

NELSON

87-441-16169
6/88



Province of
British Columbia

Ministry of
Energy, Mines and
Petroleum Resources

ASSESSMENT REPORT
TITLE PAGE AND SUMMARY

TYPE OF REPORT/SURVEY(S) DRILLING	TOTAL COST \$ 51,892.00
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AUTHOR(S) A.S. HAGEN SIGNATURE(S) *A.S. Hagen*

DATE STATEMENT OF EXPLORATION AND DEVELOPMENT FILED June 26 1987 YEAR OF WORK 1987

PROPERTY NAME(S)
BLACKMORE

COMMODITIES PRESENT Ag, Pb

B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN BZF/SE - 76

MINING DIVISION FORT STEELE NTS 82F/1W

LATITUDE 49°00'36" LONGITUDE 116°19'36"

NAMES and NUMBERS of all mineral tenures in good standing (when work was done) that form the property [Examples: TAX 1-4, FIRE 2 (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or Certified Mining Lease ML 12 (claims involved)]:
Sha 7 - 28, Sun 12 (378 units total)

OWNER(S)
(1) Cominco Ltd. (2) FILMED

MAILING ADDRESS
700 - 409 Granville St.,
Vancouver, B.C. V6C 1T2

GEOLOGICAL BRANCH
ASSESSMENT REPORT

OPERATOR(S) (that is, Company paying for the work)
(1) Cominco Ltd. (2)

MAILING ADDRESS
as above

16,169

SUMMARY GEOLOGY (lithology, age, structure, alteration, mineralization, size, and attitude):
The Sha claims cover east dipping, Precambrian Middle Aldridge ^{Formation} sediments composed predominantly of bedded wackes, quartzitic wackes and quartzwackes intruded by gabbro sills and dykes. The area is bounded by two major north trending faults; the Iron Mountain Fault on the west and the Kid Creek Fault on the east. Other minor northeast and northwest striking, left lateral faults exist on the property.

REFERENCES TO PREVIOUS WORK

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DRILL LOG S87-1	Attached
PLATE 1 - Map - Sha Property	Pocket

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

DIAMOND DRILLING REPORT

SHA 19 CLAIM

FORT STEELE, M.D.

1.00 INTRODUCTION

1.10 Location and Access

The Sha property lies within the Fort Steele and Nelson Mining Divisions. The claims are located 40 km east of Creston, B.C., centered at latitude 49° 06' N and longitude 116° 18' W.

Access to the property is gained via Highway 3 and off highway by various logging roads.

1.20 Property Definition

The property consists of Sha 7 - 28 and Sun 12 claims, totalling 378 units. All the claims are 100% owned by Cominco Ltd.

1.30 Topography and Vegetation

The Sha property covers a large tract of densely forested, mountainous terrain. The mountains are steep sided with rounded to flat ridge tops. The major valleys have been glaciated, however, there is no evidence of Alpine glaciation.

Vegetation consists mainly of lodgepole pine, douglas fir and larch on south and east facing slopes. North and north-west slopes host thick stands of mature spruce, cedar, hemlock, minor grand fir and white pine.

1.40 Objective

To test a weak geophysical anomaly indicated by UTEM survey.

2.00 DIAMOND DRILL HOLE S87-1

Hole S87-1 was collared at an elevation of 1,325 m and drilled to a depth of 396 m. The hole, collared at -70° on azimuth 270°, deflected slightly to the northwest and flattened very slightly to -69° at the end. See Sperry Sun survey tests on page 7 of attached drill log.

Hole S87-1 was triconed in overburden to 32.6 m where bedrock composed of gabbro was met and coring began. Coring remained in gabbro to 143.9 m where bedded sediments were encountered. Drilling remained in sediments to the end of the hole.

The sediments cored are of Middle Aldridge stratigraphy composed predominantly of medium and thick quartzitic wackes and quartzwacke beds of turbidite origin. Alternating with the zones of more proximal type medium and thick turbidites are segments of more argillaceous distal and inter-turbidite type, thinly laminated to thin bedded wacke, subwacke and argillite beds. Lithologies are typical Middle Aldridge basin fill type sedimentary deposits.

