO. 83-6

SHEET NUMBER 6 SECTION FROM 100.32 TO 124.90 STARTED \_\_\_\_\_

LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_

DEPARTURE \_\_\_\_\_ BEARING 37 ULTIMATE DEPTH 141.7 m (465 Ft)

ELEVATION \_\_\_\_\_ DIP 45 PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
100.32 - 130.30	Interbedded sequence of pelites, massive bedded, laminated, speckled, banded, w/ contorted bedding. Lt gy - blk, v. graph. in places. Numerous small quartz veinlets. min. prim. euh. py    to bedding, in places py xx up to 10 mm.							
100.32 - 101.40	massive bedded pelite grading into banded pelite.							
101.40 - 101.65	Quartz vein, m. wh. w/ ang. fragments of graph. pelite i tr. sid/dol.							
101.65 - 109.10	Primarily laminated i sl. graph. pelite, banded i speckled in places. bedding 30-90°							
109.10 - 110.40	Pelite lt-dk gy, banded (silt, v. gr. quartzite i argill) w/ thin < 0.1 mm "beds"    to bedding of py i sphal? bedding 50°							
110.40 - 117.60	Laminated i banded pelite, graph. in places. spotty distribution of euh. py. bedding changes from 50° to 35°. Occ. thin quartz vein, < 15mm, veinlets i stringers. veins contain angular pelite fragments.							
117.60 - 124.00	Speckled i banded ltgy - dkgy pelite, graph in places, bedding 35-40°							
124.00 - 124.90	a.a. without speckles, occ. thin slate quartz							

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# DIAMOND DRILL RECORD

PROPERTY CRYSTAL CR. B.C. HOLE NO. 83-6

SHEET NUMBER 7 SECTION FROM 124.90 TO 137.75 STARTED \_\_\_\_\_  
 LATITUDE \_\_\_\_\_ DATUM \_\_\_\_\_ COMPLETED \_\_\_\_\_  
 DEPARTURE \_\_\_\_\_ BEARING 37 ULTIMATE DEPTH 417 m (465 FT)  
 ELEVATION \_\_\_\_\_ DIP 45 PROPOSED DEPTH \_\_\_\_\_

DEPTH FEET m	FORMATION	SAMPLE No.	WIDTH OF SAMPLE	oz./ton		percent		
				Au	Ag	Cu	Pb	Zn
	veinlet.							
124.90 - 125.35	Quartz, m. wh porous, w/ incl. of angular fragments of v. graph. pelite. tr. enh. py							
125.35 - 130.30	Pelite, laminated, banded, speckled w/ contorted bedding in places, m. -dk gy and black (graph.) 1-3% enh. py							
	SAMPLE: 101.40 - 101.65	1001	25cm	=001	=001	-	-	-
	109.88 - 110.12	1002	24cm	=001	=001	-	.002	.010
	121.60 - 122.00	1003	40cm	=001	=001	-	.003	.007
	124.90 - 125.35	1004	45cm	=001	=001	-	.002	.005
105.35 -								
130.30 - 137.75	Pelite, dk - m. gy, interbedded w/ thin, s. ss, beds of org. carb. lat. in add. veinlets of calcite, pelite sl. calc. throughout. Pelite in places massive whereas in other places w/ contorted bedding. very calcite; quartz rich from 131.50 - 131.70; tr. enh. py							
	SAMPLE: 131.00 - 131.50	1005	50cm	=001	=001	-	.002	.004

