SUMMARY REPORT ON DIAMOND DRILLING

February 1 - August 30, 1991

HEMLO GOLD - FREEWEST J.V.

HOLLOWAY AND TEDDY BEAR PROPERTIES

NORANDA EXPLORATION COMPANY, LIMITED
(no personal liability)

29 November, 1991
Timmins, Ontario

Peter Cooper
Sr. Project Geologist

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INTRODUCTION

This report presents a summary of diamond drilling results from the Hemlo Gold-Freewest Joint Venture (J.V.) Holloway Project, for the period February 1 to August 30, 1990. The work was performed by project operator Noranda Exploration Company, Limited, and constitutes part of a larger program involving delineation of and reserve definition within the Lightning Zone (LZ) gold deposit.

PROPERTY LOCATION AND ACCESS

The Holloway Project, comprising the contiguous Hemlo Gold-Freewest and Hemlo Gold-Freewest-Teddy Bear properties, is located 60km east of Matheson and 65km north of Kirkland Lake, Ontario (Figure 1). The properties straddle the Harker-Holloway township boundary and Highway 101, within 0.5km of American Barrick's Holt-McDermott gold mine, to the south. Access to either end of the project site is provided by short (<1km) gravel roads north from Highway 101.

TOPOGRAPHY AND OVERBURDEN

Topography on the properties is very gentle with maximum relief of 3 to 4 meters over a 50m horizontal distance. Using a 300m datum, drill hole collar elevations range from 287m in the southern part of the property, around Highway 101, to 313m in the northern part. An extensive overburden cover consisting of lacustrine varved clays overlying a basal sandy to bouldery till is generally 10-15m thick, but increases to 35-40m thick to the south.

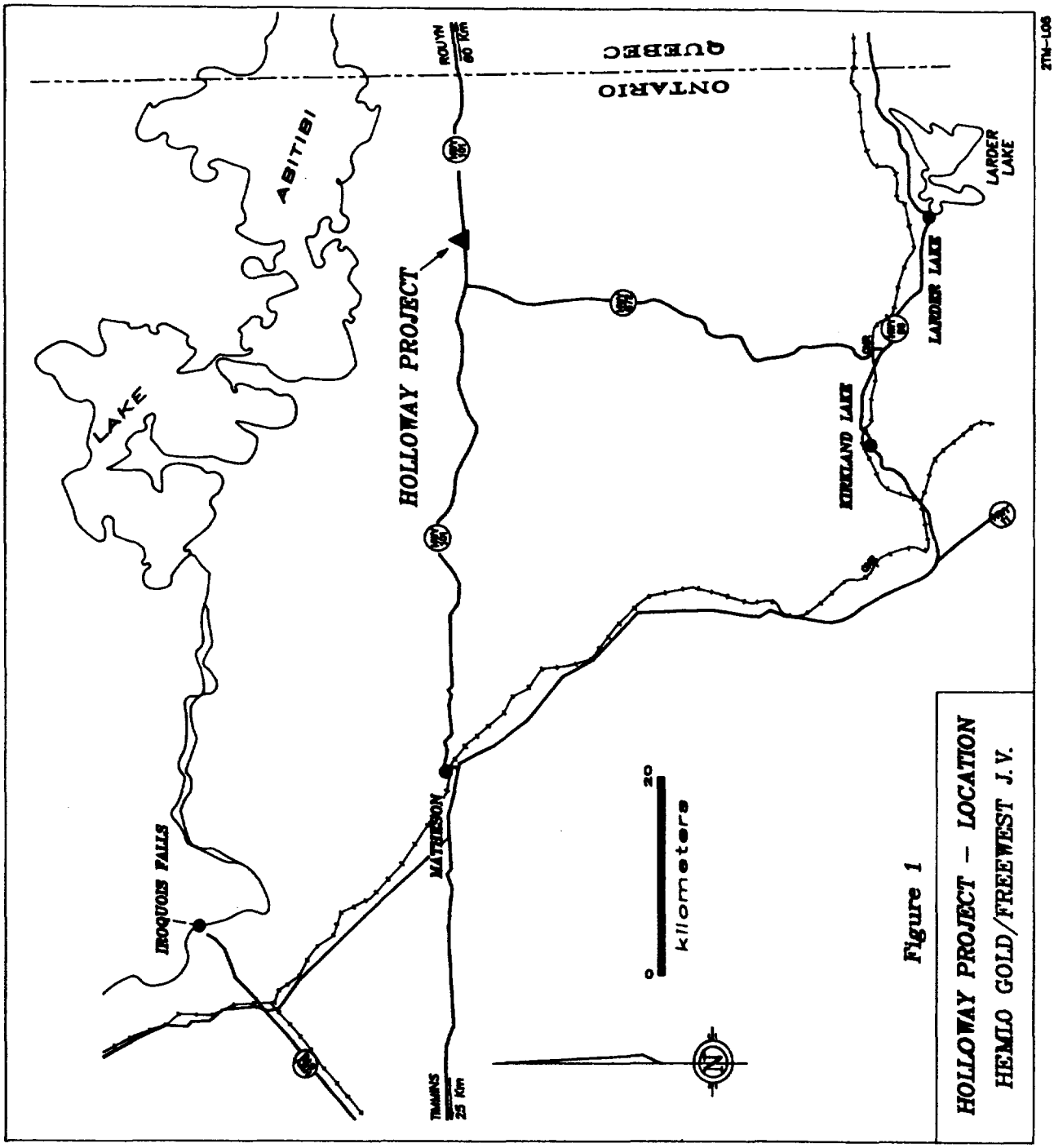

Figure 1

HOLLOWAY PROJECT – LOCATION

HEMLO GOLD/FREEWEST J.V.

The area supports a mixed forest comprising poplar, birch, black and white spruce and balsam. Low ground is dominantly tag alder swamp.

The east-northeast draining Mattawasaga River is located between Highway 101 and the Holt-McDermott mine site, to the south of the properties. A tributary of the Lightning River flows northward from an area approximately 2kms north of the project site. Both rivers flow into Lake Abitibi, located approximately 10km north of the properties. Holloway Lake, the largest body of standing water in the area and the major water source for the Holt-McDermott mine, is located 3kms east of the properties, along the south side of Highway 101.

PROPERTY STATUS

The Holloway Project encompasses three separate but contiguous claim groups (Figure 2). These include the Mining Corporation, Cadden and Teddy Bear. The Mining Corporation and Cadden claims are known collectively as the Holloway Property (Hemlo Gold-Freewest Property). Pursuant to a November 1986 agreement, Freewest has earned a 40% (J.V.) interest in the Holloway Property. In August 1989, Noranda entered into an agreement with Newmont Mines Ltd. to J.V. their interest in the Teddy Bear Property, and become operator. In November 1989, the Noranda-Freewest J.V. agreement was expanded to include the Teddy Bear Property, thereby allowing Freewest to earn 40% of Noranda's interest. The property became a J.V. with Noranda-Freewest-Newmont having a 60% interest and Teddy Bear Valley Mines Limited a 40% interest.

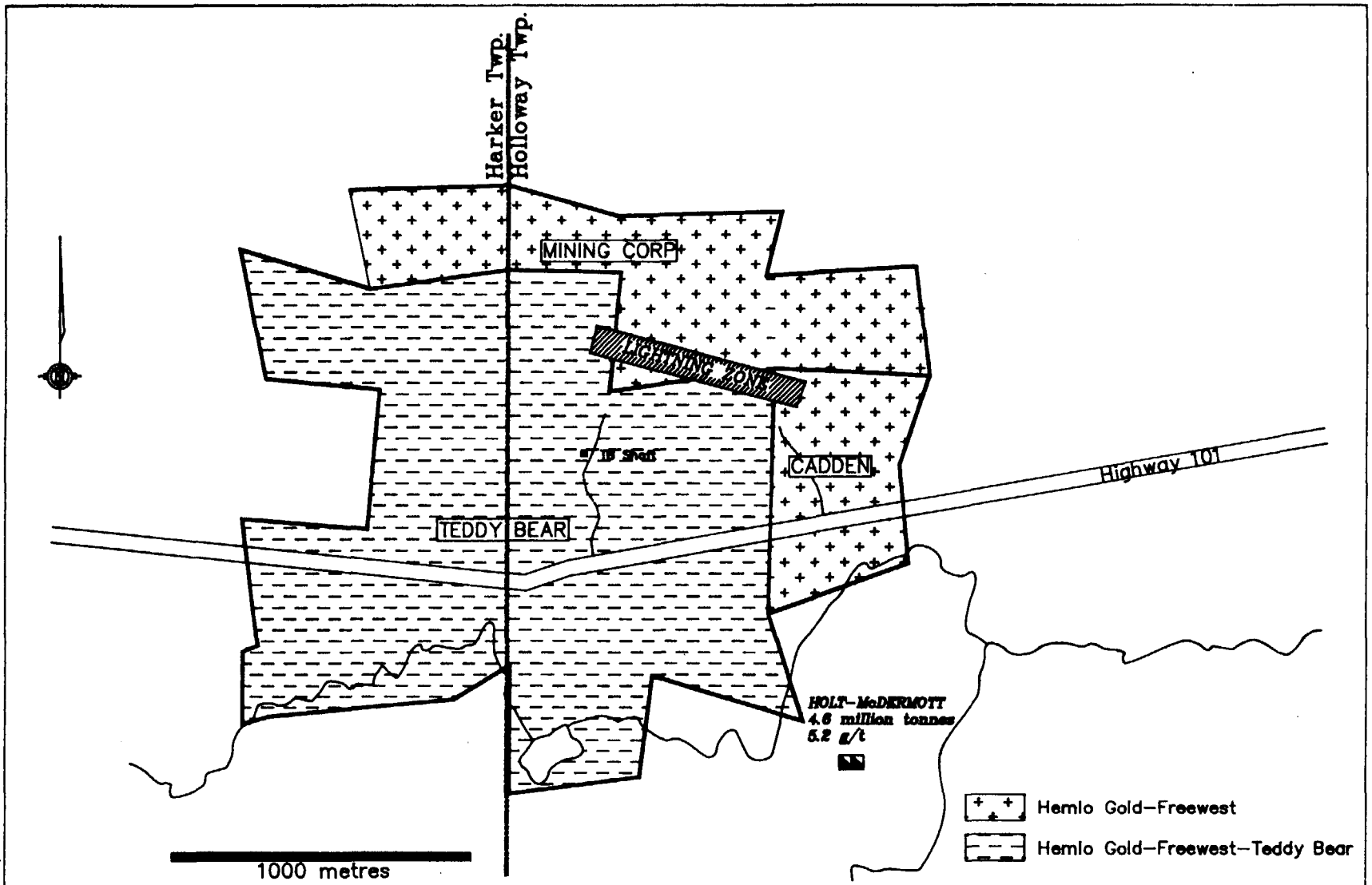

Figure 2 Holloway Project – Claims Disposition
Hemlo Gold/Freewest J.V.

