NELSON

/ **87-441-**|6|69 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
/	AUTHOR (S) A.S. HAGEN	signature(s) Uthagen
/	DATE STATEMENT OF EXPLORATION AND DEVELOPMEN	T FILED JUNE 26 87 YEAR OF WORK 1987
/	PROPERTY NAME(S)	
/	COMMODITIES PRESENT	Darley - H
/	B.C. MINERAL INVENTORY NUMBER(S), IF KNOWN	847.95 - 76
/	LATITUDE	LONGITUDE
1	NAMES and NUMBERS of all mineral tenures in good standing (v (12 units); PHOENIX (Lot 1706); Mineral Lease M 123; Mining or (Sha 7 - 28 Sun 12 (378 units -	when work was done) that form the property [Examples: TAX 1-4, FIRE 2 Certified Mining Lease ML 12 (claims involved)]: fotal)
/	OWNER(S)	· · · · · · · · · · · · · · · · · · ·
•	(1) Cominco Ltd.	. (2)
1	MAILING ADDRESS 700 - 409 Granville St., 	GEOLOGICAL BRANCH ASSESSMENT REPORT
	MAILING ADDRESS	
,	as above	10, 169
/	SUMMARY GEOLOGY (lithology, age, structure, alteration, mine The Sha claims cover east dipping, Pre	ralization, size, and attitude): ecambrian Middle Aldridge sediments composed
	predominantly of bedded wackes, quarta	zitic wackes and quartzwackes intruded by
	. gabbro. sills. and. dykes The area. is t the Iron Mountain Fault on the west ar	bounded by two major north trending faults; nd the Kid Creek Fault on the east. Other
	minor northeast and northwest striking	, left lateral faults exist on the property.
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/	REFERENCES TO PREVIOUS WORK	
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DRILI	L LOG :	587-1			•	•	-	•	•	•	•	•	Attached
PLATE	E 1 - 1	Map - Sha	Prope	erty .		•	•	•	•	•	-		Pocket

Page

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 587-1 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 587-1 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.

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Report by: A.S. HAGEN U Geologist II

Endorsed by: _< D. ANDERSON Project Geologist

Approved by:_

J.M. HAMILTON Manager, Exploration Western Canada



EXHIBIT "A"

STATEMENT OF EXPENDITURES

DIAMOND DRILLING - SHA 19 CLAIM FORT STEELE MINING DIVISION

INDIRECT

<u>Salaries</u>

A.S.	Hagen -	Drill site preparation,	Supervision,		
		Report writing etc.			
		21 days @ \$220/day		\$ 4,62	0
J.S.	Allen -	Transport supplies			
		3 days @ \$81/day		24	З
H.C.	Schultze-	Transport supplies			
		3 days @ \$98/day		29	4

Mobilization

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

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

Other Associated Costs

Supplies:	Core boxes,	drill additives	1,555

DIRECT

Tonto Drilling (B.C.) Ltd.	
#200 - 3920 Norland Ave.,	
Burnaby, B.C. V5G 4K7	40,140

Total Diamond Drilling \$48,692

Road Access and Site Preparation:

Bearcat Contracting Ltd., Fort Steele, B.C. 0.5 km of road + site prep. 4 days @ \$800/day 3,200

Total Physical + Diamond Drilling \$51,892

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 Particularily N.T.S. 82F/1

AFFIDAVIT

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

- 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:
- 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. HAĞEN 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