Biotite and chlorite alteration is common throughout the sediments. Mineralization consisting of pyrrhotite, pyrite, chalcopyrite and sphalerite is extremely rare and very weak where noted.

3.00 CONCLUSIONS

Drill hole S87-1 first intersected a gabbro sill for 111.4 m before passing into sediments typical of Middle Aldridge lithologies. A total of 250 meters of sediment were cored. The hole did not encounter any mineralization of economic significance.

Report by: *A.S. Hagen*
A.S. HAGEN
Geologist II

Endorsed by: *D. Anderson*
D. ANDERSON
Project Geologist

Approved by: *John Hamilton*
J.M. HAMILTON
Manager, Exploration
Western Canada

Distribution: Mining Recorder (2 copies)
Western District, Exploration
Kootenay Exploration



EXHIBIT "A"

STATEMENT OF EXPENDITURES

DIAMOND DRILLING - SHA 19 CLAIM
FORT STEELE MINING DIVISION

INDIRECT

Salaries

A.S. Hagen -	Drill site preparation, Supervision, Report writing etc. 21 days @ \$220/day	\$ 4,620
J.S. Allen -	Transport supplies 3 days @ \$81/day	243
H.C. Schultze-	Transport supplies 3 days @ \$98/day	294

Mobilization

Tonto Drilling (B.C.) Ltd., Burnaby, B.C.	1,000
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Transportation

one - 4X4 truck	21 days @ \$40/day	840
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Other Associated Costs

Supplies: Core boxes, drill additives	1,555
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DIRECT

Tonto Drilling (B.C.) Ltd. #200 - 3920 Norland Ave., Burnaby, B.C. V5G 4K7	<u>40,140</u>
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<u>Total Diamond Drilling</u>	\$48,692
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Road Access and Site Preparation:

Bearcat Contracting Ltd., Fort Steele, B.C.	0.5 km of road + site prep. 4 days @ \$800/day	<u>3,200</u>
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<u>Total Physical + Diamond Drilling</u>	\$51,892
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IN THE MATTER OF THE
B.C. MINERAL ACT
AND
IN THE MATTER OF A DIAMOND DRILL PROGRAMME
CARRIED OUT ON THE SHA 19 MINERAL CLAIM
CRESTON AREA

in the Fort Steele Mining Division of
the Province of British Columbia

More Particularly N.T.S. 82F/1

A F F I D A V I T

I, A.S. Hagen, of the City of Kimberley, in the Province of British Columbia, make Oath and say:

1. That I am employed as a Geologist by Cominco Ltd. and as such, have a personal knowledge of the facts to which I hereinafter depose:
2. That annexed hereto and marked as Exhibit "A" to this my Affidavit is a true copy of expenditures incurred on a Diamond Drill programme, on the Sha 19 Mineral Claim.
3. That the said expenditures were incurred between the 9th day of June, 1987 and the 30th day of June, 1987 for the purpose of mineral exploration on the above noted claim.



A.S. HAGEN
GEOLOGIST

COMINCO LTD.

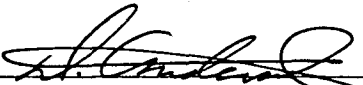
EXPLORATION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

A.S. HAGEN has personally conducted many types of mineral exploration work for Cominco Ltd. over the last twenty years.

I consider him well qualified to prepare this report.