1HW-CL1
10-30-91

Under the terms of a recent agreement, Hemlo Gold Mines has acquired 100% of Noranda's interests in the constituent properties. Hemlo-Freewest-Newmont have the option to increase their interest in the Teddy Bear property to 70% by completing further work.

EXPLORATION HISTORY

Prospecting in the "Lightning River Area" (Harker and Holloway townships) dates back to 1907-08, with the efforts of Russell Cryderman, William Cooper and William Woodney. By early 1922 most of the eastern half of Harker and the western half of Holloway townships had been staked and several Au showings were being explored, including those of McDermott (at what is now American Barrick's Holt McDermott Mine), Seagers (on what is now the Teddy Bear Property) and Cryderman (on what is now the Holloway Property). All of the claims comprising the current Holloway Project were staked by this time and would be explored over the ensuing couple of years. None of this early work on either property was focused on what would become known as the LZ.

The first work program on the Holloway Property performed under the terms of the November 1986 agreement with Freewest, took place between January and October 1987, and consisted of 23 diamond drill holes totalling 5,781.9m. The program was designed to evaluate a sequence of mafic volcanics and the lower mafic/ultramafic contact, known to host significant alteration and erratic gold mineralization. A single hole (88-27) was drilled in September-October 1988 to vest Freewest at 40%.

On the Teddy Bear Property, two drilling campaigns were completed by Newmont in 1987, testing features across the property. In 1988, a further eight holes (3,878.0m) were completed, all but one of which tested the LZ.

The first LZ intersections of significance came in 1988, on both properties. Newmont hole 88-2 intersected 11.2 gpt Au over 9.9m at a vertical depth of 325m and Noranda-Freewest hole 27 intersected 6.0 gpt Au over 17.5m at a vertical depth of 375m. The holes were drilled approximately 300m apart along strike.

Noranda-Freewest assumed control of the Teddy Bear property from Newmont in August 1989 and proceeded with a program of diamond drilling that continued through 20 months, winding up in June 1991. Since November 1986, the Noranda-Freewest J.V. has drilled 167 holes, totalling 81,040 metres on the combined Holloway-Teddy Bear properties.

GENERAL GEOLOGY

Regionally, the deposit occurs within rocks of the fault-bound Destor-Porcupine Complex (Jensen and Langford, 1985), dominated by tholeiitic to komatiitic volcanics with intermixed greywacke and Timiskaming-type conglomerate (Figure 3). The LZ occurs at the base of a central sequence of Fe-tholeiite flows, 30-150m thick, which are underlain by mixed komatiite and tholeiite flows. Regional metamorphism has produced typical greenschist facies assemblages.

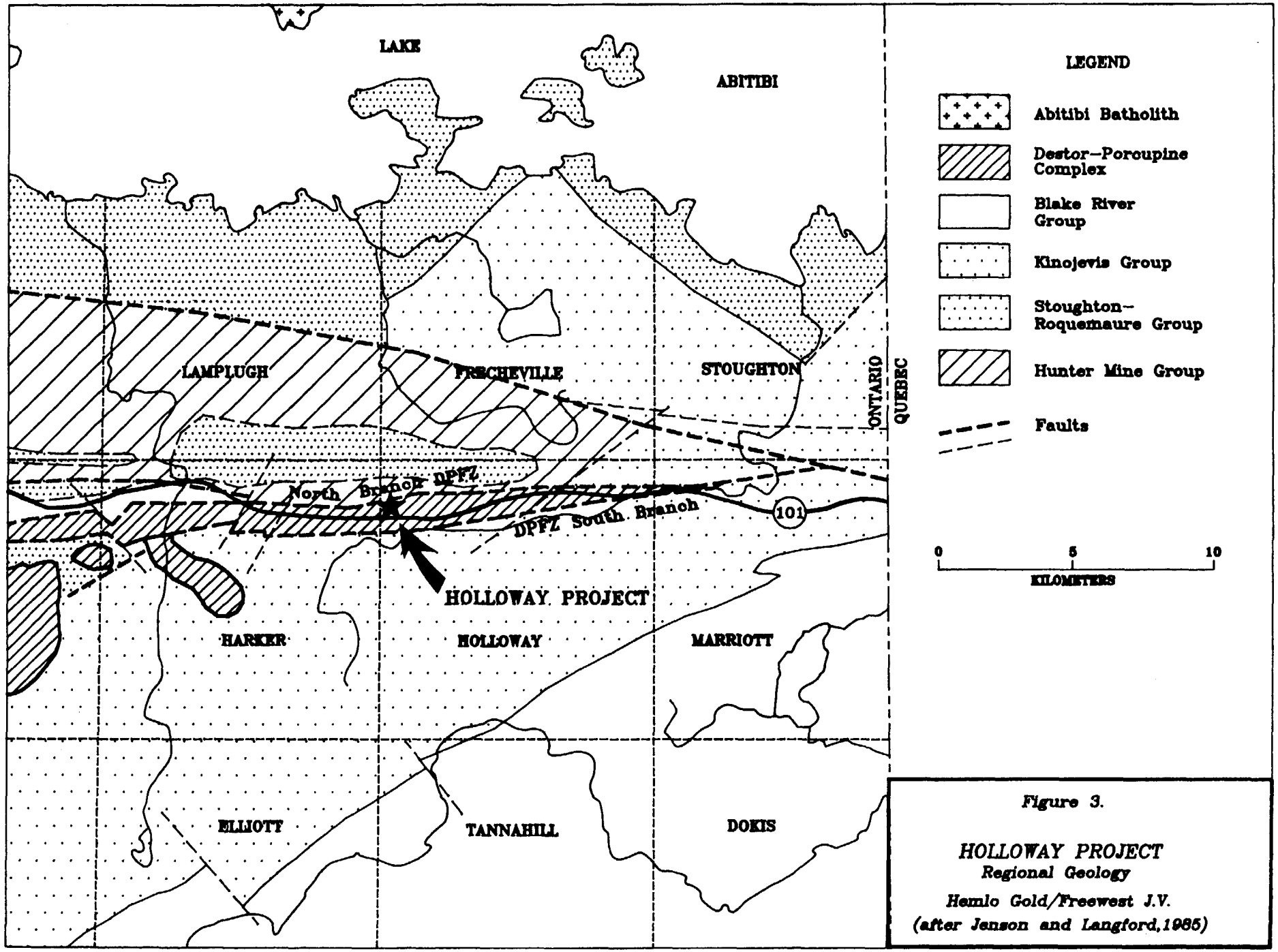

Figure 3.

HOLLOWAY PROJECT
Regional Geology
Hemlo Gold/Freewest J.V.
(after Jenson and Langford, 1985)

Within the Host Tholeiites, massive flows are generally leucoxenitic, the majority of flows have well-developed flow top facies and all flow facies are locally variolitic. Varioles are most abundant within three unusually thick hyaloclastite horizons located at the top, centre and base of the sequence. These hyaloclastite horizons consist of interbedded cm to m thick units of hyaloclastite, flow top breccia, autobrecciated flow and minor massive flow.

The lowermost hyaloclastite horizon of the Host Tholeiites is referred to as the LZ Stratigraphy, which locally attains a thickness of 40-50m. The LZ gold deposit is a broadly conformable, roughly tabular zone of pyritic Au mineralization within this horizon. Variolitic hyaloclastite is the dominant host lithology to Au mineralization. Massive flow is locally mineralized where interbedded with or adjacent to (across and along strike) thick hyaloclastite.

LZ ALTERATION AND MINERALIZATION

Two main alteration facies affect the LZ stratigraphy: sericite-ankerite and albite-quartz. Both may be Au bearing where pyritic. These main facies have a consistent distribution such that albite-quartz forms a highly altered core, enveloped by sericite-ankerite. This distribution is seen at both the deposit scale and locally around related veins. Hematitic subfacies of both occur but are never Au-bearing. Ankerite is widespread through the least-altered portions of the Host Tholeiite sequence, within the strike extent of the deposit.

The thickness of albite-quartz alteration as the core of the deposit is controlled by the thickness of the host variolitic hyaloclastite. It may affect the entire sequence, attaining thicknesses of 40-50m.

As an envelope to the albite-quartz core of the deposit, sericite-ankerite alteration ranges in thickness from 1 to 25m. Distal to the deposit, sericite facies alteration affects lithologies at the LZ stratigraphic level up to 350m up-dip and up-plunge from economic grade mineralization and at least 300m along strike.

LZ Au mineralization is associated with fine-grained (<1mm) sub-to euhedral py that on average constitutes 5 to 10% of the rock. There is a general correlation of Au grade with py content. Visible gold is characteristically absent. The bulk of the Au is associated with "clustered" py (massive veinlets and stringers, dense vein haloes, irregular clumps).

Mineralization within the albite-quartz LZ core is characterized by pyrite veins which commonly describe a stockwork pattern.

AUXILIARY MINERALIZATION

Four minor gold zones distinct from the LZ have been encountered in drilling. From south to north (down-stratigraphy), they are the:

(a) Seagers' Hill Zones (no reserve defined)

(b) Upper Contact Zone (50 Vein) (no reserve defined)

(c) Middle Zone

(d) Footwall Zones (no reserve defined)

Gold values greater than 1.0 gpt are encountered locally within discontinuous alteration zones elsewhere in the Host Tholeiites and in the overlying greywacke-argillite sequence.

Middle Zone (MZ)

The MZ occurs in the centre of the host tholeiite sequence, stratigraphically above the LZ. It is characterized by vein-related mineralization in sericitized flows, and generally lacks the intense albite-quartz alteration associated with the LZ. The MZ alteration has been traced intermittently along strike for approximately 1.2km.

