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**REPORT ON THE**  
**DONA AND IRENE CLAIMS**  
**KEEFER LAKE AREA**  
**VERNON MINING DIVISION,**  
**BRITISH COLUMBIA**

FILED

Latitude 50<sup>0</sup> 08'N Longitude 118<sup>0</sup> 24  
 NTS 82L/1W

FOR

**Keefer Resources Inc.**  
 301-701 West Georgia Street,  
 Vancouver, B.C.,  
 V7Y 1C4

BY

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GEOLOGICAL BRANCH  
 ASSESSMENT REPORT

17,663

July 1988

<b>SUB-RECORDER</b> RECEIVED <b>AUG 12 1988</b> M.R. # ..... \$ ..... VANCOUVER, B.C.
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## SUMMARY

A total of 22 claims located in the Keefer Lake district, B.C., are held by Keefer Resources Inc. The Keefer Lake property is situated approximately 48 kilometers southwest of Lumby, B.C. Pursuant to a request by Mr. Daniel Small, President of Keefer Resources Inc., a geological mapping, prospecting and geochemical sampling program was conducted on the Keefer Lake property during July 1988.

The Keefer Lake district lies at the eastern margin of the Intermontane Belt and west of the Omineca Crystalline Belt. The Intermontane Belt is characterized by argillaceous and calcareous sediments and volcanics of Carboniferous to Jurassic age.

The 1988 work defined several areas with anomalous precious and base metal values. The main zone of mineralization occurs on the Dona claims where Au values up to 695 ppb and Ag values of up to 442 ppm were recorded. A stream sediment sample from the stream which drains the east side of the Irene 2 and Irene 3 claims yielded an anomalous gold value of 8100 ppb and a zinc value of 107 ppm. Stream sediment samples 88-SSHB-8 and 88-SSHB-11 which drain from the Dona claims and the Irene 5 claim respectively yielded anomalous gold values of 1020 ppb and 220 ppb.

The results of the geochemical survey indicate that the potential for significant precious and base metal mineralization exists on the Dona and Irene claims. A drilling program designed to define the geometry and grade characteristics of the mineralized zone on the Dona claims is warranted and highly recommended.



A program of detailed soil sampling is recommended on the Irene claims to trace the source of the anomalous stream sediment samples.



## 1.0 INTRODUCTION

Pursuant to a request by Mr. Daniel Small, President of Keefer Resources Inc., a geological mapping, prospecting and geochemical sampling program was conducted on the Keefer Lake property during July 1988. The subject property occupies two sides of the valley of the Kettle River and Keefer Lake, where at times the hills become very steep.

### 1.1 Location and Access

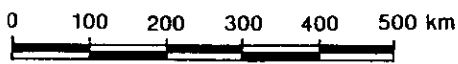
The Keefer Lake property is situated approximately 48 kilometers southwest of Lumby, B.C. (Figure 1), and is found on NTS map sheet 82L/1W, centered on latitude  $50^{\circ} 08'$  North and longitude  $118^{\circ} 24'$  West.


The claim group is accessed from Highway No.6 via a logging road which runs along the Kettle River through the entire southern portion of the claim block. Access to the northeastern part of the property is via a four wheel drive track off this road. To facilitate access to the northwest segment of the claim group a second offshoot dirt track was constructed by El Paso Mining and Milling Company during the mid 1970's.

### 1.2 Physiography

The subject property is situated in the Monashee Mountains at the head waters of the Kettle River with Keefer Lake. The central part of the property occupies the valley floor of the Kettle River while the remaining portions of the property lie on the steep flanks of the Whatshan Range of the Monashee Mountains. Property elevations range from 1,300 meters along the Kettle River to approximately 1,800 meters on the south





KEEFER RESOURCES INC.			
DONA & IRENE CLAIMS			
GENERAL LOCATION MAP			
 M-TEC RESOURCE MANAGEMENT LTD.	SCALE: as shown	N.T.S.L. 82L/1	FIGURE No: <b>1</b>
	DWN. BY: H.V.	DATE: July/88	
	CHKD. BY: D. Collins	PROJECT No.: 88BC 020	FILE No:

slope of Yeoward Mountain. Throughout the area vegetation varies from sparse to thick coniferous and alder growth. The valley floor surrounding the Kettle River and Keefer Lake is occupied by an alluvial plain which masks the outcrop in this area. Estimates of the overburden thickness for the remainder of the property were made where possible and in general it appears to be less than 6 meters thick.

### 1.3 Property and Ownership

The Keefer Lake claim group comprises 22 mineral claims, totalling 57 units, and are held by Keefer Resources Inc. (Figure 2).

The property is recorded at the British Columbia Ministry of Energy, Mines and Petroleum Resources as follows:

CLAIM NAME	RECORD NO.	UNITS	EXPIRY DATE
Dona 1 - 11	17281-17291	11	July 27, 1988*
Dona 12- 17	17390-17395	6	Sept.28, 1988
Irene 1	964	4	Dec. 11, 1988
Irene 2	1231	8	July 9, 1988*
Irene 3	1232	18	July 9, 1988*
Irene 5	1234	9	July 9, 1988*
Irene Fraction	1235	1	July 9, 1991

\* Prior to filing the 1988 assessment work.

### 2.0 HISTORY AND PREVIOUS WORK

A concise history of the exploration in the Monashee Mountains region and in the area of the subject property itself, is taken from Smith (1986).

