CASA EXPLORATION LTD.
DIAMOND DRILL RECORD

Length	105.16 m	Contractor	Kluane Drilling Ltd.	Hole No.	HA-89-1
Bearing	GRID WEST	Core Size	BQ Casing	Project	Hop-Acme Claims
Dip	-70°	Started	12:01 pm, Sept.23'89		
Lat.	3150 N	Completed	03:00 am, Sept.27'89	NTS Map	115 H/7
Dep.	2902 E	Logged by	S. Feulgen, J.C. Stephen	Claim	
Elev.	1158.4	Stored	Geoff Lattin	# Pages	5
O.B. Thickness	11.58 m		WHITEHORSE	Purpose	-to test geophysical anomaly

Footage (m) From	To	DESCRIPTION	Sample#	From	To	Length(m)	Assays Au(g/t)	Ag(g/t)	Cu(%)	MoS_2 (%)
0.00	11.58	overburden; (0.00-11.26) no record; (11.26-11.58) recovered fragments (schist, diorite, granite) in core box								
11.58	20.90	boulder fragments, schist fragments, broken bits of core								
20.90	39.47	grey to grey brown, mica schist; bedding/schistosity perpendicular to core; (at 24.30, 26.20) small specks of chalcopyrite, pyrite, and magnetite on fracture planes; (25.75-26.75) calc silicate skarn interbedded with mica schist; (26.64-26.70) magnetite skarn with pyrite and pyrrhotite, enclosed by calc silicate skarn bands; (29.30-29.80) fragmented, oxidized schist; (29.80-30.00) quartzite band; (30.00-30.05) dyke; (31.30-31.60) interbedded quartzite and schist; (32.08-32.78) quartzite; (at 32.60) thin bands of actinolite calc silicate skarn; (32.98-33.00) calc silicate skarn; (34.00-34.15) fragmented, oxidized schist; (35.74-35.78) tremolite-rich calc silicate skarn band; (35.68-36.68) quartzite with interbedded schist; (36.93-36.95) actinolite-rich calc silicate skarn band; (37.72-37.92) quartzite; (38.47-38.48) graphite band								
39.47	42.42	quartzite, some sericitic alteration and micaceous bedding, minor pyrite on fracture planes; (41.10-41.15) fragmented material, gouge (small fault?); (41.65-41.75) fragmented and oxidized; (41.75-42.00) thin beds of epidote within calc silicate skarn, minor chalcopyrite mineralization (<0.5%); (42.30-42.38) fragmented material (sheared and crushed) chlorite-talc mineralization								
42.42	46.35	magnetite-pyrrhotite skarn; background rock black (carbonaceous?), fine grained, dense; magnetite seen as blebs; pyrrhotite seen in bands and disseminated splashes; magnetite 40%, pyrrhotite 5-10%, chalcopyrite <0.5%; (at 42.43, 42.50, 42.52, 42.55) light blueish-green mineral (serpentine family); (at 42.42, 42.52, 42.53) thin fractures (0.2cm)	30001	42.39	42.78	0.39	**0.66**	**0.66**	**0.72**	