Gold occurs in association with 1 to 10% pyrite in the alteration haloes of quartz $\pm$ albite $\pm$ ankerite veins. MZ mineralization is generally erratic and widths are narrow. A small reserve has been defined.

Significant intersections in holes 73 and 73W occur in a structurally thinned portion of the Host Tholeiites and are of uncertain relationship to the MZ and LZ (see section 5700E).

SUMMARY OF DRILLING RESULTS

During the period February 1 to August 30, 1991, approximately 11,834 metres of NQ drilling was completed in 19 holes. This total includes holes collared at surface (e.g. HW-91-136) and those wedged from them (e.g. HW-91-136W, 136X, 136Y).

The drilling focused on evaluating the easterly strike and plunge extent of the LZ deposit (ie. east of 5900E). Two holes (73W, 107W) were drilled on section 5700E to evaluate stratigraphy underlying the LZ. A summary of assay results from the LZ is presented as Table I.

Complete drill logs, survey records and assay records are presented as Appendix A. The assay records show three columns of assay data. Columns "R1" and "R2" represent analyses of separately prepared pulps from a single sample interval. Column "Au gpt" represents the arithmetic average of R1 and R2 or, for those samples analyzed only once, the only assay value.

Cross-sections displaying the drill hole data are presented as Appendix B.

TABLE 1.

Summary of LZ Assays

February 1 to August 30, 1991

Hole	LZ Coordinates	From	-	To	Length	Au gpt
73W	5702.2E 4728.9N -334.7 el	356.4	-	362.1	5.7m	5.3 gpt
107W	5704.7E 4653.7N -554.2 el	577.25	-	584.0	6.75m	20.7 gpt
130Y*	5905.0E 4680.5N -553.4 el	553.1	-	571.6	18.5m	6.3 gpt
134*	5951.8E 4750.7N -428.0 el	430.8	-	431.2	0.4m	0.9 gpt
136*	5885.5E 4630.2N -711.9 el	703.0	-	754.4 incl.	51.4m 10.2m	3.7 gpt 4.7 gpt
136W	5887.9E 4640.0N -617.8m	643.0	-	645.0	2.0m	5.3 gpt
136X	5880.9E 4659.9N -580.3 el	607.3	-	626.4 incl.	18.9m 7.1m	4.7 gpt 6.1 gpt
136Y	5934.2E 4633.2N -603.3 el	629.0	-	629.5	0.5m	1.0 gpt
137*	5991.2E 4636.7N -674.5 el	685.3	-	690.15	4.85m	5.5 gpt

Table 1. (con't)

Hole	LZ Coordinates	From	-	To	Length	Au gpt
138	5874.2E 4613.2N -766.3 el	777.4	-	792.0 incl.	14.6m 7.5m	5.6 gpt 8.0 gpt
138W	5917.3E 4631.3N -682.6 el	716.4	-	718.5	2.1m	4.2 gpt
139	5977.6E 4612.9N -783.0 el	863.5	-	864.8	1.3m	0.3 gpt
140	6097.4E 4648.7N -775.3 el	840.1	-	840.9	0.8m	6.2 gpt
140W	6087.4E 4677.2N 666.2 el	763.55	-	764.0	0.45m	4.4 gpt
141	6049.9E 4718.2N -543.2 el	549.8	-	551.7	1.9m	NSV
142	5938.3E 4579.5N -847.5 el	917.0	-	920.75	3.25m	6.2 gpt
	5936.5E 4593.3N -864.9 el	939.8	-	942.5	2.7m	5.4 gpt
143	6214.3E 4671.0N -760.4 el	829.8	-	830.2	0.4m	NSV
144	6348.2E 4701.2N -712.6 el	784.7	-	785.1	0.4m	2.6 gpt

* previously reported - hole finished during period

NSV - No significant values (<0.1 gpt Au)

CONCLUSIONS AND RECOMMENDATIONS

The latest phase of drilling has delineated the eastern strike extent of the LZ deposit, above the -800m elevation. Alteration persists at the LZ stratigraphic level, however, for at least 250m to the east (ie. HW-91-143).

The deposit remains open to depth in several areas (eg. HW-91-142). Before additional drilling is undertaken to address this depth potential, the following considerations should be made:

(i) Determine the threshold tonnage required to justify an underground program.

(ii) If an underground program is justified based on results to date, determine the cost effectiveness of exploring the deposit below -600m from surface versus from underground.

Pete Cooper

SUMMARY REPORT ON DIAMOND DRILLING

February 1 - August 30, 1991

HEMLO GOLD - FREEWEST J.V.
HOLLOWAY AND TEDDY BEAR PROPERTIES

VOLUME II - DRILL HOLE DATA

LATITUDE 5700.0N

DEPARTURE 4619.5E

ELEVATION +5.73m

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 809.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Wedged off HW-90-73 at 214.0m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Gyro to 762.0m			
809m	-53.75°/369		

Sheet No. 1 OF 24

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. _____

Date started March 3, 1991 completed April 10, 1991

Contractor Bradley Bros.

Logged by D. Broughton, B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
214.0-216.0	Wedge (steel)			Plug at 219.0m.
216.0-224.2 **SILICIFIED ARKOSIC SANDSTONE, MINOR GREYWACKE**	Grey-green to buff, fine grained arkosic sandstone and minor greywacke. 5-20% quartz ankerite veins form stockwork in silicified sections. 222.7-222.9 Breccia zone-rounded fragments of sandstone and quartz in dark grey aphanitic argillaceous (?) matrix, silicified. Possibly a sedimentary breccia or silicified fault zone?? Sharp upper contact at 70 deg. to c.a., lower contact fairly sharp at 40 deg. to c.a.	S1 (85) local non-silicified zones.	1-5% very fine to fine grained disseminated and stringer/foliation-parallel pyrite in silicified sandstone. **222.7-223.2** 3-7% pyrite.	
224.2-227.0 **GREYWACKE**	Buff to grey-green, fine to coarse greywacke and minor lithic greywacke. Moderate S1 foliation, folded. Local quartz ankerite veins.	Local silicification.		
227.0-270.0 **DIRECTIONAL DRILL**	No core return.			

P.A.P. - 14064

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DIAMOND DRILL CORE LOG

Sheet No. 2 OF 24

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
270.0-272.0 **SILICIFIED ARKOSIC SANDSTONE**	Pale brown-grey, massive, arkosic sandstone 10% to locally 15% quartz ankerite vein. Contact at 30 deg.; sericitic greywacke from 271.7 to 272.0m.	S1 (100).		Some grinding of core.
272.0-290.0 **DIRECTIONAL DRILLING**	No core return.			
290.0-327.0 **SILICIFIED SANDSTONE/ GREYWACKE**	Buff to grey to beige, massive to locally thinly bedded (?) sandstone and minor greywacke. Moderate to local strong S1 foliation.			
	290.0-300.0 Silicified sandstone. Local vein breccias, ie at 292.4-293.9 at 120 deg. to c.a., part of set 3 vein set; orthogonal to S1 (at 20 deg.) + with same strike. These veins and vein breccias are parallel with S2. S1-parallel veins also present, cut by S2. Locally the S1 foliation planes appear to follow a poorly defined bedding. Sharp lower contact parallel to S2 at 150 deg. to c.a.	**290.0-300.0** S1 (100) weak ankerite.	Fine grained pyrite is disseminated along S1 planes; crenulated by S2 and cut by set 3 veins. Locally reaches 1-2%.	

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DIAMOND DRILL CORE LOG

Sheet No. 3 OF 24

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	300.0-300.8 Buff to yellow-green, strongly foliated (S1) greywacke. S2 spaced 1-2cm in center of unit, intensifies to a spacing of 1-3mm (over 10cm) at margins. S2 at 130 deg. at 300.3m. Quartz ankerite veins (set 3) parallel S2. Lower contact sharp at 165 deg., parallel to S2.	300.0-300.8 Sericite, ankerite.		Structural sample taken from 300.0-300.5.
	300.8-307.0 Silicified sandstone as above. 302.2: S3:2 small thrust faults (S3) are developed at 165 deg. to c.a., these cut S2 (at 130 deg.) and strike parallel to S2. 304.8: S2 shear at 125 deg. to c.a. Contact appears to be a gradational lithological change, overprinted by an alteration front.	300.8-307.0 S1 (100).		
	307.0-309.1 Pale green, green-grey, fine to medium grained greywacke, locally with large sericitized clasts. Moderate to strong S1 foliation. Local 10% folded quartz ankerite veins. Lower contact at 150 deg. (parallel to S2), appears primary.	307.0-309.1 Moderate ankerite, chlorite.		
	309.1-311.4 Buff to grey silicified fine grained sandstone as above. Pale beige 2cm argillaceous bed at 5 deg. to c.a. at 309.8, S2 at 155 deg. to c.a. Gradational contact.	309.1-311.4 S1 (100) Weak ankerite silicification decreases below 314.8-patchy, with associated bleaching.		

P.A.P. - E-1558

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DIAMOND DRILL CORE LOG

Sheet No. 4 OF 24

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	311.4-323.0 Grey to locally buff, weakly or non-silicified sandstone and greywacke. Weak to moderate S1 foliation. Thickly bedded, gradational alteration contact.	311.4-323.0 S1 (30).		
	323.0-327.0 Pale beige to green-grey, patchy bleached sandstone/greywacke. S1 at 25-40 deg. to c.a. at 330.4m.	323.0-327.0 S1 (60-80).		
	325.2-326.1: 10-15% quartz ankerite veins, S2-parallel, gradational alteration contact.		325.2-326.1 1 to locally 2% fine grained pyrite in quartz ankerite vein margins, parallel to S2.	
327.0-338.3 **GREYWACKE/ ARGILLITE**	Grey to buff, fine grained greywacke and minor thinly bedded argillite. Moderate S1, local very tightly crenulated (f2) wacke/argillite couplets. S2 at 145 deg. to c.a. at 332.6m. Gradational contact.			
338.3-347.0 **SERICITIZED GREYWACKE/ ARGILLITE**	Yellow-green to grey, interbedded fine to medium grained greywackes and minor argillites. 338.3-341.2 Local 10-20% quartz ankerite veins. 341.2-343.7 Grey, medium grained with 5-10% chloritized angular "chips" or clasts. Gradational contacts. S2 at 140 deg. to c.a. at 343.5m.	338.3-341.2 Moderate to strong sericite.		

