



Report on the 1999 Geological Assessment Work on the Cathy Property

Mayo Mining District, Yukon
April, 1999

Claims: Cathy 5-9, 10 (YB03923-27, YB22574)
ARD 1-6 (YB22563-68)

094 084

Location:

1. 375 km NE of Whitehorse, Yukon
2. 105 O/7
3. Latitude: 63° 17'N
Longitude: 130° 33'W

For: **Jim Coyne**
14 MacDonald Road
Whitehorse, Yukon
Y1A 4L2

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February 10, 2000

Keller Geoservices Ltd.



This report has been examined by
the Geological Evaluation Unit
under Section 53 (4) Yukon Quartz
Mining Act and is allowed as
representation work in the amount
of \$ 1200.00.

MB
Regional Manager, Exploration and
Geological Services for Commissioner
of Yukon Territory.

SUMMARY

The purpose of the report is to satisfy assessment requirements through a description of exploration work carried out between February and April of 1999. The exploration work completed during this time consists of the development of a geological compilation map and a review of the property mineral resources.

The property consists of 12 contiguous claims, Cathy 5-10 and ARD 1-6. These claims are located in the Selwyn Mountains of Yukon and are 375km northwest of Whitehorse, Yukon. Access to the property is via helicopter from MacMillan Pass.

The Cathy claims are situated in the MacMillan Fold Belt that form part of the Selwyn sedimentary basin. Rocks of the Selwyn basin are host to SEDEX type deposits including the Tom, Jason and Boundary Creek lead-zinc deposits and thirteen barite deposits. Miogeoclinal rocks of Proterozoic to Middle Jurassic age dominate the Selwyn Basin. Periods of rifting and extensional faulting were contemporaneous with the deposition of miogeoclinal rocks. Continental collision resulted in tectonic deformation and granitic intrusion of miogeoclinal sediments during Jurassic to Tertiary time.

The Cathy claims are situated over prominent ridges of the Cathy Barite deposit. The Cathy deposit is situated in area of thrust panels of Paleozoic sediments. Mineralization is hosted within a chert-shale member of the Lower Earn Group. Barite mineralization occurs as laminated barite and barite carbonates.

Potentially economic barite mineralization has been identified on the Cathy claims. Mapping and diamond drilling from 1977 to 1980 identified significant barite mineralization. Barite mineralization is oriented at 075° 65° NW.

A compilation map developed from previous exploration work has identified baritic rocks extending across strike for approximately 1000m over the claims. Barite outcrops that extending 300m and 170m along strike on Cathy 9-10 and Cathy 5-6 claims respectively.

Resources reported following drilling in 1980 are reported 450,000 tonnes at a specific gravity of 4.25. A review of information allowed the resources to be classified as inferred resources according to the 1996 Canadian Institute of Mining and Metallurgy reporting terminology.



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INTRODUCTION

This report was prepared at the request of Jim Coyne, the owner of Cathy claims 5 to 10 and the contiguous ARD claims 1 to 6, herein called the Cathy property. The purpose of the report is to satisfy assessment requirements through a description of exploration work carried out in 1999.

Initial work on the Cathy barite property was carried out by G. David Keller, P. Geol. for Kilborn Engineering Pacific Ltd. Exploration work on the property was completed between the months of February and April of 1999. The exploration work consisted of:

- A geological compilation map
- Review of the mineral inventory for the property

This report was prepared by G. David Keller, P. Geol. of Keller Geoservices Ltd.

The following sources of information were used in the preparation of this report:

- Assessment report by Simon and Johnson (1977) completed for Baroid of Canada Ltd.
- Assessment report by Baroid of Canada Ltd. (1980).
- Assessment report by vanRanden (1994)
- Published reports and maps (as referenced).

LOCATION AND ACCESS

The Cathy and ARD claims are located 375 km northwest of Whitehorse, Yukon. The North Canal Road from Ross River to MacMillan pass is located approximately 25 km east of the claims (figure 1). The claims are centered at approximately 63° 17' N latitude and 130° 33' W longitude. The property can be located on NTS map 105-O/7 (1:50,000 scale).