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APPENDIX IV

DIAMOND DRILL HOLE AND GRAB SAMPLE ASSAY VALUES AND CERTIFICATE



ANALYSIS GEO-ENTERPRISES

PROJECT: 83-0504

WG NO: 83-0004

PAGE: 1

SAMPLE ID	FROM	TO	AU OZ/TON	AG OZ/TON	PB %	ZN %
DD 83-1/1176	7.75	8.00	<.001	<.001	.002	.012
DD 83-1/1177	20.00	20.75	<.001	<.001	---	---
DD 83-1/1178	26.75	27.00	<.001	<.001	---	---
DD 83-1/1179	31.25	31.50	<.001	<.001	---	---
DD 83-1/1190	35.00	35.40	<.001	<.001	.001	.002
DD 83-1/1181	52.40	52.80	.011	.012	---	---
DD 83-1/1182	61.80	62.45	<.001	<.001	---	---
DD 83-1/1183	68.15	68.75	<.001	.012	---	---
DD 83-1/1184	68.75	69.00	<.001	<.001	---	---
DD 83-1/1185	69.80	69.80	<.001	.066	---	---
DD 83-1/1186	70.60	70.85	<.001	.036	---	---
DD 83-1/1187	71.18	71.45	<.001	.018	---	---
DD 83-1/1188	71.45	71.85	<.001	<.001	---	---
DD 83-1/1189	77.00	77.25	<.001	<.001	---	---
DD 83-1/1190	79.15	79.25	<.001	.066	.001	.006
DD 83-1/1191	79.46	79.66	.003	<.001	.001	.008
DD 83-1/1192	80.50	80.80	<.001	.030	---	---
DD 83-1/1193	80.80	81.20	<.001	.018	.011	.043
DD 83-1/1194	81.50	81.75	.003	1.41	.420	.005
DD 83-1/1195	82.15	82.35	.004	2.61	2.06	.044
DD 83-1/1196	83.80	83.92	.004	.030	.018	.001
DD 83-1/1197	86.34	86.43	.003	13.1	4.37	.019
DD 83-1/1198	87.00	87.15	.003	1.92	.310	.150
DD 83-1/1199	87.75	88.15	.003	.144	.009	.001
DD 83-1/1200	92.40	93.00	.003	.078	---	---
DD 83-1/1201	93.40	93.70	.001	.024	.003	.001
DD 83-1/1202	94.45	94.60	.003	.030	.003	<.001
DD 83-1/1203	95.75	95.82	.002	1.86	.170	<.001
DD 83-1/1204	98.22	98.45	.001	.759	.003	<.001
DD 83-1/1205	100.10	100.75	.002	.030	---	---
DD 83-1/1206	102.82	103.20	.006	.018	---	---
DD 83-1/1207	109.80	110.10	.002	.030	.007	.001
DD 83-1/1208	110.70	111.10	<.001	.018	---	---
DD 83-1/1209	112.80	113.20	.016	.066	.140	.001
DD 83-3/1210	15.35	15.60	<.001	<.001	.001	.003
DD 83-3/1211	16.30	17.19	<.001	.018	.004	.007
DD 83-3/1212	17.19	17.35	<.001	.054	.041	.001
DD 83-3/1213	17.35	17.55	.003	.018	---	---
DD 83-3/1214	23.20	23.60	<.001	<.001	---	---
DD 83-3/1215	27.60	28.10	.004	.018	---	---
DD 83-3/1216	29.15	29.35	.003	.036	.011	.001
DD 83-3/1217	33.02	33.10	.003	.240	.003	5.85
DD 83-3/1218	33.60	33.75	.048	<.001	---	---
DD 83-3/1219	33.75	34.20	.005	.024	---	---
DD 83-3/1220	35.95	36.40	<.001	.012	---	---

NO. TN GEO-LOGICAL REPORTS INLC REF 83-5384

WD NO: 83-0504

PAGE: 2

SAMPLE ID	From	TO	AU OZ/TON	AG OZ/TON	FE %	ZN %
00 83-3/1221	40.95	41.40	.003	.012	---	---
00 83-3/1222	42.30	42.90	.004	.018	---	---
00 83-3/1223	45.55	45.95	.004	.012	---	---
00 83-3/1224	51.77	51.88	<.001	<.001	.001	.001
00 83-3/1225	62.90	63.00	<.001	.156	.150	1.18
00 83-3/1226	57.00	57.20	.003	.048	.040	.002
00 83-2/1227	57.80	58.10	<.001	<.001	.009	.015



NOLIN GEO-ENTERPRISES

BMLC REF 83-5419

WO NO: 83-0653

PAGE: 1

SAMPLE ID	AU OZ/TON	AG OZ/TON	PB %	ZN %	SR %	CU %
1051 GB-3	.244	6.640	3.550	.085	---	---
1052 RV-2A	.080	8.720	13.50	.089	---	.030
1053 RV-3	<.001	.015	.032	.002	---	<.001
1054 RV-1	.003	---	---	---	---	---
1055 RV-6	.013	.070	1.140	.038	---	.030
1057 RV-5	.068	1.040	7.810	.006	3.70	---
1058 GB-4	.100	3.480	44.82	.002	17.9	---
1059 GB-2	.180	1.760	12.90	1.33	5.50	.200
1060 GB-1	.180	44.82	44.50	2.63	12.6	1.07
1061 GB-4	.022	5.600	7.040	.097	1.72	---
1062 GB-5	.104	50.74	34.60	.092	.31	.059
1064 B-2	.003	.105	---	---	---	---
1065 GN-3	.003	.088	---	.500	---	---
1066 GN-8	<.001	---	---	---	---	---
1067 GN-8	<.001	<.001	---	---	---	---
1068 GN-5	<.001	<.001	.006	<.001	---	.001
1069 GB-1A	<.001	<.001	---	.002	---	---
1070 GN-B2	<.001	---	---	---	---	---