D. ANDERSON, P.Eng.
Project Geologist

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced	June 11, 1987	Location	Sha Property	Tests at	61m, 213m, 366m
Completed	June 19, 1987	Core Size	NQ	Corr. Dip	-70°
Co-ordinates				True Brg.	270°
Objective	To test UTEM anomaly.			% Recov.	
					Date June, 1987

XXXX Meterage	Description	Analysis
From To		
0.0 - 32.6	Overburden	
32.6 - 144.0	Gabbro 32.6 - 51.0 m Medium grained, altered rock, weathered and broken for first 2m, bleaching effect to 51 m. Minor, erratic quartz veining up to 2 cm in thickness. 51.0 - 69.0 Medium grained, layered-like accumulations of light minerals give banding appearance in part (e.g. 63-69 m). Minor erratic quartz veining, vuggy in part. 69.0 - 106.8 Medium grained, some segments bordering on fine grained range. Minor, thin, erratic quartz veins in part. 106.8 - 108.2 Badly broken core, 1 m core loss, possible fault zone. Thin, lensey quartz along top contact @ 28° to core. 108.2 - 144.0 Medium grained to finer grained at sediment contact. Contact between gabbro and underlying sediment not well defined, gradual over a few cm.	
144.0 - 156.6	Quartzwackes, predominantly thick & very thick beds, rare medium bed. Minor amount argillaceous, bed top type sediment. Some beds display dish structure-like features (dewatering) with thin clay seams altered to biotite (e.g. 148.1 and 154.7 m). Alteration (bleaching) highlights features, fine biotite flecks common throughout. Bedding 75° to core.	
156.6 - 160.6	Quartzitic wacke & quartzwacke, beds mainly in thin to medium range. Laminated and/or lensey subwacke to argillaceous bed tops. Bed bases even parallel to slightly erosional in part. Some bleaching apparent, biotite common throughout with occasional chlorite in more argillaceous segments. Bedding 80° to core.	
160.6 - 162.6	Lithology similar to 144.0 - 156.6 m, thick to very thick quartzwackes amalgamated in part, biotite and chlorite alteration. Bedding 80° to core.	

Claim SHA 19
T Brg. 270°
Collar Dip -70°
Elev. 1,352 m
Length 396 m
Hole No. S87-1 Sheet 1

211-8437

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced		Location		Tests at	
Completed		Core Size		Corr. Dip	
Co-ordinates				True Brg.	
Objective				% Recov.	
					Date

XXXX Meterage	Description	Analysis
From To		
162.6 - 167.8	Quartzitic wacke & quartzwacke, thin and medium range beds. Subwacke & argillite bed tops commonly disrupted (rip-up and current flow effects).	
167.8 - 169.2	Subwacke & argillite predominantly, thinly laminated to thin bedded range with rare thin bedded quartzwacke. Thin sand lenses commonly alternating with laminated subwacke and argillite beds, segmented in part. Biotite and chlorite alteration common. Bedding 82° to core.	
169.2 - 172.2	Quartzwackes, medium and thick bedded. Minor amount of subwacke and argillite bed top type sediment. Biotite and chlorite alteration.	
172.2 - 175.5	Subwacke and argillite, thinly laminated to thin bedded. Similar lithology to 167.8 - 169.2 m. Biotite and chlorite alteration. Bedding 85° to core.	
175.5 - 178.6	Quartzwacke, medium and thick bedded, amalgamated beds in part. Some lensey rip-ups in argillaceous bed tops. Biotite and chlorite alteration. Bedding 85° to core.	
178.6 - 194.4	Quartzwacke, thick and very thick beds, amalgamated in part. Minor amount of subwacke & argillite bed top sediment. Top 20 cm is thinly laminated, biotitized wacke. Biotite and chlorite alteration. Bedding 83° to core.	
194.4 - 197.0	Quartzwacke and quartzitic wacke, thin and medium beds. Some rip-up and current features. Biotite and chlorite alteration.	
197.0 - 199.5	Quartzwacke, predominantly thick bedded, minor thin and medium beds. Prominent dish structure-like features (dewatering effect), thin clay seams altered to biotite. Minor subwacke & argillite bed tops type sediment. Biotite and chlorite alteration.	
199.5 - 201.4	Wacke, subwacke and argillite, thinly laminated to thin bedded range. Occasional thin quartzwacke bed. Similar type lithology to 172.2 - 175.5 m etc. Usual biotite-chlorite alteration. Bedding 83° to core.	

