INTRODUCTION

A large sedimentary exhalitive barite deposit, known as the Tea Claims or the Samovar property, located near MacMillan Pass, Yukon is the subject of this report, the purpose of which will be to examine the work done on the property in the past and to evaluate its potential for development in the future as a source of drilling mud grade barite.

The Tea Claims are located on map sheets 105O-2 and 105J-15, about 120 miles northeast of Ross River, the nearest source of supplies, and 345 miles by road from Whitehorse. Access from the Canol is by a 12 kilometer road which was constructed to haul ore to Ross River. The access road leaves the Canol Road at approximately kilometer 415 (Mile 253.6) or about 2 miles northeast of MacMillan Bridge Number 1.

One hundred claims were staked on this barite showing in August of 1975 by Welcome North Mines Ltd. James Dodge who was consulting for Welcome North, optioned the property and over a period of several years attempted to finance and develop the mine. Several large samples were collected and analyzed at various times. In 1976 R.C. Carne mapped the property and reported that there were at least 68,000 tons of mud grade material on the property. In 1981 Peter Coolen with the Department of Indian Affairs and Northern Development mapped the property to get an independent view of the potential of the property. During this visit core drilling was attempted, but was unsucessful. Dodge had drilled four small diameter core holes on the main outcrops in 1976, which indicated about 242,000 tons of API grade barite. Specific gravity analysis showed that much of the barite was between 4.17 and 4.24, however, interbedded lower grade material made it difficult to maintain grade on a direct shipping basis. Mining was begun in 1980 in an arrangement between Milchem Canada Ltd. and Yukon Barite, the company that James Dodge had formed in 1976. In the early 1980's Dodge made financial arrangements with Ed Eisenmann to fund mining and construction of a grinding mill to be located in Ross River. During this period approximately 2000 tons of ore were moved to the plant site west of Ross River and another 5600 tons were stockpiled near the ferry on the east side of the Pelly River. Since 1983, the property has been idle due to litigation which resulted in the court awarding the property to Ed Eisenman. As a result of the disagreement, the grinding mill was never installed at Ross River.

The Tea Claims represent a very large tonnage of barite composed of a mixture of low and high grade material There are probably several million tons of barite-bearing material at the site, but at the present the orebody is not fully explored for either its quality or quantity. The past efforts at exploration have been very limited in their scope and the size of the core used was inadequate for the nature

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of the ore. The mining operations were also done in a manner that unavoidable contamination was introduced into the ore. Because of these past problems, it is important to identify the exact extent of the ore and its quality so as to plan a mine which will utilize the resource to the fullest extent possible and to provide information about the orebody to be sure that mining is being done at the best site. Mining began at the lowest outcrop of the ore and subsequent interest has been focused on this area without the benefit of having explored the rest of the property to determine the best location for mining.

The barite zone at the Tea Claims in the mine pits exceeds 100 feet in thickness in two separate layers of approximately 70 and 50 feet separated by a 30 foot shale unit. This sequence has been folded into a series of west plunging folds which cross a high cone shaped hill and are exposed across the top and particularly on the east and south slope of the hill. The ore itself consists of interbedded layers of high grade barite with layers of carbonate rich barite, lower grade barite, shale, and chert. These relationships will make selective mining difficult but not impossible.

GEOLOGY

The regional geology of the area is well described in Carnes (1976), Coolen (1982), and Abbot (1981), and therefore will not be described in detail here. A copy of Coolen's report is appended to this repoart. The Tea barite deposit occurs in the Lower Earn Group of Upper Devonian to Lower Mississippian age (Coolen, 1982), and is underlain by the silvery weathering black shale which hosts the Jason and Tom sulfide deposits to the east. The stratigraphic sequence from bottom to top is (1) black shale below the barite, (2)two layers of barite separated by shale, (3) shales and cherts overlying the barite, and (4) limestone.

The lower unit of barite measures 71 feet with the bottom covered. The lower 18 feet of the section contains one 4 1/2 foot wide zone of iron stained dirt plus a six inch clay seam which probably represents a fault. The next twelve feet are more massive barite with contoins a few clay selvages. The main mining face is about 40 feet wide and contains mainly high grade massive barite, but it also contains a series of leached carbonate-barite zones (barytocalcite?) which are up to two feet wide, but more commonly 4 to 6 inches wide. There are also rare chert and shale zones. The upper and lower beds are separated by a shale and chert horizon which is on the order of 30 feet thick. The lower 10 feet of the upper bed contain abundant carbonate zones (barytocalcite?) and one four inch argillite layer. The upper 14 1/2 feet are lower grade and were not included in the original mining area. Specific gravity of a series of samples are shown in the accompanying chart.

ORE QUALITY

A series of chip samples were taken across the faces of the mining areas in such a way as to collect some of each individual bed and as nearly as possible approach a channel sample. Each sample is represented on the accompanying chart with values for the width of the sample, its position relative to the others collected, the specific gravity of the original bulk sample taken, and the specific gravity of the plus 3/4 inch sizes.

In pit one, 11 of the 15 bulk samples have a specific gravity of 4.107. When screened over a 3/4 inch screen, the plus 3/4 inch material was upgraded to 4.136 or .031. The 9.5 feet on the south side of the pit shown by samples 39501-39504 have a weighted specific gravity of 4.21. This is the only section in this pit likely to yield direct ship material. The fines average 4.099 or almost the same as the original bulk sample.

In pit two only one sample exceeds 4.20. The weighted average of the bulk samples is 4.038. Screening upgraded the coarse material to 4.072 or an increase of .034. The weighted specific gravity of the fines is just a little higher than the original feed.

Screening will upgrade the ore about +.03 for a loss of 1/3 of the feed. In actual practice a trommel screen will probably knock a little more of the waste off and upgrade the material as much as .05.

Four core holes drilled by Yukon Barite in 1979 show that the barite has gravities up to 4.37, but most values range between 4.17-4.24 (see appendix to Coolen 1982). Results of analyses on the drill core show averages of 4.21 to 4.24 over widths of 50 to 60 feet. Drill logs for the holes were not available to the author so it is impossible to determine whether or not drilling has washed away the low grade spongy zones, therefore high grading the results. None of the holes penetrated the full ore zone, ~~either~~.

ORE QUANTITY

Based on the four core holes drilled by Yukon Barite in 1979, Coolen (1982) determined that there were 160,876 tonnes of drill indicated and 64,636 tonnes of inferred ore grade material with a specific gravity of 4.2 or better. This compares favorably with Yukon Barite's 205,181 tonnes.

Using Coolen's sections, I have recalculated the reserves as shown on Table I. Based on this data the ore in Block A defined by drillhole #1 is 102,050 tons at 4.013 weighted average gravity. If beds 2 and 4 are selectively eliminated then the tonnage drops to 48,425 at 4.23. Block B has 120,363 tons at 4.084 weighted average. By selectively mining out beds 2 and 4 the tonnage drops to 60,955 at 4.229 weighted specific gravity. Block C contains 28,800 tons of ore at 4.20 specific gravity. Thus we have a total of

251,213 tons of ore at a weighted average of 4.068. Selective mining would yield 138,180 tons at a weighed average of 4.223. An additional 164,000 tons of ore which is less certain has a weighted gravity of 4.258. Since only a small portion of the property has been drilled, the potential for a large tonnage is excellent. In order to properly mine this ore, it will be necessary to further define the orebody by drilling.

ECONOMIC EVALUATION

The most profitable way to use this ore is to direct ship the barite without having to process it. Stock pile samples from previous mining show values below 4.20 even with screening, however. Industry practice is to aim for a specific gravity of 4.22. Direct shipping requires specific gravities in the rock to be at least 5 points and preferably 7 or 8 points above the product grade desired in order to allow for unavoidable contamination which will get in the ore. Great care is required to maintain the gravity in direct ship mining. Some operators at Battle Mountain, Nevada were careful enough in the early 1970's that after stripping the ore they would sweep the outcrop with a broom and then blow it off with compressed air. In this mine, because of the interbedding of barite with the lower grade materials and because of the steep walls above, which have allowed waste to mingle with the ore, it has been impossible to maintain the quality. There are two things which can be done at the mine to solve this problem; (1) identify a higher grade zone which will support direct shipping, (2) mine from the top down so that waste will not get into the ore. Other options include (1) beneficiating the ore (2) mixing it with higher grade ores and/or (3) very selectively mining the orebody.

The most appropriate beneficiation method would probably be to jig it, a relatively inexpensive process which might be effective on this ore except for the materials that are just below 4.20 and much of this ore is just below 4.20. From the standpoint of using the mineral in the most efficient manner, jigging will be required eventually.

There are other properties available in the area which might serve as possible sources to upgrade the ore, at least on a short-term basis. Approximately 15 miles west of the junction of Canol Road and the Robert Campbell Highway and about 1 mile northwest of the South Canol Road is a property known as Barite Mountain, a high-grade vein type barite haveing widths of five or six feet and specific gravities of 4.30 to 4.35. Tonnages which could be removed for a reasonable cost would be limited, but if mining at Tea were done carefully and the specific gravity needed to be increased only two or three points, then it might be a viable option.