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Property SHA (South)	1987	ocation Sha Property	Tests at 61m, 213m, 366m	Hor. Comp. 137.9 m	σ		700	
Completed June 19.	1987	Core Size NO	Corr. Dip -70°	Vert. Comp. 371.1 m		00	'	
Co-ordinates			True Brg. 270 ⁰	Logged by A.S. Hagen	E S	27	<u>io</u>	.
Objective To test UT	EM anomaly.		% Recov.	Date June, 1987	E	Brg.	lar	
						⊢	8	j,
www.weterage Desc	ription							Ţ
0.0 - 32.6	Overburden							4
32.6 - 144.0	Gabbro							+
	32.6 - 51.0 m	Medium grained, bleaching effect	altered rock, weathered a to 51 m. Minor, erratic	and broken for first 2m, quartz veining up to				+
	 6 - 144.0 Gabbro 32.6 - 51.0 m Medium grained, altered bleaching effect to 51 2 cm in thickness. 51.0 - 69.0 Medium grained, layered banding appearance in partering, vuggy in part. 69.0 - 106.8 Medium grained. some Minor, thin, erratic quater along top contact 108.2 - 144.0 Medium grained to finer gabbro and underlying set few cm. 0 - 156.6 Quartzwackes, predominantly thick & ver argillaceous, bed top type sediment. S (dewatering) with thin clay seams Alteration (bleaching) highlights featu Bedding 75° to core. 6 - 160.6 Quartzitic wacke & quartzwacke, beds and/or lensy subwacke to argillaceous to erosional in part. Some bleaching appearance in more argillaceous segments. 6 - 162.6 Lithology similar to 144.0 - 156.6 m, t in part, biotite and chlorite alteration 	layered-like accumulations e in part (e.g. 63-69 m).	s of light minerals give Minor erratic quartz					
	69.0 - 106.8	veining, vuggy in Nedium grained,	part. some segments bordering	on fine grained range.			<u> </u>	\downarrow
	106 8 - 108 2	Ninor, thin, erra Badly broken core	tic quartz veins in pert,	Fault zone. Thin, lensy			ļ	┽
	100.0 100.2	quartz along top	contact @ 28° to core.	contact Contact between			-	+
	108.2 - 144.0	necium grained to gabbro and underl few cm.	ying sediment not well de	Sined, gradual over a				+
144.0 - 156.6	Quartzwackes,	predominantly thic	k & very thick beds, rare me	edium bed. Minor amount			┨	+
	argillaceous, (dewatering)	bed top type sedim	ent. Some beds display displayed is a second s	structure-like features .g. 148.1 and 154.7 m).		-	+	+
	Alteration (b) Bedding 75° to	eaching) highlight core.	a features, fine biotite fi	lecks common throughout.				+
156.6 - 160.6	Quartzitic wac	ke & quartzwacke,	beds mainly in thin to a	adium ranga. Laminated				-+
	and/or lensy s erosional in n	ubwacke to argilla art. Some bleachi	ceous bed tops. Bed bases (ng apparent, biotite common	even parallel to slightly throughout with occasional	.	\vdash	+	+
	chlorite in mo	re argillaceous se	gments. Bedding 80° to core	3.			+	+
160.6 - 162.6	Lithology simi	lar to 144.0 - 156	.5 m, thick to very thick o	uartzwackes amalgamated		1-	1	1
	in part, bioti	te and chlorite al	teration. Bedding 80° to co	ore.		-		-
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Jrill Hole Becc	ord						 	
Drill Hole Reco	ord			Cominco Page 2			 	
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211-9437

