

CORDILLERAN ENGINEERING LIMITED — DIAMOND DRILL RECORD

630690

94E

PROPERTY Spartan

HOLE No. DDH 5-1

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

Core Size BQ  
 Angle of Hole -58°  
 Claim #19  
 Section  
 Bearing

Total Depth 491 FT.  
 % Recovery 80%  
 Elev. Collar 5000'  
 Latitude  
 Departure

Sheet No. 1 of 7  
 Logged by T.E. KALNINS  
 Date Begun Sept 11 / 69  
 Date Finished Sept 16 / 69  
 Core Stored At Toodoggone L.

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE
0-40'	39'2" (46' casing)	Highly fractured rock		
40'-46'	5'	& broken core. Fractures		
46'-50'	3'	25° to core, sub-parallel,		
50'-51'	6"	60° to core & many others less		
51-58	5'	prominent. Fractures contain		
58-60	1'6"	pyrite stringers, minor quartz,		
60-61	2"	epidote alteration & dissemi-		
61-66/6	1'	nated pyrites (mostly in dark		
66/6-70/6	3'	minerals) near fractures. Specs		
70/6-74/6	2'	of magnetite make the rock		
74/6-78	10"	lightly magnetic throughout		
78-81	1'	fracture. The rock is light grey porphyritic		
81-85/6	6"	93' - end of box 1 mostly plagioclase, some pink ortho.	2287	5'
85/6-89	1'6"	84/6-89/6 - light Mo S <sub>2</sub> in 25° & 60° fractures with		
89-91	7"	pyrite in quartz stringers. altered to pale green with		
91-93	1'	indistinct boundaries.		
93-97	6"	The rock progressively (from 90' on)		
97-98	0	contains more K feldspars		
98-99/6	4"	less alteration, less pyrite, but		
99/6-102	0	more qtz & calcite stringers,		
102-107	0	coreing is better. The 60° fract.		
107-115/6	0	109' - end of box 2 are dominant.		

(107-111-115/6)

# CORDILLERAN ENGINEERING LIMITED — DIAMOND DRILL RECORD

 PROPERTY Spartan

 HOLE No. DDH S-1

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

Core Size <u>BQ</u>	Total Depth <u>491 FT</u>	Sheet No. <u>1</u> of <u>  </u>
Angle of Hole <u>  </u>	% Recovery <u>  </u>	Logged by <u>T.E. KALNINS</u>
Claim <u>  </u>	Elev. Collar <u>  </u>	Date Begun <u>  </u>
Section <u>  </u>	Latitude <u>  </u>	Date Finished <u>  </u>
Bearing <u>  </u>	Departure <u>  </u>	Core Stored At <u>Toodoggone L.</u>

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
0-40'	39'2" (46' casing)	Highly fractured rock						
40-46'	5'	& broken core. Fractures						
46-50'	3'	25° to core, sub-parallel,						
50-51'	6"	60° to core & many others less						
51-58	5'	prominent. Fractures contain						
58-60	1'6"	pyrite stringers, minor quartz,						
60-61	2"	epidote alteration & dissemi-						
61-66/6	1'	nated pyrite (mostly in dark						
66/6-70/6	3'	minerals) near fractures. Specs						
70/6-74/6	2'	At 70/6 few flakes of dendritic native Cu in pyritic						
74/6-78	10"	fracture. of magnetite make the rock						
78-81	1'	lightly magnetic throughout						
81-85/6	6"	83' - end of box 1 The rock is light grey porphyritic						
85/6-89	1'6"	84/6-89/6 - light MoS <sub>2</sub> mostly plagioclase, some pink ortho	2287	5'				
89-91	7"	in 25° & 60° fractures with minor dark minerals. X-Is are						
91-93	1'	altered to pale green with indistinct boundaries.						
93-97	6"	pyrite in quartz stringers						
97-98	0	The rock progressively (from 90' on)						
98-99/6	4"	contains more K feldspars						
99/6-102	0	less alteration, less pyrite, but						
102-107	0	more Qtz & calcite stringers,						
107-115/6	0	coring is better. The 60° fract.						
		109' - end of box 2 are dominant.						

