

NORANDA EXPLORATION COMPANY LTD.

Property	MULE CREEK	Started	June 18, 1985	FIELD CO-ORDINATES	SURVEYED CO-ORDINATES	DIP TESTS						NTS no.	104 P/15
Hole no.	MC-85-2	Finished	June 21, 1985	Lat. L11400N	Lat.	Depth	Bearing	Dip	Depth	Bearing	Dip	Project no.	378
Bearing	205°	Length	61.6	Dep. 10355W	Dep.							Logged by	S. Abercrombie
Dip - Collar	-50	Core size	BQ	Elev. 2920'	Elev.							Sheet	1 of 6
METRES		% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES			ASSAYS			
From	To						From	To	Length				
0	18.7	46		OVERBURDEN: 0.8 m of diorite, white rock hornblendes up to 1 cm in diameter 35%, plagioclase 45%, quartz 15%, traces biotite. 0.35 of altered mafic rock - rubble, clay, siltstone 18.3-18.7: Light gray rock - bleached gabbro? 18.4: Quartz vein 4 mm wide, 46° to core axis. Pyrite in wisps and blebs, wisps 2 cm in length. Foliation 37° to core axis.	pyrite 1%	70504	18.2	18.7	0.5				
18.7	23.1	68		BRECCIATED BLACK SHALE: Quartz rich, 50-50 black shale and quartz, angular shale fragments in quartz, fragments are up to 4 cm in length. Quartz also in stringers and in blebs 21.8: Quartz carbonate vein - contains graphite ribbons 5%, locally 50%, pyrite stringers and blebs (4 mm), quartz 45%, carbonate 55%. 19.5-19.8: Graphite rich, quartz poor 22.5-22.7: Graphite rich, quartz poor, very black	pyrite 1.5%	70505	18.7	21.7	3.0				
23.1	28.6	21.3		LAMINATED BLACK SHALE: Fine-grained black rock - lamination 29.1 m, 18° to core axis. - calcite veinlets 5% of rock, 0.5 mm in diameter. Pyrite fine-grained disseminated, 0.5 mm in diameter, few veinlets 1 cm in length. 28.6: Pyrite fine grained disseminated, wisps and blebs - graphite content 10% locally 25% 28.6: Tuff - green coloured, fine-grained; graphite at upper contact; mariposite green mineral, locally 5% of core; calcite blebs minor; quartz blebs up to 2 cm in length; pyrite disseminated 0.5 mm diameter stringers, veinlets; graphite ribbons, blebs 5%.	trace pyrite pyrite 1% py locally 5%	70506	21.7	27.7	6.0				
28.6	30.7	90		LAMINATED BLACK SHALE: From 28.6 to 28.8 laminations not fully developed; quartz patches and veinlets up to 1.5 cm in diameter, quartz 30% of rock, minor carbonate veinlets very narrow cut through the rock. Pyrite predominantly fine-grained and disseminated; graphite 25% ribbons locally from 28.8 to 30.7 m - laminations 28.8: 38° to core axis 29.1: 85° 30.2: 54° 29.4: 84° - core stringers, no orientation 5-10%; quartz 5% in blebs and veinlets	pyrite 1%	70507	27.7	30.7	3.0				

METRES		% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES			ASSAYS				
From	To						From	To	Length					
				- graphite locally 25%. Pyrite generally fine-grained and disseminated.	1% pyrite									
				30.1-30.7: pyrite more abundant, blebs and fine-grained disseminated, fine masses up to 1 cm in diameter, veinlets 0.5 mm in width, veins pyrite found in shale rarely in quartz.	2-3% pyrite									
				- rock fractures on graphite laminations.										
30.7	31.4	90		GREEN FELSIC VOLCANIC?: Green colour, almost pistachio coloured, very soft, sericite rich.		70508	30.7	31.4	0.7					
				- vein - calcite 25° to core axis, 1 mm wide; contains bright green blebs <1% of core; no visible sulphides.										
31.4	32.3	90		LAMINATED BLACK SHALE: Laminations										
				31.7: 32° to core axis										
				31.65: 49°										
				31.95: 41°										
				32.2: 50°										
				32.3: 34°										
				- laminations are folded. Calcite abundant as veinlets, 4 mm in width 10% of rock, don't follow laminations.										
				Pyrite generally conformable with lamination; where no lineations pyrite in blobs (3 mm) and is disseminated. Minor quartz. Quartz carbonate veins, veins contain brecciated fragments of shale up to 6 mm in diameter. Graphite locally 10% of rock, and rock fractures along graphite rich layers. Carbonate veins criss-cross, several stages of fracturing.	2-3% pyrite									
				32.0: Core very soft.		70509	31.4	35.4	4.0					
32.3	35.4	90		BLACK SHALE BRECCIATED:										
				32.3-33.0: Calcite rich shale, veinlets, blebs, fractured shale, blebs up to 1 cm in width, veins crosscut at different angles. Graphite locally 5% of rock. Pyrite fine-grained disseminated, py veinlets at 30° to core axis, blebs. Carbonate blebs contain quartz and carbonate 60%, quartz 40%, quartz and carbonate 30% of rock.	1-2% py									
				33.0-34.4: As above but less veining 10%. Graphite contents 10%. Pyrite veinlets 2 mm wide and parallel the quartz carbonate veinlets, some blebs and disseminated pyrite.	2-3% pyrite									
				34.4-35.0: Laminated Shale. Black graphite 20% of rock.										
				- laminations sometimes swirly										
				- at 34.9 m 56° to core axis, at 34.5 m 52° to core axis.										
				- veining predominantly quartz, minor calcite. Local quartz rich brecciated shale. Pyrite semi-conformable to lamination and is fine-grained and disseminated.	1% pyrite									
				35.0: Clay altered intrusive? Pale yellow clay, black or dark green soft hornblende 20%, pistachio green spots up to 2 mm in diameter, 1% of rock, mariposite?										
				35.1-35.4: Shale as in 33.0-34.4. Carbonate veining and blebs 10%. Graphite 5%. Pyrite 1 mm blebs.	1% pyrite									
35.4	36.3	90		AMYGDALOIDAL BASALT: Green brown colour, medium-grained. Amygdules up to 6 mm diameter, quartz and carbonate 5%. Calcite vein 36.2 m, 20° to core axis. Green mariposite blebs 2 mm diameter, 1% of rock.		70510	35.4	36.3	0.9					

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Property MULE CREEK

Hole no. MC-85-2

Sheet ...3...of....6...

METRES		% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES			ASSAYS				
From	To						From	To	Length					
				36.25-36.28: Altered, soft, like clay, trace biotite, pink spot (dolomite?) in quartz carbonate vein at 35.7 m. No visible sulphides.										
36.3	36.9	90		QUARTZ CARBONATE RICH SHALE: Quartz carbonate in form of veinlets and blebs. Rock fractured and quartz contains shale fragments. Quartz-carbonate 40% of rock. Pyrite - blebs, some euhedral, 2 mm in diameter, pyrite disseminated and fine-grained. Graphite 1-2%.	1-2% pyrite	70511	36.3	39.3	3.0					
36.9	37.3	95		LAMINATED BLACK SHALE AND SILTSTONE: Laminations 63° to core axis. Calcite vein 20° to core axis, some calcite conformable to lamination. Graphite 10%; siltstone 40% of rock. Pyrite generally conformable to lamination, also fine-grained and disseminated.	2-3% pyrite									
37.3	37.9	95		GRAY GREEN FELSIC VOLCANIC: Pale green colour; pistachio coloured mineral locally 20% of rock, avg. 5%. Quartz carbonate veins 1 cm wide, 49° to core axis; contain xenolith of black shale, 3.5 cm diameter, shale xenoliths contain 2-3% pyrite and 1% quartz.										
				37.5: Carbonate blebs 6 cm diameter, contain black shale xenoliths (79° to core axis). Carbonate upper contact 68° to core axis, lower contact 84° to core axis. Carbonate veinlets faulted. Pyrite disseminated blebs 2.5 mm diam. Minor graphite. Quartz vein 76° to core axis. 37.8 m.	5% pyrite									
37.9	42.1	95		LAMINATED BLACK SHALE: Laminations - 37.9: 70° to core axis 38.9: 44° 39.5: 58° 40.2: 58° 40.7: 72° 40.9: 79° 41.2: 55° 41.5: 73° 42.1: 46° - Quartz Carbonate Veins - 37.9: 2 mm wide 27° to core axis 39.0: 6 mm wide 27° 39.4: 4.5 cm wide 60° 39.7: 1 mm wide 61° 39.9: 3 cm wide 64° 40.7: 1 mm wide 54° and 12° 40.9: 2 mm wide 17° 41.4: 1 mm wide 23° 41.5: 1 mm wide 69° 41.7: 1 mm wide 45° - Core broken 38.1-38.4 graphite 10-15% locally 50% Pyrite follows laminations, few pyrite laminations predominantly disseminated parallel with and in quartz carbonate veins. Core broken 38.3-38.6. Calcite veins and veinlets 1 mm wide are at various angles.										
						70512	39.3	42.3	3.0					

METRES		% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES			ASSAYS			
From	To						From	To	Length				
				Calcite 10%; Graphite 50% locally, laminations <1 mm thick. 41.6: Upper contact green felsic volcanic 66° to core axis, lower contact 59° to core axis. 41.7: Upper contact 45° to core axis, lower contact 43° Felsic volcanic contains pyrite blebs 2 mm in width. Graphite at contact. - laminated shale and siltstone (20% of lamination). 38.9: Pyrite rich quartz carbonate vein	1-2% pyrite py 5% of vein								
42.1	43.7	95		QUARTZ CARBONATE RICH SHALE (BRECCIATED): Laminations destroyed by veining. Quartz carbonate locally 40% of rock, and contains angular shale fragments. Extremely graphite rich 60% locally. 42.9: Core extremely broken and fractured, graphite rich, some clay rich sections. Pyrite disseminated and fine-grained. 42.4: Green gray felsic volcanic. Graphite ribbons run through some of the veining. Quartz carbonate veining decreases down section.		70513	42.3	45.3	3.0				
43.7	44.8	85		LAMINATED SILTSTONE AND SHALE: Laminations swirly and irregular roughly trend 90° to core axis. Siltstone light gray 40% of rock. Veins 49° to core axis, quartz carbonate 50.2 44.6-44.8: Core broken. - graphite 30-40% of rock along fracture faces. Pyrite fine-grained disseminated and semi-conformable to the laminations.	2% pyrite								
44.8	46.6	95		QUARTZ CARBONATE RICH SHALE (BRECCIATED): Predominantly calcite rich, minor quartz. Quartz in blebs 4 cm x 8 mm 30% locally. Foliation 46° to core axis at 45.8 m. Graphite 20% of rock locally 50% pyrite fine-grained disseminated, some swirls and blebs (1 mm diam).	2% pyrite	70514	45.3	48.3	3.0				
46.6	53.2	88		LAMINATED SILTSTONE AND SANDSTONE: Some massive sections and some graphite rich sections. Laminations swirly at 48.9 m. 48.3: Greenish tinted volcanic? - Core broken 48.5 and at 47.9-48.1 m. Quartz Carbonate Veins 46.7: 2 cm 83° to core axis 46.9: 3 cm 82° 47.3: 1 cm 38° 48.5: Rubbly quartz carbonate - Siltstone light gray up to 3 cm in width. Graphite 15% of rock, rich at 47.8 m. Pyrite fine-grained and in some places blebs especially around quartz carbonate veins, few blebs 2 mm-1 cm in length, stretched out along the lamination <1 mm in width, pyrite laminations rare but where found parallel to the laminations, pyrite locally 3% rarely in quartz-carbonate veins. 49.4-49.7: Vein rich section 4 mm wide veins, quartz rich, minor carbonate 49.8-50.0: Clay rich section, yellow gray in colour, graphite at contact. 52.0-52.1: Quartz carbonate rich section like breccia.	2% pyrite	70515	48.3	53.3	5.0				

METRES		% Recovery	Graphic Log	DESCRIPTION OF UNITS	% Mineralization	Sample no.	METRES			ASSAYS					
From	To						From	To	Length						
				Graphite rich sections: 50.0-50.3, 50.8-50.9, 51.0-52.0, 52.4-52.7, 53.0-53.2 m. Rubbly core: 49.4-49.8, 50.6-50.9, 51.5-52.0, 52.0-52.7 m. Pyrite blebs 2 mm in diameter and found in quartz carbonate veinlets and blebs. Rock tends to be more quartz rich more pyrite, more graphite less pyrite.	2% py locally avg. 1% py										
53.2	53.5	95		LAMINATED SILTSTONE AND SHALE: Laminations generally swirly, 53.3: 58° and 18° to core axis. 53.4: 70° to core axis 53.35: Vein, irregular quartz carbonate - graphite 15% of rock, forms laminations 1 mm in width. Calcite quartz veining 5% of rock. Pyrite disseminated and in 2 mm blebs. 53.2: Pyrite locally 4% of rock, 2 mm laminations parallel to laminations.	1% pyrite										
53.5	54.0	95		INTERLAMINATED SHALE, SILTSTONE AND GREEN FELSIC INTRUSIVE: Shale 30%, siltstone 10%, volcanic 60%. Contacts volcanic/ shale siltstone 82° to core axis. Shale-siltstone bed 8.5 cm width. Siltstone bed 6 mm diam. Laminations: 53.6: 70° to core axis 53.7: 56° 53.8: 56° Graphite content minimal. Vein 53.5 m. Quartz carbonate veining, minor 1 mm wide at most and not usually parallel with the laminations. 53.9-53.96: laminations are wavy pyrite blebs avg. 2 mm in diameter, not necessarily parallel to laminations, few parallel wisps some blebs up to 1 cm in length.	1.5% pyrite	70516	53.3	56.3	3.0						
54.0	61.6	95		LAMINATED SHALE AND SILTSTONE: Laminations - 54.2: 64° to core axis 54.4: 66° 54.4: 70° 54.9: 57° 55.5: 82° 56.3: 62° 56.7: 66° 57.0: 56° 57.5: 81° 57.9: 61° 58.3: 69° 58.4: 65° 60.1: 67° - between 58.4 and 60.1 laminations wavy. Veins Quartz Carbonate: 54.3: 4 mm, 63° to core axis 54.6: 3 cm, bleb 55.2: 1.5 cm, 63° 55.6: 3 mm, 86° 56.0: 3 cm, some wisps 57.0: 8 mm, 43° to core axis		70517	56.3	59.3	3.0						

[illegible]