		filled with chalcopyrite; (42.42-42.74) primarily pyrrhotite, some minor chalcopyrite (42.74-42.88) primarily magnetite; (42.88-43.03) pyrrhotite intergrown with magnetite; (43.03-43.14) calc silicate skarn with very minor chalcopyrite in thin fractures; (43.14-46.35) primarily magnetite with carbonaceous material and minor disseminated pyrrhotite and other unidentified sulphides (too small to identify); (at 43.20) soft, glassy deep sea blue mineral (fibrous)	30002	42.78	44.82	2.04	0.133	2.00	0.07
			30003	44.82	46.66	1.84	0.10	6.33	0.02
46.35	47.49	feldspar porphyry sill; light greyish-green, fractured and pitted; phenocrysts equigranular, white and micaceous; contact steep and irregular, 90° to the horizontal axis of the core; grades into calc silicate skarn							
47.49	48.56	magnetite-pyrrhotite skarn with very minor specks of chalcopyrite (<0.5%) and some pyrite; (47.49-47.95) primarily magnetite, intergrown with pyrrhotite, appears somewhat banded; (47.95-48.15) decrease in mineralization, very little magnetite; (48.15-48.28) grey-greenish-yellow talc-serpentine minerals filling possible fracture in calc silicate skarn; (48.28-48.62) mineralization decreasing; (at 48.43) band of pyrrhotite (2.5cm), no observable magnetite, skarn grades into calc silicate skarn.	30004	47.49	48.56	1.07	0.10	0.30	0.28
48.56	52.83	calc silicate skarn (breccia?), creamy white with fragments of light green to grey blue mineral, some serpentine, minor blebs of pyrrhotite with occasional specks of pyrite and chalcopyrite (<1%) intergrown with the pyrrhotite; (at 50.95, 51.17, 51.31, 51.43) chalcopyrite mineralization; (48.56-48.94) calc silicate skarn, dirty grey tinge; (48.94-49.26) calc silicate skarn and magnetite-pyrrhotite skarn, bands of disseminated magnetite and pyrrhotite, minor pyrite (core blueish-grey in colour); (at 51.88) alteration zone with soft green mineralization 2cm in length; (52.40-52.47) blueish-grey chalcopyrite-rich calc silicate skarn, chalcopyrite disseminated; (52.47-52.83) greenish-grey brecciated calc silicate skarn with minor disseminated chalcopyrite (0.5%), some soft white alteration minerals	30005	48.56	49.26	0.70	0.10	2.66	0.15
			30052	49.26	50.85	1.59	0.069	0.34	0.03
			30053	50.85	52.38	1.53	0.069	2.06	0.22
52.83	53.69	greenish diopside-chalcopyrite-pyrrhotite skarn, massive chalcopyrite mineralization seen as disseminated particles, at times chalcopyrite (5%) intergrown with pyrrhotite (3%); (at 52.92, 52.93, 52.95, 52.96, 52.97) distinct beds of pyrrhotite seen (0.5cm width); (at 53.30) less heavily mineralized, whiteish-grey, slightly fractured, very little pyrrhotite (1%), chalcopyrite (1-2%); (at 53.57) skarn grading into quartzite	30006	52.38	53.69	1.31	0.860	35.66	2.70
53.69	59.61	thinly bedded, lightly fractured quartzite, greyish-green beds alternating with black-dark green beds, some biotite beds (very occasional minor pyrite coating on fracture planes); (56.58-57.08) more siliceous quartzite, frequency of biotite rich bands begins to increase;		53.69	59.61	5.92	NO SAMPLE		

		(at 57.92) bedding dip changes (5°), less siliceous, less biotite-rich								
59.61	60.48	greenish chalcopyrite-pyrrhotite skarn, chalcopyrite (3-5%) present as disseminated particles throughout section, at times chalcopyrite intergrown with pyrrhotite (3-5%), section lightly fractured, fractures appear filled with quartz, mineralization appears heaviest in the initial 20cm and the final 20cm of the section	30007	59.61	60.71	1.10	0.80	18.66	3.72
60.48	60.71	abrupt contact to granular greenish-black magnetite skarn with minor chalcopyrite and pyrrhotite as disseminated particles and blebs							
60.71	61.96	thinly bedded quartzite with biotite, quartz, and dark black and occasional green beds alternating, some minor sericitic alteration appears to grade into black schist							
61.96	64.68	black schist with bands (beds) of quartz (1cm width), quartzite, green calc silicate skarn, biotite, minor pyrite on fracture planes; (62.44-62.54) section of schist with brown nodules (garnets?)							
64.68	68.12	light grey to greenish, thinly bedded quartzite, some sericitic alteration in places, some interbedded black schist and biotite beds, minor fracturing, minor pyrite as disseminated specks							
68.12	68.67	light green (epidote?), fine grained, calc silicate skarn bands (3-15cm in width) alternating with black mica schist bands (3-12cm in width)							
68.67	68.78	magnetite-pyrrhotite skarn (greenish-black) with white specks; minor mineralization							
68.78	69.10	light green, fine grained, thinly bedded, calc silicate skarn with mica schist beds (minor) and minor dark green (actinolite?-rich) beds							
69.10	69.45	fragmented black skarn with light green to white beds (soft alteration minerals-talc?)							
69.45	69.69	calc silicate skarn (sea greenish-white) with thin dark grey and white bands, very mushy at end of section (soft alteration minerals-like gouge)							
69.69	70.98	well banded/bedded black magnetite skarn (sea green mineral-epidote?, occasional schist, and black non-magnetic beds interspersed throughout section) with minor pyrrhotite mineralization; (69.69-69.94) magnetite blebs intermixed with epidote? blebs (brecciated?), minor quartz filled fracture, minor pyrrhotite, small splashes (very occasional) of chalcopyrite, disseminated pyrite on fracture planes; (70.52-70.98) increase in pyrrhotite (5-10%) and chalcopyrite (1%) but still minor mineralization, magnetite (20%) seen as distinct bands (0.5cm in width)	30008	69.69	71.09	1.40	0.034	1.37	0.26
70.98	73.55	whiteish limestone (marble) with light grey banding, some bands and fractures infilled with dark black material, minor epidote beds; (70.98-71.08) gradual transition from skarn to limestone, minor pyrrhotite, chalcopyrite; (at 71.79, 73.05, 73.29) minor reddish-brown skarn beds (2-5cm in width); (at 73.05) very tiny splash of chalcopyrite on contact between skarn/limestone							