(107-111-115/6)

# CORDILLERAN ENGINEERING LIMITED — DIAMOND DRILL RECORD

PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No. 2 of 7  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
115/6-119/6	0	Flesh colored, fine-grained acidic rock, fine qtz stringers in fractures which are also occasionally coated with a shaly substance. There is chlorite (pale green) in fractures & altered grains in core. The rock is lightly magnetic.						
119/6-123/6	6"	At 120' to 123/6 the rock grades into a darker altered (chloritic) <del>monzonite</del> <sup>latite</sup> -andesite. There is 3" width of gauge material at 123'. Core well broken.						
123/6-124/6	2"	Rock grades into flesh colored monzonite, chloritic,						
124/6-130	0	light pyrite, dominant fract. 60° to core, moderately broken (every inch - 2 inches), lightly magnetic.						
130 - 132/6	4"	" " " (131/10 end of box 3).						
132/6-138	0	Rock as above - chloritic, numerous						
138-141	0	very thin fractures. Core mainly breaks						
141-143/6	4"	at 60° to the incl. of hole. Core is more						
143/6-148	0	broken at 143-143/6; 149-150;						
148 - 150	0	152 - 153.						
150-152	0	153/8 - end of box 4						
152-154/6	0							
154/6-155	0	✓						
155-159	2'	Light MoS <sub>2</sub> in thin qtz filled fracture @ 60° to core.	2288	156-161				
159-161	1'							

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PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No..... of.....  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
115/6-119/6	0	Flesh colored, fine-grained acidic rock, fine qtz stringers in fractures which are also occasionally coated with a shaly substance. There is chlorite (pale green) in fractures & altered <del>quartz</del> in core. The rock is lightly magnetic.						
119/6-123/6	6"	At 120' to 123/6 the rock grades into a darker altered (chlorite) <del>monzonite</del> <sup>latite</sup> andesite. There is 3" width of gauge material at 123'. Core well broken.						
123/6-124/6	2"	Rock grades into flesh colored monzonite, chloritic,						
124/6-130	0	light pyrite, dominant fract. 60° to core, moderately broken (every inch - 2 inches), lightly magnetic.						
130 - 132/6	4"	" " " (131/10 end of box 3).						
132/6-138	0	Rock as above - chloritic, numerous						
138-141	0	very thin fractures - core mainly breaks						
141-143/6	4"	at 60° to the incl. of hole. Core is more						
143/6-148	0	broken at 143-143/6; 149-150,						
148-150	0	152-153.						
150-152	0	153/8 - end of box 4						
152-154/6	0							
154/6-155	0							
155-159	2'	Light MoS <sub>2</sub> in thin qtz. filled fracture @ 60° to core.	2288	156/151'				
159-161	1'							

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PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No. 3 of 7  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
161-170	6'	From 156 - 191 the rock is greyish porphyritic monzonite with increased plagioclase content, pyrite stringers & light MoS <sub>2</sub> ? associated with qtz. stringer.						
170-174	2'							
174-180	1'							
180-189	3'6"							
189-191	0	(191-end of box 5) at 156' & 190' very broken core.	2289	186-191				
191-197	1'							
197-206	7'	Rock as above. to 241'						
206-213	5'	Trace MoS <sub>2</sub> ? at 193' & 206'						
213-215	1'6"							
215-221	1'6"	Fault zone (sub-parallel to core?) with high chlorite & kaolin & pyrite content. Clayey feel						
221-223	1'6"							
223-225	1'6"							
225-228	2'							
228-230/6	1'6"							
230/6-233	1'6"							
233-239	4'							
239-241	6"	241 - end of box 6.						
		Note: magnetism increases with increase in pyrite content - fracturing & odd trace of MoS <sub>2</sub> (possibly fine galena)						

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PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

Sheet No..... of.....  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
161-170	6'	From 156-191 the rock is greyish porphyritic monzonite with increased plagioclase content, pyrite stringers & light $MoS_2$ ? associated with qtz stringer.						
170-174	2'							
174-180	1'							
180-189	3'6"							
189-191	0		(191-end of box 5) at 156' & 190' very broken core.	2289	186-191			
191-197	1'	Rock as above. to 241'						
197-206	7'							
206-213	5'		Trace $MoS_2$ ? at 193' & 206'					
213-215	1'6"							
215-221	1'6"	Fault zone (sub parallel to core?) with high chlorite & kaolin & pyrite content. Clayey fault						
221-223	1'6"							
223-225	1'6"							
225-228	2'							
228-230/6	1'6"							
230/6-233	1'6"							
233-239	4'							
239-241	6"	241 - end of box 6.						
		Note: magnetism increases with increase in pyrite content - fracturing & odd trace of $MoS_2$ (possibly from galena)						