## APPENDIX V

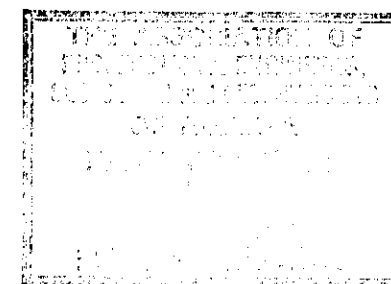
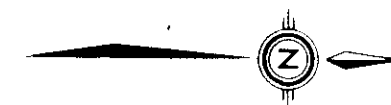
## DRILL HOLE INFORMATION

HOLE NUMBER	BEARING	DIP	TOTAL DEPTH	CLAIM LOCATION
83-1	95°	50°	135.6 m	Tect 1
83-2	135°	45°	68.6 m	Tect 1
83-3	61°	45°	68.6 m	Tect 1
83-4	54°	45°	152.6 m	Tect 2
83-5	48°	47.5°	108.5 m	Tect 1
83-6	37°	45°	141.7 m	Cog II

Core in Cochrane warehouse,  
1112-40th Ave. N.E. Calgary.

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**12,071**



550 E

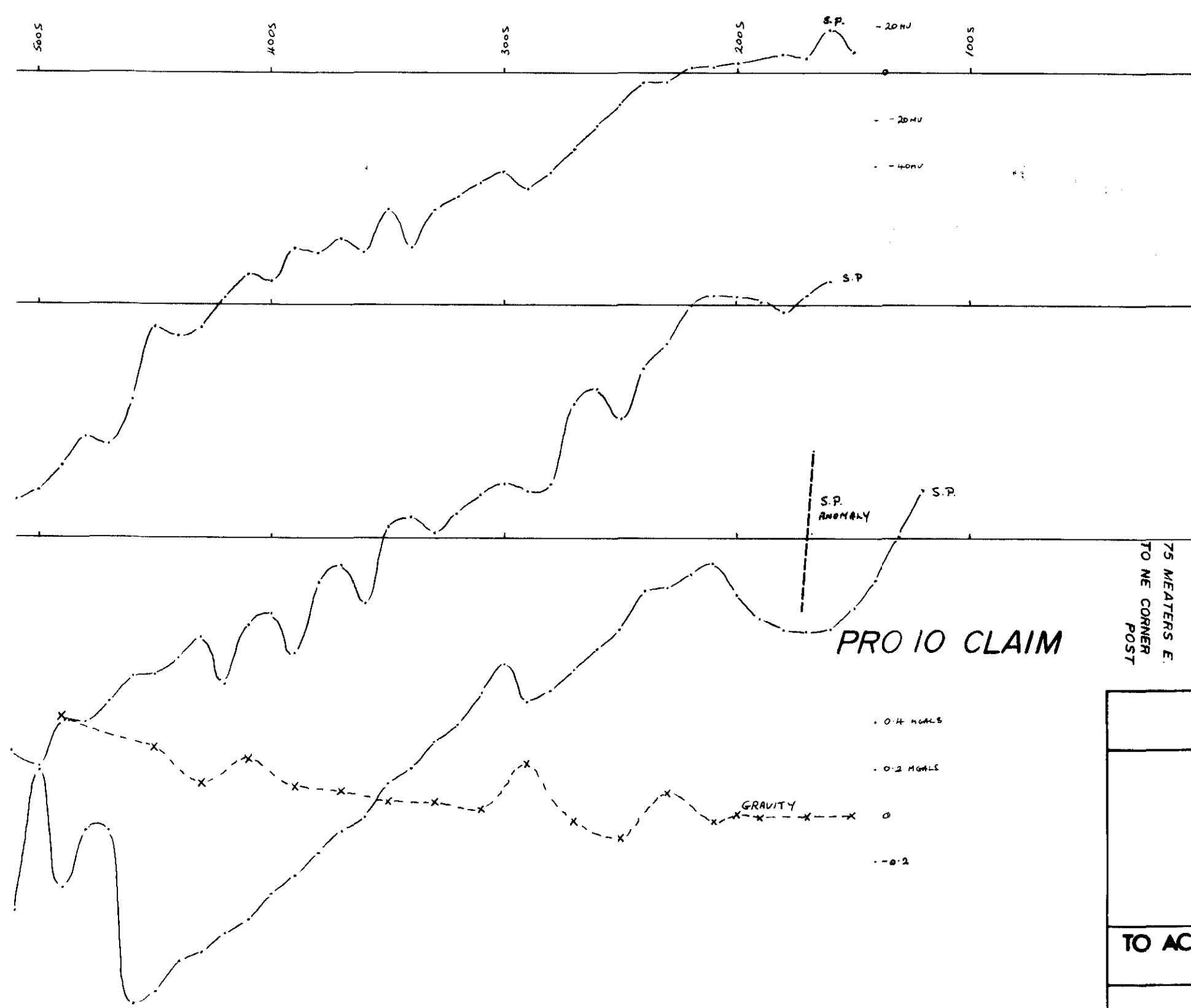
650 E

750 E