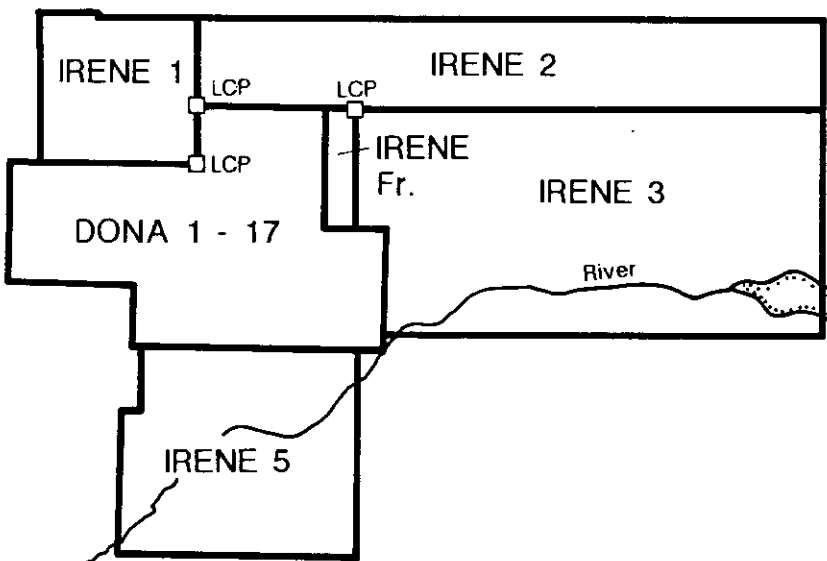







YEOWARD MTN.

Yeoward  
Creek



Kettle



KEEFER RESOURCES INC.		
DONA & IRENE CLAIMS		
CLAIM MAP		
	SCALE: 1 : 50,000	N.T.S.: 82L/1
NI-TEC RESOURCE MANAGEMENT LTD.	DWN. BY: H.V.	DATE: July/88
	CHKD. BY: D. Collins	PROJECT No: 88BC 020
		FIGURE No: <b>2</b>
		FILE No:

"The earliest recorded work in the area took place on Monashee Mountain, west of the present DONA property. Here, a well defined ledge of free-milling gold quartz varying from a few inches to three or four feet in width was exposed in Paleozoic slates. Several other veins were also developed in this area during the early part of the century, but have received little attention recently. It is probable that these occurrences were discovered as prospectors searched for the source of the placer gold found in many of the surrounding crdks.

The DONA 1-11 claims were located by El Paso Mining and Milling Company on July 27, 1973 as a result of encouraging values obtained in a regional silt geochemistry program. Six additional two-post, one fractional and five modified grid claims were subsequently staked to protect obvious extensions of the mineralized zone.

During 1974, a grid was established over these claims and a work program consisting of soil and litho-geochemistry, EM and self potential geophysics, trenching, geological mapping and eventually percussion drilling was undertaken. The following table summarizes the work carried out by El Paso:

Grid establishment		28 kilometers
Soil geochemistry		788 samples
Geophysics	SP	6 kilometers
	VLF-EM	20 kilometers
Trenching		1900 m in 12 trenches
Road construction	vehicle	1.43 kilometers
	cat	0.51 kilometers
Percussion drilling		980 meters in 19 holes

Although the data generated from this program was encouraging, El Paso concluded that the probability of locating an economic ore body was low, and eventually turned over the property to former employees operating as independent geological consultants.

Subsequent work carried out on the claims has consisted of redefining mineralized zones located by earlier trenching and detailed sampling. This work had only limited success."



The percussion and rotary drilling program conducted by El Paso Mining and Milling Company during 1974 consisted of drilling from 50 foot centres along their trenches 1 and 4 on the Dona 5 and 6 claims. However, many of these were terminated short of their target depths of 200 feet due to the intersection of ground water in the holes (Jones, 1974). Smith (1986) states that by 1986 the exposed mineralized zones on the Dona claims had been tested with 19 percussion holes totaling 3216 feet. He reports "The best results come from hole P.11 [Dona 5 claim], where values of 1.78 oz/t Ag and 0.15 oz/t Au were obtained across 0.6 m, hole P.10 [Dona 6 claim] where 0.6 meters grading 5.03 oz/t Au [?] was intersected and in hole P.17 [Dona 5 claim] where a 0.6 m section assayed 0.26 oz/t Au and 0.10 oz/t Ag."

A total of 390 meters of trenching was completed during October 1984 and access roads were rehabilitated. Elevated gold values were reported in trenches # 5, 1, 1A (Bayrock, 1985).