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	343.7-347.0 Mixed greywacke and minor argillite; 10cm silicified pyritic zone at 345.9m.			
347.0-349.95 **ANKERITIZED FOLIATED MAFIC FLOW**	Grey, locally yellow-green, moderately to generally strongly foliated (S1) mafic flows. Leucoxene noted locally-predominantly a massive flow facies. 347.0-347.15 White quartz ankerite vein at 35 deg. to c.a., parallel to S1. S1 at 50 deg. to c.a. at 348.9m. 349.5-349.8 Yellow-green, strongly foliated medium grained greywacke. Contacts parallel to S1 at 50 deg. to c.a. 349.8-349.95 Grey, foliated flow as above. Lower contact at 60 deg. to c.a.	Strong ankerite, local sericite.	Trace to locally 1% pyrite.	
349.95-352.95 **SERICITIZED FOLIATED GREYWACKE**	Yellow-green to grey-green, strongly (S1) foliated fine to medium grained greywacke. 5% to local 10% quartz ankerite veins, generally subparallel to S1 at 50 deg. to c.a. Local S2.	Moderate sericite.		
352.95-358.0 **FOLIATED ANKERITIZED MASSIVE FLOW**	Pale to medium grey, fine grained, strongly foliated (S1) massive mafic flow. Locally coarsely leucoxenitic.	Strong ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Upper contact marked by 15cm quartz-ankerite-chlorite vein at 55 deg. to c.a. S2 at 150 deg., S1 at 60 deg., with quartz ankerite veins (set 3) parallel to S2, at 355m.			
	356.4-357.4 Pale grey, possibly a flow top breccia grading to massive flow. Fine grained set 3 quartz ankerite veins terminate at upper contact of unit. Contact at 70 deg. veins at 135 deg. Lower contact cut by 3, 5cm quartz ankerite veins subparallel to S1 (35 deg. to c.a.), with pyritic haloes.	**356.4-357.4** S1 (100).	**356.4-357.7** 3-6% pyrite, fine grained to medium grained, disseminated along and in stringers parallel to S1; also in vein haloes (parallel to S1).	
	357.4-358.0 Pale grey/beige, finely leucoxenitic massive flow. Contact at 60 deg. parallel to S1.	**357.4-358.0** Moderate to strong ankerite.		
358.0-361.2 **FOLIATED SERICITIZED FLOW BRECCIA/ HYALOCLASTITE**	Cream to pale buff, strongly foliated (S1) hyaloclastite and flow breccia with minor massive flow. S2 weak to locally strong at 145 deg. to c.a. 357.6-357.8 5-10% grey quartz ankerite veins parallel to S1 foliation, with pyritic haloes. Lower contact zone is strongly silicified from 361.1-361.2. Contact placed at 2cm band of very fine grained, dark brown material, possibly sericitic argillite, parallel to S1 at 120 deg.; S2 at 150 deg. in underlying unit.	**358.0-361.2** Moderate to strong sericite and ankerite.	**358.0-359.4** Trace to 1% disseminated medium grained pyrite. **359.4-360.2** 2-5, local 5-10% pyrite, fine to coarse grained; disseminated along S1 and associated with quartz ankerite veins. **360.2-361.0** Trace to 1% pyrite.	Lightning Zone hangingwall style.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
			361.0-361.3 3-10% pyrite as haloes to quartz ankerite veins and silicification zone.	
361.2-363.7 **SERICITIZED MASSIVE FLOW**	Pale yellow-green, fine grained massive flow. 3-6cm wide quartz ankerite vein runs subparallel to core axis from 361.3-362.0; with pyritic halo. Vein is roughly parallel to S1. S1 at 70 deg. to c.a. at 363.1m, moderate to strong. Local weak S2 and associated quartz ankerite veins. Contact cut by 10cm quartz ankerite vein at 150 deg. to c.a., parallel to S2.	Moderate sericite, moderate to strong	**361.3-362.1** 3-5% py. **362.1-363.7** Trace to local 1-3% fine to medium grained pyrite.	Lightning Zone, hangingwall style.
363.7-368.8 **SERICITIZED FOLIATED FLOW BRECCIA/ MASSIVE FLOW**	Pale yellow-green to cream, strongly (S1) foliated flow top/massive flow. Locally strong S2. Good flow breccia textures locally at 366m. S2 at 130 deg. to c.a. at 367m. 367.1-367.4 30% QAV's, subparallel to S1 and S2, with associated pyrite. Leucoxenitic from 367.4 to 367.9. 367.7-368.1 Pale grey to cream, with 5% set 3 (S2 parallel) qav's. 368.1-368.6 Yellow to cream, foliated leucoxenitic flow.	Moderate to strong sericite and ankerite. **367.7-368.1** S1 (100).	**363.7-367.1** Trace to local 1-2% fine grained pyrite. **367.1-367.6** 3 to locally 20% fine to medium grained pyrite, associated with qav's and disseminated along S1. **367.6-368.6** Trace to locally 1% pyrite in silicified zone.	Lightning Zone, hangingwall style. Majority of mineralized qav's parallel S1 foliation.

P.A.P. E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 8 OF 24

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	368.6-368.8 Pale grey, silicified flow breccia with qav and associated mineralization. 368.6: Sericitic slip at 25 deg. to c.a., parallel to S1, contact at 35 deg. parallel to S1.	368.6-368.8 S1 (100)	368.6-368.8 Locally 5-10% pyrite and cpy associated with qav.	
368.8-375.4 SERICITIZED GREYWACKE/ ARGILLITE; CARBONACEOUS ARGILLITE	Mix and unit of interbedded greywackes, argillite and carbonaceous argillite. Strong S1, locally very strong S2 foliation. 368.8-372.0 Thinly bedded, yellow-green to grey to locally black, fine grained greywackes with lesser argillite and carbonaceous argillite. Moderate to very strong S2. S2 at 105 deg. to c.a. at 369.2m. 10cm qav at 369.6m; parallel to S1. S0 at 45 deg., S2 at 150 deg. to c.a. at 370.6. S0 at 40 deg. to c.a. at 372.0m.	368.8-372.0 Local strong sericite.	Local trace pyrite.	
	372.0-372.9 Carbonaceous argillite, minor argillite, local weak S2 foliation. S0 at 60 deg. to c.a. at 374.6m. Lower alteration contact parallel to quartz-chlorite-ankerite vein at 40 deg. to c.a.	372.0-372.5 S1 (90).	372.0-372.9 1 to locally 3% pyrite, nodular/bedded.	
	374.7-375.4 Grey/beige, silicified, poorly bedded very fine grained greywacke/ argillite. Local weak S2.	374.7-375.4 S1 (100).	374.7-375.4 1 to locally 3% very fine grained pyrite, disseminated.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Lower contact at 70 deg., parallel to S1 in underlying unit. Some interfingering at the contact.			
375.4-382.0 **TALC-CHLORITE ULTRAMAFICS**	Drab grey-brown, massive to locally strongly foliated, talc-chlorite ultramafics. Possibly sediments. S1 at 70 deg. to c.a. at 375.6m. S1 at 50 deg. to c.a. at 379.9m. Gradational contact.	Talc-chlorite-ankerite. Minor serpentine 10-30% ankerite vein stockwork.		
382.0-391.1 **TALC-SERPENTINE ULTRAMAFICS**	Blue-black to locally brown-grey, massive to locally strongly foliated talc-serpentine ultramafics. S1 at 60 deg. to c.a. at 389.6m.	Talc-serpentine-chlorite.		
391.1-424.9 **TALC-SERPENTINE ULTRAMAFICS; GREYWACKE/ MASSIVE MAFIC FLOW**	Drab brown-grey, talcose/serpentine ultramafic flows and flow breccias, with intercalated medium grey, medium grained, massive beds (?) of greywacke (?). These are locally altered to a pale grey colour, with associated increase in hardness (silicification) and pyritization. Contacts with the ultramafic are generally sharp and parallel to S1. These beds occur at 391.1-391.3, 393.0-394.0, 397.3-397.6, 401.5-401.8, 403.6-405.9, 407.4, 409.1.	Talc-serpentine-chlorite. Strong ankerite 5 to local 20-30% irregular grey ankerite stock-work veining. **417.5-424.9** 1-5cm white qav's at 40-90 deg. to c.a., spaced 20-50cm, spacing decreases downhole.	Locally 1-2% fine to coarse grained pyrite, disseminated in silicified patches of inter-bedded greywackes.	

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DIAMOND DRILL CORE LOG

Sheet No. 10 OF 24

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0 contacts at: 20 deg. to c.a. at 393.0m 60 deg. to c.a. at 403.6m 45 deg. to c.a. at 409.1m. S1 at 15 deg. to c.a. at 413.1m. Contact at 35 deg. to c.a.			
424.9-429.3 **GREYWACKE/ MASSIVE MAFIC FLOW**	Medium grey, fine grained, massive mafic flow? 5-15% white qav's, parallel to weak foliation at 40-60 deg., locally at 90 deg. to c.a. Lower contact at 20 deg. to c.a., parallel to S1.	S1 (90) moderate silicification.		
429.3-451.3 **ULTRAMAFICS; GREYWACKE/ MASSIVE MAFIC FLOW**	Mixed unit of green-grey, weakly fuchsitic conglomeratic sediments, drab grey ultramafic flows and grey, massive greywacke beds/mafic flows as above. 429.3-429.3 Weakly fuchsitic conglomeratic unit, with beige rounded clasts. 15-20% qav's, weak S1. 429.3-436.0 Green/grey, strongly veined ultramafics. 10 to locally 50% white qav and vein breccia. Moderately foliated. 436.0-439.5 Grey, weakly to moderately foliated sandstone/greywacke with minor green-grey ultramafic. <5% qav. S0/S1 at 30 deg. to c.a. at 436.0m.	Moderate to strong ankerite local fuchsite and serpentine, generally chloritic ultramafics.		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	456.6-457.1 Contact between silicified pale grey unit and green/grey, sericitic non-silicified unit marked by dark green chlorite and ankerite-quartz veins. Contact at 5 deg. to c.a. 456.9-457.3 Above contact cut by sub-parallel graphitic slip at 7 deg. to c.a. slip (and contact) strike within 10-15% of S1. Poorly defined gentle undulations on the slip surface pitch 80 deg. clockwise from minor axis of slip plane ellipse (ie: close to the drill core axis). 457.5: S1 at 25 deg. to c.a. 457.3-458.9 Massive, pale grey flow. 458.9-462.8 Massive flow as above, cut by 30% (overall) qav's and replacement quartz veins grades from pale grey, silicified to medium green, chloritic below 460.8m. The chloritic section is moderately foliated (S1) and leucoxenitic. QAV's generally parallel S1, replacement quartz has irregular contacts. Some orthogonal set 3 veins also 3cm vuggy quartz-carbonate vein at 359.9m, at 130 deg. to c.a. (set 3).	Sericite, strong ankerite in non-silicified unit. Moderate to strongly ankeritized where chloritic unsilicified.	456.9-456.1 1 to locally 3-5% fine grained pyrite. 456.1-457.3 1-3% fine grained disseminated pyrite in silicified zone above graphitic fault. 456.9-458.9 Trace to 2% fine grained pyrite in silicified zone below graphitic fault. 458.9-462.8 Trace to 2% pyrite.	