Claim SHA 19
T Brg.
Collar Dip
Elev.
Length
Hole No. S87-1 Sheet 2

211-8437

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced	Location	Tests at	Hor. Comp.		
Completed	Core Size	Corr. Dip	Vert. Comp.		
Co-ordinates	True Brg.		Logged by		
Objective	% Recov.		Date		

Claim SHA 19

T Brg.

Collar Dip

Elev.

Length

Hole No. S87-1 Sheet 3

XXXXX Meterage	Description	Analysis	
		From	To
201.4 - 205.1	Quartzwackes, medium and thick range. Dish structure-like features (as in 197.0 - 199.5 m etc.). Subwacke & argillite bed top segments up to 8 cm in thickness. Abrupt change from quartzitic to argillaceous sediments common. Bed tops include massive and laminated sediment. One 24 cm thick, thinly laminated wacke segment with base @ 200.3 m. Usual biotite & chlorite alteration. Bedding 83° to core.		
205.1 - 209.7	Wackes, subwackes and argillites, thin laminated to thin bedded range. Typical distal and inter-turbidite type deposition. Occasional sand lenses up to thin bedded range. Similar deposition to 199.5 - 201.4 m etc. Usual biotite & chlorite alteration. Some disrupted (slump-like) beds, e.g. 208.5 m and irregular bedding features (current effects). Bedding 83° to core.		
209.7 - 213.5	Quartz wackes, medium and thick range. Rare thin quartzitic wacke & wacke beds. Some irregular, current type features in argillaceous bed tops. Subwacke & argillite, distal and inter-turbidite type beds, thin laminated to thin bedded from 212.1 - 212.7 m. Bedding 83° to core.		
213.5 - 214.5	Wackes, subwackes & argillites, alternating thinly laminated, medium to dark grey and very thin bedded, massive, light grey beds. Even parallel type contacts except for cross bedding 10 cm from top of zone.		
214.5 - 219.7	Quartzwackes, medium and thick range. Abrupt change to thin, argillaceous tops common. Similar deposition to 209.7 - 213.5 m. Distal and inter-turbidite type beds, some thinly laminated wackes, from 216.8 - 217.6 m. Usual biotite - chlorite alteration. Bedding 82° to core.		
219.7 - 223.6	Wacke, subwacke and argillite, thinly laminated to thin bedded range. Distal inter-turbidite type deposition. Contacts even parallel for most part. Segment contains one 15 cm turbidite (wacke) with light grey, massive argillite top (2.5 cm). Some thin sand lenses, cross bedded in part. Usual biotite chlorite alteration. Bedding 82° to core.		

211-8437

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced	Location	Tests at	Hor. Comp.		
Completed	Core Size	Corr. Dip	Vert. Comp.		
Co-ordinates	True Brg.		Logged by		
Objective	% Recov.		Date		

Claim SHA 19

T Brg.

Collar Dip

Elev.

Length

Hole No. S87-1 Sheet 4

XXXXX Meterage	Description	Analysis	
		From	To
223.6 - 225.5	Quartzitic wackes, thin to medium range, amalgamated in part. Minor amount subwacke and argillite bed top sediment. Includes a few centimeters of laminated sediment as from 219.7 - 223.6 m. Bedding 80° to core.		
225.5 - 226.9	Wacke, subwacke and argillite, thinly laminated to thin bedded. Same type lithology as from 219.7 - 223.6 m. Bedding 80° to core.		
226.9 - 249.9	Quartzwacke and quartzitic wacke, medium and thick beds predominantly, a few beds in thin range. Segments of distal and inter-turbidite type beds of thinly laminated to very thin bedded, wackes, subwackes and argillites. Slump-like folds, rip ups and other current related, disruption features well displayed in some bed tops and interbeds (e.g. 240.2 and 242.0 m). Biotite and chlorite alteration throughout. Bedding 82° to core.		
249.9 - 253.0	Quartzitic wackes and wackes, thin and medium bedded. Similar type depositional features and alteration to previous footage, however, includes more argillaceous type sediment. Some current related disruption features well displayed.		
253.0 - 264.3	Quartzwackes and quartzitic wackes, medium and thick bedded. This footage includes same rock types and features as from 226.9 - 249.9 m. Bedding 72-80° to core.		
264.3 - 266.2	Wackes, subwackes and argillites, laminated to thin bedded. Predominantly distal and inter-turbidite-type deposition. Some minor, bedding parallel slippage indicated at 266 m with slickensides, minor chlorite, pyrrhotite, pyrite, chalcocopyrite and sphalerite. Bedding 80° to core.		
266.2 - 280.1	Quartzwackes and quartzitic wackes, medium and thick bedded. Usual intervals of laminated to thin bedded distal and inter-turbidite type deposition. Quartzitic sediments predominate. Minor disrupted sediment, rip ups and other current related features. Eroded, slump-folded bed top resembles cross bedding at 272.4 m. Bedding 80° to core.		