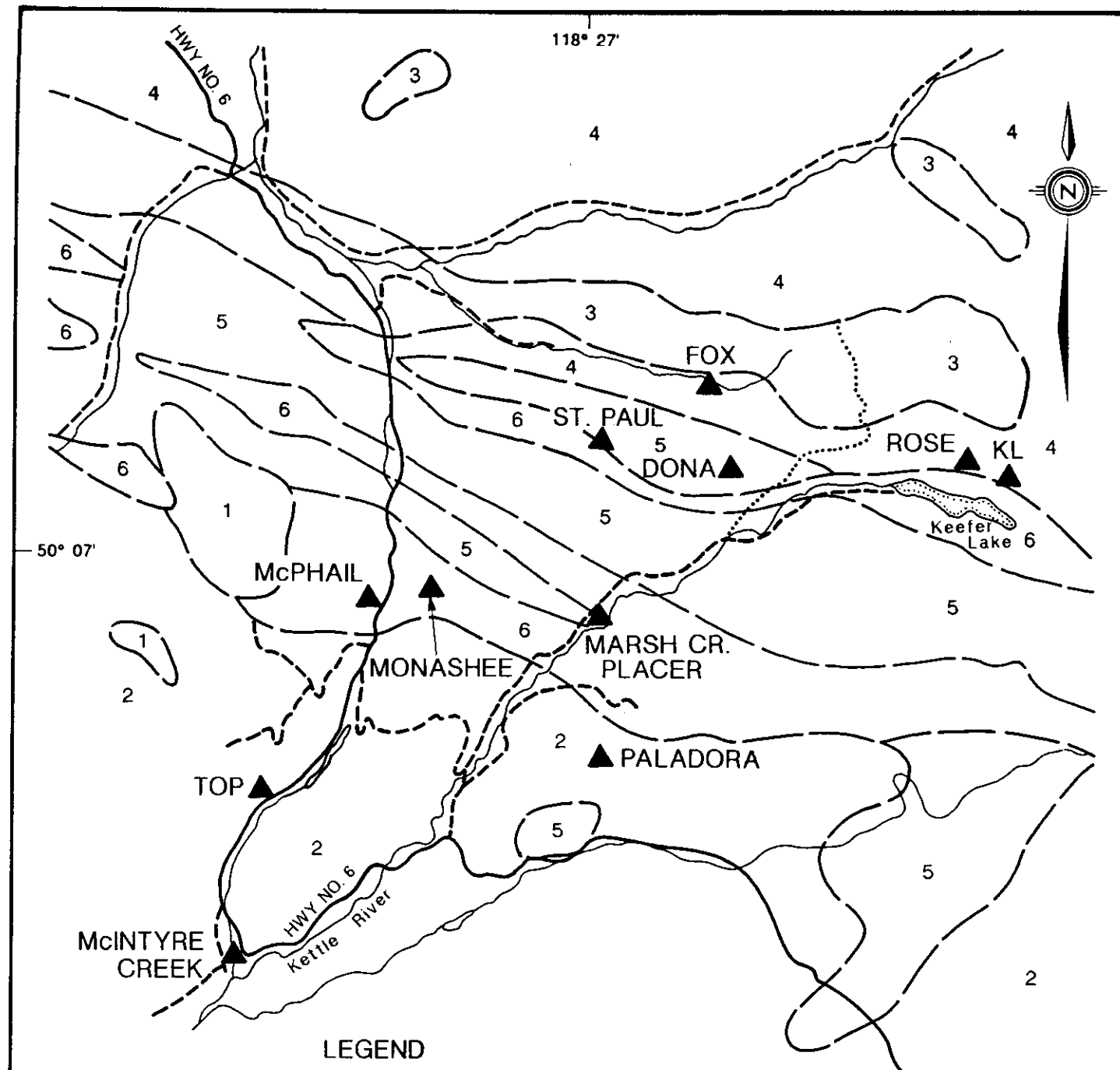
Recently El Paraiso Resources Ltd. and Venturex Resources Ltd. entered into an option agreement on the Top claims at Monashee Pass, 12 km to the southwest of the subject property (Figure 3). A diamond drilling program has now commenced on the Top claims (Stockwatch July 19, 1988).

### 3.0 GEOLOGY

#### 3.1 Regional Geology

The Keefer Lake district lies at the eastern margin of the Intermontane Belt and west of the Omineca





**LEGEND**

**TERTIARY**

1 Plateau Lava - basalt

**JURASSIC**

2 Intrusive Rocks

**TRIASSIC**

3 Nicola Group - andesite, basalt

4 Slocan Group - mixed sedimentary & volcanic rocks

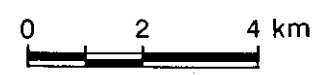
**CARBONIFEROUS & PERMIAN (may include TRIASSIC)**


5 Thompson Assemblage interbedded siliceous & volcanic rocks

6 Limestone, chert

- Geological contact
- ▲ Mineral showings
- - - Roads

AFTER: PAN AMERICAN CONSULTANTS LTD



<b>KEEFER RESOURCES INC.</b>			
<b>DONA &amp; IRENE CLAIMS</b>			
<b>REGIONAL GEOLOGY &amp; MINERAL SHOWINGS</b>			
 <b>M-TEC</b> RESOURCE MANAGEMENT LTD	<b>SCALE:</b> 1 : 125,000	<b>N.T.S.:</b> 82L/1	<b>3</b>
	<b>OWN. BY:</b> H.V.	<b>DATE:</b> July/88	
	<b>CHRD. BY:</b> D Collins	<b>PROJECT No.:</b> 88BC 020	<b>FILE No.:</b>

Crystalline Belt. The Intermontane Belt is characterized by argillaceous and calcareous sediments and volcanics of Carboniferous to Jurassic age (Okulitch, 1977). These are overlain to the north by sediments and volcanics of Triassic age and are intruded by plutonic rocks of Jurassic age to the south (Figure 3).

Rocks of the Thompson Assemblage form the oldest strata in the area. These form a broad northwest-southeast oriented elongate unit across the area. These strata were formerly termed the Cache Creek Group but are now differentiated from the latter group on faunal characteristics. They may, however, be a coeval lateral facies (Monger, 1975). The Thompson Assemblage strata are characterized by an interdigitating sequence of argillaceous sediments, volcanistic rocks and limestone pods. Fossils of Late Mississippian, Pennsylvanian and Permian ages have been obtained from the limestone and mudstones of this assemblage. Lithological similarities exist between various localities in the region and some of these have yielded late Triassic fossils. However, the lack of macroscopic diagnostic features make field-based differentiation difficult.

The Thompson Assemblage rocks have undergone some degree of deformation and sub-greenschist facies metamorphism coeval with Jurassic-Cretaceous orogenic events (Wheeler et al., 1972). The degree of deformation is markedly less than in the adjacent low grade rocks to the northeast and north. Folds in the Thompson Assemblage generally parallel the regional stratigraphic trend i.e. northwest near Vernon and westerly in the Coldstream Valley (Okulitch, 1977).



A period of Permo-Triassic uplift and erosion has resulted in the Thompson Assemblage rocks being unconformably overlain to the north by rocks of the Slocan and Nicola Groups (Read and Okulitch, 1977). Shale, limestone and clastic sediments of the Slocan Group extend across both the Intermontane and Omineca Crystalline Belts. These are correlated with the Cache Creek Group strata. Metamorphism within these rocks is low grade biotite-zone type and is coeval with Jurassic-Cretaceous orogenic events. Outcrops of argillaceous limestone near Keefer Lake yielded Conodont fauna which are similar to those from the Slocan Group west of Okanagan Lake and the Nicola Group near the south Thompson River (Okulitch, 1977). The Nicola Group strata are characterized by augite andesite flows, breccia, tuff, greenstone and minor sediments.