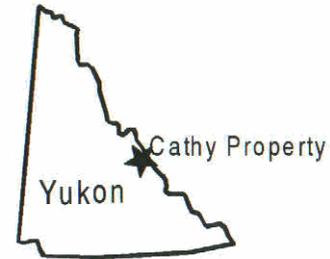
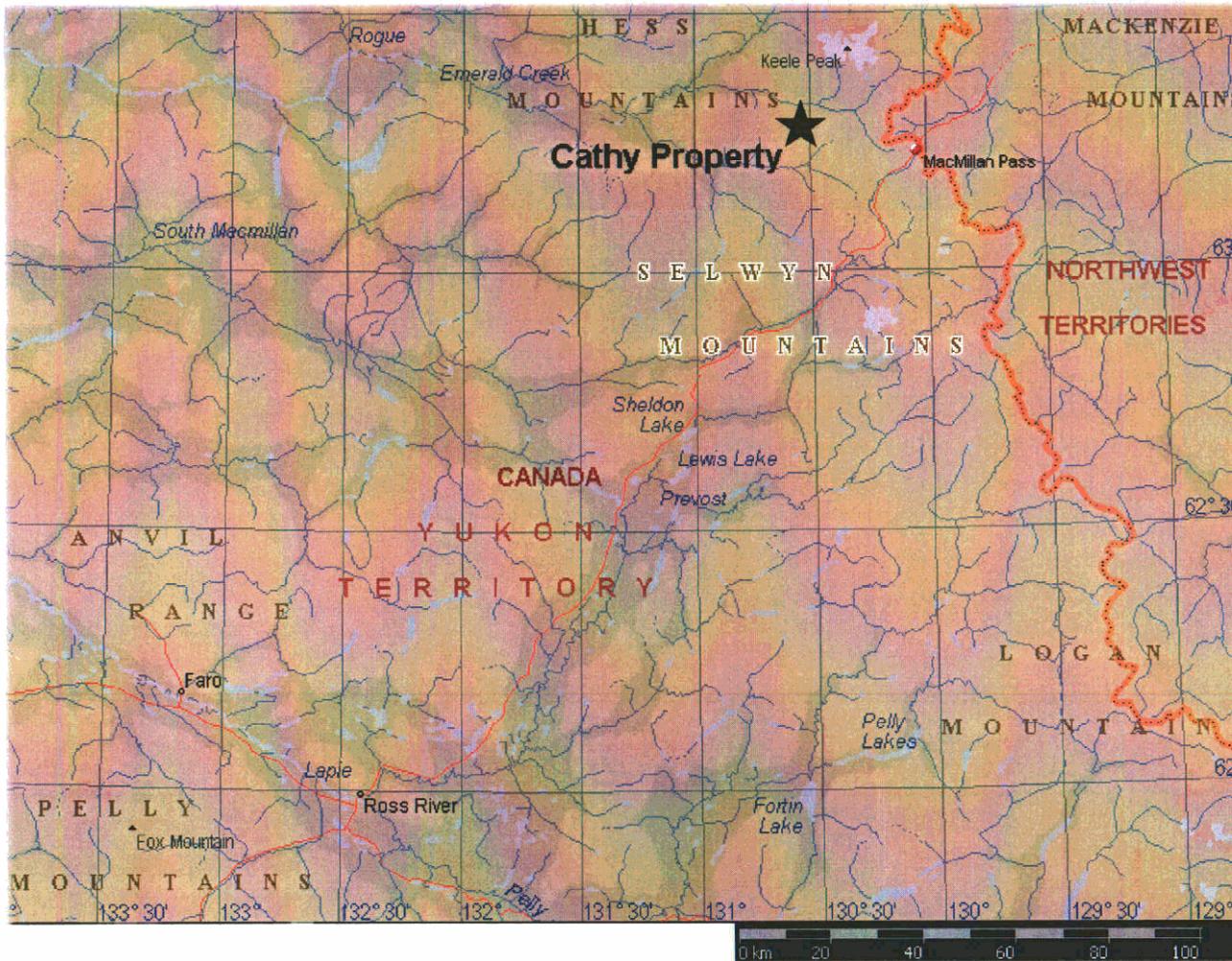
Access to the property is via helicopter from an airstrip near Macmillan Pass airstrip. The nearest helicopter service is located 235 miles to the southwest at Ross River. A trail from Macmillan Pass ends less than 2 kilometers from the ARD claims.

PHYSIOGRAPHY, CLIMATE AND VEGETATION

The Cathy claims are situated on a west to east trending razor-back ridge of the Selwyn Mountains. The ridge rises 350 m from adjacent valley floors to an elevation of 1730 m. The ridges are flanked by talus and glacial debris. Exposure of bedrock is estimated at 20%. Talus, glacial deposit and alpine vegetation cover outcrop at lower elevations.



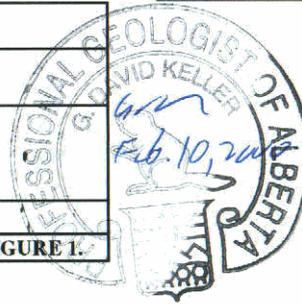
Keller Geoservices Ltd.



Jim Coyne
Cathy Property

Location Map; Southwest Yukon

Keller Geoservices Ltd.	DATE: February 10, 2000
NTS: 105/0/7	DRAWN: GDK
SCALE: As Shown	FIGURE 1.



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The ARD claims are contiguous with the Cathy claims and cover a valley floor, south of the Cathy claims.

Steep U-shaped valleys, hanging valleys and aretes in the area were formed by Pleistocene glaciation

The area is typified by a cold continental climate of warm summers and harsh winters. Permafrost is generally continuous, particularly on north and east facing slopes.

Alpine areas, above 1500 m are dominated by lichen and sparse moss. Vegetation along stream valleys below 1500 m consists of sparse spruce forest, dwarf willow and birch.

PROPERTY

The Cathy property consists of 12 contiguous unsurveyed two post claims. These claims cover approximately 250 hectares (620 acres) staked in accordance with the Yukon Quartz Mining Act. The current claim status is indicated on the Yukon Quartz and Placer sheet 105-0-7 (figure 2 and appendix 1). Claim data is summarized in Table 1.