211-8437

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced		Location		Tests at	Hor. Comp.
Completed		Core Size		Corr. Dip	Vert. Comp.
Co-ordinates				True Brg.	Logged by
Objective				% Recov.	Date

XXXX Meterage	Description	Analysis			
		Claim	T Brg.	Collar Dip	Elev.
From To					
280.1 - 287.5	Quartzwackes and quartzitic wackes, predominantly medium bedded. Usual turbidite-type deposition with distal and inter-turbidite intervals. Turbidites commonly have thin, massive medium grey, argillaceous tops. Disseminated Zn concentration at 283.85 m (across 3 cm).				
287.5 - 305.8	Quartzwackes and quartzitic wackes, medium and thick bedded. The common thinly laminated to thin bedded wacke, subwacke and argillite distal and inter-turbidite type depositional intervals are up to 70 cm in this zone. Some cross bedding and current related, disruption features as in previous segments. Usual biotite and chlorite alteration. Minor shattering along jointing 25° to core at 296.1 m. Bedding 80° to core.				
305.8 - 307.5	Wacke, subwacke and argillite, thin laminated to thin bedded. Distal and inter-turbidite type sediment. Slump and/or current type distorted beds 307.1 - 307.3 m. Usual biotite - chlorite alteration.				
307.5 - 345.0	Quartzwacke and quartzitic wacke, medium and thick bedded, amalgamated beds in part. Intervals of distal and inter-turbidite type, wacke, subwacke and argillite type deposition in thin laminated to thin bedded thickness range in segments varying from a few to 90 cm. Light grey calcareous flecks, and/or blebs are common in quartzite beds. Rare concretion-like form (e.g. @ 311 m with calcareous haloed pyrrhotite, minor zinc flecks). A few cm of crushed, fragmented sediment along bedding plane at 333 m, minor slippage along bedding plane indicated. Some bleaching gives rock mottled appearance in part. Biotite and chlorite alteration as in previous segments. This segment indicative of more rapid type deposition. Bedding 80° to core.				
345.0 - 347.3	Wackes, subwackes & argillites, thinly laminated to thin bedded. This segment includes some thin to medium quartzitic wacke beds with thin, massive argillite tops. Usual distal and inter-turbidite type deposition. A few centimeters with minor brecciation, chlorite, carbonate and pyrrhotite at 347 m. Bedding 80° to core.				

Claim

SHA 19

T Brg.

Collar Dip

Elev.

Length

Hole No. S87-1

Sheet 5

211-4437

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced		Location		Tests at	Hor. Comp.
Completed		Core Size		Corr. Dip	Vert. Comp.
Co-ordinates				True Brg.	Logged by
Objective				% Recov.	Date