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
462.8-469.0 **QUARTZ VEIN, MINOR LEUCOXENITIC MAFIC FLOW**	462.8-465.2 Replacement and vein quartz comprise 80% of rock. Host is leucoxenitic pale grey massive flow. 465.2-468.6 White quartz vein with chloritic fractures. Cut by translucent set 3 quartz veins. Lower contact irregular but subparallel to c.a. 468.6-469.0 Medium to dark grey coarse sandstone (?) 30-40% angular grey quartz (1-5mm) in grey, ankeritic argillaceous matrix. Lower contact is a chlorite slip at 20 deg. to c.a., subparallel to S1 in underlying unit.	S1 (100) matrix strongly ankeritic.	Trace pyrite in wall rock. Local trace pyrite to barren.	
469.0-472.6 **SERICITIC ULTRAMAFIC FLOW BRECCIA**	Grey to weak apple green, moderately foliated ultramafic breccia. Fragments are sericitized (weak green) and matrix is a dark blue-black colour. Local S1 parallel qav's. S1 at 0-30 deg. to c.a. Contact broken.	Moderate to weak ankerite sericite, serpentine.		
472.6-507.0 **WEAKLY FUCHSITIC ULTRAMAFIC FLOW**	Pale yellow-green to grey-green, weakly fuchsitic to sericitic ultramafic flow. Moderate S1 foliation. Texture commonly has green matrix with disseminated yellow-green sericite, giving a mottled or spotted appearance. <5% qav's. S1 fairly constant at ±30 deg. to c.a. 480.0m, S1 at 0 deg. to c.a.	Weak fuchsite. Sericitic, moderate ankerite.		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	485.2-489.3 Local 5 to 60cm qav's, overall comprising 35% of the rock. Veins generally at 45 to 90 deg. to c.a., cutting S1. 489.9-495.5 Strongly foliated, drab brown (talc-chlorite) flow. S1 at 25 deg. to c.a. at 490.5m. S1 at 15 deg. to c.a. at 495.0m. Possible flow breccia from 494.8 to 495.5m. 495.5-507.0 Medium to dark green-grey, fine grained, possibly pillowed ultramafic flow. Selvages spaced 1-3m, <2cm thick, dark green/black (chloritic) and strongly foliated. Central portions of 'pillows' weakly foliated or massive. S1 at 10 deg. to c.a. at 496.6m. S1 at 20 deg. to c.a. at 503.5m. Lower contact at 35 deg., parallel to S1. Unit is weakly foliated and possibly more of a basaltic komatiitic with possible leucoxene towards the base.	Weak fuchsite, associated with qav's.		
507.0-508.2 **75% QAV'S; SERPENTINIZED ULTRAMAFIC**	75% qav's cut dark blue-black, fine grained massive ultramafic. Veins contain 10-15% brown to grey wall rock inclusions and seams, commonly aligned parallel to S1, and commonly with indistinct margins. Probably replacement veins.			

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	These are cut by later white qav's orthogonal to S1 (set 3 veins), lacking inclusions. Lower contact irregular.			
508.2-510.5 **TALC-SERPENTINE ULTRAMAFIC**	Drab brown to olive brown, weakly talcose ultramafic, possibly a breccia. Brownish fragments sit in dark serpentinized matrix. Lower contact marked by qav at 80 deg.			
510.5-517.6 **PILLOWED MAFIC FLOW**	Medium to pale grey-green, locally yellow-green, aphanitic to fine grained, massive-pillowed mafic? flow. Local sub 2mm yellow green 'varioles' are sericitic-appears to be and alteration phenomena-yellow coloration occurs adjacent to qav's. Moderately developed S1 throughout. 511.3-511.7 Grey ankeritic pyritic veins and replacement? veins, with isolated rafts of wall rock. Lower contact parallel to S1 at 30 deg. 512.5-512.8 Flow top-minor hyaloclastite, breccia fragments. Upper contact parallel to S1 at 40 deg. 512.8-517.6 2 to locally 5% predominantly S1-parallel qav's. Lower contact broken.			

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
517.6-518.2 **FAULT ZONE, TALCOSE ULTRAMAFICS**	517.6-517.8 Rubble, broken core. No sign of water. Quartz vein material present. 517.8-518.2 Fault gouge and crushed ultramafic. Rock hardness = 1.	Talc.		
518.2-533.8 **TALC-SERPENTINE ULTRAMAFICS.**	Dark blue-black, locally brown, talc-serpentine-chlorite ultramafics. Moderate to strongly developed S1 at 15 deg. to c.a. at 519.5m. Foliation is locally folded. 523.9-524.2 Semiconsolidated fault gouge with fragments of quartz. S1= 45-50 deg. to c.a. 525.0-525.1 Narrow fault gouge zone, semiconsolidated. S1 at 55 deg. to c.a. 525.0-531.3 10-15% quartz-ankerite veining parallel to foliation. 533.1-533.6 Massive, dark green, strongly chloritic mafic volcanic with 10% quartz-ankerite stockwork and trace to 2% pyrite. Lower contact at 65 deg. to c.a.	Talc-serpentine-chlorite.		**523.9-524.2** Semiconsolidated fault gouge. **525.0-525.1** Semiconsolidated fault gouge.
533.8-548.3 **LEUCOXENITIC MASSIVE MAFIC FLOW**	Light to medium green-grey, weakly foliated, leucoxenitic ankeritic massive mafic flow with possible lighter green sericitic sediment interbeds locally?	Moderate ankerite. **533.8-536.6** Weak to moderate sericite.		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	At 535.0, S1 = 50 deg. Locally S1 is folded.			
	536.9-538.3 Finely to locally medium grained leucoxene.	**538.3-539.7** Beige-yellow sericite alteration, associated with 5% qav's strong ankerite.		
	542.2-544.7 10-20% (overall) replacement quartz veins and discrete qav's.	**541.3-544.7** S1 (90) moderate to strong ankerite.	Locally trace pyrite.	
	544.7-548.3 Fine grained, grey leucoxenitic massive flow. Moderate to locally strong S1 increases below 548m. Contact parallel to S1, marked by qav at 30 deg. to c.a.	Moderate to strong ankerite.	Locally trace pyrite.	
548.3-555.9 **SILICIFIED MAFIC FLOW**	Medium to dark grey, fine to very fine grained, moderately to strongly foliated mafic flow and/or sediments. Penetrative layering in sections of the unit could be interpreted as bedding. Cut by 5 to locally 30% grey ankerite-quartz stockwork veining in silicified sections. Local S2 at 90-130 deg. to c.a. S1 at 10 deg. to c.a. at 543.8m. Lower contact marked by 10cm qav stockwork and graphitic slip at 555.9 at 125 deg. to c.a. *slip/S1 = 90 deg.	**548.3-550.8** S1 (60) weak sericite, moderate to strong ankerite. **550.8-555.9** S1 (95) weak sericite, moderate to strong ankerite.	Locally 1-3% pyrite-occurs in seams of fine to coarse grains which cut the ankerite-quartz veins, and generally parallel S1. They are cut by later S2-parallel qav's. Can find strain shadows around some pyritic grains.	

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
			These lie in the layering; and have a steep rake (as do deformed varioles elsewhere)-layering is therefore interpreted as S1.	
555.9-565.2 **LITHIC GREYWACKE**	Medium to dark grey, thickly bedded greywacke with coarse (≤2cm) subrounded lithic clasts. Moderate to strong S1, in part defined by flattened clasts. jasper clasts not observed. S1 at 40 deg. to c.a. at 556.0m. S1 at 55 deg. to c.a. at 562.2m. S0 contact at 45 deg. to c.a.	Moderate to strong ankerite.		Graphitic slip at 555.9m.
565.2-574.1 **GREYWACKE, ARGILLITE**	Grey, fine to medium grained, thickly bedded greywacke with section of thinly interbedded greywacke and argillite. 565.2-567.9 Greywacke/argillite S0 at 45 deg. to c.a. at 567.9m. 567.9-574.1 Thickly bedded greywacke. S0 contact at 50 deg. to c.a.			

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
574.1-578.8 **POLYLITHIC CONGLOMERATE**	Grey to green-grey, poorly sorted polylithic conglomerate with matrix similar to overlying greywacke. Jasper clasts not observed. Moderately to strongly foliated. S1 at 45 deg. to c.a. at 578.0m. S0 contact at 50 deg. - parallel to S1.			Graded bedded indicates tops uphole.
578.8-590.0 **GREYWACKE, MINOR ARGILLITE**	As from 565.2-574.1, but more commonly thinly bedded. Coarse greywacke below 589.0m grades into underlying unit. S0 at 50 deg. to c.a. at 582.5m. Contact broken.			
590.0-598.9 **POLYLITHIC CONGLOMERATE**	Grey, poorly sorted polylithic conglomerate, as above. Mixed mafic and felsic fine grained clasts, sedimentary clasts. No jasper clasts observed. Moderate to strong S1 foliation, at 30 deg. to c.a. at 595m. S0 contact at 25 deg. to c.a.			
598.9-604.5 **GREYWACKE**	Grey, fine to medium greywacke, local thinly interbedded argillite. Ground core is noted at lower contact.			