Selective mining will be required, especially if a

direct shipping operation is chosen unless drilling defines a high grade ore body which will not need selective mining. Even with a beneficiation plant some selectivity will probably be necessary.

MARKETING

Barite for the Canadian Arctic comes primarily from southern Alberta and British Columbia, northeastern British Columbia and Nevada. In 1984 Magcobar opened the Fireside barite mine in northeastern British Columbia. The ore is ground in Watson Lake, Yukon and shipped in wooden boxes up the Dempster Highway to Inuvik. About 10,000 tons were supplied from this source in 1984. The remaining 5-10,000 tons used in the arctic drilling were supplied via the MacKenzie river from southern Alberta, and Nevada. This material is shipped by rail to Hay River, NWT and thence by barge to Tuktoyaktuk. Prices range from $200 Canadian in southern Alberta to $500 Canadian in the Arctic.

The largest portion of the cost of barite in the arctic is transportaion. Since the Yukon barite is already much closer to the end use area it has a distinct advantage over other sources and will be able to capture a large share of the arctic market as long as the quality is maintained and a demonstration of ability to deliver is shown. It is likely that this property will be able to capture at least half of the arctic market and probably more. Some barite may also be sold to markets to the south, but with an operation already in production near Watson Lake, it will be difficult to compete toward the south.

Production costs in Nevada run (US Dollars):

Mining	$12
Grinding	15
Bagging	5
Total	32

If we assume that costs of production at Iea will be 40% higher because of the northern location and a 6% grinding loss will be experienced because of ice in the ore, then the production cost will be $46.72 US exclusive of transportation cost. Transport cost at $.20 per ton-mile would be $180 US for the haul to Inuvik for a total cost of $226 US. Cost of the wooden shipping containers to carry the bags would add no more than another $20 per ton for a total cost of about $250 US. At today's exchange rates, that means as much as $150 CAN per ton could be profit, or some of that margin could be used for leverage in obtaining sales.

DEVELOPMENT

Because of the investment of up to $2 million US, it is imperative that the orebody and its beneficiation be well

understood. For this reason, it is recommended that ten core holes of N size be drilled along the limbs of the syncline and on the southwest slope of the hill to determine if the present mining location is the best and to establish the need for and the proper method of beneficiation. The locations of the proposed holes are indicated on the enclosed geologic map. The drilling would total about 2000 feet which can be drilled by Caron Drilling in Whitehorse for $40-50 CAN per foot inclusive of all costs except dozer time which would be at the rate of $85-90 CAN per hour. This program would determine if the investment in plant and equipment would be justified, how development of the mine should proceed, and whether beneficiation is presently necessary.
While the dozer is there, at least two large bulk representative samples of 600-1000 pounds each should be collected for a jig test and for other determinations as to the beneficiation processes that might be necessary.

Mining efficiency will be improved if mining can be done from the top downwards so that there is maneuvering room in the pit and so that there will not be a wall of waste to contaminate the ore as in the past. Mining on top would also require a new road. Even if mining proceeds in the present location, it would be most desireable to eliminate the switchbacks in the present road above the scalehouse. The topographic information generated in 1984 should prove useful for planning these improvements.

CONCLUSIONS

The Tea Claims represent a very large tonnage of barite-bearing material which at present is only slightly explored. Ore reserves are at least 250,000 tons of a mixture of high and low grade ore. Unfortunately the higher grade ore is mostly inferred and it needs definition. In order to justify the expenditure of the investment necessary to get the property into production, it will be necessary to undertake a program of drilling and bulk sampling to identify the best place to begin mining and to plan the mine so that the most ore can be removed for the least cost. Bulk representative samples for beneficiation tests should be taken and tested to determine whether beneficiation is necessary and if it is, how this would best be accomplished.

DAWSON
METALLURGICAL
LABORATORIES, INC.

P.O. Box 7685
5217 Major Street
Murray, Utah 84107-0685
Phone: 801-262-0922

June 3, 1986

Eisenman Enterprises
1612 1st Avenue
Greeley, Colorado 80631

Attn: Mr. Ed Eisenman

Subject: Results of Hand Jig Tests on Barite Ore Samples, Designated Our Project No. P-1249.

Gentlemen:

In accordance with our discussions Mr. Wallace Mitchell came to our laboratory on May 29, 1986 to observe our laboratory procedures for making specific gravity analyses on barite samples and conducting hand jig tests. Mr. Mitchell brought to our laboratory channel cut samples for compositing (P-1249-A) and an ore stockpile sample (P-1249-B).

Mr. Mitchell picked out three rocks from the stockpile sample for specific gravity analysis and showed the following:

	Specific Gravity
1	4.30
2	4.10
3	4.39

All specific gravities were conducted using a LeChatelier bottle in a kerosene medium.

In the hand jig test it was found to be most effective to remove the minus 20 mesh from the crushed ore (Sample P-1249-A to minus 1/2 inch and Sample P-1249-B to about minus 1 inch) and then to successively hand jigged using 3, 8, and 20 mesh 8 inch sieves.

Although the analyses on the individual rock samples showed specific gravities of 4.30 to 4.39, the hand jig test results did not show sink products this high. Results are summarized in the table on the following page.

Product	Channel Cut Comp. % WT	Channel Cut Comp. Sp. Gr.	Ore Stock Pile % WT	Ore Stock Pile Sp. Gr.
-1/2"+3M Sink	32.4	4.17		
Float	9.6	3.86		
-1"+3M Sink			37.7	4.19
Float			15.7	3.96
-3/8"+8M Sink	17.0	4.21	13.5	4.25
Float	6.1	3.86	7.7	3.85
-8+20M Sink	11.4	4.08	5.3	4.27
Float	1.7	3.92	4.1	3.90
Comb. Sink	60.8	4.18	56.5	4.21
Float	17.4	3.91	27.5	3.93
-20M	21.8	4.10	16.0	3.96
Head (calc)	100.0	4.11	100.0	4.10

With the relatively high specific gravities in the float products and marginal gravities in the concentrates (sink product) it appears that consistantly obtaining a 4.2+ specific gravity product could be difficult and considerable barite would be lost in the float product. Further testing is required on samples from other areas of the ore body to determine if there are any marked variations in the ore body.

We understand that Mr. Mitchell is planning to conduct drilling, sampling, and testing at the mine site to further evaluate the property. If check analyses and/or testing is desired we would be pleased to work with you.

Very truly yours,
DAWSON METALLURGICAL LABORATORIES, INC.

Harmel A. Dawson

Harmel A. Dawson,
President

cc: A. Wallace Mitchell

HAD-cac

DAWSON
METALLURGICAL
LABORATORIES, INC.

P. O. Box 7685
5217 Major Street
Murray, Utah 84107
Phone: 801-262-0922

PROJECT NO. P-1249
DATE 5/29/86
BY LA

Specific Gravities

TEST NO. _____ NAME Eisenman Industries

Selective Rock Samples

PRODUCT	Weight	PERCENT WEIGHT	ASSAY					UNITS			DISTRIBUTION				
			SP. GR.												
Sample A			4.30												
Sample B			4.10												
Sample C			4.39												

OPERATION													GRINDING PRODUCT	
TIME														
REAGENTS - LBS. PER TON														
												MESH	%	
												+10		
												+14		
												+20		
												+28		
												+35		
												+48		
												+65		
												+100		
												+150		
MACHINE												+200		
R.P.M.												+325		
pH												-325		
% SOLIDS														
TEMPERATURE														

REMARKS:

DAWSON
METALLURGICAL
LABORATORIES, INC.

P. O. Box 7685
5217 Major Street
Murray, Utah 84107
Phone: 801-262-0922

PROJECT NO. P-1249-
DATE 5/29/86
BY HAD
Comp Channel Cuts

TEST NO. 1 NAME Eisenman Enterprises

Jig Test

PRODUCT	Weight	PERCENT WEIGHT	ASSAY		UNITS		DISTRIBUTION				
			% WT	SP. GR.	SP. GR.						
-1/2" +3 Sink	3224	32.4	77.1	4.17	1.35						
Float	958	9.6	22.9	3.86	.37						
		42.0	100.0	4.10	1.72						
-3 +8 Sink	1692	17.0	73.6	4.21	0.72						
Float	607	6.1	26.4	3.86	0.24						
		23.1	100.0	4.16	0.96						
-8 +20 Sink	1131.0	11.4	87.0	4.08	0.47						
Float	168	1.7	13.0	3.92	0.07						
		13.1	100.0	4.12	0.54						
-20 Mesh	2160	21.8		4.10	0.89						
Head (calc)	9940			4.11	4.11						
										GAIN/ING PRODUCT	
Comb. Sink			60.8	4.18	2.54						
Comb. Float			17.4	3.91	0.68						
									MESH	%	
									+10		
									+14		
									+20		
									+28		
									+35		
									+48		
									+65		
									+100		
									+150		
MACHINE									+200		
R.P.M.									+325		
pH									-325		
% SOLIDS											
TEMPERATURE											

REMARKS:

DAWSON
METALLURGICAL
LABORATORIES, INC.