Drill Hole Red	ord		Cominco Page 3				
Property SHA (South) District WESTERN (Ft. Steele M.D.)Hole No. 587-1		ſ			
Commenced	Location	Tests at	Hor. Comp.	ñ			
Completed	Core Size	Corr. Dip	Vert. Comp.	¥			
Co-ordinates		True Brg.	Logged by		1.	ā	ļ
Objective		% Recov.	Date		Brg	ollar	ev.
Rookan Meterage Des	cription			Anal	lysis		<u>iu</u> L
201.4 - 205.1	Quartzwackes, medium and thick range.	Dish structure-lik	e features (as in 197,0		\square		Į_
	- 199.5 m etc.). Subwacke & argilli	te bed top segments	up to 8 cm in thickness.		┼──		÷
	massive and laminated sediment. One	24 cm thick, thinly	laminated wacke segment	-	–	<u> </u>	
	with base @ 200.3 m. Usual biotite & c	hlorite alteration.	Bedding 83° to core.		+	<u> </u>	+-
205.1 - 209.7	Wackes, subwackes and argillites, thi	n laminated to thin	bedded range. Typical		+	+	╀
	distal and inter-turbidite type dep bedded range Similar deposition to 19	osition. Occasiona 9.5 - 201.4 m etc.	l sand lenses up to thin Usual biotite & chlorite				┢
	alteration. Some disrupted (slump-lik	e) 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 quartzi	tic wacke & wacke beds.		+	-	╀╴
	Some irregular, current type features i distal and inter-turbidite type beds, t - 212.7 m. Bedding 83° to core.	h argillaceous bed t hin laminated to	thin bedded from 212.1				╞
213.5 - 214.5	Wackes, subwackes & argillites, alter	nating thinly lamina	ted, medium to dark grey		+		┝
	and very thin bedded, massive, light gr for cross bedding 10 cm from top of zon	ey beds. Even paral e.	lei type contacts except		+		┢
		Abrupt abanas to	thin angillaceous fors		1		Г
214.5 - 219.7	common. Similar deposition to 209.7 -	213.5 m. Distal a	nd inter-turbidite type		\Box		Γ
	beds, some thinly laminated wackes, fro	m 216.8 - 217.6 m.	Usual biotite - chlorite				
	alteration. Bedding az to core.						
219.7 - 223.6	Wacke, subwacke and argillite, thinly	laminated to thin	bedded range. Distal for most part. Segment				
	contains one 15 cm turbidite (wacke) w	ith light grey, mas	sive argillite top (2.5				
	cm). Some thin sand lenses, cross bedd	ed in part. Usual b	iotite chlorite alteration.		1		1-

Froperty SHA (South) District WESTERN (Ft.	Steele M.D.)Hole No. S87-1					
Commenced	Location	Tests at	Hor. Comp.	fi			
Completed	Core Size	Corr. Dlp	Vert. Comp.	HA		<u>a</u>	
Co-ordinates		True Brg.	Logged by		,	õ	
Objective		% Recov.	Date	Clain	T Br	Colla	
Abakaak Meterage Des From To	cription			Ana	lysis	T	1
223.6 - 225.5	Quartzitic wäckes, thin to mee and argillite bed top sedime as from 219.7 – 223.6 m. Bede	lium range, amalgamated in ent. Includes a few centin ling 80° to core.	part. Minor amount subwacke neters of laminated sediment		+		-
225.5 - 226.9	Wacke, subwacke and argillite, as from 219,7 ~ 223,6 m. Bedd	, thinly laminated to thin ling 80° to core.	bedded. Same type lithology		+	+	-1
226.9 - 249.9	Quartzwacke and quartzitic we in thin range. Segments of di to very thin bedded, wacke ups and other current related, tops and interbeds (e.g. 24 throughout. Bedding 82 ⁰ to co	icke, medium and thick bed stal and inter-turbidite (bs, subwackes and argill: disruption features we (0.2 and 242.0 m), Biot pre.	ts predominantly, a few beds type beds of thinly laminated tes. Slump-like folds, rip all displayed in some bed tite and chlorite alteration				
249.9 - 253.0	Quartzitic wackes and wackes, features and alteration to p type sediment. Some current r	thin and medium bedded, previous footage, however, elated disruption feature;	Similar type depositional includes more argillaceous well displayed.		+	+	_
253.0 - 264.3	Quartzwackes and quartzitic wa same rock types and features a	ickes, medium and thick be is from 226.9 - 249.9 m. E	ded. This footage includes Bedding 72~80 ⁰ to core.		-	$\overline{+}$	_
264.3 - 266.2	Wackes, subwackes and argilli and inter-turbidite-type depos at 266 m with slickensides, schalerite. Bedding 80° to co	tes, laminated to thin be ittion. Some minor, beddir minor chlorite, pyrrhotit re.	added. Predominantly distal ag parallel slippage indicated a, pyrite, chalcopyrite and				
266.2 - 280.1	Guartzwackes and quartzitic w of laminated to thin bedded d sediments predominate. Minor features. Eroded, slumo-folde	ackes, medium and thick listal and interturbidite t disrupted sediment, rip up d bed top resembles cross	bedded. Usual intervals ype deposition. Quartzitic os and other current related bedding at 272.4 m. Bedding				