YYYY Meterage	Description	Analysis			
		Claim	T Brg.	Collar Dip	Elev.
From To					
347.3 - 350.7	Quartzwacke and quartzitic wacke, medium bedded with intervals of wacke, subwacke and argillite from thin laminated to thin bedded in thickness.				
350.7 - 358.8	Wacke, subwacke and argillite, thinly laminated to medium bedded. Distal and inter-turbidite type deposition. Some cross-bedding highlighted. Very minor pyrrhotite mineralization commonly in association with carbonate and chlorite in fine lenses. Biotite and chlorite alteration throughout. Bedding 80° to core.				
358.8 - 362.3	Wacke and quartzitic wacke, medium bedded. Some current-type disruption in part indicated in bed tops and interbeds of wacke, subwacke and argillites.				
362.3 - 380.5	Quartzwacke and quartzitic wacke, medium and thick bedded. Amalgamated beds in part. White, calcareous flecks common. This segment predominantly quartzitic with less than usual amount of distal and inter-turbidite type wacke, subwacke and argillite deposition. 12 cm concretion at 372.1 m with biotite, chlorite and minor schalerite. Minor current type disturbances noted. Bedding 80° to core.				
380.5 - 383.3	Wacke, subwacke and argillite, thinly laminated to thin bedded. Minor cross-bedding. Usual biotite and chlorite alteration.				
383.3 - 396.0	Quartzwacke and quartzitic wacke, medium and thick bedded. Indicative of relatively faster type deposition with less than average amount of distal and inter-turbidite type lithologies. White, calcareous flecks common in quartzite portions. Rip-up clasts well displayed at 387.7 m. Biotite and chlorite alteration throughout. Bedding 80° to core.				

***** END OF HOLE S87-1 *****

Below the gabbroic intrusive intersected from bedrock at 32.6 to 144.0 meters, drill hole S87-1 cored approximately 250 meters of Middle Aldridge stratigraphy composed of sediment ranging from quartzwacke to argillite. For the most part,

Claim

SHA 19

T Brg.

Collar Dip

Elev.

Length

Hole No. S87-1

Sheet 6

211-4437

Drill Hole Record



Property	SHA (South)	District	WESTERN (Ft. Steele M.D.)	Hole No.	S87-1
Commenced	Location		Tests at		Hor. Comp.
Completed	Core Size		Corr. Dip		Vert. Comp.
Co-ordinates			True Brg.		Logged by
Objective			% Recov.		Date

Claim	SHA 19
T Brg.	
Collar Dip	
Elev.	
Length	

Hole No. S87-1 Sheet 7

From	To	Description	Analysis				
		the sediment represents basin in-fill material transported as turbidites. Only very minor amounts of sulphides consisting of pyrrhotite, pyrite and sphalerite, as commonly found in Middle Aldridge stratigraphy, are noted in the rocks.					
		Three survey tests using a single shot Sperry-Sun instrument were made as follows:					
	60.98 m	dip -69.8°	azim.	278°			
	213.41 m	" -69.8°	"	283°			
	365.85 m	" -69.0°	"	287°			
		* Core stored at Sullivan mine facility.					