P. O. Box 7685
5217 Major Street
Murray, Utah 84107
Phone: 801-262-0922

PROJECT NO. P-1249-B
DATE 5/29/86
BY HAD

Ore Pile

TEST NO. 1 NAME Eisenman Enterprises

Jig Test

PRODUCT	Weight	PERCENT WEIGHT	ASSAY		UNITS		DISTRIBUTION				
			% WT	Sp. Gr.		Sp. Gr.					
-1" +3M Sink	3742	37.7	70.6	4.19		1.58					
Float	1561	15.7	29.4	3.96		0.62					
	5503	53.4	100.0			2.20					
-3 +8M Sink	1338	17.5	63.7	4.25		0.57					
Float	762	7.7	36.3	3.85		0.30					
	2100	21.2	100.0			0.87					
-8 +20M Sink	527.0	5.3	56.4	4.27		0.23					
Float	405.0	4.1	43.6	3.90		0.16					
	932.0	9.4	100.0			0.39					
-20 Mesh	1598			3.96		0.64					
Head (calc)	9933.0	100.0		4.10		4.10					
										GRINDING PRODUCT	
Comb. Sink		56.5		4.21		2.38					
Comb. Float		27.5		3.93		1.08					
									MESH	%	
									+10		
									+14		
									+20		
									+28		
									+35		
									+48		
									+65		
									+100		
									+150		
MACHINE									+200		
R.P.M.									+325		
pH									-325		
% SOLIDS											
TEMPERATURE											

REMARKS:

IMCO Services
A Division of HALLIBURTON Company
2400 West Loop South, P.O. Box 22605
Houston, Texas 77027 A/C 713 671-4800

FLUID SERVICES DEPARTMENT
LABORATORY REPORT

Project Number: A2-1112-79
Lab Sample Number:
Book Number: 447
Date: 12/18/79

Report by: Ron Matherly
Reviewed by:
Lab manager: Roger Bleier RB

SUBJECT

Analysis for heavy metals of barite samples submitted in behalf of HALLIBURTON Services, Ltd., Canada

PURPOSE

To determine lead, cadmium, mercury, and arsenic contents of the submitted samples

CONCLUSION

The contents were determined down to a precision of 1/100 of a ppm. The "cleanest" of the five samples was that identified as Faffi White Barite.

RM:rd

cc: L.F. Meier
D. Waller

Analyst(s): Ron Matherly
Ron Matherly

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that IMCOServices shall not be liable for any loss or damgae, whether due to act or omission, resulting from such report or its use.

SAMPLE IDENTIFICATION

Sample #	Log #	Further Identification
1	WM-1011-11A	Yukon Core 1979
2	WM-1011-11B	Yukon Ourcrop
3	WM-1108-8	Casablanca Red Barite
4	WM-1108-9	Faffi White Barite
5	WM-1113-10	Cash Industries Barite

TEST PROCEDURE

All samples were sent to Southwest Petroleum labs for the analysis of the mercury and arsenic, since we do not yet have a hydride generator. The lead and cadmium were run here using the API proposed method for heavy metal analysis with the following modifications:

1) The HCA 2200 furnace was used instead of the flame, giving us higher sensitivity

2) The method of sample addition was employed so as to remove as many interferences as possible

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TEST DATA

Sample #	Lead ppm	Cadmium ppm	Mercury ppm	Arsenic ppm
1	0.58	0.96	0.27	<.002
2	9.2	0.68	0.16	<.002
3	292	0.70	0.53	0.32
4	0.50	0.16	0.20	<.002
5	655	15.2	0.13	1.10

DISCUSSION

Mercury and arsenic must be done using a cold vapor technique. We will have that capability by sometime next year.

Samples #3 and #5 have high lead contents. Sample #5 is high enough that it may affect a high pH mud.

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that IMCO SERVICES shall not be liable for any loss or damage, whether due to act or omission, resulting from such report or its use.

November 15, 1979

Mr. L. F. Maier, President
Halliburton Services Limited
275 Amoco Building
444 Seventh Avenue, S.W.
Calgary T2P OX8, Canada

Dear Mr. Maier:

We now have lead, cadmium, and mercury numbers in ppm on four of the five barite samples of interest to Halliburton-Canada.

Sample Identification	Lead	Cadmium	Mercury
Yukon (Core)	58.0	0.96	0.26
Yukon (Outcrop)	9.2	0.68	0.13
Casablanca (Morocco)	292.0	0.70	0.51
Faffi White (Morocco)	0.5	0.16	0.19

The mercury concentrations were determined by Southern Petroleum Labs (Houston), and they also are working on arsenic concentrations in case they are needed. The lead and cadmium numbers were obtained by our analytical group. An item in our 1980 capital will give us in-house capability for mercury and arsenic, as well.

The testing of the Idaho barite sample from Cash Industries is in progress. We should have results in about a week.

We are pleased to be able to be of assistance to you.

Sincerely yours,

Roger Bleier

Roger Bleier, Manager
Fluids Development & Services

RB:pp

cc: Bill Taylor
Doyle Waller

IMCO Services
A Division of HALLIBURTON Company
2400 West Loop South, P. O. Box 22605
Houston, Texas 77027 A/C 713 671-4800

FLUID SERVICES DEPARTMENT
LABORATORY REPORT

Project Number: QC35-1031-79
Lab Sample Number:
Book Number: 503
Date: 11/12/79

Report by: Dee Patterson DP
Reviewed by: Tom Anderson TEA
Lab manager: Roger Bleier

SUBJECT

Crude barite from Yukon Barite Company

PURPOSE

To determine the quality of barite offered to Halliburton in Canada by Yukon Barite Company

CONCLUSION

This barite has a specific gravity of 4.287 on the core sample and 4.281 in the outcrop sample. Both samples have 20 ppm water soluble calcium. Both samples have barium sulfate contents around 90% with approximately 5% α-quartz. The iron content is less than 0.5%. The core sample has 58 ppm lead and 0.96 ppm cadmium while the outcrop sample has 9.2 ppm lead and 0.68 ppm cadmium.

DP:rd

cc: D. Waller
L.F. Maier

CONFIDENTIAL

Analyst(s): Marc Churan

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that IMCOServices shall not be liable for any loss or damgae, whether due to act or omission, resulting from such report or its use.

SAMPLE IDENTIFICATION

WM-1011-11A - Core sample

SM-1011-11B - Outcrop sample

Samples from James S. Dodge Pres. (P. Eng) of Yukon Barite Company to Mr. D.D. Waller of IMCO. Mr. L.F. Maier of Halliburton in Calgary requested the analysis. Mr. Maier's phone is (403) 269-6141.

TEST PROCEDURE

The ground sample was analyzed for water soluble calcium and specific gravity in accordance with API specifications for barite.

The analytical section of the laboratory also determined the mineral content of each sample by x-ray and A.A.

The mercury analysis is being performed in the near future and will be reported at a later date.

CONFIDENTIAL

NOTICE: This report is limited to the described sample tested. Any person using or relying on this report agrees that IMCO SERVICES shall not be liable for any loss or damage, whether due to act or omission, resulting from such report or its use.

TEST DATA

Table I - API Quality Assurance Analysis on Yukon Barite

Sample	Core	Outcrop	API Specs
Specific Gravity	4.287	4.281	4.20 Min.
Water Soluble Calcium, ppm	20	20	250 Max.

Note: Screen analysis not performed since the sample was ground in this lab.

Table II - X-ray and A.A. analysis on Yukon Barite

Sample	Core	Outcrop
$BaSO_4$	87.5-89.5%	89-91%
α-Quartz	5-6%	4.5-5.5%
Calcite	0.5-1.0%	None found
Amorphous and minor trace minerals	4.5-5.5%	4.5-5.5%
Strontium (Sr)	0.22%	0.22%
Iron (Fe)	0.46%	0.31%
Lead	58 ppm	9.2 ppm
Cadmium	0.96 ppm	0.68 ppm

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DISCUSSION

The two samples are within API specifications for barite in so far as the specific gravity and water soluble calcium. The x-ray data is also well within our expectations for use as IMCO BAR, however until the report is received on the mercury content one should hold off on commitments for this material. Also if the radiation count is required on this barite source the minimum sample of 25 kg must be supplied to our lab.

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091851

Page 1

RECEIVED 8 AUG 1986 MINING RECORDER Davis, T.C. Sub. 4 Blk.