Claim	Grant No.	No. of Claims	Expiry Date
Cathy 5-9	YB03923-927	5	September 20, 1999
ARD 1-6	YB22563-568	6	September 22, 1999
Cathy 10	YB22571	1	September 22, 1999

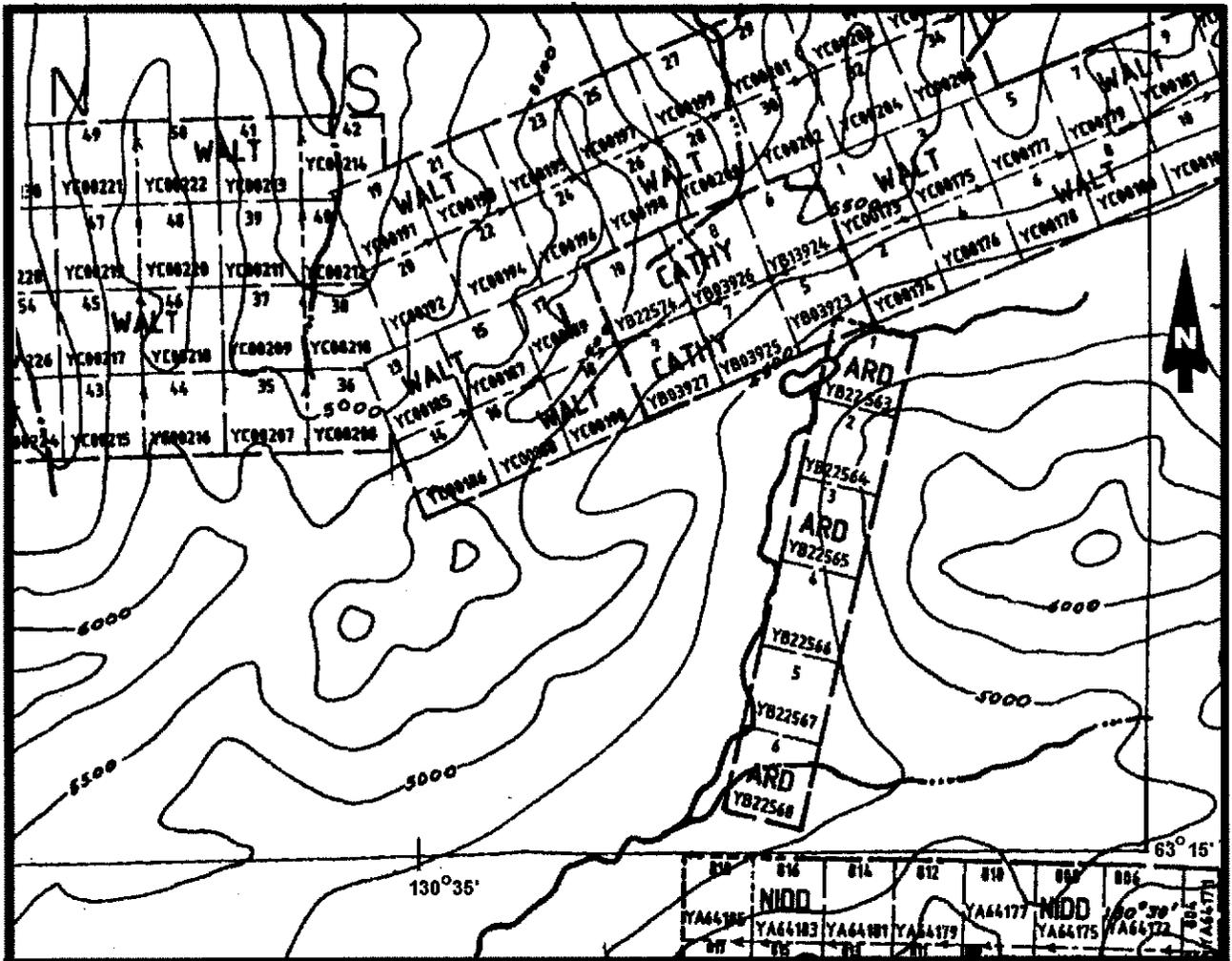
Table 1. Cathy property claim status.

HISTORY

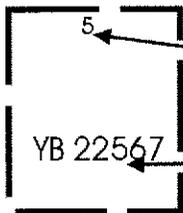
Exploration in the area was active upon the discovery of the Tom Pb-Zn-Ag deposit at Macmillan Pass in 1952. During the 1970's, exploration was focused on sedimentary-exhalitive (Sedex) type deposits. This activity culminated in the discovery of Boundary Creek, Jason (End and South/Main) and Tom Pb-Zn deposits. Barite deposits discovered during this period include the Tyrala, Hess, Cathy (Walt), Kobuk, JK, Gary, Moose, and Pete deposits.

The Cathy barite deposit was first staked by J. R. Woodcock in 1973. Baroid of Canada Ltd. (Baroid) acquired the property in 1975. In 1980, Baroid conducted a 10 hole diamond drilling program, drilling 956m. In March of 1991, the property was restaked by Jim Coyne. VanRanden (1994) collected and analyzed five samples of barite material in September of 1993.