211-447

Drawn by: *gshelton*
 Checked by: _____
 Date: _____

Traced by: _____
 Date: _____

Scale: _____

SHA PROPERTY
DDH S87-1

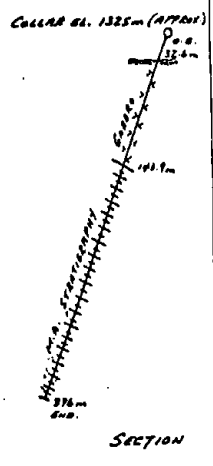
Date: *May 95*
 Plate: _____

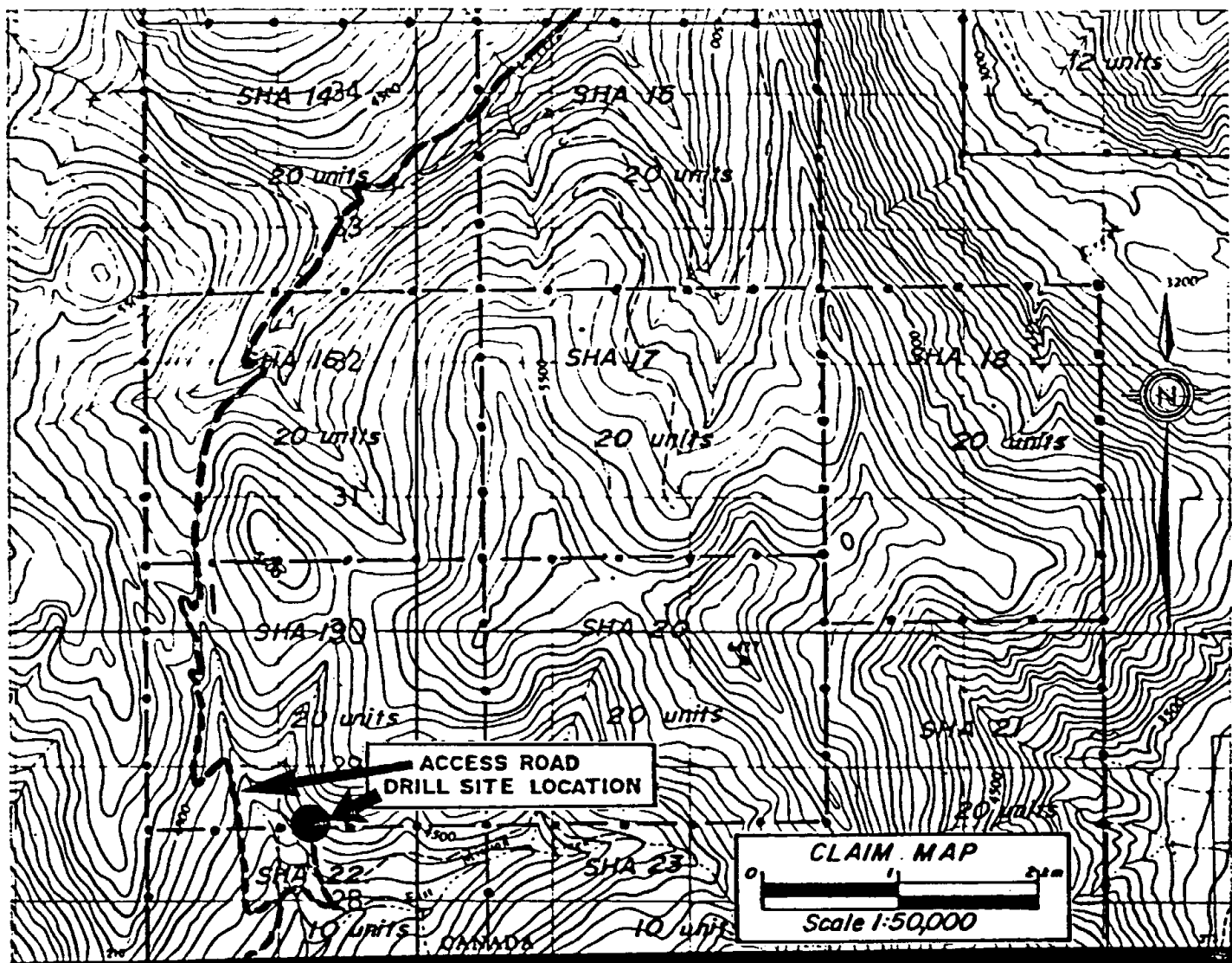
DDH S87-1 SPERRY-SUN SURVEY

FTGE. (m)	DIP	AZIM.
Collar	-70.0°	270°
60.98 m	-69.8°	278°
213.41 m	-69.8°	283°
365.85 m	-69.0°	287°