Late Jurassic plutonic rocks intrude the Thompson Assemblage to the south of the Keefer Lake area. Little (1957) sub-divided the Late Jurassic plutonic rocks into two suites namely the Nelson and Valhalla plutonic complexes. The Nelson plutonic rocks are predominantly foliated massive quartz diorite and granodiorite whereas the coeval and partly younger Late Jurassic Valhalla rocks are typically massive granodiorite. Emplacement of the Valhalla plutonic rocks has been partly syn- and post-tectonic and may have participated in the late stages of regional deformation.

Tertiary volcanic rocks occur as isolated patches of variable thickness in parts of the region. Andesite, basalt, dacite and trachyte flows and related breccia, tuff and agglomerate comprise much of this unit



throughout the region (Okulitch, 1977). In the subject property area these units unconformably overlie the Thompson Assemblage.

### 3.2 Property Geology

The claim group is predominantly underlain by varieties of black intensely cleaved argillite and dark grey to grey siliceous phyllite. Intermixed felsic volcanics with argillaceous sediments and an intrusive diorite stock are evident in places within the Dona claims (Figure 4). Calcareous sediments occur both within these units and as a separate assemblage on the property.

An argillaceous limestone unit outcrops in the south central portion of the claims (unit 5, Figure 4). This comprises a massive tectonized unit with interbedded thin (10 to 15 cm) chert partings and nodules. The chert nodules vary in size from 5 to 20 cm when measured along their long axis. Minor shaly partings are evident within the limestone. Recrystallization of the limestone has occurred throughout and this has made fossil identification difficult.

The intermixed sediments and volcanics of unit 4 (Figure 4) comprise dark grey phyllites, argillites, tuffs and andesitic volcanics. Pale calcareous laminae occur within the phyllites and these commonly exhibit a fining upwards in grain size and diffuse tops. The volcanics are not well exposed, however, evidence from previous trenching on the Dona claims has shown that individual volcanic flows have been altered by mineralizing hydrothermal fluids (Smith, 1986). Petrographic studies by Bayrock (1985) identified

actinolite and clinozoisite rich hydrothermal alteration zones within lime rich horizons of the volcanics.

The black fissile argillite of unit 3 (Figure 4) frequently has weathered and decomposed pyrite-like crystals incorporated within it. These are evident along the cleavage planes of the argillite.

Outcrops of dacite with hornblende phenocrysts occur in the northeastern portion of the subject property. These are correlated with the Nichola Group of previous workers.

The intermixed volcanics and sediments of unit 4 (Figure 4) are intruded by a diorite stock which is exposed on the Dona 3, 4 and 5 claims. The diorite is a massive medium grained unit which is locally quartz rich. In the trench 1 and 2 area of El Paso Mining and Milling Company the fault contact of the diorite with the phyllites of unit 4 is exposed as a 30 cm wide fault gouge zone (Figure 5, sample 88-RDC-44). The contact relationship of the diorite stock to the remainder of unit 4 is not exposed. Little (1957) has suggested that the emplacement of the plutonic rocks in the area of the subject property has been partly syn- and post-tectonic and may have participated in the late stages of regional deformation. The relationship of the dioritic stocks to regional mineralization is unknown (Bayrock, 1985).

Structurally, the area has undergone a period of cleavage formation and fold development. Throughout the subject property the cleavage is strongly developed in the fine grained argillites and only weakly developed in the more competent lithologies. The





cleavage in the argillites may be classified as a continuous cleavage while that in the more competent rocks is a spaced pressure solution type cleavage (Borradaile et al., 1982).

A small scale, east-west oriented syncline is formed in unit 3 on the Irene 3 claim (Figure 4). This suggests that folding in the area is parallel to the regional stratigraphic trend as outlined by Okulitch (1977).

All of the stratigraphic units on the subject property display joints. In some exposures it is evident that minor movement has occurred on the joint planes and quartz filled extension fissures have developed. Lithological control on joint formation was important throughout the area and consequently the best developed joint sets occur within the more competent lithologies. A conjugate system of joints with azimuths of  $020^{\circ}$  and westerly dips of  $30^{\circ}$  to  $50^{\circ}$  and azimuths of  $150^{\circ}$  with east or west dips exist in the area. A less well developed non-systematic joint set of azimuth  $100^{\circ}$  and north or south dips is also found on the property.

#### 4.0 PROPERTY MINERALIZATION AND GEOCHEMISTRY

A limited geochemical sampling program was conducted on the property during July, 1988. A total of 52 rock samples and 11 stream sediment samples were collected during the course of the short program (Figure 5). Stream sediment samples consisted of silt and/or fine sand taken from stream beds.

All samples were submitted to Min-En Laboratories Ltd., in North Vancouver, B.C. All samples were analysed for gold and silver and the stream sediment samples were



additionally analysed by ICP for Cu, Pb, Zn, As, Sb. Analytical procedures for Min-En Laboratories Ltd. are reported in Appendix III and all analytical data for the samples is given in Appendix IV.

The most significant occurrences of sulphide mineralization are found on the Dona 3 to 6 claims. The mineralization consists of pyrite, chalcopyrite, malachite and trace arsenopyrite. The host rocks are predominantly phyllitic and tuffaceous units with interbedded calcareous laminae. The mode of occurrence of the mineralization varies from disseminations and mineralized stringers of fine grained material to 2-3 cm sized pods of massive mineralization, predominantly pyrite.