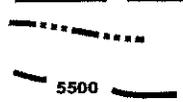




LEGEND



5 ← Claim Number
 ← Claim Boundary
 YB 22567 ← Tag Number

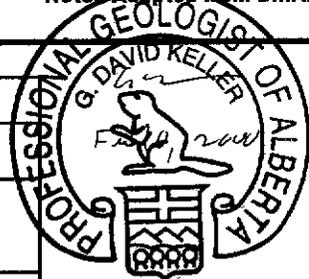


--- Creek, Stream
 — 5500 Elevation Contour (500ft)



Note: Adapted from D.I.A.N.D map sheet

Jim Coyne			
Cathy Property			
Claim Map			
Keller Geoservices Ltd.		DATE: February 10, 2000	
NTS: 105/O/7	DRAWN: GDK	SCALE: As Shown	FIGURE 2.



Keller Geoservices Ltd.



GEOLOGY

Regional Geology

The Cathy (Walt) deposit is located in the Selwyn Mountains of Yukon, Mayo mining district. The Cathy barite deposit is situated within the MacMillan Fold Belt (MFB). This deposit is one of 13 barite and three lead-zinc (Jason, Tom, Boundary Creek) deposits discovered in the MFB and t. The deposit occurs on the southern margin of the North Block, a tectono-stratigraphic sub-unit of the MFB, as shown in figure 3.

The North Block is characterized by an array of southward directed thrust faults. These faults trend to the northeast and dip moderately to steeply to the northwest. Lower Cambrian to Upper Devonian sediments of the Lower Earn Group, are imbricated and repeated by the thrust faults.

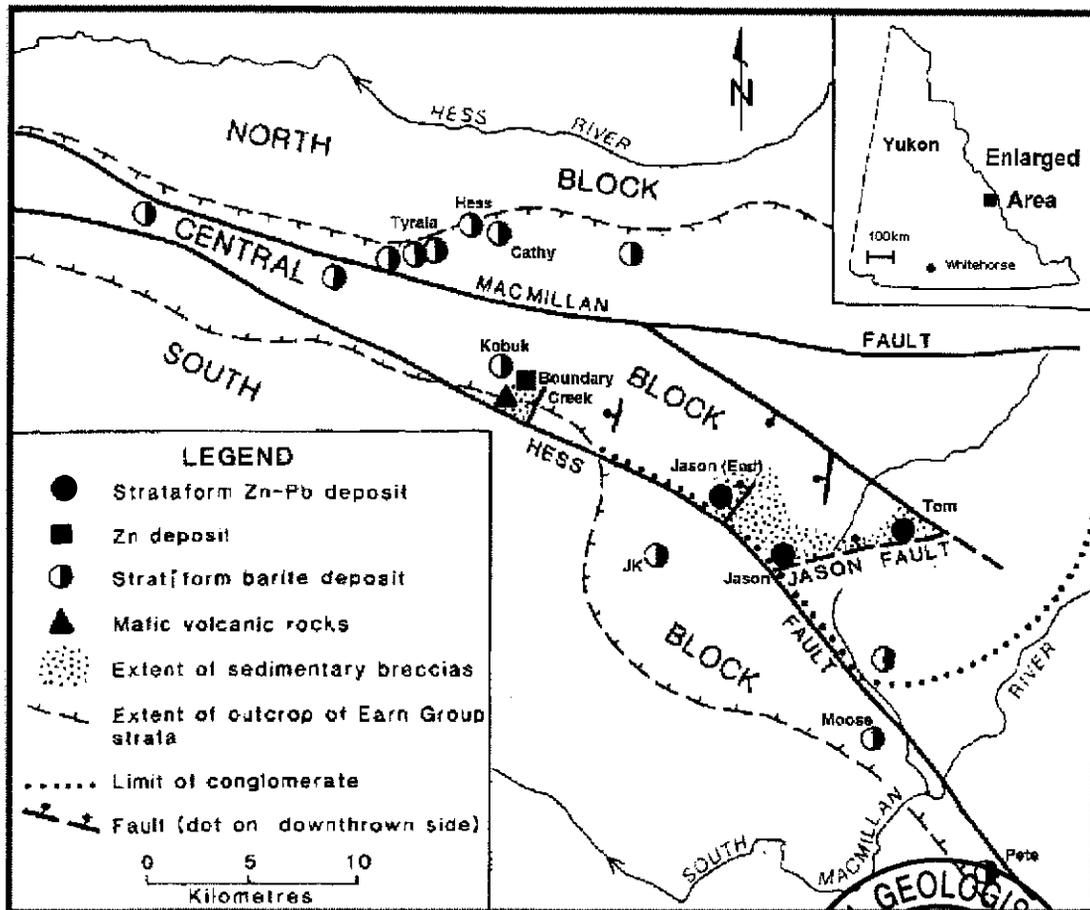
The MFB is a structural domain that covers an area about 60km by 30km and trends in a westerly direction. The MFB forms an anomalous structural domain within the larger northwest trending Mackenzie Mountains (Turner and Goodfellow, 1990).