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HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No. 4 of 7  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
241-247	4'6"	Highly chloritic rock with pyrite cubes and trace MoS <sub>2</sub> . Broken.	2290	241-247				
247-251	3'	Highly broken						
251-258 1/6	3'	" " Core from 241 to 278 is						
258 1/6-259 1/6	2'	" " highly broken, grey fine grained						
259 1/6-261	6"	" " to porphyritic, altered, with approx.						
-263	0	Broken. equal K-feldspars & plagioclase,						
-264	6"	" some chlorite, thin x fractures, mineral						
-269	0	" qtz. Pyrite in fract. dominant @						
-275	2'	" 60° & ~20° to core as before. Core is						
-282	3'	" (278-end box 7) lightly magnetic. From 275' there is again a color change to K-feldspar light brown.						
282-291	0	Moderately broken, good coring						
-299	0	Syenite-monzonite, moderately fractured,						
-300	0	brownish color (K-feldspars) qtz in thin fract.						
-301 1/6	6"	Some chlorite & epidote alteration						
-304 1/6	6"	(303'-end box 8)						
304 1/6-307	0	"						
-310	6"	"						
-314	0	317 1/6-320 1/6 fine-grained dark grey "clean"						
-316	0	andesite dike						
-320	0	"						
-326	1'	(326' end box 9)						

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DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No..... of.....  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
241-247	4'6"	Highly chloritic rock with pyrite cubes and trace $MoS_2$ . Broken.	2290	241-247				
247-251	3'	Highly broken						
251-255 1/6	3'	" "						
255 1/6-258 1/6	2'	" "						
258 1/6-261	6"	" "						
-263	0	Broken.						
-264	6"	"						
-269	0	"						
-275	2'	"						
-282	3'	" (278 - end box 7) lightly magnetic. From 275' there is again a color change to K-feldspar light brown.						
282-291	0	Moderately broken, good casing						
-299	0	Syenite-monzonite, moderately fractured						
-300	0	brownish color (K-feldspars) qtz in thin fract.						
-301 1/6	6"	Some chlorite & epidote alteration						
-304 1/6	6"	(303' - end box 8)						
304 1/6-307	0	"						
-310	6"	"						
-314	0	317 1/6-320 1/6 fine-grained dark grey "clean"						
-316	0	andesite dike						
-320	0	"						
-326	1'	(326' end box 9)						



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PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No. 5 of 7  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
326-331	0	Good coring, broken at 1/2"-2" intervals; brownish syenite-monzonite, ~ 60% K-feldspar (brownish) 20% light grey to pale green grains add porphyritic appearance (altered plagioclase?), 20% scattered dark minerals. Thin occasional qtz & calcite filled fract. -vertical, 60°, 20° to core.						
331-336	0	✓	✓					
336-340	0	Same rock is slightly more broken and has increased epidote content in fractures and altered dark minerals.						
340-345	0	✓	✓					
345-349 1/6	2'6"	Highly broken core around 345'. Rock is well altered, greenish-grey from epidote & chlorite throughout the rock, marked decrease in the brownish K-feldspars. Core in this box has negligible pyrite content. End of box 10						
349 1/6-355	0	Moderately broken (1"-3") good coring. Epidote in thin fractures & rock. Brownish K-feldspar phenocrysts in darker brownish-grey matrix. A 3" fine-grained, grey (dark) zone - possibly a small dike at 354'						

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PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No..... of.....  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
326-331	0	Good coring, broken at 1/2"-2" intervals; brownish syenite-monzonite, ~ 60% K-feldspars (brownish) 20% light grey to pale green grains odd porphyritic appearance (altered plagioclase?), 20% scattered dark minerals. Thin occasional qtz & calcite filled fract. -vertical, 60°, 20° to core.						
331-336	0	✓						
336-340	0	Same rock is slightly more broken and has increased epidote content in fractures and altered dark minerals.						
340-345	0	✓						
345-349 1/6	2'6"	Highly broken core around 345'. Rock is well altered; greenish-grey from epidote & chlorite throughout the rock, marked decrease in the brownish K-feldspars. Core in this box has negligible pyrite content. End of box 10						
349 1/6-355	0	Moderately broken (1"-3") good coring. Epidote in thin fractures & rock. Brownish K-feldspar phenocrysts in darker brownish-grey matrix. A 3" fine-grained, grey (dark) zone - possibly a small dike at 354'						

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PROPERTY.....

HOLE No.....

DIP AND AZIMUTH TEST		
Corrected		
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No. 6 of 7  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
355-360	0	Increase in calcite filled thin x cross fractures which in addition contain pyrite, decrease in epidote. The rock is medium grained, brownish, with light colored (greenish grey) alteration spots with indistinct boundaries giving the rock porphyritic appear.						
360-365	0	✓						
365-370	0	✓						
370-375	0	372 - end of box 11						
375-380	0	✓						
		A 2" wide concentration of quartz, pyrite & epidote of 20° to core. Other dominant fractures are at 60°.						
380-391	0	As above 380'. Good coring.						
391-401	0	✓						
		395' end box 12.						
401-411	0	} As above. 401 - 413 the rock is brecciated with increased calcite & pyrite, probably, a fault zone. Gauge material at 410' and 411/6						
411-421	0							
		416 - end of box 13.						

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DIP AND AZIMUTH TEST		
		Corrected
Footage	Angle	Azimuth

 Core Size.....  
 Angle of Hole.....  
 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No..... of.....  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
355-360	0	Increase in calcite filled thin x cross fractures which in addition contain pyrite, decrease in epidote. The rock is medium grained, brownish, with light colored (greenish grey) alteration spots with indistinct boundaries giving the rock porphyritic appear.						
360-365	0	✓		✓				
365-370	0	✓		✓				
370-375	0	372 - end of box 11		✓				
375-380	0	✓		✓				
		A 2" wide concentration of quartz, pyrite & epidote at 20' to core. Other downward fractures are at 60'.						
380-391	0	As above 380'. Good caving.						
391-401	0	✓		✓				
		395' end box 12.						
401-411	0	} As above. 401 - 413 the rock is brecciated with increased calcite & pyrite, probably, a fault zone. Gauge material at 410' end 411/6						
411-421	0		416 - end of box 13.					

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 Core Size.....  
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 Claim.....  
 Section.....  
 Bearing.....

 Total Depth.....  
 % Recovery.....  
 Elev. Collar.....  
 Latitude.....  
 Departure.....

 Sheet No. 7 of 7  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
421-431	0	} Good coring, - up to 3" long. Rock is well fractured but cemented by numerous calcite & pyrite stringers. Texture is a porphyritic monzonite (~ 50-50 K-feldspars & plagioclase), altered, with increased chlorite content giving the core a greenish tinge. At 435' there is a light concentration of hematite in fractures. The rock is lightly magnetic. 438' - end of box - 14.						
431-441	0							
441-451	0	" "						
451-461	0	" "	2291	456-460				
		is more fractured - brecciated in this section with pyrite throughout. i.e. 447' - 461' 460' - end of box 15.						
461-471	0	Rock is as above with some increase in epidote content. Light $MoS_2$ ? in fract. at 462	2292	461-466				
			2293	466-471				
471-481	0	One blob of chalcopryrite at 462/6 & 471	2294	471-476				
			2295	476-481				
481-491	0	End of DDH 5-1	2296	481-486				
			2297	486-491				

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 Sheet No..... of.....  
 Logged by.....  
 Date Begun.....  
 Date Finished.....  
 Core Stored At.....

DEPTH	CORE LOST	DESCRIPTION	SAMPLE No.	WIDTH OF SAMPLE				
421-431	0	} Good coring, - up to 3" long. Rock is well fractured but cemented by numerous calcite & pyrite stringers. Texture is a porphyritic monzonite (~50-50 K-feldspar & plagioclase), altered, with increased chlorite content giving the core a greenish tinge. At 435' there is a light concentration of hematite in fractures. The rock is lightly magnetic. 438' - end of box - 19.						
431-441	0							
441-457	0	" "						
457-461	0	" "	2291	458-460				
		is more fractured - brecciated in this section with pyrite throughout. ie. 447' - 461' 460' - end of box 15.						
461-471	0	Rock is as above with some increase in epidote content. Light $MoS_2$ ? in fract. at 462	2292	461-466				
			2293	466-471				
471-481	0	One blob of chalcopyrite at 462/6 & 471	2294	471-476				
			2295	476-481				
481-491	0	End of DDH 5-1	2296	481-486				
			2297	486-491				