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: 52° N 10° E

Property: TEA

Co-ordinates: North _____ East _____

Elevation: _____

Date: July 4 1986 - July 6, 1986

Drilled By: JIM BARTLETT LECH WOOCOWSKI CARON DIAMOND DRILLING

Logged By: A.W. MITCHELL

Total Depth: 202

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
0	8	0					Black sticky broken shale. (rock bitted)
8	12	16%					Black broken siliceous shale 1 one inch
12	14	55%					Black fractured carbonaceous shale
14	16	85%					" " "
							w/ occasional 1/8" barite nodule
16	20	85					Black siliceous shale becoming more
							carbonaceous in lower foot w Ba nodules up
							to 1/4" across. Some show concentric layering
							Bedding crosses core @ 40° from perpendicular
20	23	95					do highly broken. Nodules increase
							in last 1 foot to 30-40% of rock.
23	27	85					Black shale, highly carbonaceous in part
27	28	20					rare nodules
28	30½	35					Black shale slightly more siliceous One
							layer of coalescing nodules in lower part
30½	32	0					Tricone set casing
32	39	65					Bedding 25° from perpendicular Coalescing
							nodules making 40-70% of rock w/
							carbonaceous or siliceous material remainder
							Vuggy Fe stnd zone @ 36

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
							nodules generally becoming smaller +
							grading into massive barite toward bottom
					2"	1s at 38½	Fractured at bottom w/ possible gypsum(?) on face
39	42	95					1" ls at top Fractured barite - finely laminated
							2" shale seam @ 40
42	46½	95					6" ls at top plumped barite at 42 finely
							laminated. Bedding near perpendicular to hole
							Fractured zone at 42½ containing white
							chalcedony + Fe oxides. 5" ls at 45
							Barite 45½ - 46½ laminated + coalescing nodules
							Fractured at 45½
							Bedding 25° from perp to hole. Finely
							laminated barite
46	51½	98					Finely laminated barite with fracture parallel
				4.17		49-51.5	to hole. Slump features @ 48'. Fracture
							w/ Barite x/s at 48½. Bedding 10° from
							perp. to hole. Several hard siliceous
							layers up to ½" thick

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
51½	56½	90		4.15	h	51.5-54.5	Finely laminated barite with numerous 1"
				4.07		54.5-56	siliceous layers containing abundant
							barite-filled fractures. Slump features at 56½
56½	62	90		3.58		56.5-58.5	Fault zone at 57, rock silicified
				3.93		58.5-62	57½ - 3" ls. Bedding 25° from perpendicular
							to hole. 6" massive barite at 58'
							followed by 6" laminated Ba containing
							Ba filled fractures. 9" ls at 61
							Laminated barite on last 6"
62	67	85		4.23	✓	5' 62-67	Top 6" is then massive barite w. fine
							laminations. Looks like high grade
67	72	95		4.35	✓	5' 67-72	do becoming slumped in lower 6"
72	77	95		4.37	✓	3' 72-75	do siliceous layer ½" thick at 72
				3.86		75-77	laminated at 76 and limey 76-77
77	82	95		3.94		77-79	Massive to finely laminated to 80½ becoming
				3.88		79-81.25	more laminated then coalescing nodules &
							nodular layers at 81½.
82	85	60					Fault zone at 82½ slickensides evident
							Scattered nodules in upper portion in carbonaceous
							shale which is more siliceous downward
							several layers of carbonaceous nodules

4.37 ave 15'

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
85	90	90					abundant siliceous layers 85-87 coalescing nodular layers 40% of rock at top increasing to 80% in lower part. 87-90 laminated barite with some nodular layers. Frac. parallel to core
90	92	85					Broken laminated barite with several ½" siliceous layers.
92	96½	95					Massive laminated gray barite 92-94 94-96½ becoming more argillaceous with coalescing nodular beds increasing toward 96½
96½	99	95					Nodular barite beds with 40% barite at top decreasing to 10% at bottom Matrix is black carbonaceous shale Bedding is 15° from perp. to core.
99	104	95					Black shale with scattered barite nodules @ less than 10% of rock. Becomes highly carbonaceous at 102. Dilatent zone at 101 has white clay in openings
104	109	85					Black carbonaceous shale. Pyrite nodules at 105. Widely scattered barite nodules

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
109	112	65					Laminated to nodular barite with abundant argillaceous
							bands. Fracture paralleling core at 110 is
							filled with dickite (?).
112	117	90					112-113 laminated barite w/ several 1" siliceous
							zones + a large dickite (?) filled fracture
				3.58		116.5-119	paralleling the core. Bedding is 10° from
							perpendicular to core.
							113-117 Calcareous laminated barite w/ dickite (?)
117	122	90		3.91		119-121	Calcareous massive barite. Several 1" layers
				3.91		121.5-124	of siliceous material
122	127	90		4.12		124-127.5	122-123 slumped laminated barite
							123-125 broken barite with abundant argillaceous
							layers 125-127 Massive laminated barite
							grading into coalescing nodules. Several
							1" siliceous layers.
127	132	85		4.21	✓	130.5-131.5	127-128 Massive laminated barite
							128-130 Porous punky calcareous zone
							130-131½ laminated barite becoming nodular
							at bottom. Last 2" black shale some ba. nodules
132	133	95					Black shale w scattered nodules.

DRILL HOLE RECORD

Drill Hole No.: TEADOH-5 Inclination: -50° /N 10°

Property:

Co-ordinates: North East

Elevation:

Date: July 6/86

Drilled By: E.Caron Diamond Drilling

Logged By: TG: 133'4" to EOH

Total Depth: 202'

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
133'4"	179'8"	95%		4.01		134.5-137	[redacted] barite, argillaceous and [redacted] mud bedded in to bedded
							carbonaceous barite; laminated barite with carbonaceous
							shale seams every 1/16" of an inch o/a 10°. The argillaceous
							barite only occurs in the upper part of the unit
							[redacted] in the following sections 133'4" - 135'3"
				4.17		137-140	(The unit is correlated with 136'9" - 137'6"
							W.M's coalescing barite nodules 138'10" - 139'5"
							zone) 139'10" - 140'2"
							The remainder of the unit consists of thinly bedded to
							medium bedded barite with some carbonaceous shale
				4.08		140-142.5	seams (1/8" to 1" + several" apart)
							The barite is slightly calcareous locally (6" at 135'3" and
				4.31	✓ 3.5	142.5-147	4" at 148'. The unit is also interbedded with limestone
							in three locations with barite and limestone mostly occurring
							in approximately equal proportions: 5" at 145'
				4.23	✓ 3	149-152	6" at 154'
				4.07		152-154	30% limestone: and from: 175'5" - 178'10" ([redacted])
				4.37	✓ 2	154-156	This lithozone is also cut by several thin calcite veins
				4.43	✓ 2	156-158	The barite shows several small sedimentary
				4.33	✓ 2	158-160	deformation features with slumping and flame texture

138.25

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: TG

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
			8.69	4.34	✓ 2	160-162	A 5" by ½" vertical worm burrow occurs at
			8.06	4.03		162-164	135'3"
			8.68	4.34	✓ 2	164-166	A few thin barite veinlets are present between 149' and end
			8.52	4.26	✓ 2	166-168	of section
			8.54	4.27	✓ 2	168-170	Limonite stained fracture at 145'
			8.64	4.32	✓ 2	170-172	149' } near surface fracturing and
			8.58	4.29	✓ 2	172-174	162' } groundwater movement along
			8.60	4.30	✓ 2	174-176	at 162' also dark brown mica fracture
			7.38	3.69		176-178	Thin gypsum fracture surface at 178'8"
179'8"	180'3"	100%	1.09	4.36	✓ .3	179-179.25	massive carbonaceous shale [illegible] with ~25% graphite
180'8"	181'8"	100%					carbonaceous shale with thin lenses of nodular barite
							- 15% nodular barite lenses [illegible] ; nodules are
							very fine grained & fine grained barite nodules which
							occur as ⅛" - ½" lenses. The nodules coalesce to
							form thin layers.
181'8"	182'10"	100%		4.08		182-182.5	massive/limestone probably a barite to calcite lense with
							5% calcite veinlets. The upper 4" contain a 2"
							diameter siltstone barite nodule

ave 4.28 WA
30.5
32.75
30.5
25.75

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: TC 133'4" to EOH

Elevation: _____ Total Depth: 202'

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
182'10"	191'3"	85%					carbonaceous shale interbedded with chert which is well bedded
							in places. bedding @ 23°
							The chert beds average 1-3" thick but are
							up to 10" thick. Unit is ~ 30% chert.
							Unit contains 10% barite which occurs in
							3 forms (a) very fine grained nodules occurring in seams or in
							180'3" - 191'8"
							2. thin bedded laminated barite interbedded
							with shale in 2.5" bed at 184.6" and a 2" zone
							at 190'. Showing slumping features
							3. zones of large individual nodules between
							1/8" and 1/2" diameter within both chert and shale
							zones; occurs as follows
							at 186' 10" thick with 5% nodules
							187'6" 7" thick with 10% nodules
							191' 10" thick with 40% nodules
191'3"	202	95%					chert with 10% zoned barite and 10% barite
							seams and nodules
							The barite occurs as individual nodules

DRILL HOLE RECORD

Drill Hole No.: 5 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: TC

Elevation: _____ Total Depth: _____

Grid angle at 202 = 53° uncorrected

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
							and an overlying zone of fine-grained nodules
							as follows: (fine grained to med. grained)
							at 196': 12" thick occurs as f.g.-m.g. nodules (50%) and
							as thin beds of fine grained nodules interbedded with
							fine grained pyrite (50%) with each bed being 1" thick.
							197½': 2" thick 40% m.g. nodules and coalescing f.g. nodules
							197'8" . 4" thick 40% barite : coalescing nodular seams
							199' 10" thick 40% barite : laminated zone of
							f.g. nodular barite and a zone of m.g nodules.
							200.7" to 202' 20% barite occurs predominantly
							as individual MG nodules in zone with some seams
							of coalesced f.g. nodules this zone contains more
							coalesced nodules
							~~Zone with~~
							pyrite occurs in thin seams (1/16" to 1/8")
							within 10% of the rock. The seams are up to 1" thick
							(196') and contain 50% pyrite The seams are parallel to
							bedding at 12° (53° to core). Pyrite also occurs as
							m.g individual nodules (up to 1/8" in diameter) within the massive
							clay zone (202' to 203') Nodular seams = 20% of the rock,
							this zone = 203' to 204' 5 ft

RECEIVED 8 AUG 1986 MINING RECORDS BRANCH, B.C.