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
604.5-607.9 **PYRITIC, SERICITIZED ANKERITIZED, FOLIATED ARGILLITE/ GREYWACKES**	Pale grey green, sericitized, pyritic argillaceous bands (2-10mm) alternating pale grey, ankeritic, greywacke (?) bands. The sediments are thinly interbedded and strongly foliated. Sericite and pyrite define the S1 foliation. S1 (pyrite) at 30 deg. to c.a. at 605.2m. S1 (sericite, pyrite) at 45 deg. to c.a. at 606.1m. S1 (contact) at 40 deg. to c.a. at 607.9m.	Moderately to strongly sericitized and ankeritic.	**604.5-607.9** Pyrite 5-15% in S1 fracture filling form.	
607.9-611.3 **POLYLITHIC CONGLOMERATE**	Pale grey, medium grained, sandstone matrix with 5-10% polylithic, poorly sorted, subangular to subrounded, lithic size (0.5-2cm) clasts. Moderately developed S1 is defined by clast orientation, and locally by S1 pyrite. Clast composition ranges from black, aphanitic possibly carbonaceous sediment to pale grey, very fine grained possibly sandstone to clasts of replacement pyrite. Pale green, sericitized argillite (?) clasts are noted deeper down the hole. <u>Note:</u> Percentage and size of clasts appear to be decreasing (with pyrite content) downhole. S0/S1 at 60 deg. to c.a. at 611.3m.	Moderately to strongly ankeritic.	**607.9-611.3** S1 pyrite 2-4%.	

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
611.3-618.4 **POLYLITHIC CONGLOMERATE SANDSTONE**	Pale grey, medium grained, sandstone A few minor greywacke/argillite interbeds are noted. Locally polylithic clasts (0.3-1cm) are present. S0/S1 at 40 deg. to c.a. at 615.0m. S0/S1 at 55 deg. to c.a. at 618.4m.	Moderately ankeritic.		
618.4-629.5 **GREYWACKE/ ARGILLITE**	Medium grey, thinly interbedded, greywacke and argillite. Locally S0/S1 is defined by sericitic and pyrite. S0/S1 (pyrite) at 55 deg. to c.a. at 620.8m. S0/S1 (contact) at 45 deg. to c.a. at 629.5m.	Relatively unaltered.		
629.5-644.8 **POLYLITHIC CONGLOMERATE & SANDSTONE**	Pale grey green, medium grained sandstone matrix with 20-30% polylithic clasts are in the polylithic conglomerate beds. Thin to medium interbeds of sandstone (0.1-0.7m) are present. Subangular to subrounded clasts define S1 foliation. 629.5-639.5 Sandstone interbeds contain less pyrite. 639.5-644.8 Polylithic clast composition includes fuchsitic (emerald green) altered clast.	Moderately to strongly ankeritic. **639.5-644.8** Fuchsite/ sericitic alteration.	**629.5-632.1** Pyrite 1-3% in S1 fracture filling form. **632.1-632.7** Pyrite trace to 1%. **632.7-633.4** Py 3-5%. **633.4-634.1** Pyrite trace. **634.1-634.8** Py 1-5%.	

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0 at 45 deg. to c.a. at 640m. Contact at 20 deg. to c.a. at 644.8m.		**634.8-635.3** Pyrite trace. **635.3-639.5** Py 1-5%. **639.5-644.8** Py 1-2%.	
644.8-649.8 **FUCHSITIC, ANKERITIC, SERICITIZED AGGLOMERATE(?)**	Pale grey green, ankeritic, sericitized, agglomerate(?). Emerald green, fuchsitic clasts are present elongated parallel to S1 foliation (strongly developed). Locally subrounded clasts (up to 10cm) are present.			
649.8-667.4 **LITHIC GREYWACKE & GREYWACKE**	Medium grey to grey green, thinly interbedded lithic greywacke and greywacke and argillite. <u>649.8-652.5</u> Angular to subangular fragments (3-7mm) are elongated parallel to S1 foliation. S0/S1 at 30 deg. to c.a. at 649.8m. S0/S1 at 40 deg. to c.a. at 652.5m. <u>652.5-653.6</u> Laminated greywacke/ argillite. <u>653.6-657.5</u> Lithic fragments in the greywacke contain black, aphanitic argillite and pale grey sandstone compositions. S0/S1 at 50 deg. to c.a. at 657.5m.			

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Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	657.5-667.4 Predominantly greywacke with minor lithic fragments present locally. S0/S1 at 50 deg. to c.a. at 667.4m.			
667.4-675.9 **GREYWACKE/ ARGILLITE**	Medium to dark grey, thinly interbedded greywacke and argillite. S0/S1 at 25 deg. to c.a., S2 at 130 deg. to c.a. at 672.4m. S0/S1 at 50 deg. to c.a. at 675.9m.			
675.9-679.3 **ARGILLITE/ CARBONACEOUS ARGILLITE**	Medium grey to black, aphanitic to very fine grained, thinly interbedded argillite and possibly carbonaceous argillite. Pyrite replacement of silty bands is noted locally. S0/S1 at 50 deg. to c.a. at 679.3m.	Unaltered.		
679.3-682.4 **MAFIC FLOW BRECCIAS AND MASSIVE FLOW**	Grey to grey-green, fine grained to aphanitic massive mafic flow and flow breccias. 679.3-680.0 Grey, aphanitic, unit, possibly a massive flow, otherwise a fine grained non-bedded greywacke. Contact at 55 deg. to c.a. 680.0-680.15 Flow breccia, with leucoxenitic matrix. 680.15-681.0 Pale green-grey massive flow.	Chloritic		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	681.0-682.4 Medium to dark grey-green, leucoxenitic mafic flow breccia-variety of angular to subrounded, variably altered clasts in a coarsely leucoxenitic matrix. Moderate to strong S1 at 60 deg. to c.a. Contact parallel to S1, with quartz ankerite veins.			**681.0-682.4** Similar to marker unit termed "agglomerate" within LZ host mafic volcanics.
682.4-809.0 **ULTRAMAFIC FLOWS**	Dark blue-black to brown, altered ultramafic flows. 682.4-695.2 10 to locally 20% S1 foliation-parallel, folded carbonate-quartz veins. S1 at 50-60 deg. to c.a. throughout. 695.2-809.0 Blue-black ultramafics, <2% veining. Excellent flow textures alternating sections of spinifex and hyaloclastite and massive polysutured flow. Sharp flow contacts at 774.5, 795.6m, with gradational contacts from spinifex zone to underlying massive flow; indicate tops uphole.	**682.4-687.2** Talc-serpentine. **687.2-770.0** Talc-chlorite.		**694.4-695.2** RQD <10, R=0=2 **708.3-717.7** RQD 10-30%. R = 1-3
809.0	END OF HOLE			

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Appendix to DD Core Log

HW-91-73W

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Sheet No. 1 OF 10

Project No. 155 Hole No. HW-91-73W

Property **Holloway (P.D.) Lightning Zone**

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
216.0-224.2 **SILICIFIED ARKOSIC SANDSTONE, MINOR GREYWACKE**	Generally massive, with 5-20% stockwork qav's.	100	4-5	10 to >50cm	10-15	100	
224.2-227.0 **GREYWACKE**	Moderate S1 foliation, poorly bedded. S1/S0 at 30-70 deg. to c.a.	90-100	4	5 to >30cm	3-10	100	
227.0-270.0 **DIRECTIONAL DRILLING**	Directional drilling - no core return.						
270.0-272.0 **SILICIFIED ARKOSIC SANDSTONE**	Generally massive; locally 10-15% stockwork qav. Bedding contact at 30 deg. to c.a.	90-100	4-5	10 to >50cm	10-15	100	
272.0-290.0 **DIRECTIONAL DRILLING**	No core return.						
290.0-327.0 **SILICIFIED SANDSTONE & GREYWACKE**	Weak S1, locally developed S2, both sericitic breaks along S1 (10-30 deg.). S2 and/or S2-parallel qav's at 130-140° Veins have sericitic or chloritic margins and may be vuggy (calcitic).	90-100 except from 314.5-315.8 RQD = 20%	4-5	>20cm	13-17	100	**326.0** Minor grinding of core, small piece of end of run.

PAP. E1558

NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 2 OF 10

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
327.0-347.0 **GREYWACKE/ ARGILLITE**	Breaks along moderate S1 and S2 foliations, sericitic at 30-70 deg. and 110-130 deg. to c.a. 344.8-345.7 Penetrative S2, minor gouge at 70 deg. to c.a. parallel to S1.	90-100	4	>10cm	S1 3-9 S2 5-11	100	
347.0-368.8 **FOLIATED, SERICITIZED MAFIC FLOWS, MINOR GREYWACKE**	Breaks along strong S1 and locally penetrative S2 sericitic foliations, also along S1-parallel qav's. S1 at 30-60 deg.; S2 at 100-150° to c.a.	90-100	4	>20cm	S1, S2:3-9 qav 1-3	100	
368.8-375.4 **SERICITIZED GREYWACKE, ARGILLITE, CARBONACEOUS ARGILLITE**	Moderate to strong s1, local strong S2 bedding/S1 at 40-60° S2 at 105-150 deg. Minor qav's parallel S1 and S2. Locally silicified.	90-100	4	5 to >20cm	3-11	100	
375.4-391.1 **TALC-SERPENTINE ULTRAMAFICS**	Talc/serpentine along locally strong S1 foliation at 20-85°. Foliated zones <1m) separate relatively massive rock. 381.4 <1cm talcose gouge at margin of qav at 85 deg. to c.a. subparallel to local S1.	80-100	2-3	5 to >20cm	S1 1-3	100	