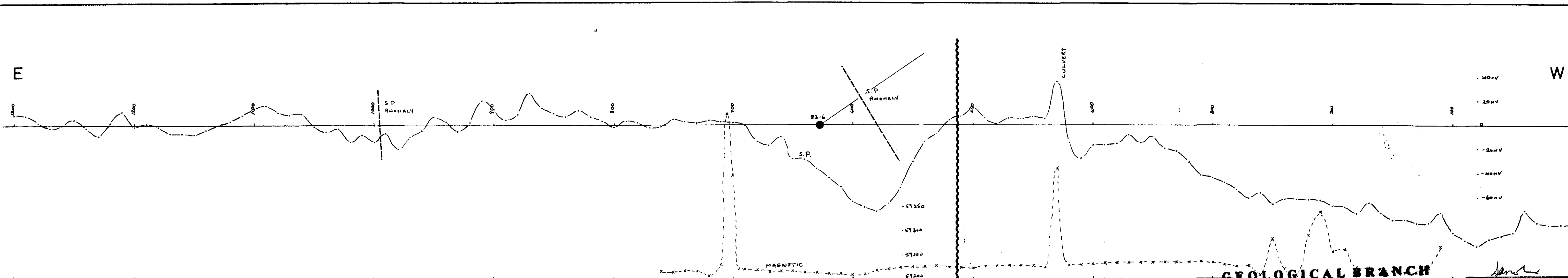
75 METERS E.  
TO NE CORNER  
POST

PRO 10 CLAIM

PRO 13 CLAIM *Sandhi*



COCHRANE OIL & GAS LTD	
CRYSTAL CREEK PROJECT	
NORTH PRO AREA	
TO ACCOMPANY REPORT BY: NOLIN GEO ENTERPRISES LTD	
SCALE: 1:2000	DATE: SEP/83
JOB NO.:	FIGURE NO.: 3
C.I.:	DRAWN BY:



COG II CLAIM

RUTH VERMONT CLAIM

**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

THE ASSOCIATION OF  
PROFESSIONAL ENGINEERS,  
GEOLOGISTS and GEOPHYSICISTS  
OF ALBERTA  
PERMIT NUMBER  
P 3032  
NOLIN GEO  
ENTERPRISES LTD.