EXTRAPOLATION

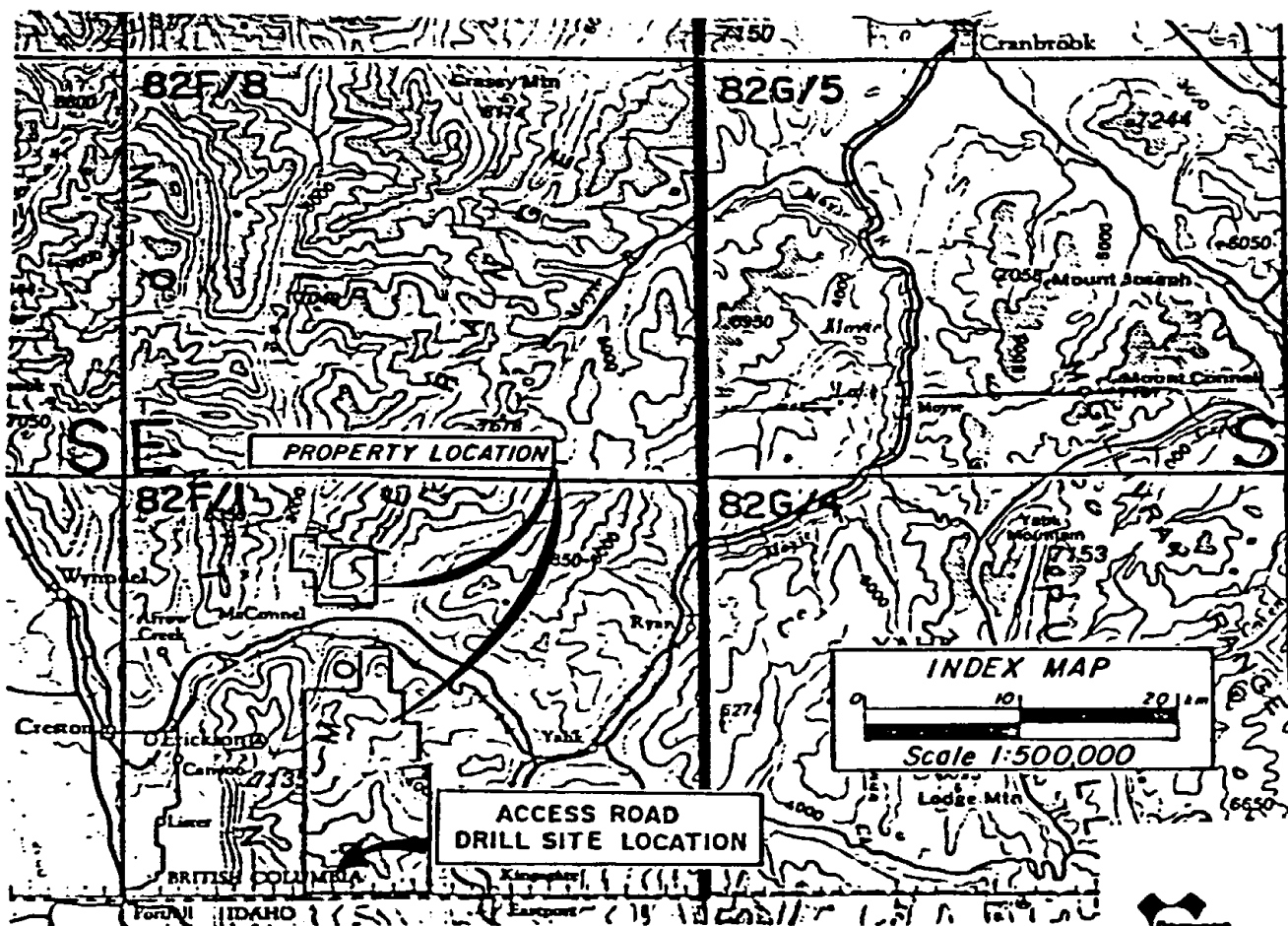
FTGE. (m)	DIST. (m)	AZIM.	DIP	SIN.	COS.	VERT. COMP.	HORIZ. COMP.
0.0 - 30.5	30.5	270°	-70.0°	.9397	.3420	28.7m	10.4m
30.5 - 137.2	106.7	278°	-69.8°	.9385	.3453	100.1m	36.8m
137.2 - 289.6	152.4	283°	-69.8°	.9385	.3453	143.0m	52.6m
289.6 - 396.0	106.4	287°	-69.0°	.9336	.3584	99.3m	38.1m
TOTALS	396.0					371.1m	137.9m





UNITED STATES OF AMERICA

15



Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

SHA PROPERTY

Scale: AS SHOWN

Date: JUNE 1987.

Plate: 1