091851

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: 54° S

Property: TEA

Co-ordinates: North _____ East _____

Elevation: _____

Date: July 6 1986 - July 7, 1986

Drilled By: Tim Bartlett, Leah Wojcowski Coron Diamond Drilling

Logged By: A.W. Mitchell

Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
0	10	3%					Bedding 20° from perp to core. Small nodules in argillaceous matrix = 60%
							Calcareous in part
10	12	15%					do shale layer at bottom with
							rare nodules
12	14	15%					Massive laminated barite, calcareous
14	19	70	17.5-19	3.25			Massive calcareous barite. 1/2" Argillaceous
							layers at 14½. A ½" calcite vein
							crosscuts core at 18½. Fractured except
							bottom foot.
19	21	50					Massive to laminated barite calcareous
							in upper part. Highly broken
21	23	75					Broken laminated to nodular barite
							Slumped in lower part.
23	24.5	90	23-24.5	4.08			Broken upper 9" Coalescing nodular beds
							in upper grading into laminated at bottom
24.5	28	85					Laminated barite upper 6" and lower 5"
							w/ punky brown material including some ba in between
28	32	75	27.5-29	4.23	✓ 1.5		Punky brown material which partly washed away
			29-31	4.33	✓ 2		Massive laminated barite w occasional 1/8" siliceous

4.26, 5.5

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
32	37	90	31-33	4.22	✓ 4		Massive barite, a few laminations
			33-35	3.62			Siderite(?) and calcareous barite at 33
			35-37	3.89			Slumped at 35 with more included argillaceous
							material. Broken at 36 with punky tan
							material = 2"
37	42	80	38-39½	4.45	✓ 1:3		9" punky tan to grey material (leached carbonate?)
			40-42	3.98			1' massive to minor laminated barite
							4" argillite w/ a few barite veinlets + nodules
							lower 1' slumped, fractured, laminated barite
42	47	95	42-44	4.20	✓ 2		Massive laminated barite with not abundant
			44-46	3.98			slump features. Red brown and tan punky
							zones at 42½ (4") 43(1"). 45-46 mixed
			46-48	3.90			barite + punky tan material. 5" Calcareous 44½+47
47	52	95	48-50	4.23	✓ 2		Massive barite widely spaced laminations
			50-52	4.40	✓ 2		Calcareous top 2", 5" at 48
52	56½	95	52-54.5	4.06			Massive barite w/ some laminations. Disrupted
							bedding at 52 (worm tube?) Lower 2' is thick
							bedded shale with scattered nodules, up to ¼" across
56.5	61.5	90	56-59	4.16			Massive barite rare laminations. 1" tan punky
			59-61	4.11			at 59 and 61.5

S.S.

4.32 & (

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
61.5	66.5	95	61-63 63-65	4.12 4.32	✓		calcareous at 62 (4"), 63½ (½") do 2" punky zones at 61.5, 63, 63½, and 66.5
66.5	72	90	65-67 67-69	4.15 4.39	✓		do bedding crossed core 15° from perp.
			69-71 71-73	4.40 4.27	✓ ✓		Calcareous at 66½ (4"), 68 (½"), 72 (½")
72	77	80	73-75 75-78	4.21 4.32	✓ ✓		Massive barite punky zone 6" at 74
							Calcareous at 72 (½") and on margins of punky zone.
77	82	100					Upper 1' massive barite becoming laminated in
							lower portion. Remainder black carbonaceous
							argillite w/ scattered ¼" layers of nodular barite
							Bedding planes 30° from perp to core. Slicks on bed. plane
82	87	95					Black argillite w/ very finely dissem. py 2%
87	91	90					do rare barite nodules
91	96	80					do
							Upper ½ 6" argillite with barite nodules increasing
							downward. Remainder laminated barite w/ 30%
							argillaceous beds. Lower 6" argillite w/ scattered nodules.
							Small fractures perp. to bedding common
96	101	85	98-101	3.33			top 4" argillite. Remainder calcareous barite (?)
			103-106	3.28			Large calcite vein at 97. Tan punky material
							makes ½ core 100-104. This zone crosscuts bedding

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
101	106	80					Upper 2' punky tan to red brown material w/ rare barite layers. Remainder massive ls 5" calcite vein @ 106. Bedding 35° from perp to core.
106	111	75					Slumped argillite + calcareous barite w/ crosscutting quartz veinlets in upper 9". Then 4" nodular barite + argillaceous mat. followed by 2" breccia zone cemented by quartz. 2" argillite + nodular barite slumped + brecciated in part. Veined with barite. Lower 1' is laminated barite w/ lower 2" punky red-brown calcareous material.
111	116	85	110.5-113	3.37			Massive calcareous laminated barite. Several
			113-115	3.62			calcite veins at 112 up to ½" wide.
			115-117	4.08			
116	121	90	117-119	3.56			Massive laminated barite calcareous 117 to 120
			119-121	3.91			9" calcite vein at 119. Lower 2' higher SG. Bedding 45° to core. 1" arg layer @ 116
121	126	95	121-123	3.90			Massive laminated barite. Several 1" arg.
			123-125	4.18			layers in upper 1'. A 1" calcite vein at 125
			125-127	4.01			Broken 125-126 calcareous layer @ 122, 125, 126
126	131	95	127-129	4.15			Massive laminated barite ½" punky layer
			129-131	3.98			at 127½. Several small fractures perp. to bed.

Calcareous layers at 128, 129, 131

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES $BaSO_4$	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
131	136	85	131-133	4.26	✓ 2		Massive laminated barite. Several ½" arg layers in upper 1'. Lowest 4" 50% shale in ¼" lenses
			133-135.5	4.32	✓ 2.5		
136	141	95	136-138	4.30	✓ 2		Massive laminated barite. Top ¼" punky Lower 4" slabby
			138-140	4.31	✓ 2		
141	146.5	86	140-142	4.34	✓ 2		Massive laminated barite ¼" arg. at 143 ½" punky material @ 143½ + along one edge of core to 144. Calcareous 145-146
			142-144	4.01			
			144-146.5	4.18			
146.5	152	90	148-150	4.19			Upper 6" red brown punky zone
			150-152	4.25	✓ 2		Remainder laminated barite. Vuggy zone with limonite at 151. Laminations elastic at 152
152	157	90	152-154.5	4.08			Slumped zone at 152. Upper 3' laminated barite becoming more arg. downwards. Lower 2' Argillite with quartz veinlets perp. to bedding. Scattered nodules ba. 2 4" barite beds just above 157. Calcareous 152-152½
157	162	90					Laminated barite with up to 30% arg mat in parts. Calcite veins 159

10's 4.31 ua

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: WH 0-163 TG 163-EOH

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
162	163.5	75%					interbedded argillite and barite 50% barite ; laminated to thin bedded grades into zone of nodular barite
							at the bottom with 15% fine to medium grained
							nodules The argillite is carbonaceous
163.5	175						siliceous argillite with 10% laminated and nodular barite
							and 15% laminated to thin bedded pyrite ; Core lost with
							191 ft. EOH in DDH-5 . The upper part of unit is carbonaceous
							Barite occurs in the zone of laminated barite and coalescing
							nodules as follows:
							164'6" thick 6
							168'10" : 5½" thick interbedded barite, pyrite and minor with
							170'7" : 2" thick
							171'8" : 2" thick contains 1½" bed of pyrite with 30%
							argillite, also contains 10% disseminated pyrite within the
							barite
							172'9" : 9" thick laminated grading downinto nodular
							barite 25% barite with 5% pyrite
							qtz vein and breccia at 166'6" qtz veins cut the core
							at a very shallow angle (5-15° from vertical)
							Calcite vein at 169