75.55	75.57	whitish limestone with light grey thin banding with minor epidote filling small fractures; (75.12-75.14) reddish-brown skarn bed (garnet?)							
75.57	75.82	epidote skarn with minor quartz beds, some soft white beds (talc?) and actinolite							
75.82	76.20	calc silicate (tremolite-rich?) skarn with bands of quartz							
76.20	77.05	fine grained, dark green, epidote skarn with minor disseminated chalcopyrite especially from 76.49-76.56, mineralized section appears bounded by quartz veins; (76.59-76.69) brownish-red garnet-rich calc silicate skarn	30009	76.20	77.06	0.86	0.755	2.40	0.38
77.05	78.56	creamy white marble with light grey to dark green banding in places, some minor fractures filled with quartz							
78.56	87.11	thinly bedded calc silicate (tremolite?) skarn with light green (diopside?) to dark green (actinolite) to dark grey banding; (78.58-79.08, 79.90-80.30) sections pitted and having black mineral specks, some intermixing with marble; (80.40-80.75) less siliceous, small splashes of pyrrhotite; (84.29-84.31) black band containing small specks of pyrrhotite; (at 85.00) blackish band containing very minute specks of pyrrhotite and chalcopyrite; (at 86.32) blackish band containing very minute specks of sulphide minerals							
87.11	87.31	finely banded black mica schist							
87.31	89.91	well banded, medium to light green actinolite-epidote calc silicate skarn, some quartz as bands and infilling fractures; occasional pyrite as coating on fracture planes, some very small splashes of chalcopyrite (<0.5%), black mica schist beds (3-8cm in width) increasing towards end of section; (89.59-89.72) very light chalcopyrite mineralization (disseminated) to larger blebs of chalcopyrite intergrown with pyrrhotite (associated with epidote-rich calc silicate skarn following mica schist bed of 8cm width)							
89.91	92.14	fine grained dark green-brown green mica schist, section begins following a 5cm quartz band, pyrite on fracture faces, some bands of slightly siliceous material at times; (89.91-90.41) schist mixed with epidote calc silicate skarn, lightly mineralized with pyrrhotite and minor pyrite							
92.14	95.09	interbedded epidote skarn and mica schist, minor pyrite disseminated in skarn and on fracture planes, minor disseminated chalcopyrite in epidote-rich calc silicate skarn and infilling fracture	30010	93.82	94.88	1.07	0.069	2.06	0.25
95.09	96.65	black mica schist with light green bands (epidote/diopside?), minor splashes of pyrite							
96.65	97.40	epidote-rich calc silicate skarn; (96.96-97.40) interbedded with mica schist, pyrite and chalcopyrite observed surrounding carbonate filled fractures and within carbonate filled fractures, one band of pyrite observed to be 0.5cm in width, alteration at end of section	30011	96.60	97.38	0.78	0.034	0.69	0.06

[illegible]	100.16	black mica schist; (98.08-98.38) quartz vein running length of core (0.5cm in width); (98.39-98.93) mottled appearance (calc silicate skarn intermixed with schist), quartz filled fractures running parallel to the length of the core, minor specks of pyrite, pyrrhotite in calc silicate skarn						
100.16	100.90	medium green (epidote-rich?) calc silicate skarn and mica schist (biotite-rich), speckled appearance; (100.49-100.51) calcite vein with stringers						
100.90	101.25	light yellowish-green (diopside-rich?) calc silicate skarn, at times having a spotty texture; (101.07-101.10) band of turquoise-green mineral (serpentine?); (101.10-101.25) chalcedony zone						
101.25	104.83	dark green (actinolite?) skarn with light to medium pyrrhotite and chalcopyrite mineralization, appears to be concentrated as small splashes of disseminated material (somewhat as bands), some areas with quartz and dark mica schist bedding; (101.25-101.28, 102.10-102.20, 103.09-103.17) creamy yellow-greenish zones with quartz filling fractures (alteration zones?); (at 103.84) sections becoming lighter in colour (more siliceous) and micaceous beds increasing in number; (104.24-104.74) speckled and mottled appearance, mixture of diopside/actinolite/epidote calc silicate skarn, mica schist	30012	101.24	103.02	1.78	0.446	5.49	0.32
			30013	103.02	104.18	1.16	0.137	2.74	0.33
104.83	105.16	thinly bedded, more siliceous calc silicate skarn with very minor interbedded schists (initial 5cm mica schist)							

END OF HOLE