The oldest rocks exposed in the MFB comprise Upper Proterozoic to Ordovician aged sandstone, shale and limestone. Overlying rocks of the Road River Group consist mainly of Ordovician to Devonian shale, chert, limestone and minor volcanic rocks. Rocks that overlie this unit comprise the Lower Earn Group shale, chert, chert conglomerates and sandstone of Devonian age. These sediments are regionally metamorphosed to weak prehnite-pumpellyite grade. Late Cretaceous granitic stocks are reported to cut all these units (Abbot et al, 1986).

On a larger scale, the MFB is located on the eastern margin of the structurally deformed Selwyn Basin. The rocks of the Selwyn basin can be broadly defined as sedimentary rocks bounded to the east by the Paleozoic shale-carbonate contact and to the west by a major regional fault, the Tintina Fault. Rocks of the Selwyn Basin have been deposited on a continental margin from Proterozoic to Middle Jurassic time. The continental margin was tectonically active through this time and underwent periods of rifting, extensional faulting.

The Selwyn Basin is considered part of a larger feature, the northern Cordilleran miogeocline. Rocks of this miogeocline represent a prism of sediments deposited on the continental margin of North America. These miogeoclinal sediments are from Proterozoic to Triassic age. The collision of a Mesozoic volcanic island arc terrain with the continental margin of the northern Cordilleran ended miogeoclinal sedimentation during the Middle Jurassic. The tectonic collision resulted in imbrication and folding of miogeoclinal rocks during decollement style deformation (Abbot et al, 1986). Later Cretaceous to late Tertiary transcurrent movement along the Tintina Fault and the Rocky Mountain Trench resulted in vertical fault displacement of 450 km to 750 km.





Jim Coyne			
Cathy Property			
MacMillan Fold Belt Location of Sedex Deposits (Based on Turner and Goodfellow, 1990)			
Keller Geoservices Ltd.		DATE: February 10, 2000	
NTS: 105/O/7	DRAWN: GDK	SCALE: As Shown	FIGURE 3.



Property Geology

The Cathy 5 to 10 claims are located over a portion of the Cathy deposit. The claims cover prominent ridge tops with barite mineralization identified by Baroid (1980) and by Aurum (1993). Possible extensions of the deposit are covered by Walt claims 13 to 18 immediately to the west and Walt claims 1 to 12 immediately to the east of the Cathy claims.

Turner and Goodfellow (1990) have associated barite mineralization with prominent east-northwest trending ridges formed by resistant carbonate rocks. Less resistant barite beds, overlying these carbonate rocks, are reported to form dip-slopes along the north facing slopes of these ridges.

Barite mineralization occurs as barite and barium carbonate beds within a Devonian unit of interbedded black chert and grey-black siliceous shale. Barite beds are laterally extensive and display sharp contacts with the chert-shale unit. This unit is classified as a lower member of the Lower Earn Group.

The chert-shale unit is underlain by silty limestone, calcareous black shale and massive limestone units. The later units are reported to form recessive southward facing talus slopes. These rock units are shown schematically in figure 4.

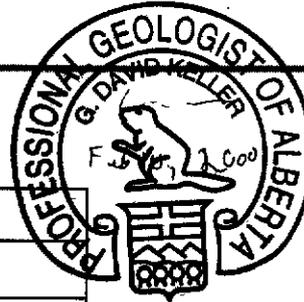
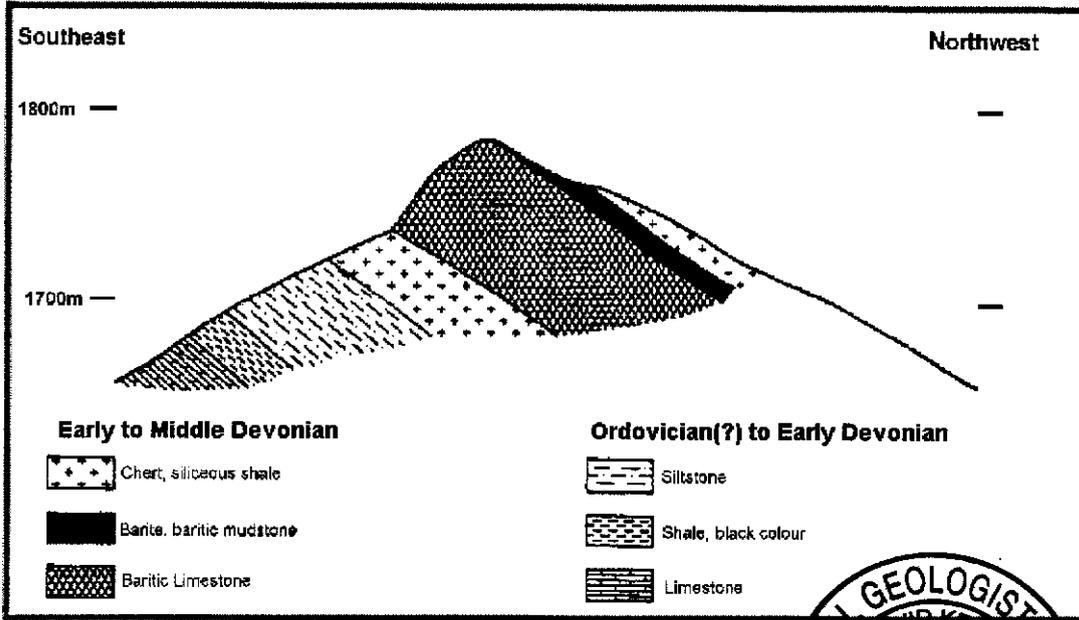
Structurally, the barite beds are located in panel of thrust strata. These homoclinal sediments are locally folded into steep folds plunging west-northwest. The steep folds are overturned to the south and give the deposit an en-echelon map distribution of barite mineralization. Barite mineralization is oriented at $075^{\circ} 65^{\circ}$ NW (Tyralla and Simon, 1976).

MINERALIZATION

Barium mineralization at the Cathy deposit has been divided into two major facies by Turner and Goodfellow (1990). These facies consist of a barite and barium carbonate facies. The barite facies have been subdivided into four subfacies and are laminated, massive barite, baritic mudstones and laminated barite transitional to massive carbonates. The barium carbonates facies are believed to represent the replacement of barite caused by carbonate rich hydrothermal fluids.

The economically important rocks, or rocks with the highest specific gravity, consist of laminated barite and massive barite lithologies. Barium carbonate rocks are usually associated with lower specific gravities and may not be economically important.





Jim Coyne			
Cathy Property			
Cathy Deposit Schematic Cross Section (Based on Turner and Goodfellow, 1990)			
Keller Geoservices Ltd.		DATE: February 10, 2000	
NTS:	DRAWN: GDK	SCALE: As Shown	FIGURE 4.



Mineralization on the property has been outlined by mapping and diamond drilling. Abbot (1981) reported a zone 30m thick with a lateral extent of 150m. This zone is estimated to comprise of 450,000 tonnes of barite material with a specific gravity of at least 4.25. Samples on the property analyzed for base metals yielded maximum values of 2.73% zinc and 0.22% lead (Simon and Johnson, 1977).

EXPLORATION WORK FOR 1999

Compilation of Exploration Data

Available exploration information was compiled onto a base map according to the following procedure:

1. Information from geological plans (1inch=300ft scale) from Simon and Johnson (1977) were digitized using AutoCad. Digitized information included location of geological units, dip and strike measurements and contours.
2. Digitized information was transferred on to a 1:2000 scale map of the current claim boundaries of Cathy claims 5 to 12 with longitude and latitude coordinates. Topographical features and the location of old claim boundaries were used to confirm that the information was correctly transferred.
3. Longitude and latitude map coordinates were transformed to UTM coordinates based on the 1927 North American Datum (NAD 27).

Drill hole collars in the Baroid (1980) assessment report could not be transferred on the base map. The coordinates system used by Baroid to locate the collars was found to be significantly different from NAD 27 based coordinates used in generating the base map. Although, Aurum has reported drillhole 501-80-1 on the Cathy 8 claim, the available information is insufficient to locate drill hole collars on the base map.

There were no surveyed reference points available, therefore locations on the base map are only approximate. The compiled base map is presented in Appendix 2.

Results

The compilation map indicates that baritic rocks extend for 1000m from the southeastern portion of the Cathy 10 through to Cathy 8 and straddling the common boundary between Cathy 6 and Cathy 5 claims.

Barite beds are indicated on southeast part of Cathy 10. Barite mineralization on this claim occurs in three bands (extending 300m along strike) that are separated by baritic shale and baritic limestone units. No barite outcrops are indicated on Cathy 8 although baritic shales and limestones are present. Baritic shale extends into Cathy 6 and Cathy 5



claims. Barite rocks extend for about 170m along the common boundary between Cathy 6 and 5.

Mapping and drilling by Simon and Johnson (1977) and Baroid (1980) on Cathy 5 to 12 claims has established a reasonable geological understanding of the extent of mineralization. The continuity of high specific gravity material is reasonably well outlined by surface chip sampling and drill core samples. However, sampling and drilling locations should be identified with greater accuracy. This material is expected to have a specific gravity greater than 4.25. Sampling of selected talus by Aurum in 1993 augments the possibility that high specific gravity material is present. This information allows the mineral inventory of 450,000 tonnes with a specific gravity of 4.25 to be considered as a deposit of potential economic merit. According to definitions used by the Canadian Institute of Mining and Metallurgy (CIMM, 1996) the mineral inventory of the Cathy property can be classified as inferred resources.

These resources can be brought to a higher level of confidence, through detailed mapping of the property and accurate surveys of location drill hole collars. Detailed mapping should also determine if mineralization is offset significantly by local faulting or folding. Sampling techniques such as trenching and channel sampling should augment existing surface grade and specific gravity information.

To develop a mineable reserve for the deposit, resources must be classified at a higher confidence level. A mineral reserve needs several economic factors to be considered such as operating costs; capital costs as well as mining, processing, and environmental factors.



CONCLUSIONS AND RECOMMENDATIONS

Cathy 5 to 10 claims cover a barite deposit with inferred resources of 450,000 tonnes with a specific gravity of 4.25. Mineralization is hosted in a chert-shale unit of the Devonian Lower Earn Group. The deposit is located in the North Block of the MacMillan Fold Belt and is a part of the Selwyn Basin of Yukon.

Based on a compilation of exploration work on the Cathy claims, completed in 1999, further work on the property is warranted. An exploration program for summer of 2000 is recommended as follows:

1. Claim post locations will be checked and tagged to ensure the claim blocks are in the correct positions are in good standing according to Yukon mining regulations.
2. Geological mapping program at scale of approximately 1:500 to accurately define the surface extent of mineralization and identify any other relevant features such as trenches, drill hole collars, and geological structures that may offset mineralization.
3. Trenching and channel sampling across seven trenches including blasting of trenches using man portable drilling equipment and explosives. Trench locations shown on Appendix 2.
4. Helicopter portable excavator. The excavator is intended to extend sampling of mineralized areas by removing talus cover. The logistical practicality of the excavator should be assessed before the equipment is mobilized.

The estimated cost of the program is given in Table 2. The program duration is estimated at 17 days.

Activity	Estimated Cost
Mobilization	\$6,231
Mapping	\$6,615
Trenching	\$4,430
Portable Excavator	\$4,690
Demobilization	\$5,380
Materials	\$127
Analytical	\$1,483
Assessment Report	\$2,260
Total	\$31,215

Table 2. Estimated cost of exploration program.



REFERENCES CITED

- Abbot, J.G., 1981. Walt Property: in Yukon Geology and Exploration 1979-1980, Department of Indian and Northern Development, Geology Section, Whitehorse, Yukon.
- Abbot, J.G., Gordey, S.P., and Templeman-Kluit, D.J., 1986. Setting of stratiform, sediment-hosted lead-zinc deposits in Yukon and Northeastern British Columbia; in Mineral Deposits of Northern Cordillera, ed. J.A. Morin, The Canadian Institute of Mining and Metallurgy, Special volume 37, p.1-18
- Baroid of Canada Limited, 1980. Assessment Report #090768: [Diamond drill logs for ten holes drilled on the Cathy #3 claim (MacMillan Pass Area)].
- CIMM, 1986. Mineral Resource/Reserve Classification: Categories, Definitions, and Guidelines; Committee on Reserve Definitions. Ad Hoc Committee Report Canadian Institute of Mining, Metallurgy and Petroleum. CIM Bulletin, Vol.89, No 1003, p.39-44
- Simon, D.B. and Johnson, B., 1977. A Geological and Geochemical Evaluation of the Cathy 1-5, 7-10, Lorraine 1-6, Chas 1-5, Kam 1-6, Fat and City Claims, Y.T.; for Baroid of Canada Ltd., Assessment report # 090206.
- Turner, R.J. and Goodfellow, W.D., 1990. Barium carbonate bodies associated with the Walt (Cathy) stratiform barium deposit, Selwyn Basin Yukon; in Current Research, Part E, Geological survey of Canada, Paper 90-1E.
- vanRanden, J.A., 1994. Report on the Geological and Geochemical Assessment work on the Cathy Property; for Jim Coyne by Aurum Geological Consultants Inc.



STATEMENT OF QUALIFICATIONS

I, G. David Keller, hereby certify that:

I am a president of Keller Geoservices Ltd., 807-1238 Melville Street, Vancouver, British Columbia.

I am a graduate of the University of Alberta, with a degree in geology (B.Sc. 1986).

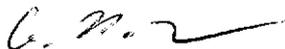
I am a professional geologist and an affiliated member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

I have been involved in mineral exploration and the evaluation of mineral properties as a geologist for 14 years.

I am the author of this report on the Cathy property, owned by Jim Coyne. The report is based on the review of data and information supplied by Jim Coyne and other research material as cited.

I have no direct or indirect interest in the properties or securities owned by Jim Coyne.

I consent to the use of this report by Jim Coyne provided that no portion is used out of context in such a manner as to convey a meaning differing materially from that set out in the whole.



G. David Keller, P. Geol.
Keller Geoservices Ltd.

February 10, 2000



Feb. 10, 2000



STATEMENT OF COSTS

1. Geological

G. David Keller, P. Geol., Kilborn Engineering Pacific Ltd.
February to June 1999, 19 hours \$92.95 per day:

\$1766.08

Goods and Services Tax (7%):

\$ 123.63

Total Valuation of 1999 Assessment Work:

\$1889.71

G. D. Keller
Feb 10, 2000



NOTICE

THIS MAP IS ISSUED AS A PRELIMINARY GUIDE FOR WHICH THE DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT WILL ACCEPT NO RESPONSIBILITY FOR ANY ERRORS, INACCURACIES OR OMISSIONS WHATSOEVER.