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
175'	177	95					laminated and nodular barite with 40% argillite; barite
							occurs as beds of sparry coalescing lenses. Slump
							features are common and also contorted which looks
							like argillite rip up clasts. Base of 3cm Calcareous
177	181	95					clasty argillite as in 163.5-175 with 15%
							barite layers.
							fg-mg pyrite nodules from 180-181
							with some calcite
							qtz veins subparallel to core axis
							179-181
181	183	95					laminated and coalescing nodular barite and 175-177'
183	186.25	80					Calcareous at 181 clasty argillite with 5% fg-mg pyrite nodules
186.25	187.25	100					laminated barite and argillite as in 175-177'
187.25	188.25	100					clasty argillite w/ 1-2% f.g. pyrite nodules
188.25	193.75	90%	188.5-191	4.21	✓	2.5	laminated barite w/ 15% argillite and minor
			191-193	4.18			limestone. Limestone contains some fine grained nodules within
							the calcareous layers and a few slump features.
							4" mottled and fractured zone at 191' Calcareous 191, 192-195
193.75	250	90%	193-195	4.00			massive laminated barite w/ 5% argillaceous layers 1/8"-1/4"
			195-197	4.25	✓	2	thick argillaceous layer up to 2" thick at 195.5', 200.5'
			197-199	4.27	✓	2	213'. Argillaceous units occur as fine laminations and wedges

Calcareous 230-241

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

14' 4.25 g/t

15.25 4.24 g/t

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
		6" core lost	199-201	3.98			-Nah no acid to check calcareous nature but these appear to be limestone beds at:
		at 212'	201-203	4.29	✓ 2		for 6" above 222' for 2" at 194'
			203-205	4.29	✓ 2		for 4" below 226'
			205-207	4.31	✓ 2		for 1" above 245'
			207-209 209-211	4.35 4.03	✓ 2		A zone of intense calcite veining and brecciation
			211-213.5 213.5-216	3.85 4.15			occurs from 228'½ to 229'½ for 4" at 221' and
			216-218 218-221	4.11 4.19			for 4" at 212', 1" at 216'
			222-224 224-226	4.22 4.28	✓ 2 ✓ 2		bedding is contorted at: 238'½'
			226.5-228.75 230-232	4.27 4.13	✓ 2		purple limestone clasts in sediments and banded
			232-234 234-236	4.23 4.33	✓ 2 ✓ 2		zone after 4" above 240', iron stained from 233'
			236-238 238-240	4.15 4.13	244+246 246-248	3.96 4.10	bedding core angle throughout zone average: ~30°
			240-242 242-244	3.95 4.04	248-250	4.15	
250	252	100%	250-252	3.93			basite laminated to thin bedded interbedded w/ lam.
							to thin bedded black clasty argillite - 30% argillite beds
							of argillite are up to 1/10" thick and contain thin
							quartz tension gashes perpendicular to bedding
							Small load structures are common in this unit.
							The basite locally consists of fine nodule
252	255	10	252-255	4.02			massive laminated basite as in 193.75-250' zone
							Contact with underlying clasty argillite is gradational

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
							Bedding is truncated at 255'
255	257¼	100%					massive black pyritic chert with chert argillite and
			258-261	4.25	✓ 2		barite at top of unit. Bedding is contorted at top of
							unit and contains quartz tension gashes in cherty
							layers. Bedding at 35° to core (90° to 11 to core) in
							cherty layers is truncated by barite lamellae at 15°
							c/a at top of unit.
							chert contains 5% m.g. pyrite nodules.
257¼	269'	90	261-263	3.83			massive laminated to thin bedded barite w/ 5% argillite
			263-265	4.05			lamellae. 1/2" thick chert layer with tension gashes at
			265-267	4.15			267'.
			267-269	4.25	✓ 2		1½" zone of calcite veining at 264½'
							barite is thinly bedded from 262'-263'
269	269¾	100	269.5-272	4.17			black pyritic cherty argillite : upper contact
							gradational, lower contact sharp.
269¾	299	95	272-274	4.30	✓ 2		barite laminated, massive with 5-7% argillite
			274-276	4.26	✓ 2		seam 1/16' thick 4" pyritic and barite cherty argillite
			276-278	4.12			at 272'. 1" thick chert with qtz filled tension
			279-280	4.16			gashes at 274'
			280-282	4.24	✓ 2		
			282-284	4.24	✓ 2		hematite stained, highly fractured and qtz veined
			284-286	4.17			
			286-288	4.26	✓ 2		
			288-290	4.30	✓ 2		

note: no acid

10

DRILL HOLE RECORD

Drill Hole No.: 6 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
			290-292	4.19			baritic (15%) argill.te from 296'-296.5'
			292-294	4.34 ✓			
			294-297	4.12			maple line at 292'
			297-298¾	4.20 ✓	1.8		
							siliceous barite at 279.5' and from 288¼ to 284'
							bedding c/a = 35°, clay filled fracture at: 284'
298	298¾	100%	299-300	4.17			black pyritic clasty argill.te w/ 5% very fine grained
							disseminated pyrite bedding c/a = 40°
298¾	300'10"	100%					laminated barite w 10% argillaceous lamellae upper and lower
							parts of unit more argillaceous
300'10"	301'3"	100	301.5-304.25	4.25 ✓	2.8		black pyritic clasty argill.te w/ deformation to tear
							drop shaped barite nodules and some lamellae at
							bottom of unit
301'3"	306¼	100	304.5-307	4.13			massive medium bedded barite with 1-2% argill.te lamellae
306¼	306½	95					graphitic argill.te w slickensides on bedding surfaces
306½	332'	95	307-309	4.35 ✓	2		massive laminated to medium bedded barite with
			309-312	4.33 ✓	2		2-5% argill.te lamellae. slightly siliceous at the
			312-314	4.37 ✓	322-324 2	4.38	top and bottom of the section. Syndepositional
			314-316	4.36	324-326 2 ✓	4.41	faults and slumps are common in the bottom 1'
			316-318	4.34	326-328 2 ✓	4.35	slumping and load structures present in the top 2'
			318-320	4.32	328-330 2 ✓	4.28	bedding c/a = 40°
			320-322	4.38	330-332 2 ✓	4.34	clay filled fractures: 311', 313'

68'

4.34

63.50

262.57

DRILL HOLE RECORD

Drill Hole No.: _____ Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
332	332¼	90%					carbonaceous and pyritic black argillite w/ 20%
							large lenticular (1" / ¼") to round (¼" / ¼")
							shaped barite nodules.
332¼	333¼	100					massive laminated barite w/ 5-7% argillite lamellae
							· barite is slightly siliceous and contains
							abundant quartz microfractures perpendicular to
							bedding
333¼	335	90%	335-33				graphitic and pyritic clasty argillite with extremely
							graphitic lower contact (fractured?) and gradational
							upper contact. Loading and flaser bedding along
							upper contact. Central 1' of unit contains
							30% quartz veining (veins up to 3" thick) at 45° to
							core axis.
							lenticular shaped seams and rounded barite
							nodules occur in the top 6" of unit.
335	345½	95%	335-337	4.19			massive laminated to med bedded barite.
			337-339	4.26 ✓	2		upper 1½' is cut by several microfaults which
			339-341	4.11			offset bedding by ¼ to 1". The fractures usually
			341-343	4.19			contain minor quartz. The barite is siliceous
			343-345.5	4.32 ✓	2.5		from 339' to end of section i.e. to 341'

4.22 10.5

DRILL HOLE RECORD

Drill Hole No.: _____ Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
							clay fracture: 340 3/4', 341 3/4.
							possible syndepositional fault offsetting bedding
							by ~3"-4" remain parallel to the core for ~1' at
							344', bedding is also contorted in some area
							bedding c/a: 50°
345 1/2	362	85%					black pyritic chert - chunky argillite - rock was hard
	EOH						with slow drilling. upper contact is carbonaceous
							and unit is slightly calcareous throughout
							Upper 3' contains 1% lenticular shaped and
							rounded (large to medium sized (up to .1" by
							2" in size) pyrite nodules which decrease
							in abundance to 2-3% for rest of hole.
							extremely broken up core in carbonaceous
							argillite from 357 to 357 1/2 and from 358 1/2 to
							359 1/2 (~85% recovery in these zones)
							rock is strongly quartz veined at:
							346', 352', 359 1/2 & 360 1/2
							bedding c/a: 45°
							acid test uncorrected 57°.

091851

RECEIVED AUG 1986 BUREAU OF MINES SPOKANE, WA.