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Sheet No. 3 OF 10

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
391.1-424.9 **TALC-SERPENTINE ULTRAMAFICS, INTERCALATED MASSIVE GREYWACKES**	Talc/serpentine along locally strong S1, and subparallel qav margins, as above. Also breaks at contacts with greywacke beds which are relatively competent.	80-100	2-3, 4 in greywackes		5 to >20cm	S1 1-9	100
424.9-429.3 **WEAKLY SILICIFIED GREYWACKE**	Massive unit, 5-15% qav's parallel weak S1 foliation at 40-60 deg.	80-100	4		>20cm	qav 3-11	100
429.3-451.3 **ULTRAMAFICS, MINOR GREYWACKE**	Talc-serpentine along locally strong S1, locally with 10-50% qav stockwork. S1 at 20-50 deg; qav with chloritic margins parallel S1 and at 130-145° deg. to c.a. 445.9 Chloritic slips at qv margin at 20° to c.a. Ultramafic/greywacke contacts parallel S1.	80-100	2-3, 4 in greywackes		10-50cm	1-9	100
451.3-454.9 **GREYWACKE**	Relatively massive unit as from 424.9-429.3. Weak S1 at 30-60°, weakly sericitic.	90-100	3-4	>20cm	3-11	100	

P.A.P. - E.1358

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
454.9-464.2 **SILICIFIED MASSIVE FLOW, LOCALLY 30-80% QAV'S**	Local S1 in flow, unit generally breaks along qav's at +/- 50° to c.a. Veins may have chloritic margins.	90-100 except from **456.6-457.3** RQD <10	4-5	>20cm	qav's: 5-17	100	
	456.9-457.3: Graphite slip at 7 deg. to c.a., polished surface.		2-3		Polished smooth	90	
464.2-469.0 **QAV'S**	Breaks along set 3 qav's cutting bull quartz vein, at 100-140 deg.	50-60	3	<5cm	5-17	98-100	Some broken core.
469.0-472.6 **ULTRAMAFIC**	Breaks along chloritic S1 at 30 deg. to c.a.	**469-470.8** 40-50	3	<5 to 40cm	S1: 3-9	98-100	Some broken core.
		470.8-472.4 90-100		>20cm			
	<u>472.4-472.6</u> Broken core adjacent to contact, with qav's parallel to S1 and contact.	**472.4-472.6** 0		<5cm	qav/S1: 3-11	95	Broken core.
472.6-507.0 **SERICITIC-FUCHSITIC ULTRAMAFIC**	Moderate S1 foliation with sericite and some qav's, weakly talcose from 476.7 to 479.0m.	90-100	3-4	5 to >20cm	S1 3-7	100	
	<u>475.2-476.0</u> Core broken along chloritic S1 foliation and seams at 15-20 deg. to c.a. S1 at ± 30 deg. to c.a. throughout qav's parallel to S1, also at 45-90 deg. to c.a. Strongly foliated from 489.9 to 495.5.	**475.2-476.0** RQD=20-30	3	<5cm	S1 (chl) 1-5	80-90	

NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 5 OF 10

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
	495.5-507.0 Chloritic seams parallel to S1 (selvages?), spaced 1.0-3m at 15-20 deg. to c.a.				Chloritic seams 3-5.		
507.0-510.5 **TALC-CHLORITE ULTRAMAFICS (SERPENTINE)**	Moderately developed foliation with thin serpentine stringers parallel to S1.	90-100	2-3	10 to >20cm	S1 = 1-3	100	
510.5-517.6 **MAFIC FLOW (PROBABLY PILLOWED)**	Moderately foliated, sericitized pillowed flow.	100	4	5 to >20cm	7-11	100	
517.6-533.8 **TALC-SERPENTINE ULTRAMAFIC**	Serpentine along moderately developed S1. S1=50-60° to c.a. Breaks easily along foliation.	60-70%		5-20cm	1-5		
	517.6-518.6 Fault gouge zone-semiconsolidated. Top 20cm strongly fractured, broken rock with quartz veining.	**517.6-518.6** 0%	0-1	<1cm		70	
	523.9-524.2 Semiconsolidated fault gouge. 5-10% cataclastic quartz fragments 0.5cm size and smaller. At 525.0, 10cm fault gouge.	**523.9-524.2** 40-50%	0-1	<1cm		90	

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NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Sheet No. 6 OF 10

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
	529.4-529.7 Zone of broken core with 10% quartz veining.						
533.8-548.3 ANKERITIC MASSIVE MAFIC FLOW	Weak foliation at 45-55 deg. to c.a. Joint sets developed at 145 and 120 deg. to c.a. (roughly orthogonal to S1).	90-100	4	10 to <20cm	9-13	100	
548.3-555.9 SILICIFIED MASSIVE MAFIC FLOW	Moderate to strong S1 at 30-60 deg. to c.a. Local S2 at 110-130 deg. to c.a., with local associated qav's.	90-100	4-5	10 to 30cm	S1 3-9 S2/qav 7-15	100	
555.9-565.2 LITHIC GREYWACKE	Moderate to strong S1 at ±60 deg. to c.a., folded with locally developed S2 cleavage at 110-140 deg. Graphitic slip at 555.9m, at 125 deg. to c.a. Strike roughly orthogonal to S1 (ie: roughly north-south).	90-100	4	10 to >20cm	S1 3-9 S2 7-15 graphitic slip at 555.9=3-5	100	Minor (1cm) broken core above slip at 555.9m.
565.2-574.1 GREYWACKE, MINOR ARGILLITE	S1 at 50 deg. to c.a., generally controls fractures.	90-100	4	10cm-1.0m	7-11	100%	
574.1-578.8 POLYLITHIC CONGLOMERATE	S0/S1 at 60 deg. to c.a., generally controls fractures.	90-100	4	10-80cm	7-9	100%	

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NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
578.8-590.0 GREYWACKE, MINOR ARGILLITE	S0/S1 at 50 deg. to c.a., generally controls fractures.	90-100	4	10-70cm	7-9	100%	
590.0-598.9 POLYLITHIC CONGLOMERATE	590.0-590.4 Blocky, irregular fracture.	10	4	1-10cm	7-10	80%	
	590.4-594.4 S0/S1 at 50 deg. to c.a.	90-100	4	20-70cm	7-9	100	
	594.4-594.7 Blocky, irregular fracture.	10	4	1-10cm	7-10	80	
	594.7-598.9 S1/S0 at 25 deg. to c.a.	90-100	4	1-70cm	7-9	100	
598.9-604.5 GREYWACKE	S0/S1 between 30-60 deg. to c.a., fractures generally at 50 deg. to c.a.	90-100	4	10-80cm	7-9	100	
604.5-607.9 FOLIATED, PYRITIC GREYWACKE/ ARGILLITE	S0/S1 (sericite, pyrite) at 30-45 deg. to c.a.	90-100	4	10cm-1m	7-9	100	
607.9-618.4 POLYLITHIC CONGLOMERATE & SANDSTONE	S0/S1 at 40-60 deg. to c.a.	90-100	4	10cm-1m	7-9		

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
618.4-629.5 GREYWACKE/ ARGILLITE	S0/S1 at 45-55 deg. to c.a.	90-100	4	10-80cm	9-11	100	
629.5-644.8 POLYLITHIC CONGLOMERATE/ SANDSTONE	S0/S1 at 30-45 deg. to c.a. 644.3-644.5 Blocky ground.	90-100 0	4	10cm-1m 0.5-2cm	9-11	100	
644.8-649.8 POLYLITHIC AGGLOMERATE (?)	S1 at 20-30 deg. to c.a.	90-100	4	10cm-1m	9-11	100	
649.8-677.4 LITHIC GREYWACKE, MINOR ARGILLITE	S0/S1 at 40-50 deg. to c.a. 657.9-658.7 Blocky ground.	90-100 0	4	10cm-1m 0.5-3cm	9-11	100	
677.4-675.9 GREYWACKE/ ARGILLITE	S0/S1 at 30-50 deg. to c.a. S2 locally at 130 deg. to c.a.	90-100	4	10cm-1m	9-11	100	
675.9-679.3 ARGILLITE/ CARBONACEOUS ARGILLITE	S0/S1 at 40-50 deg. to c.a.	90-100	4	10-80cm	9-11	100	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Sheet No. 9 OF 10

Project No. 155 Hole No. HW-91-73W

Property Holloway (P.D.) Lightning Zone

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
679.3-682.4 **MASSIVE FLOWS AND FLOW BRECCIAS**	S1 at 50-60 deg. to c.a., minor S1-parallel qav's.	90-100	4	20-50cm	7-11	100	
682.4-806.0 **TALC-SERPENTINE ULTRAMAFICS**	682.4-687.2 Talcose, 5-20% carbonate veining along moderate S1 foliation at 50-60 deg. to c.a.	80-90	3	2-20cm	7-11	100	
	687.2-694.4 Serpentinized S1 at 50-70 deg. to c.a.; 5-30% S1-parallel carbonate veining.	70-90	2-3	1-10cm	5-11	99-100	Minor ground core at 695m.
	694.4-695.2 Serpentinized S1 at 50-70 deg. 3cm of R=0 at 694.5m.	<10	0-2	<5cm	5-11	100	
	695.2-708.2 Serpentinized fairly massive, breaks along planes at 40-60 deg. to c.a.	80-90	3	10-40cm	7-11	100	
	708.2-717.7 Serpentinized Local strong S1 at 20-50 deg. to c.a. Crumbled zones spaced <1m, separated by more competent rock.	0-30	0-3	<1 to 20cm	5-11	95-100	
	717.7-732.5 Talc-chlorite-serpentine, fairly massive.	80-90	3	5-30cm	5-11	100	

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** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: T3w
GRID: HOLLOWAY