27 JAN 77
17 NOV 76
29 JUNE 75
3 AUG 77
16 JULY 73
29 OCT 65
MAYO 28 MAR 63
24 JAN 76
17 NOV 77
3 JUNE 71 L

SHEET 105-0-7

LATITUDE 63° 16' To 63° 30'
LONGITUDE 130° 30' To 131° 00'

CANADA
DEPARTMENT OF NORTHERN AFFAIRS AND NATIONAL RESOURCES
NORTHERN ADMINISTRATION BRANCH
RESOURCES DIVISION
SCALE: 1/2 MILE TO 1 INCH

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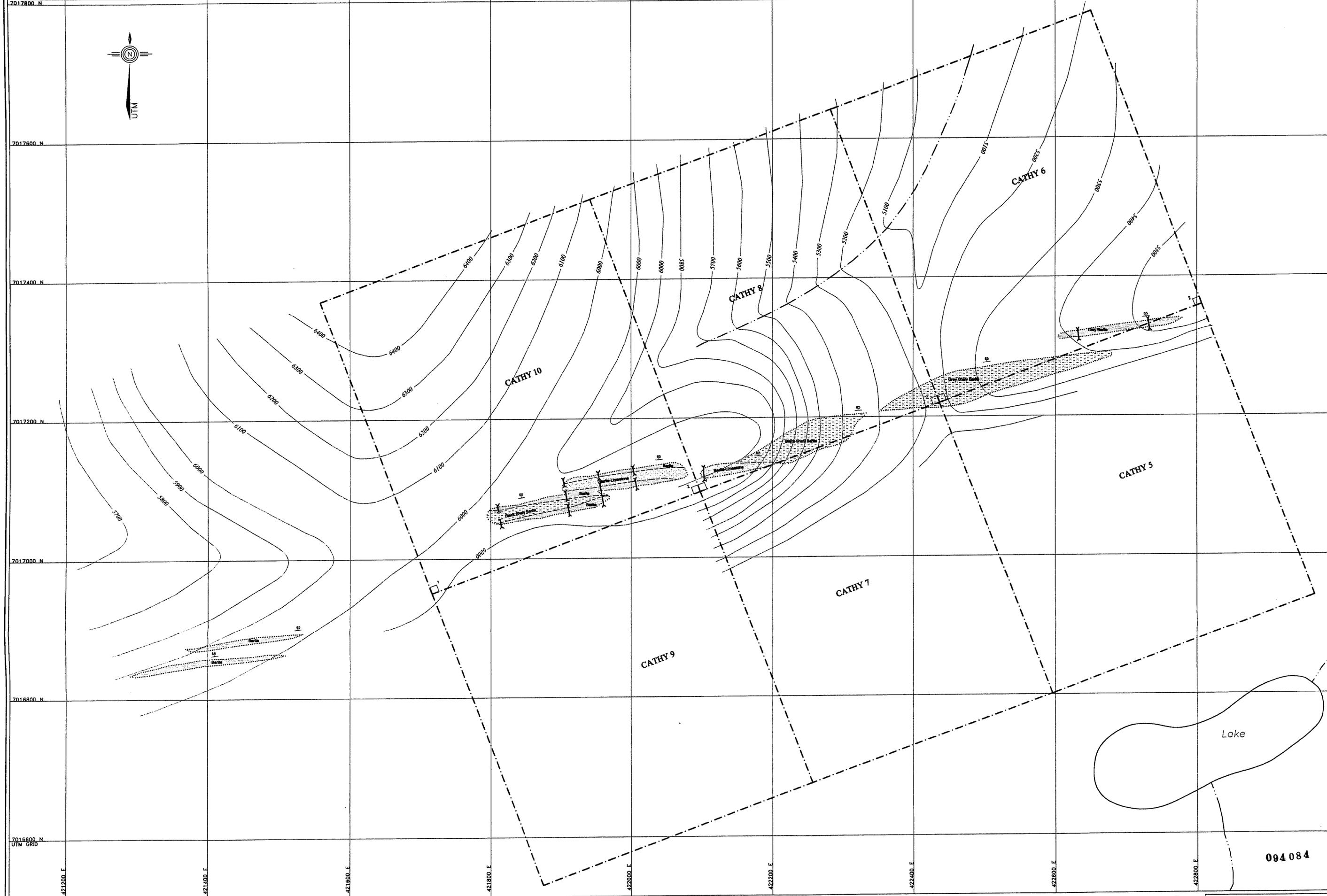
ISSUED UNDER THE AUTHORITY OF THE MINISTER OF NORTHERN AFFAIRS AND NATIONAL RESOURCES



094 084

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105-0-6	105-0-7	105-0-8
105-0-3	105-0-2	105-0-1

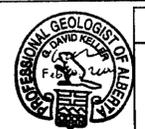
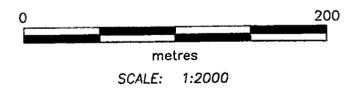




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7017600 N
7017400 N
7017200 N
7017000 N
7016800 N
7016600 N
UTM GRID

421200 E 421400 E 421600 E 421800 E 422000 E 422200 E 422400 E 422600 E 422800 E

- LEGEND**
- Calcareous barite
 - Barite
 - Shale with barite
 - Outcrop
 - Geologic contact
 - Topographic contour (elevation in **metres**)
 - Claim Boundary
 - Proposed Trench Location



H. COYNE AND SONS LTD.

CATHY BARITE PROJECT
Mayo Mining District, Yukon

**Geology and Preliminary
Exploration Plan**

NTS: 1:6000
DATE: JULY 1999
FILE: CATHY_ADRWG
Keller Geoservices Ltd.

DATUM: NAD 27

094 084