DRILL HOLE RECORD

Drill Hole No.: 7 Inclination: 90°

Date: July 8 - July 9, 1986

Property: Tea

Drilled By: Coeur Diamond Drilling

Coordinates: North _____ East _____

Logged By: A. W. Mitchell

Elevation: _____

Total Depth: 207'

~ 30' S of Emily post in main Pit

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
0	11	8			h		Barite broken massive.
11	16	85					Top 6" mud then remainder laminated
16	21						barite becoming more massive downward. Bedding 35°
16	21	90					Upper 2' punky mud Remainder brecciated
							chert. Some barite in lower 6" of breccia
21	26	90					Qtz veined chert
26	31.5	85					Upper 18" do followed by 2' slumped ho
							with rip up clasts of chert then remainder
							tan mud
31.5	36.5	80	31.5-34	3.70			Laminated to massive barite with two 6"
							punky zones. Calcareous throughout
36.5	42	90	36.5-39	4.26	✓ 2.5.		do Bedding 30° from perp
			39-42	4.26	✓ 3		Upper 4" calcareous
42	47	100	42-45	4.11			Laminated barite calcareous in lower 3'
			45-48	3.82			w/ a brown punky zone 3"
47	52	90	48-51	4.14			do 4" calcareous zone @ 50'
			51-54	4.04			Argillaceous material becoming more abund. down.
52	57	95	54-57	4.02			Laminated barite two 6" calc. zones 54 + 57
57	62	85	57-60	4.28	✓ 3		do calc up 3" w/ Fe stnd zone below
			60-63	4.13			bedding 50° from perp.

DRILL HOLE RECORD

Drill Hole No.: 7 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
62	67	95	63-66	4.08			Laminated barite upper 6" calc pods ~~v~~ v
			66-69	4.34	✓ 3		~~Ca~~ Abund argillaceous material upper 2', calc 6"
67	72	90	69-72	4.17	3		Laminated barite
72	77	95	72-75 75-78	4.22 4.28	✓ 3 ✓ 3		Laminated to massive barite
77	82	90	78-81 81-84	4.17 4.05			do calc lower 9"
82	87	90	84-87	4.16			do 6" Shale at 86
87	92	80	87-90 90-93	4.26 4.32	✓ 3 ✓ 3		do 4" calc at 90
92	97	95	93-96	4.34	✓ 3		do becoming more massive
97	102	80	96-99	4.26	✓ 3		Laminated barite 1" calc at 97 and 6" at 98'
			99-102	4.35	✓ 3		More argillaceous at 102
102	107	90	102-105	4.24	✓ 3		Laminated barite Slumped in upper portion
			105-108	4.32	✓ 3		Calc punky zone at 103
107	112	80	108-111 111-113	4.42 4.34	✓ 3 ✓ 2		do fracture parallels core filled w/ white material
112	116	80					do
116	121	80					Laminated barite upper 6" then brecciated
~~121~~	~~126~~						ba cemented w/ white to 120 then 1' ls.
121	126	90					Upper 18" massive barite grading downward
							to ~~argillite~~ laminated ba then nodular
							then argillite (siliceous shale)

124.69
4.30

DRILL HOLE RECORD

Drill Hole No.: 7 Inclination: _____ Date: _____

Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
126	131	90					Argillite (siliceous) upper 1' then 9" slumped ba then 6" argillite then frac. lam. barite
131	136	95					Upper 18" laminated to massive ba then arg w/ ba nodules decreasing downwards
136	141	90					Siliceous shale massive with minute qtz veinlets crossing bedding. Bed 30° to perp.
141	146	100					do 1/8" pyrite layer at 141.5
146	151	100					do very graphitic on slip planes
151	154	50					do highly broken Ba crystals
154	177	90					Siliceous shale 8" brecciated barite @ 171½
							ls 176½-177 Pyrite dissem at 167, 172-174
177	182	80					limestone calcite veined
182	187	90					Siliceous shale brecciated in part
187	192	90					Argillite grading downward to ba mixed
							barite + arg. w/ calcite veins + py dissem
							lower 1' barite
192	197	90					Massive barite light gray 1' then siliceous
							shale 3' then 1' mixed barite shale + calcite
197	202						lens. Ba grading downwards to shale + nodular zones
202	207						Siliceous shale w/ dissem. nodules.

091851

DRILL HOLE RECORD

Drill Hole No.: 8 Inclination: 48° N 5° W

Property: Tea

Co-ordinates: North _____ East _____

Elevation: _____

Date: July 10- July 12, 1986

Drilled By: Caron Diamond Drilling

Logged By: A.W. Mitchell

Total Depth: 200

located on far south slope near 51

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
0	11	20					limestone w/ some shale bedding nearly perp.
11	19	90					do
19	22	90					Calcareous barite
22	27	95					do becoming non calcareous last 1'
27	32	90					Calcareous barite some 4" layers non calc.
32	37	95	32-35	3.93			Massive barite several small calcareous
			35-40	4.03			layers. Brecciated at top Beds nearly perp to core
37	42	80					massive barite becoming nodular +
							scattered nodules last 6"
42	47	80					Siliceous shale 1' then scattered nodules
							becoming more massive last 1½'
47	52	85					Laminated barite w/ considerable arg mat upper
							2' then siliceous shale with scattered nodules 2'
52	57						then again laminated remainder
52	57	85	55-59	3.91			Massive laminated good grade
57	67	90	59-62	3.98			do trace arg. material last 6" 1" calc at 63
			62-65	3.97			6" calc at 59
67	70	95	65-68	3.90			12" calc at 67 Massive broken barite
			68-71	4.03			
70	75	95					Massive laminated barite last 6" calc
							2 band of 1" thick Shale at 71
75	76	95					do.

DRILL HOLE RECORD

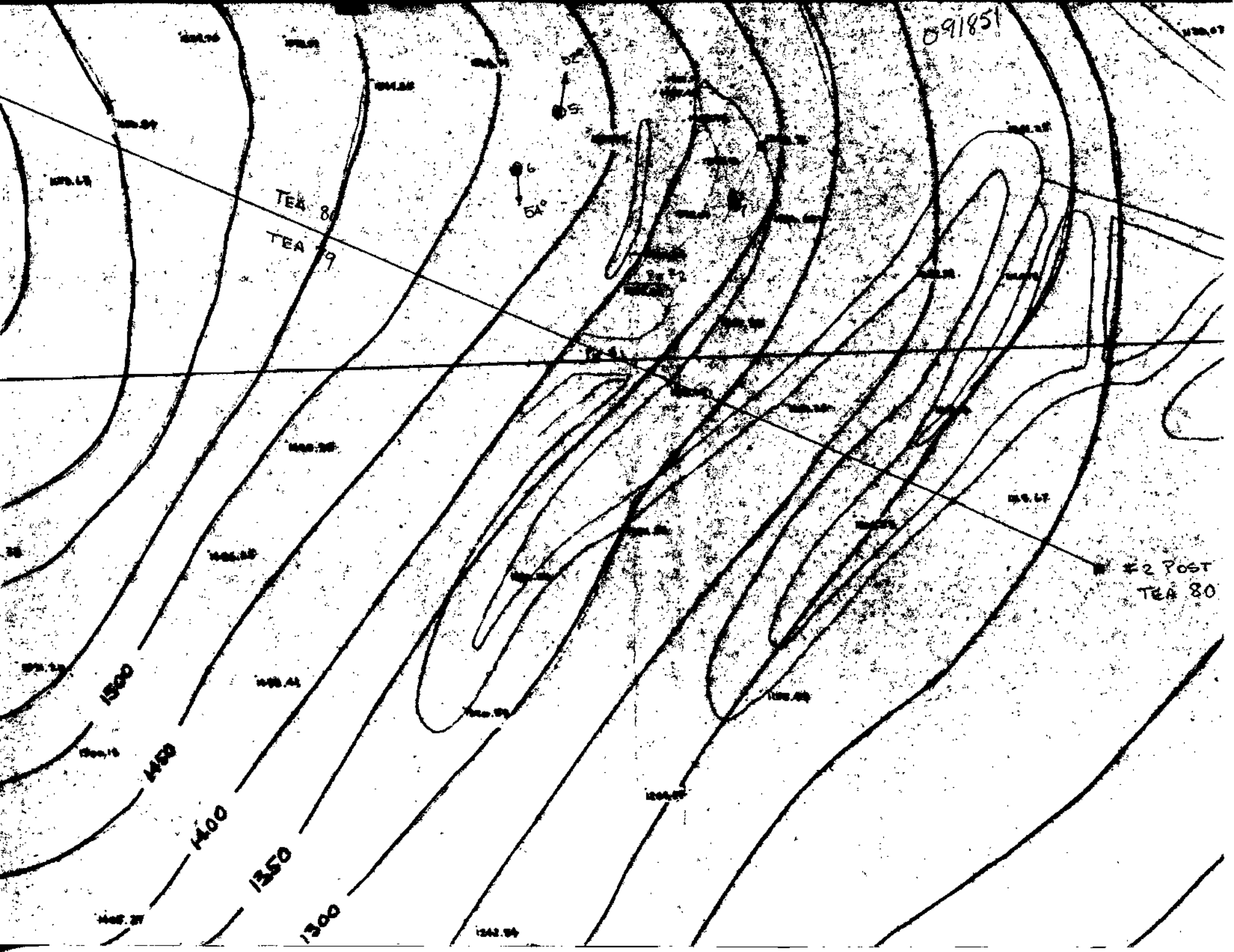
Drill Hole No.: 8 Inclination: _____ Date: _____