**12,071**

COCHRANE OIL & GAS LTD

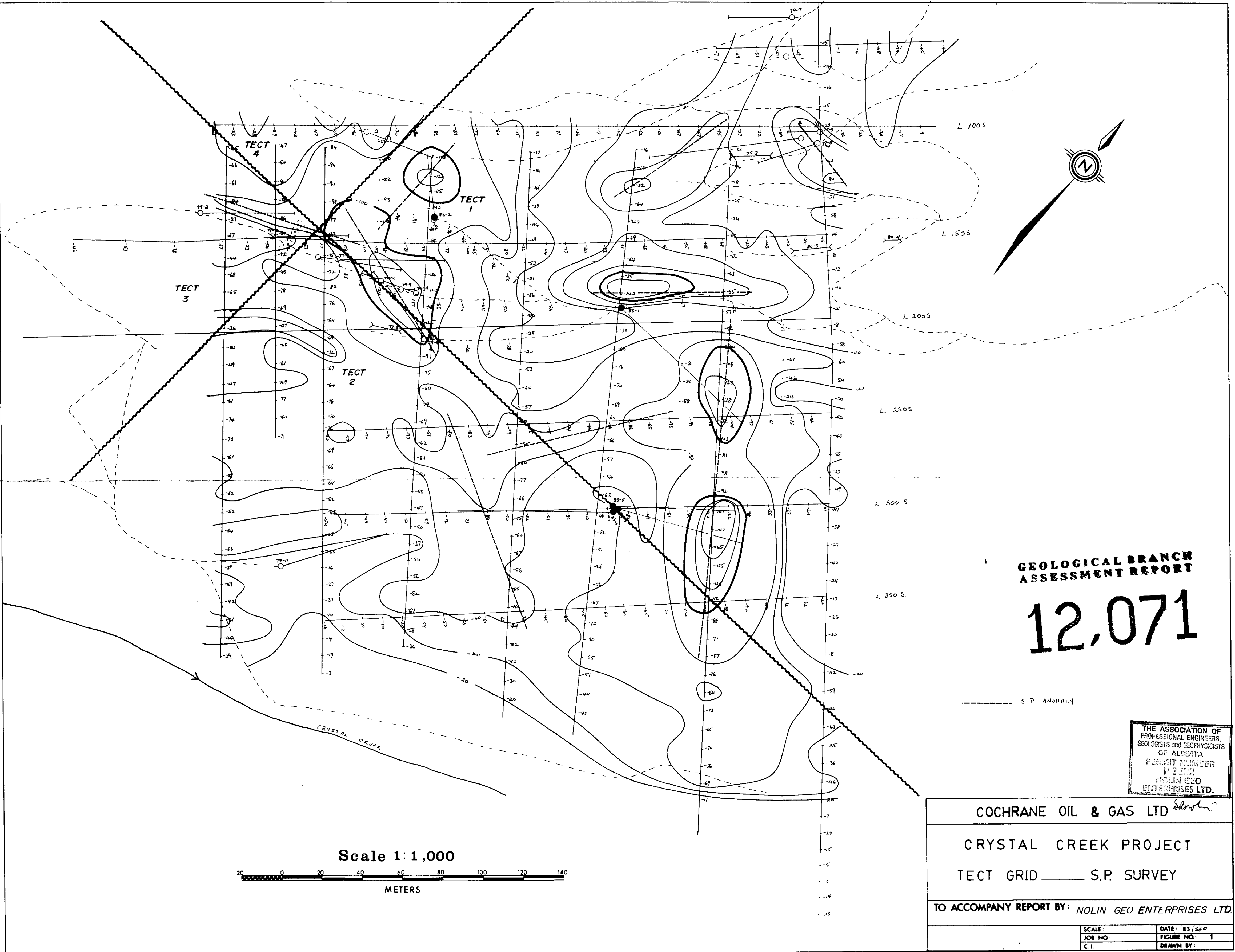
CRYSTAL CREEK PROJECT

COG 2 AREA

TO ACCOMPANY REPORT BY: *NOLIN GEO ENTERPRISES LTD.*

SCALE: 1:8000	DATE: SEP/83
JOB NO.:	FIGURE NO. 2
C.I.:	DRAWN BY:





**GEOLOGICAL BRANCH  
ASSESSMENT REPORT**

**12,071**

----- S.P. ANOMALY

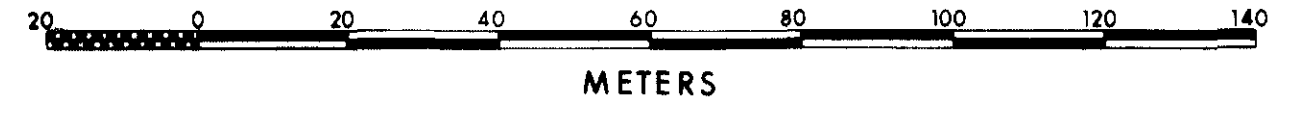
THE ASSOCIATION OF  
PROFESSIONAL ENGINEERS,  
GEOLOGISTS and GEOPHYSICISTS  
OF ALBERTA  
PERMIT NUMBER  
P 3022  
NOLIN GEO  
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COCHRANE OIL & GAS LTD *Handwritten initials*

CRYSTAL CREEK PROJECT  
TECT GRID \_\_\_\_\_ S.P. SURVEY

TO ACCOMPANY REPORT BY: NOLIN GEO ENTERPRISES LTD.

Scale 1:1,000



SCALE:	DATE: 83/SEP
JOB NO:	FIGURE NO: 1
C.I.:	DRAWN BY: