

Latitude 19825N
 Departure 23450E
 Elevation 260M A.S.L.
 Dip at Collar . . -50.5°
 Bearing 140° T
 Total Dept . . . 347.8m
 Remarks Core at Buchans core shack
 (no assays made)

Noranda Exploration Company, Limited
 DIAMOND DRILL CORE LOG

Tests	Dip	Magnetic	Corrected
Depth		Bearings	Bearings
Tropari 343.2m	34°	186°	162°T
Acid 182.9m	43°		

Project No. . . 4752

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 Hole No. . . . CP-93-1

Property. . . . Connell Pros
 NTS. 12A/15
 Date Started. . 93/10/25
 Contractor . . . Longyear
 Logged by. . . . Gerry Squires

Grid Name. . . . Connell
 Completed. . . . 93/11/01

Depth & Lithology	Description	Alteration	Mineralization	Remarks
0.24m	Overburden.			Note: All "tuffs" in-hole are waterlain and generally exhibit fining upwards sequences (coarse tuff-fine tuff-siltstone-chert). Parts of sequences frequently absent. Tops up-hole
2.4-41.0 Crystal Tuff	Dark green-brown, mottled alteration. Medium grained tuff. Massive to rarely banded (85-90°ca). Consists of 5% qtz xals and 15-20% white k-spar and red and green altered plagioclase, many of which are broken. These crystal 1-3mm sized with probably many more which are finer grained and marked by alteration. (Only banding in unit is where .5-1.0cm zones of chl alteration dominate over sericite in matrix. Possibly original bedding). Pale angular brown shards (?) at 22.6m. 29.0-41.0 unit appears finer grained with frequent 80-90° .5-1.0cm chl-rich colour bands.	Moderate pervasive sericite and silica (rock fairly hard) Weak matrix chlorite Numerous hairline quartz veinlets (<1% of rock) along which rock is commonly broken (blocky core)	none	
41.0-43.2 Crystal tuff with sediment clasts	As above unit but contains 5% 1cm to 5cm sub-angular dark green chert clasts of underlying unit. Base sharp at 80°c.axis. Chert fragments indicate erosional contact with underlying sediments and that tops are up in drill hole.	As above	None	
43.2-57.6 slst-chert (minor ash tuff?)	Prominently laminated siltstone and chert. Laminae and bands vary from 2mm to 30cm and in color from dark to light green, yellow, and dark to light brown. Bedding 80-90° ca. Minor slump folding and cross laminate (tops up). Frequent up to 1cm qtz-sericite alteration spots cut laminae at 44.4-46.5m.	Frequent wk yellow sericite Intense ser at 49.9-50.1 but still laminated		
				-core blocky at 46.7 to 50.6 (no fault though) -ash-lapilli tuff at 52.0-53.0 as in 2.4-41.0 but finer

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
57.6-65.1 Lithic-lapilli tuff (reworked)	Unit is reddish green and generally grades from silty at top to coarse (1-2 cm clasts at base). Top is gradational with overlying sediments. Overall unit unbedded lapilli tuff with abundant angular fragments primarily of black qtz-fsp porphyry and red qtz fsp porphyry (rhyolitic) making up coarse (generally 2-10mm) fraction (~30% of rock) with matrix being of similar composition. Dark green and brown 1-2cm siltstone frags in top part of unit (upper 1m). Last 1.5m is very coarse (90% .5cm-2cm fragments) and contains abundant angular scoriaceous rhyolite(?) fragments consisting of 10-50% amygdaloids of qtz. These frags are reddish and green and locally fsp porphyritic. Note: This unit very similar to tuffs at 2.4-41.0 but less altered. Pink fsp in that unit could in part be rhy porphyry frags.	Wk pervasive carb and ser Minor hematization gives reddish color	Trace py as two widely spaced .5cm clots (m.g.)	64.1-64.8 chloritic fault gouge Note: Driller tags 62.5-65.5 (3.0m) are on ends of 4.2m of core ie tagging error so measurements in this interval are approximate
65.1-93.0 Chert and siltstone	65.1-79.0 unit is dark grey-green, frequently laminated at 70-85° to core axis. Upper contact sharp. Ashy tuff beds make up ~5% of unit. At base of these tuff beds chert frags commonly are incorporated from underlying sed. 79.0-93.0 slst chert as above but olive green in color suggesting some alteration. Local ash tuff beds also (olive). Base gradational. Lower contact at first appearance of mm-sized clasts (fsp).	Tuff beds contains wk pervasive carb Wk pervasive sericite? Gives green color Wk pervasive carb	None	
93.0-98.3 Lapilli tuff	Top gradational. Unit is a light medium green tuff, sandy-coarse sandy. Base sharp with underlying siltstone. Unit is massive (unbedded) coarsening down hole. Contains 1-5mm fragments, angular, consisting of white and red fsp xals (10-15%), black glass shards or rhy frags (now chl -5%), light green px + plag± qtz porphyry 5-15%. No scoria as in other tuffs, but "looks" similar.	Wk-mod matrix sericite Wk chl as "shards" and in matrix Wk carb Rock textures very pristine	Trace py coatings on fractures	
98.3-107.2 siltstone (minor tuff)	Black to medium green interlaminated siltstone(70-80°C). Minor 1cm to 30cm fine sandy (grey) tuff (?) interbeds which locally grade into siltstone.	Local 2-5cm chlorite-rich beds of siltstone Medium green beds very soft (sericitic?)	Trace py as rare clasts, fracture coatings and disseminations	
107.2-108.6 Broken core zone cherty	50% core recovery. Dark grey-brown cherty unit (siliceous) which is fault brecciated and sealed by numerous milky quartz veinlets. Banding rare (107.3=80°C).	5-20% qtz veinlets in fault breccia matrix	None	

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
108.6-109.5 Chert	Dark brown, well banded at 45°ca throughout. Hard, cherty. May be same as above unit. Badly broken on qtz veinlets but core recovery good and no fault breccia. Note: Change in core angles may be significant in determining nature and magnitude of above poor core recovery zone.	<5% qtz veinlets	Trace py on fractures (qtz veinlets)	Broken core @ 109.0-109.5
109.5-113.0 Sericitic tuff? ± siltstone (possibly repeats by folding or faulting)	Generally light green, varying from banded siltstone (darker green-less altered @110.7=45°ca, @111.5m=20°ca) to lapilli tuff? 109.5-110.2 Lapilli tuff, 5% obvious less sericitized .5-1cm angular fragments of porph rhy in a strongly sericitized matrix of qtz and fsp xal frags (1-2mm) and sericite. One 1cm banded slst fragment at 109.9 (ripup clasts). 110.2-111.2 slst. 111.2-111.4 as at 109.5-110.2 (tuff) sericitic. 111.4-111.8 med green slst (111.7=10°ca bedding). 111.8-113.0 sericitic lapilli tuff (as at 109.5-110.2).	Lapilli tuffs strongly sericitized	Trace py	Rubbly broken core @ 111.5-111.8, 112.7-113.0
113.0-114.3 Fold Nose? in siltstone	Dark grey-brown siltstone with banding 0-5°ca. Top of zone (contact with tuff) may be shear truncated at 45°ca over 1cm. Base of zone marked by disappearance of banding (114.2m faint banding at 20°ca).		None	
114.3-132.9 slst - chert (soft)-(hard)	Dark grey brown as in above unit and at 107.2-109.5 also dark green. Banded 114.4=15-20°ca, 115.0 45°ca, 117.3=60°ca. Beyond 117.3=70-80°ca. Minor lapilli tuff locally. 80% of unit is weakly carbonatized (easily scratched) siltstone, called chert where can't be scratched. 114.3-117.3 identical to 107.2 to 109.5 (brown to white cherty bands). Could be monoclinial fold repeat.	Siltstone weakly carbonatized Minor qtz veinlets	Trace diss py locally	
132.9-135.7 Colourful lapilli tuff and chert	Interlaminated medium grey and black chert bands (80°ca) constitute most of unit. However, colourful felsic lapilli tuff beds make this interval distinctive. They are interbedded with the chert suggesting cyclic volcanism or debris flow activity and consist of 0.5-2cm flame (flame like), sericitic (100%) shards (lime green and rose coloured) and pink aphyric and grey qtz-feldspar porphyritic rhyolite fragments. Above constitute 15-30% of bed components and are suspended in a sandy dark grey to black weakly sericitized matrix of similar composition which also contains 10-15% 2-3mm qtz and fsp crystals and crystal fragments. Colourful beds at 132.9-133.2, 134.6-135.5 (show fining upwards sequence), 135.6-135.7. ditto.			This unit distinctive May correlate with colourful tuff in RI 2 and 3 above Connell horizon chert

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
135.7-138.5 Chert	Regularly interlaminated med green-dark grey. Very minor sandy laminae. Red chert at 138.2-138.4. Banding 80-85° c.a.			
138.5-139.4 Colourful lapilli tuff	Similar to 132.9-135.7 but sandy (<5mm frags) and reddish overall. Some banding at 80-90°ca.	Wk reddish sericite		
139.4-147.9 Chert	Med to dark brown, laminated 60-70°ca. Minor sandy interbeds. Red chert at 139.4-139.5, 143.5-143.6.			
147.9-149.4 Ash-lapilli tuff (graded- banded)	Med green fining upwards crystal lithic tuff unit. Fragment 3 to 4mm at base, silty at top with minor chert interlaminae or fragments in med grained center. Containing 50% altered angular (cream) fsp xals and fragments, ~10% or less clear qtz xals visible in coarse base. Obviously reworked (banded-graded).	Mod pervasive sericite		
149.4-154.1 Interbedded tuffs and cherts	149.4-150.0 Black (hard) massive chert (top sharp). 150.0-150.7 interbedded chert (brown 60°ca) and sandy xal tuff injected by colourful "dykes" of sandy pinkish tuff. (Messy unit, broken up). 150.7-154.1 ashy to fine lapilli tuff interbeds (sandy fsp rich again) graded, bedded locally at 70-85°ca). Most of unit fine ashy and mottled sericitic.	None Wk sericitic Moderate sericitized and carbonatized		
154.1-157.5 chert(minor tuff, red chert)	Indistinctly banded dark green, dark grey and red cherts (70-80°ca) with local "kaolinitic" and sericitic bands and "veins". Med-dark green ashy tuff at 156.0-156.4. Red chert 5-10cm bands at 156.5-157.5 (40% of interval). Bottom contact irregular with 1cm fragments of dark green chert from previous unit in coarser part of "underlying" tuff unit. Rip up clasts of chert and coarser matrix of next unit at its "beginning" suggests sequence may be overturned (ie tops down).	Tuff moderately sericitized as well as "veins" Mod per ser and carb		
157.5-160.0 Coarse ash tuff	Medium to dark green, granular, weakly banded @ 40°ca (parting?) in top 40cm. Grains ~1-2mm of fsp-ser-qtz.carb, banded 70°ca at 159.3. At 159.3-159.4 ~10% angular QFP fragments up to 1cm with black sericitic groundmass are suspended in a fine sandy matrix containing 2 fsp types and qtz xals, suggests unit felsic derived. Last 10cm gougy (fault?).			
160.0-161.7 Chert	Massive, dark brown-dark grey. 160.1-160.4 flesh coloured, sucrosic (outside chance this is a dyke). Sericitic fractures suggests clay component or (outside chance) rhyolite.			
161.7-163.4 Lapilli tuff ("Arkose")	Unit is med grey, siliceous, massive and grades from fine sandy to coarse sandy (2-3mm) at base (ie tops up). Clots of coarse sericite begin at 162.5 (.5-1cm). Abundant fragment of qtz and fsp with shards. Few fines suggest winnowing or washing. Fragments fairly angular.	Moderate sericitic as coarse 1cm clots below 162.5		

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
163.4-164.1 Chert	As in 160.0-161.7.			
164.1-168.0 Pebbly "arkose"	As in 161.7 but coarser with obvious sub angular reddish and grey rhyolite fragments. Grain size 3-5mm avg. Base sharp 85°c.a.	Moderate sericite as 1cm and greater coarse overprinting "clots"		
168.0-172.5 Chert and ash tuff	Most of unit is massive to banded (80-90°c.a.) dark grey chert. (169.0-169.3 fine lapilli to ash tuff, graded tops up hole). Beyond 170.0 unit probably ashy tuff.			
172.5-176.0 Lapilli tuff (arkose)	As in above arkoses. Massive. Coarsens down hole from 1-2mm grains to 2-5mm grains. Med grey 2-3% chloritic wisps (shards?) up to 2mm x 1cm 90°c.a.	Weak "matrix" sericite.		
176.0-179.3 Chert and ash tuff	Dark grey, frequently laminated (70-80°c.a.). Looks cherty overall but some granular and softer areas. Base marked by 85° c.a. qtz chl vein (3-5mm) which marks beginning of rubblely chl (blue-green) fractured core.			
179.3-182.0 Chert and siltstone (foldnose?)	Light to medium grey chert and siltstone with some sericite bands. Core angles undulate from 0-30°c.a.	Bluish chlorite on fractures. Some sericitic silty beds (1-2cm wide)		
182.0-186.9 Chert (siltstone)	Med grey massive locally laminated at 60°c.a. Where weakly carbonatized, called siltstone.	Local weak pervasive carbonate. Locally bleached flesh coloured	184.0-184.3 chloritic laminae contain 1% fg diss py. Also several hairline fractures (chl) with specks of gn or chalcocite	
186.9-187.9 Lapilli Tuff	Med dark grey with 15-20% black chlorite shards (3mm x 1cm average) at 80°c.a. Coarse sandy with abundant subrounded grey aphyric rhy frags qtz and fsp xals. Base sharp at 70°c.a.			
187.9-190.0 Siltstone (chert)	Medium grey-green frequently laminated. Top 20cm massive chert (188.1-188.3 banded 60-80°c.a., 188.3-189.5 banded 30-40°c.a., 189.5-190.0 60-70°c.a.).			
190.0-191.0 Massive siltstone/ash tuff	As above but slightly coarser grained and generally unbedded. Some lapilli (2-3mm) sized grey rhyolite fragments.		190.8-190.9 trace py/cpy veinlets	
191.0-193.2 Fine lapilli tuff	Same unit as above but mostly contains lapilli sized (2-3mm) rhyolite fragments (191.3m-ashy banding at 90°c.a.) (193.2m-ashy banding at 70°c.a.).		Trace fg diss py	

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
193.2-194.6 Lapilli tuff	Coarser part of above sequence. Fine lapilli matrix with 10-15% coarse lapilli sized (3 mm - rarely 1-2 cm) rhy frags (aphyric). Last 20 cm fine lapilli sized with 80°C.a. banding. Base sharp at 80°C.a.		Last 1cm trace 1% cpy smears on chloritic parting planes 194.2 smeared bluish metallic (galena) on hairline shear plane (black streaks)	
194.6-195.9 Ore horizon chert(?)	Light grey massive chert. Base broken but may be 45°C.a.			
195.9-201.4 Fine lapilli tuff	Med grey. Abundant 1-3mm rhy frags. Some chlorite wisps (shards). Massive. Some banding 80°C.a. Base sharp at 75°C.a.			
201.4-224.1 Coarse sandy lapilli tuff	Light-medium grey. Yellowish where sericitic. 90% 2-5mm sub-rounded aphyric rhy clasts (some porphyritic). Local concentrations (3%) of fsp frags. Bed of med-dark grey-green lapilli tuff with 2-5% white feldspar fragments at 207.9-208.1.	Weak silicification Local patchy matrix sericite 0-3% chl patches (1-3mm) (void fillings/shards)	Rare stringer py at 216.4 218.0 trace disseminated py and galena in tuff matrix 224.0-224.1 10% buckshot py stringer with trace galena disseminations (possible trace sphalerite)	
224.1-251.4 Lapilli tuffs (thickly interbedded)	(1) 224.1-226.9 Med dark grey green, 1-3mm grain size, 3-5% obvious 1-3mm white fsp (kspcr) xals rhy fragments, 1-3% qtz xals. Some chlorite shards. (2) 226.9-228.0 coarse felsic lapilli tuff, crystals less obvious, rhy fragments dominate.	-Moderate matrix sericite and chl -Wk-mod sericite, strong sil overprint -Moderate matrix sericite -As in (2) -As in (1)	-Trace Py as dissemination and rare stringer -Nil -Trace py -Nil -Nil	
(Shear zone)	228.0-228.7 as in 224.1-226.9. 228.7-232.1 as in (2). 232.1-233.6 as in (1) 233.1-233.5 sheared at 45°C.a.(and gougy) sericite qtz along foliation plane.			
(Foliated ??)	233.6-240.5 as in (2). Clasts less distinct due to alteration 1-3% chl void fillings (formerly called shards) banding at 70-80°C.a. 239.2-243.7 as in (1) very dark grey, feldspars (k-span still white and particularly obvious. Unit looks incipiently foliated at 70-90°C.a. 243.7-247.3 as in (2) average rhy clast size 3-5mm. 247.3-251.4 as in (1) very dark green with >5% 1-2mm fsp. Looks foliated at 60-70°. fg mafic dyke with purplish chill margins at 248.7 (40°C.a. contact) to 250.4 (70°C.a. contact).	-Wk sericite -Moderate silicification -Strong sericite and chl strong chlorite Wk sericite matrix Strong chl ± strong ser	Nil Trace fg py stringer and dissemination Base sheared 45°C.a. Nil Trace py 251.0 single py stringers 3mm wide	

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
251.4-289.0 Medium grained lapilli tuffs	Medium grey to medium green. Entire interval is medium sandy (2-4mm) reworked lapilli tuff which however is variably altered. Fragments are mostly aphyric rhyolite. Local 1-2% feldspar concentrations. Very crude banding throughout at 70-90°C.a. Last 2m of unit slightly coarser 3-8mm with ~2-3% chl void fillings (more obvious in coarser unit?). Base sharp at 70°C.a.	siliceous at 251.4-261.2, 262.2-289.0. Mod sericite at 261.2-262.2. Local wk sericite overall 259.5-278.9 curious .3 to 1 cm white porphyroblasts overprint rock texture (now hard silica) Could originally have been carbonate spots (1-5% of rock) Also concentrated along fractures and associated with sericitic alteration	Single pyrite stringer at 261.1m	
289.0-290.1 Laminated ash tuff	Med grey-green, uniformly laminated at 70-80°C.a. Gradational base. Clastic component too fine grained to be determined.	Fairly siliceous	Nil	
290.1-292.5 Lapilli to coarse lapilli tuff	Coarsening of above tuff (290.1-290.5) to med lapilli sized. Remainder of unit relatively coarse to very coarse (.5-1.5cm). Unit overprinted with silica but angular pink porphyritic rhyolite clasts (first seen since top of hole) and chloritic shards(?) / void fillings are readily visible. Some quartz and fsp grains visible through silicification.	Moderate to strong silicification	Nil	
292.5-294.5 Ash tuff/slst	Med grey, laminated 70°C.a. 10cm of chert at top. Base gradational.		294.0-294.05 2% Py 1% cpy as hairline fracture in slst.	
294.5-297.5 Fine lapilli tuff	Coarse equivalent of above unit. Grains 1-3mm.			
297.5-304.3 Lapilli tuff	Med grey, 2-7mm rhy frags (grey) locally pink, qtz xals, 5-10% chloritic void fillings.	Wk-mod chl as void filling	Tr-1% diss fg py in matrix	
304.3-309.4 Chert	Dark grey-green, frequently laminated at 70-80°C.a. Top 1m very black chloritic (soft) (305.7-305.9, tuff as in 297.5-304.3, bounded by 10cm of black chl sed). Grades into ash tuff at base.			

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Depth & Lithology	Description	Alteration	Mineralization	Remarks
309.4-312.5 Lapilli tuff	Slightly reddish grey coarsening of overlying unit. 5-10% pink 1-5 mm rhy fragments obvious. Qtz crystals and other fragments of rhyolite (dark and light grey) apparent. Base sharp at 80° c.a. Chloritic void fillings rare and small.	Siliceous	Tr py	
312.5-313.3 Chert	As above chert. Top 30cm fairly chloritic. Gradational base. Weakly banded 60°c.a.			
313.3-315.9 Fine lapilli tuff	As in 309.4-312.5 but finer.			
315.9-315.95 Red chert band	60°c.a.			
315.95-318.5 Chert/ash tuff	As above chert 70°c.a. Becomes ash tuff down hole (gradational base).			
318.5-319.5 Lapilli tuff	Fine to m.g lapilli tuff, same as above tuffs (i.e. with reddish rhy frags).			
319.5-323.1 Fine to medium grained ash tuff	Gradational base, banding 60°c.a. dark grey-green.			
323.1-331.6 Med- coarse lapilli tuff	As in above red rhy fragment bearing tuffs. Minor chl void filling. Some grey-green chert fragment (up to 10cm). Possible small jasper fragments crude bandings at 70°c.a. Some possible shearing at 60°c.a. (modified bedding?).			
331.6-332.3 Chert ash/tuff	Top of fining upward sequence and grey green weakly laminated at 70°c.a.			
332.3-334.4 Coarse lapilli tuff	As above lapilli tuffs (red rhy frags). Contains several red and green chert fragments. This unit exhibits a pronounced flattening of fragments and weak foliation development at 60°c.a. Flat chloritic "fragments" may be shards or void fillings.			
334.4-336.0 Ash tuff (lapilli)	Med green ash tuff 60-70°c.a. with local lapilli tuff interbeds. Base gradational.			
336.0-347.8 Lapilli tuff	As above lapilli tuff with red rhy frags. Generally medium to coarse (some fine) grained (3-7mm). 2-5% black chl "shards/void fillings" define bedding which appears to be modified by shear stretching (clasts locally elongated). Dips fairly uniform at 60°c.a.			
347.8 EOH				