One diorite sample collected on the Dona 5 claim (88-RDC-40) yielded a slightly elevated gold value of 20 ppb. A grab sample (88-RDC-44) taken from the fault gouge contact zone of the diorite and the sediments of unit 4 (Figure 4) yielded assay values of 445 ppb gold and 19.9 ppm silver.

Smith (1986) states that "There are at least 10 mineralized sheets with related quartz beds indicated in the El Paso sampling before 1982. Four of these zones were reconfirmed by the work from 1982-84, and 6 new zones were located to the northwest and the northeast in the 1984 trenching programme [on the Dona claims]."

Four rock samples yielded anomalous gold and silver assay values. The highest values were recorded from sample 88-RDC-36 which yielded 695 ppb Au and 442 ppm Ag. The other anomalous values recorded were 445 ppb Au, 19.9 ppm Ag (88-RDC-44), 295 ppb Au, 3.4 ppm Ag



(88-RDC-39) and 55 ppb Au, 7.7 ppm Ag (88-RDC-35) all taken on the Dona 3 to 6 claims.

Trace disseminated fine grained pyrite was evident in some of the rock samples taken on the Irene claims but only eight samples yielded gold assay values of up to 10 ppb. However, stream sediment sample 88-SSHB-3, located on the stream which drains from the east side of the Irene 2 and Irene 3 claims (Figure 5) yielded an anomalous gold value of 8100 ppb and a zinc value of 107 ppm. Stream sediment sample 88-SSHB-8, located on the stream which drains from the mineralized zone of the Dona claims (Figure 5) yielded an anomalous gold value of 1020 ppb and a zinc value of 70 ppm. An anomalous value of 220 ppb Au and 179 ppm Zn was recorded from sample 88-SSHB-11 located on the Irene 5 claim.

## 5.0 CONCLUSIONS

The subject property is predominantly underlain by varieties of black intensely cleaved argillite and dark grey to grey siliceous phyllite. Intermixed felsic volcanics with argillaceous sediments and an intrusive diorite stock are evident in places within the Dona claims

Exploration activities in July, 1988 on the Keefer Resources Inc. Dona and Irene claims included geological mapping and limited rock and stream sediment geochemistry. This work defined several areas with anomalous precious and base metal values. The main zone of mineralization occurs on the Dona claims where Au values up to 695 ppb and Ag values of up to 442 ppm were recorded. Stream sediment sample 88-SSHB-3,



located on the stream which drains from the east side of the Irene 2 and Irene 3 claims yielded an anomalous gold value of 8100 ppb and a zinc value of 107 ppm. Stream sediment samples 88-SSHB-8 and 88-SSHB-11 which drain from the Dona claims and the Irene 5 claim respectively yielded anomalous gold values of 1020 ppb and 220 ppb.

The results of the geochemical survey indicate that the potential for significant precious and base metal mineralization exists on the Dona and Irene claims. The rock samples collected on the Dona claims confirmed that a detailed drilling program is warranted to define the grade and geometry of the mineralized zone. The presence of anomalous stream sediment samples on the Irene claims is indicative of the potential for these claims to host additional precious metal mineralization.

As a result of the encouraging geochemical survey conducted on the property during July, 1988, an exploration program designed to further test the potential for base and precious metal mineralization is warranted and recommended.

## 6.0 RECOMMENDATIONS

A detailed drill assessment of the primary anomaly on the Dona claims is highly recommended. Smith (1986) has previously recommended the use of HQ diameter core to overcome poor recovery problems and the writer agrees with this proposal. However, this should only be used in a limited capacity to define the geometry of the mineralized zone. A reverse circulation drill rig used in conjunction with this may be more appropriate



and less expensive for use as fill-in holes. The fill-in holes would be used to define the grade characteristics of the deposit.

Respectfully submitted,

HI-TEC RESOURCE MANAGEMENT LTD.

*Denis Collins*  
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Denis A. Collins, Ph.D., F.G.A.C.

July 1988



**APPENDIX I**  
**References**



## REFERENCES

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**APPENDIX II**  
**Statement of Qualifications**





### STATEMENT OF QUALIFICATIONS

I, DENIS A. COLLINS, of the City of Vancouver, Province of British Columbia, hereby certify that:

1. I am a geologist employed by Hi-Tec Resource Management Ltd. at 1500-609 Granville Street, Vancouver, British Columbia, Canada, V7Y 1G5.
2. I obtained a Bachelor of Science degree in Geology from University College Cork, Ireland in 1980 and a Ph.D. in Structural Geology from the same university in 1985.
3. I have been practising my profession as a geologist in Ireland, South Africa and Canada since 1980.
4. I am a Fellow of the Geological Association of Canada.
5. I have no interest in the property described herein, nor in securities of any company associated with the property, nor do I expect to receive any such interest.
6. THAT I consent to the use of this report in a Prospectus or Statement of Material Facts for the purpose of private or public financing.

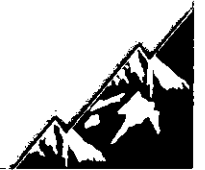
Dated in Vancouver, British Columbia, this 28th day of July, 1988.

*Denis Collins*

Denis A. Collins, Ph.D., F.G.A.C.



**APPENDIX III**  
**Geochemical Preparation and Analytical Procedures**



*MIN-EN Laboratories Ltd.*

*Specialists in Mineral Environments*

Corner 15th Street and Bewicke  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C.  
CANADA V7M 1T2

GOLD GEOCHEMICAL ANALYSIS BY MIN-EN  
LABORATORIES LTD.

Geochemical samples for Gold processed by Min-En Laboratories Ltd., at 705 W. 15th St., North Vancouver Laboratory employing the following procedures.

After drying the samples at 95°C soil and stream sediment samples are screened by 80 mesh sieve to obtain the minus 80 mesh fraction for analysis. The rock samples are crushed and pulverized by ceramic plated pulverizer.