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Property SHA (Sout	th) District WESTERN (Ft.	Steele M.D.) Hole No. 587-1			1.	
Commenced	Location	Tests at	Hor. Comp.	19		
Completed	Core Size	Corr. Dip	Vert. Comp.			a
Co-ordinates		True Brg.	Logged by		b	
Objective		<u>%</u> Recov.	Date	Clain	ů.	line and the second sec
Kadiado Meterage Des From To	Meterage Description I To I - 287.5 Guartzwackes and guartzitic wackes, predominantly medium bedded. Usual turbidite-type deposition with distal and inter-turbidite intervals. Turbidites commonly have I		Anal	lysis	Ē	
280.1 - 287.5	Guartzwackes and guartzitic w deposition with distal and i thin, massive medium grey, 283.85 m (across 3 cm).	ackes, predominantly medium nter-turbidite intervals. argillaceous tops. Disse	bedded. Usual turbidite-ty Turbidites commonly have minated Zn concentration at	/pe		<u> </u>
287.5 - 305.8	Quartzwackes and quartzitic laminated to thin bedded wa type depositional intervals a and current related, disrupt and chlorite alteration. Min m. Bedding 80° to core.	wackes, medium and thick cke, subwacke and argillite re up to 70 cm in this ion features as in previo or shattering along joint;	bedded. The common thinly distal and inter-turbidite zone. Some cross bedding bus segments. Usual biotite ng 25° to core at 296.1			
305.8 - 307.5	Wacke, subwacke and argillite turbidite type sediment. Sl m. Usual biotite - chlorite	, thin laminated to thin be ump and/or current type o alteration.	dded. Distal and inter- listorted beds 307.1 - 307.3		+	+
307,5 - 345.0	Quartzwacke and quartzitic wa part. Intervals of distal a	cke, medium and thick be nd inter-turbidite type, wa	dded, amalgamated beds in cke, subwacke and argillite		-	—
	type deposition in thin lamin from a few to 90 cm. Ligh	ated to thin bedded thickne t grey calcareous flecks, those like form (o g f 2)	and/or blebs are common in			
	pyrrhotite, minor zinc fleck	s). A few cm of crushed	, fragmented sediment along		₋	\downarrow
	 bedding plane at 333 m, minor gives rock mottled appeara 	slippage along bedding pla nce in part, Biotite ar	ne indicated. Some bleachir d chlorite alteration as in	·9	–	+
	previous segments. This segm	ent indicative of more rap;	d type deposition. Bedding		+	+
					+	+
345.0 - 347.3	Wackes, subwackes & argill includes some thin to medium	ites, thinly laminated to quartzitic wacke beds wi	thin bedded. This segment th thin. massive argillite		+	+
	tops. Usual distal and int	er-turbidite type depositi	on. A few centimeters with		+	+