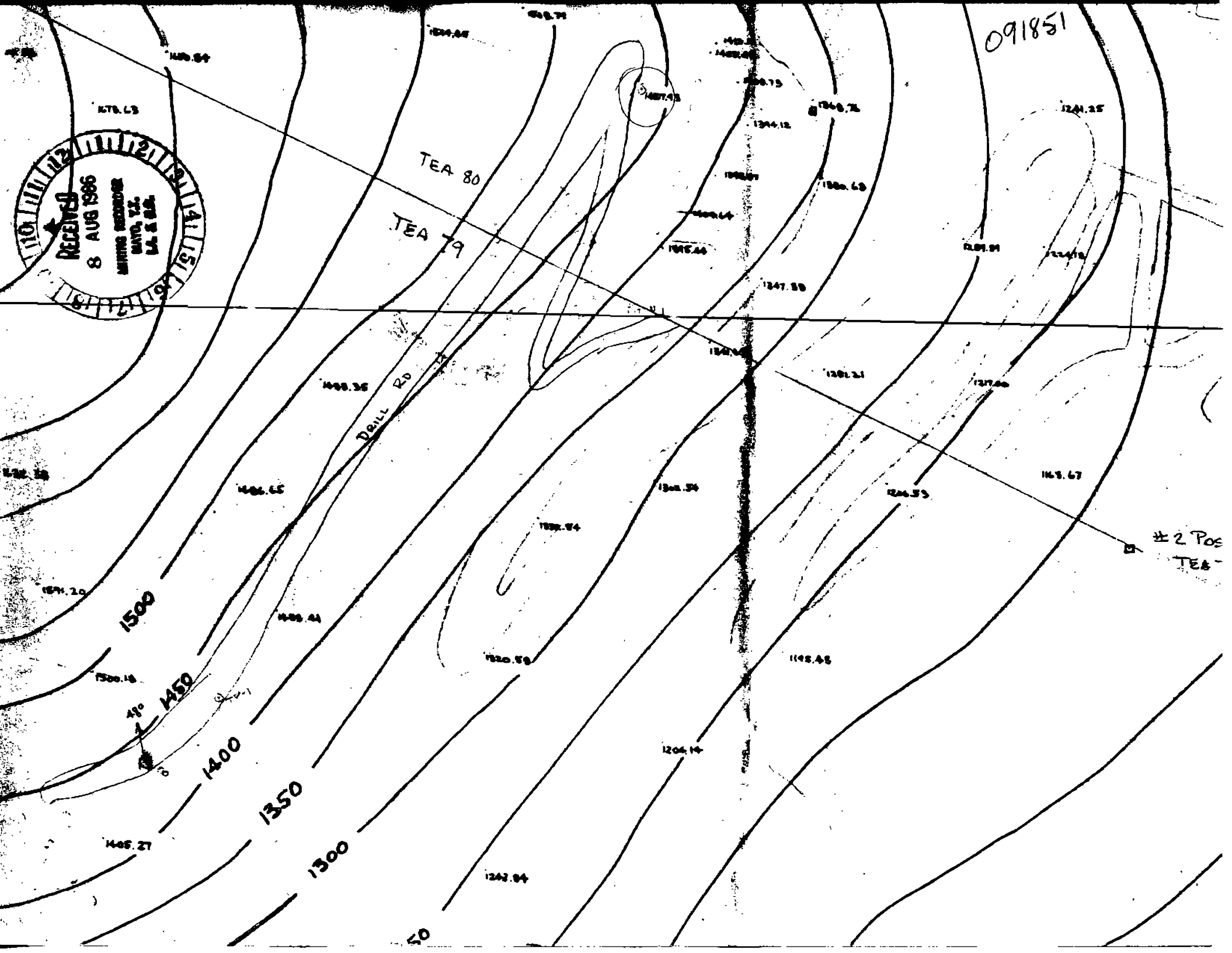
Property: _____ Drilled By: _____

Co-ordinates: North _____ East _____ Logged By: _____

Elevation: _____ Total Depth: _____

DEPTH FROM	DEPTH TO	SAMPLE RECOVERY	SAMPLE NUMBER	ANALYSES Sp. Gr.	ANALYSES BaSO4	ANALYSES Cond.	DESCRIPTION OF MATERIAL DRILLED
76	85.5	85	76-79 79-82	4.04 4.13			Massive barite laminated in part
							last foot mixed barite + argillite calc 77, 79
85.5	111	90	88-88 ✓ 88-91	4.29 4.13	91-94 ✓ 94-97	4.20 4.19	Massive barite calc 87, 90 101, 107 – 110
111	115	80					Siliceous shale upper 18" remainder
							massive laminated barite
115	120	80					massive laminated barite calc 9" at 118
							last 14" siliceous shale
120	130	85					Siliceous shale scattered nodules becoming
							layers bottom 4"
130	139	90					Massive barite w/ some mixed org. material
							coarsely crystalline
139	169.5	95					Massively bedded fine grained barite
							calc 140, 148, 153, 158-159.5, 162, 163-165
169.5	195	95					Siliceous shale w/ varying amounts of
							scattered nodules.
195	200	96					Siliceous shale w/ 3 6" ls layers


091851
52°
54°
TEA 80
TEA 79
#2 POST
TEA 80
1500
1450
1400
1350
1300


091851
RECEIVED
8 AUG 1986
TEA 80
TEA 79
DRILL RD
#2 Pos
TEA
1500
1450
1400
1350
1300
4%

97-102	4.20
102.5-106	4.32
106-109	3.70
109-111	3.98
113-116	4.04
132-135	4.24
135-138	4.08
138-141	4.10
144-148	4.06
148.5-150	4.17
150-153	4.31
153-156	4.07
156-159	4.05
159-162	4.09
162-165	4.13
165-169.5	4.20

TOPOGRAPHY OF THE TEA CLAIMS

MAP SHEET 1050-2 YUKON TERRITORY, CANADA

SCALE 1" = 100' SURVEYED BY EDM

BY A. WALLACE MITCHELL

AUGUST 4-7, 1984

ELEVATION OF A ASSUMED — COORDINATES ASSUMED
BASELINE BETWEEN A-B IS NORTH BY MAGNETIC COMPASS

N

MN.

34½°

#1 POST TEA 79

B APPROX LOCATION APPROX ELEV. 1780

#2 POST TEA 79

TEA 80

TEA 79

CREEK

10,000 N

10,000 E

1800

1750

1700

1650

1600

1550

1500

1450

1400

1350

1300

1250

1200

1150

1100

1050

1000

950

900

850

inches
0 1 2 3 4 5
centimetres
0 1 2 3 4 5

This reference scale bar has been added to the original image. It will print correctly only as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

RECEIVED
8 AUG 1985
MINING RECORDER
WHITEHORSE, YUKON
YUKON TERRITORY

091851

Topography of the TEA Claims

Map Sheet 1050-2 Yukon Territory, Canada

Scale 1" = 100' Surveyed By EDM

By A. Wallace Mitchell

August 4-7, 1984

Elevation of A Assumed — Coordinates Assumed

Baseline Between A-B is North By Magnetic Compass

#1 Post TEA 80

B Approx Location
Approx Elev. 1780

Approx Elev
1805

#2 Post
TEA 80

TEA 80

TEA 79

Stream

10,000 N

10,000 E

N

MN

34½°

1800
1750
1700
1650
1600
1550
1500
1450
1400
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850

1647.46
1549.81
1573.87
1504.74
1455.32
1360.34
1245.88
1284.45
1152.42
1444.12
1382.40
1372.73
1178.92
1147.11
962.61
1120.07
1241.25
1130.72
1168.45
1157.74
1048.15
1056.27
984.31
962.49
993.41
936.96
811.44
834.85
802.41
898.71
860.69
845.19
859.90
848.78
991.60
860.71
991.76
1000.00
1055.80
1024.76
618.46
1781.04
1778.58
1768.39
1748.69
1720.85
1675.63
1650.84
1639.74
1593.91
1549.85
1498.74
1527.93
1468.64
1466.44
1365.44
1344.76
1350.63
1247.38
1241.47
1281.21
1237.60
1115.67
1206.19
1242.84
1295.45
1405.27
1330.58
1188.45
1484.65
1485.41
1571.20
1500.18
1432.38
1485.55
1483.35
1538.56
1305.34
1246.33
1492.18
1549.85
1498.74
1460.11
1422.45
1408.75
1344.76
1364.13
1392.09
1350.63
1281.56
1247.38
1241.47
1237.60
1130.72
1168.45
1157.74
1048.15
1056.27
984.31
962.49
993.41
936.96
811.44
834.85
802.41
898.71
860.69
845.19
859.90
848.78
991.60
860.71
991.76
1000.00
1055.80
1024.76
618.46

STREAM

10,000 N

10,000 E

inches
0 1 2
centimetres
0 1 2 3 4 5

This reference scale bar is accurate when the original image is not scale at the same rate as the image, therefore it can be used as a reference for the original size.

YUKON GEOLOGICAL SURVEY

RECEIVED
8 AUG 1985
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DAWSON, Y.T.
Y.A. 0.G.D.

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