A suitable sample weight 5.0 or 10.0 grams are pretreated with  $\text{HNO}_3$  and  $\text{HClO}_4$  mixture.

After pretreatments the samples are digested with Aqua Regia solution, and after digestion the samples are taken up with 25% HCl to suitable volume.

Further oxidation and treatment of at least 75% of the original sample solutions are made suitable for extraction of gold with Methyl Iso-Butyl Ketone.

With a set of suitable standard solution gold is analysed by Atomic Absorption instruments. The obtained detection limit is 0.005 ppm (5ppb).

**APPENDIX IV**  
**Geochemical Results for Rock**  
**and Stream Sediment Samples**





**MIN-EN LABORATORIES LTD.**

**SPECIALISTS IN MINERAL ENVIRONMENTS**  
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

**VANCOUVER OFFICE:**  
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**TIMMINS OFFICE:**  
33 EAST IROQUOIS ROAD  
P.O. BOX 867  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9996

*Certificate of GEOCHEM*

Company: HI-TEC RESOURCE MANAGEMENT  
Project: 88BC020  
Attention: D.A. COLLINS

File: 8-914/P1  
Date: JULY 19/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AG PPM	AU-WET PPB
88.RDC01	1.9	5
88.RDC02	0.6	5
88.RDC03	1.8	5
88.RDC04	1.6	10
88.RDC05	0.6	5
-----		
88.RDC06	1.6	10
88.RDC07	2.4	5
88.RDC08	1.5	5
88.RDC09	1.4	9
88.RDC10	0.9	10
-----		
88.RDC11	1.1	5
88.RDC12	0.9	5
88.RDC13	1.6	5
88.RDC14	1.8	5
88.RDC15	1.7	5
-----		
88.RDC16	1.8	5
88.RDC17	1.1	5
88.RDC18	1.0	10
88.RDC19	1.0	5
88.RDC20	1.2	5
-----		
88.RDC21	1.4	5
88.RDC22	1.1	5
88.RDC23	1.0	10
88.RDC24	0.3	5
88.RDC25	0.8	5
-----		
88.RDC26	0.4	5
88.RDC27	0.6	5
88.RDC28	0.7	5
88.RDC29	2.2	5
88.RDC30	0.5	5

Certified by \_\_\_\_\_

MIN-EN LABORATORIES LTD.



**MIN  
• EN  
LABORATORIES LTD.**

**SPECIALISTS IN MINERAL ENVIRONMENTS**  
CHEMISTS • ASSAYERS • ANALYSTS • GEOCHEMISTS

**VANCOUVER OFFICE:**  
705 WEST 15TH STREET  
NORTH VANCOUVER, B.C. CANADA V7M 1T2  
TELEPHONE (604) 980-5814 OR (604) 988-4524  
TELEX: VIA U.S.A. 7601067 • FAX (604) 980-9621

**TIMMINS OFFICE:**  
33 EAST IROQUOIS ROAD  
P.O. BOX 887  
TIMMINS, ONTARIO CANADA P4N 7G7  
TELEPHONE: (705) 264-9996

*Certificate of Geochem*

Company: HI-TEC RES MNGT LTD  
Project: 88BC020  
Attention: D. A. COLLINS

File: 8-914/P2  
Date: JULY 19/88  
Type: ROCK GEOCHEM

We hereby certify the following results for samples submitted.

Sample Number	AG PPM	AU-WET PPB
88.RDC31	1.0	10
88.RDC32	.8	5
88.RDC33	.4	5
88.RDC34	.8	10
88.RDC35	7.7	55
-----		
88.RDC36	442.0	695
88.RDC37	3.2	5
88.RDC38	1.6	5
88.RDC39	3.4	295
88.RDC40	1.1	20
-----		
88.RDC41	1.2	5
88.RDC42	.9	5
88.RDC43	1.6	5
88.RDC44	19.9	445
88.RDC45	1.2	10
-----		
88.RDC46	.8	5
88.RDC47	1.2	10
88.RDC48	1.0	5
88.RDC49	1.4	5
88.RDC50	1.0	5
-----		
88.RDC51	.4	10
88.RDC52	1.0	5

Certified by

MIN-EN LABORATORIES LTD.

COMPANY: MI-TEC RESOURCE MANAGEMENT LTD.

MIN-EN LABS ICP REPORT

(ACT:FEI) PAGE 1 OF 1

PROJECT NO: 888020

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

FILE NO: 8-714/P1

ATTENTION: D. COLLINS

(604)980-5814 OR (604)980-4524

\* TYPE HEAVY MINERAL \*

DATE: JULY 20, 1988

(COPY)	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB0	88.SSHB1
	1-40HM	2-40HM	3-40HM	4-40HM	5-40HM	6-40HM	7-40HM	8-40HM	9-40HM	9-40HM	9-40HM	1-40HM
AG	.1	.1	1.4	.3	.4	.3	.4	.7	.3	.3	.2	.1
AS	32	3	21	4	2	23	238	75	91	14	54	
CU	62	67	39	27	23	19	17	26	32	25	43	
PB	14	14	14	14	14	16	25	31	10	13	25	
SB	2	1	1	3	4	1	14	4	1	1	3	
ZN	150	153	107	81	128	82	91	70	76	90	179	
AU-PPB	5	230	8100	125	5	5	370	1020	70	5	220	
HYZ	6.06	5.20	4.79	5.12	2.99	3.88	2.83	3.69	8.48	3.28	2.29	