Property SHA (South	1) District WESTERN (Ft.	Steele M.D.) Hole No. 587-1			}	
Commenced	Location	Tests at	Hor. Comp.	<u> </u>		
Completed	Core Size	Corr. Dip	Page 6 Hor. Comp. Vert. Comp. Logged by Date B O Date B O Analysis Ith intervals of wacke, subwacke thickness. to medium bedded. Distal and dding highlighted. Very minor n with carbonate and chlorite roughout. Bedding 80° to core. Current-type disruption in part cke and argillites. ck bedded. Amalgomated beds in segment predominantly quartzitic turbidite type wacke, subwacke t 372.1 m with biotite, chlorite bances noted. Bedding 80° to thin bedded. Minor cross-bedding. Line Date Date Date Date Date Date Date Date Current-type discuption in part ck bedded. Amalgomated beds in segment predominantly quartzitic turbidite type wacke, subwacke to adding 80° to Date <t< th=""></t<>			
Co-ordinates		True Brg.	Logged by	× !		ā
Objective		% Recov.	Date	lain	Brg	ollar
Koonage Meterage Des From To	cription			Analy	ysis	
347.3 - 350.7	Quartzwacke and quartzitic we and argillite from thin lamine	acke, medium bedded with i ated to thin bedded in thic	ntervals of wacke, subwacke kness.			
350.7 - 358.8	Wacke, subwacke and argillite, inter-turbidite type deposit pyrrhotite minerolization con in fine lenses. Biotite and d	, thinly laminated to m tion. Some cross-bedding mmonly in association wi chlorite alteration through	edium bedded. Distal and highlighted. Very minor th carbonate and chlorite out. Bedding 80° to core.			
358.8 - 362.3	 Wacke and quartzitic wacke, indicated in bed tops and inter 	medium bedded. – Some curr erbeds of wacke, subwacke a	ent-type disruption in part nd argillites.			
362.3 - 380.5	Quartzwacke and quartzitic wa part. White, calcareous fi with less than usual amount of and argillite deposition, and minor schalerite. Minor core.	acke, medium and thick be lecks common. This segme f distal and inter-turbi 12 cm concretion at 372 current type disturbance	dded. Amalgamated beds in nt predominantly quartzitic dite type wacke, subwacke 1 m with biotite, chlorite s noted. Bedding 80° to			
380.5 - 383.3	Wacke, subwacke and argillite, Usual biotite and chlorite alf	, thinly laminated to thin teration.	bedded. Minor cross-bedding.		-	$\left[- \right]$
363.3 - 396.0	Quartzwacke and quartzitic wad faster type deposition with 1 type lithologies. White, cald clasts well displayed at 3 Bedding 80° to core.	cke, medium and thick bedde less than average amount of careous flecks common in q 387,7 m. Biotite and chlo	d, Indicative of relatively distal and inter-turbidite uartzite portions. Rip-up rite alteration throughout,			
	***** END OF	F HOLE 587-1 *****				

Property SHA (South	n) District WESTERN (Ft.	Steele M.D.)Hole No. S87-1				
Commenced	Location	Tests at	Hor, Comp.			
Completed	Core Size	Corr. Dip	Vert. Comp.	¥		<u>م</u>
Co-ordinates		True Brg.	Logged by		i i	2
Objective		% Recov.	Date		ã ₹	
XXXXXX Meterage Desc	cription			Analys	 iis	<u></u>
From To	the rediment represents hasis		rted as turbidites. Only		+	+
	very minor amounts of sulph as commonly found in Middle	nides consisting of pyrrhot Aldridge stratigraphy, ar	ite, pyrite and sphalerite, e noted in the rocks.		_	_
	·					
	Three survey tests using a si	ngle shot Sperry-Sun instru	ment were made as follows:		_	
	60.98 m dip	-69.8° azim. 278°			-+	
	213.41 m 365.85 m "	-69.0° "287°				
	• Core stored at Sullivan mir	e facility.			+	
	- Jore Bored de Surryan Mit					\rightarrow
						\rightarrow
					+	
					+	
l				+		

MCI - 112A - CL		Drawn by:			DD	H \$87-1	SPERRY-SU	IN SURVE	<u>Y</u>			COLLAR 61. 1325 m (ATTON)
		15 Masery Traced by: are Renned by Date			FTGE.(m) Collar 60.98 m 213.41 m 365.85 m	1 1	<u>DIP</u> -70.0 ⁰ -69.8 ⁰ -69.8 ⁰ -69.0 ⁰		AZIM. 270° 278° 283° 287°			
2010: 2010:	DDH S87-1	SHI PROPERTY	Suc.	<u>FTGE.</u> (m) 0.0 - 30.5 30.5 - 137.2 137.2 - 289.6 289.6 - 396.0 TOTALS	DIST.(m) 30.5 106.7 152.4 106.4 396.0	<u>E</u> 270° 278° 283° 287°	<u>XTRAPOLATI</u> <u>DIP</u> -70.0° -69.8° -69.8° -69.0°	<u>0N</u> .9397 .9385 .9385 .9385	<u>COS.</u> .3420 .3453 .3453 .3584	VERT. <u>COMP.</u> 28.7m 100.1m 143.0m 99.3m 371.1m	HORIZ. <u>COMP.</u> 10.4m 36.8m 52.6m 38.1m 137.9m	 Section PLAN Scale 1:500



ECIL 2187 C