**APPENDIX V**  
**Rock Sample Descriptions**





### Rock Sample Descriptions

- 88 RDC-1 Black phyllite with trace pyrite. Very thinly bedded. X-cut by 1-3 mm calcite veinlets
- 88 RDC-2 Quartz float. Hem. and limonitic staining.
- 88 RDC-3 Intensely cleaved fissile black phyllite / Argillite. Weathered pyrite like crystals and trace visible pyrite incorp. No preferred orientation.
- 88 RDC-4 Quartz lenses within black phyllite. Tr. pyr.
- 88 RDC-5 Quartz float. Pyrite cube 2-3 mm in gouge within quartz.
- 88 RDC-6 Black phyl./Arg. Cleavage and joint intersections make it brittle.
- 88 RDC-7 Black phyllite.
- 88 RDC-9 Black fissile phyl. Black phyl and trace quartzite interbed.
- 88 RDC-10 Tr. disseminated pyrite. Fine-grained Grey Arenite.
- 88 RDC-11 Black phyl. overlying quartzite. Tr. fine disseminated pyrite and thin 5 mm quartz veins.
- 88 RDC-12 Fiss. black phyllite, argillite and competent siliceous phyl. interdeded.
- 88 RDC-13 Coarse and medium grained calcareous Tuffaceous units interbedded tr. disseminated pyr. in coarser grained unit.
- 88 RDC-14 Dark grey/black tuffaceous (medium grained) to calcareous mudstone. Minor thin calcite veining trace pyr in blebs.
- 88 RDC-15 Abundent calcite veining within a fine grained black/grey calcareous micrite (?)
- 88 RDC-16 Massive fine grained black/grey recrystallized limestone. Chert pods (up to 20 cm long axis) Tectonized. Shaly partings.
- 88 RDC-17 Black argillite with weathered out pyrite? Similar to RDC-3.
- 88 RDC-18 Arenaceous volc, green fine grained.

- 88 RDC-19 Black fissile argillite. Very weathered and poorly exposed.
- 88 RDC-20 Grey/black phyllite. Slightly siliceous.
- 88 RDC-21 Black fissile argillite.
- 88 RDC-22 Black phy. slightly siliceous.
- 88 RDC-23 Fault gouge zone 12 cm wide. Slight hematite staining. Predominately black argillite.
- 88 RDC-24 Quartz vein 20 cm wide within dark grey phyllite. Appears barren.
- 88 RDC-25 Dark grey phyll. slightly sil. very well jointed. Minor 2 cm quartz vein parallel to one joint set  $158^{\circ} 84^{\circ}$  E. Included in sample.
- 88 RDC-26 10 cm quartz vein in grey phyl.
- 88 RDC-27 5 cm quartz vein in phyl. appears barren.
- 88 RDC-28 Quartz vein 15 cm wide in grey phyllite. Appears barren.
- 88 RDC-29 Black argillite fissile minor tr pyrite
- 88 RDC-30 Flt gouge zone (?) hem. stained quartz and phyl.
- 88 RDC-31 Dark grey phyl. Minor lenses of grey/green quartzite (arenite) medium-fine grained.
- 88 RDC-32 Tuffaceous unit tr. pyrite.
- 88 RDC-33 Pale grey hornblende rich dacite. Phenocrysts of hornblende 1mm x 3mm.
- 88 RDC-34 Dark grey fine grained sil phyl thinly bedded
- 88 RDC-35 Weathered micaceous andesitic (?) unit and thin quartz veining tr recrystallized pyr. on fracture plane.
- 88 RDC-36 Well mineralized phyllite and tuffaceous unit with limy inter-beds, layering 1 cm thick. Quartz veining evident. Mineralization - chalcopyr, malachite, arsenopyr. on shear plane of black phyl.
- 88 RDC-37 Well mineralized grey lst and sil. Pyr/chalco

- 88 RDC-38 Green sil. andesitic unit well mineralized fine pyr along fract. Thin wispy pyr and dissm fine pyrite. Weathered.
- 88 RDC-39 Float - phyl. and tectonized andesite (?) Abundant pyrite.
- 88 RDC-40 Pale grey skarned unit. Tr disseminated pyrite.
- 88 RDC-41 Limy/tuffaceous grey black thinly bedded unit. Tr disseminated pyrite but better than 88 RDC-40. Bdg?
- 88 RDC-42 Weathered diorite ty pyr.
- 88 RDC-43 Tuffaceous lst. and hem staining tr. disseminated pyrite.
- 88 RDC-44 Fault gouge and quartz. Fault zone 30 cm thick, sheared weathered. Hematite and limonitic staining evident.
- 88 RDC-45 Interbedded Argillite and limy tuffs.
- 88 RDC-46 Black phyllite and limy interbeds
- 88 RDC-47 Black grey tuffaceous fine grained calcareous units and argillite interbedded.
- 88 RDC-48 Diorite-Biotite rich trace disseminated pyrite.
- 88 RDC-49 Dioritic unit fine disseminated pyrite.
- 88 RDC-50 Black argillite and fine disseminated pyrite.
- 88 RDC-51 Green medium grained quartzite. Minor Tr pyrite
- 88 RDC-52 Grey/black siliceous phyllite.

**APPENDIX VI**  
**Statement of Costs**



STATEMENT OF COSTS

KEEFER RESOURCES INC.  
KEEFER LAKE PROPERTY  
PROJECT 88BC020

Mobilization/Demobilization		
Truck Rental and Fuel		
2 days @ \$135/day	\$270.00	
D. Collins 2 days @ \$350/day	700.00	
H. Bailey 2 days @ \$250/day	<u>500.00</u>	
		\$ 1,470.00
Project Preparation		
D. Collins 2.5 days @ \$350/day		875.00
Truck Rental and Fuel 4 days @ \$135/day		540.00
Geochemistry		
52 rock geochem samples analyzed for Ag and Au @ \$10.25/sample		533.00
11 heavy mineral samples analyzed for 6 element ICP and gold @ \$34.75/sample		208.50
Domicile 12 man days @ \$80/day		960.00
Field Supplies		200.67
Communications/Freight/Accounting		350.00
Report Compilation and Drafting		<u>2,250.00</u>
		\$ 7,387.17
Project Management Fee @ 15% (not charged on salaries)		796.83
Salaries July 2 to July 5, 1988		
D. Collins, Project Geologist		
4 days @ \$350/day	\$ 1,400.00	
F. Bailey, Prospector		
4 days @ \$250/day	<u>1,000.00</u>	
		<u>2,400.00</u>
TOTAL		\$ 10,584.00





LEGEND

- ? - Geological contact, inferred
  - / — Bedding dip/strike
  - / — Joint dip/strike
  - / — Cleavage dip/strike
  - X — Syncline
  - 1 Diorite
  - 2 Volcanics (Nicola Group)
  - 3 Siliceous Phyllite and Argillite interbedded
  - 4 Mixed Sediments and Volcanics
  - 5 Argillaceous cherty Limestone
  - — Road
  - — Creek
- Contour interval = 500 feet



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

17,663

KEEFER RESOURCES INC.

DONA & IRENE CLAIMS

PROPERTY GEOLOGY

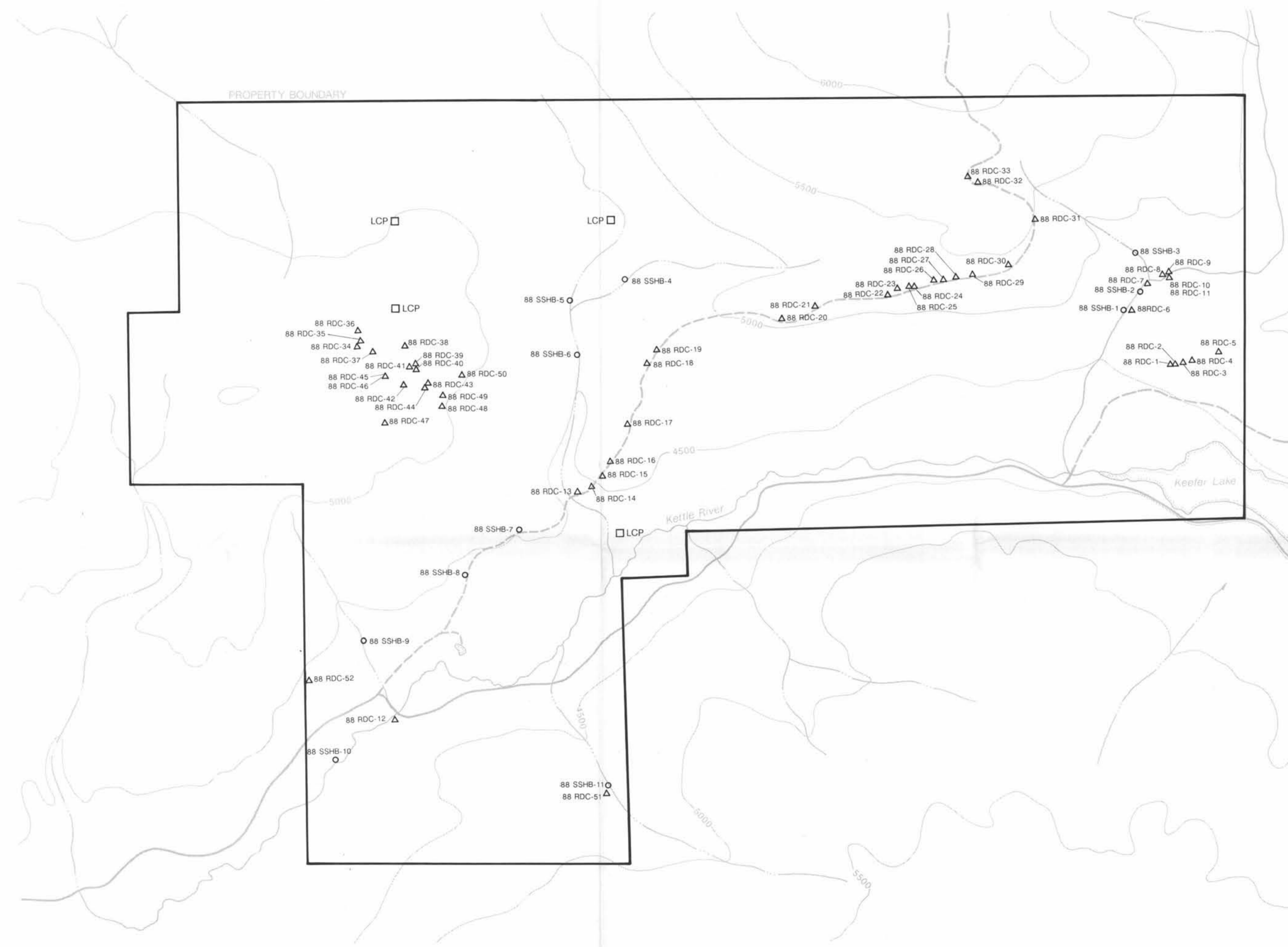
	SCALE: 1 : 10,000	N.T.S.: 82L/1	FIGURE No.: 4
	OWN. BY: H.V.	DATE: July/88	FILE No.:
	CHKD. BY: D. Collins	PROJECT No.: 88BC 020	





LEGEND

- △ 88 RDC-1 Rock Sample
- 88 SSHB-1 Stream Sediment Sample
- == Road
- Creek
- Contour interval = 500 feet



GEOLOGICAL BRANCH  
ASSESSMENT REPORT

17,663



KEEFER RESOURCES INC.  
DONA & IRENE CLAIMS  
ROCK and STREAM SEDIMENT  
SAMPLE LOCATION MAP

	SCALE:	N.T.S.	FIGURE No:
	1 : 10,000	82L/1	5
DWN. BY:	H.V.	DATE:	FILE No:
CHKD. BY:	D. Collins	July/88	88BC 020