DATE: April 10 1991
SURVEY BY: D. Broughton
INSTRUMENT: gyro to 762m

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-77.00	360.00	5700.000	4619.500	5.730
31.00	-76.80	361.10	5700.067	4626.526	-24.463
61.00	-76.75	361.40	5700.217	4633.388	-53.668
91.00	-75.75	362.00	5700.429	4640.515	-82.808
122.00	-76.00	362.60	5700.732	4648.074	-112.871
152.00	-76.33	363.70	5701.127	4655.237	-142.000
182.00	-76.42	363.30	5701.558	4662.291	-171.156
214.00	-75.25	363.20	5702.002	4670.109	-202.183
228.60	-73.50	361.80	5702.173	4674.038	-216.244
243.80	-69.67	360.00	5702.249	4678.839	-230.665
259.10	-67.58	356.00	5702.054	4684.412	-244.913
274.30	-65.08	362.70	5701.985	4690.514	-258.834
289.60	-63.50	361.10	5702.205	4697.148	-272.619
304.80	-63.42	360.00	5702.270	4703.939	-286.218
320.00	-62.83	359.60	5702.246	4710.810	-299.776
335.30	-62.83	359.80	5702.210	4717.796	-313.388
365.70	-62.17	360.60	5702.259	4731.834	-340.353
396.20	-62.50	360.40	5702.382	4745.994	-367.366
426.70	-61.67	359.60	5702.382	4760.273	-394.317
457.20	-60.58	359.30	5702.241	4775.001	-421.025
487.70	-60.50	359.70	5702.110	4790.001	-447.581
518.10	-60.08	359.80	5702.044	4805.067	-473.985
548.60	-59.75	360.80	5702.124	4820.356	-500.376
579.10	-59.17	360.80	5702.341	4835.853	-526.645
609.60	-58.67	360.90	5702.574	4851.597	-552.767
640.10	-57.67	361.80	5702.953	4867.678	-578.680
670.50	-56.33	363.00	5703.647	4884.220	-604.176
701.00	-55.58	362.80	5704.511	4901.274	-629.448
731.50	-55.25	364.60	5705.628	4918.550	-654.558
762.00	-54.25	365.00	5707.101	4936.092	-679.465
806.00	-53.75	369.00	5710.253	4961.761	-715.062

ASSAY LOG
PROPERTY: HOLLOWAY
HOLE No.: 73w

FROM	TO	WIDTH	au g/t	R1	R2
221.60	222.70	1.10	0.050	N.S.	N.S.
222.70	223.20	0.50	0.150	N.S.	N.S.
223.20	224.20	1.00	0.030	N.S.	N.S.
352.95	352.96	0.01	N.S.	N.S.	N.S.
355.40	356.40	1.00	0.010	0.010	0.010
356.40	357.70	1.30	7.260	7.340	7.170
357.70	359.40	1.70	2.060	1.820	2.300
359.40	360.20	0.80	10.680	10.770	10.590
360.20	361.00	0.80	1.680	1.470	1.890
361.00	361.40	0.40	7.630	7.650	7.610
361.40	362.10	0.70	5.830	5.730	5.930
362.10	363.70	1.60	0.770	0.820	0.720
363.70	364.20	0.50	2.240	2.330	2.160
364.20	364.60	0.40	0.660	0.690	0.620
364.60	365.70	1.10	0.100	0.100	0.100
365.70	366.10	0.40	6.660	6.450	6.860
366.10	367.10	1.00	0.080	0.070	0.100
367.10	367.60	0.50	11.280	11.310	11.250
367.60	368.60	1.00	0.030	0.030	0.030
368.60	368.80	0.20	2.470	2.400	2.540
368.80	370.60	1.80	0.020	0.010	0.030
370.60	372.00	1.40	0.070	0.070	0.070
372.00	372.90	0.90	0.070	0.070	0.070
372.90	374.70	1.80	0.020	0.030	0.010
374.70	375.40	0.70	0.120	0.100	0.140
375.40	376.70	1.30	NIL	NIL	NIL
453.80	454.90	1.10	NIL	NIL	NIL
454.90	455.90	1.00	7.760	6.840	8.675
455.90	457.30	1.40	0.890	N.S.	N.S.
457.30	458.90	1.60	1.440	N.S.	N.S.
458.90	460.30	1.40	0.170	N.S.	N.S.
460.30	461.70	1.40	0.600	N.S.	N.S.
461.70	462.80	1.10	0.790	N.S.	N.S.
462.80	464.20	1.40	0.050	N.S.	N.S.
464.20	465.45	1.25	0.010	N.S.	N.S.
465.45	465.70	0.25	1.890	N.S.	N.S.
465.70	467.00	1.30	0.100	N.S.	N.S.
467.00	468.60	1.60	0.050	N.S.	N.S.
468.60	470.00	1.40	NIL	NIL	NIL
483.50	485.00	1.50	0.010	N.S.	N.S.
485.00	486.00	1.00	0.260	N.S.	N.S.
486.00	487.00	1.00	0.010	N.S.	N.S.
487.00	488.10	1.10	0.030	N.S.	N.S.
488.10	489.20	1.10	0.030	N.S.	N.S.
489.20	490.50	1.30	0.030	N.S.	N.S.
490.50	492.00	1.50	0.010	N.S.	N.S.
504.50	506.00	1.50	0.030	N.S.	N.S.
506.00	507.00	1.00	0.120	N.S.	N.S.
507.00	507.50	0.50	0.010	N.S.	N.S.
507.50	508.20	0.70	0.010	N.S.	N.S.

PROPERTY: HOLLOWAY
HOLE No.: 73w

FROM	TO	WIDTH	au g/t	R1	R2
508.20	509.20	1.00	0.010	N.S.	N.S.
509.20	510.50	1.30	0.010	N.S.	N.S.
603.00	604.50	1.50	0.010	N.S.	N.S.
604.50	606.00	1.50	0.010	N.S.	N.S.
606.00	607.00	1.00	0.010	N.S.	N.S.
607.00	607.90	0.90	0.060	N.S.	N.S.
607.90	609.50	1.60	0.030	N.S.	N.S.
609.50	610.50	1.00	0.030	N.S.	N.S.
610.50	611.30	0.80	0.080	N.S.	N.S.
628.00	629.50	1.50	0.010	N.S.	N.S.
629.50	631.00	1.50	0.050	N.S.	N.S.
631.00	632.10	1.10	0.020	N.S.	N.S.
632.10	632.70	0.60	0.050	N.S.	N.S.
632.70	633.40	0.70	0.800	N.S.	N.S.
633.40	634.10	0.70	0.050	N.S.	N.S.
634.10	634.80	0.70	0.040	N.S.	N.S.
634.80	635.30	0.50	0.010	N.S.	N.S.
635.30	636.50	1.20	0.010	N.S.	N.S.
636.50	638.00	1.50	0.010	N.S.	N.S.
638.00	639.50	1.50	0.010	N.S.	N.S.
639.50	641.00	1.50	0.010	N.S.	N.S.

==========

1. 1/3 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5702.24
FROM:	352.95	NORTHINGS:	4725.95
		ELEVATION:	-329.04

-0.000 au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5702.24
TO:	352.96	NORTHINGS:	4725.95
		ELEVATION:	-329.05

2. 3/4 CONTACT (0.20 d.t. Core Angle: 90 0.20 t.t.)

		EASTINGS:	5702.27
FROM:	368.60	NORTHINGS:	4733.18
		ELEVATION:	-342.92

2.470 au g/t (Cut to: 34.290)
2.400 R1
2.540 R2

		EASTINGS:	5702.27
TO:	368.80	NORTHINGS:	4733.27
		ELEVATION:	-343.10

3. LZ (5.70 d.t. Core Angle: 90 5.70 t.t.)

		EASTINGS:	5702.24
FROM:	356.40	NORTHINGS:	4727.54
		ELEVATION:	-332.10

5.256 au g/t (Cut to: 34.290)
5.175 R1
5.335 R2

		EASTINGS:	5702.25
TO:	362.10	NORTHINGS:	4730.17
		ELEVATION:	-337.16

4. FWZ (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	5702.25
FROM:	454.90	NORTHINGS:	4773.89
		ELEVATION:	-419.01

7.760 au g/t (Cut to: 34.290)
6.840 R1
8.675 R2

		EASTINGS:	5702.25
TO:	455.90	NORTHINGS:	4774.37
		ELEVATION:	-419.89

5. MZ (5.70 d.t. Core Angle: 90 5.70 t.t.)

		EASTINGS:	5702.24
FROM:	356.40	NORTHINGS:	4727.54
		ELEVATION:	-332.10

5.256 au g/t (Cut to: 34.290)
5.175 R1
5.335 R2

		EASTINGS:	5702.25
TO:	362.10	NORTHINGS:	4730.17
		ELEVATION:	-337.16

LATITUDE 5700.0E

DEPARTURE 4493.09N

ELEVATION +2.11m

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 1060 CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS cut-off 107WAat 394-397m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data.			

Sheet No. 1 OF 24

Project No. 155 Hole No. HW-91-107W

Property Holloway/ Lightning Zone.

NTS. 32D/12 TWP. Holloway Claim No. _____

Date started April 15,1991 completed May 12,1991

Contractor Bradley Bros.

Logged by D. Broughton, B. Alexander, K. Green

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
394.0-397.0	Cut-off, no core return.			
397.0-405.0 GREYWACKE	Medium green-grey, fine to medium grained, thickly bedded greywacke. Moderately developed S1, spaced S2 cleavage. S2 at 115 deg. to c.a. at 400.5m.	Weakly sericitized. Moderately to strongly ankeritized.		
405.0-416.0 DIRECTIONAL DRILLING	No core return.			
416.0-418.1 CARBONATED ULTRAMAFIC (MARKER UNIT)	Pale grey-green to buff-grey, strongly foliated, granular-textured, fine to medium grained, carbonate or ultramafic sediment? Identical to marker unit in host mafics. Strong S1, locally crenulated by S2, becomes stronger (schistose) downhole. Contact parallel to S1 at 10 deg. to c.a.	Strongly ankeritized, weakly sericitized.		Note: Standard core barrel 416.0-693.0m.

P.A.P. - 14064

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 24

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
418.1-423.4 SERICITIZED GREYWACKE/ ARGILLITE	Yellow-green to yellow-buff, fine grained greywacke locally thinly interbedded with argillite. Bedding parallel to S1 at 15 deg. to c.a. at 419.0m. S2 crenulation cleavage developed below 419.5m.	Moderately to strongly sericitized and ankeritized. 418.1-419.2 S1 (95). 420.0-423.4 S1 (95).		
423.4-426.9 CARBONATED ULTRAMAFIC SEDIMENT	Same as interval between 416.0 and 418.1m. Contact at 30 deg. to c.a. at 426.9m, parallel S1.	Moderately ankeritic, and locally sericitic.		
426.9-435.0 SERICITIZED GREYWACKE/ ARGILLITE	Pale grey to green, very fine grained, thinly bedded greywacke and argillite. So/S1 at 30 deg. to c.a. at 434.9m.	Moderately to strongly sericitized and ankeritic.		
435.0-483.7 GREYWACKE, MINOR ARGILLITE	Medium grey green, very fine to fine grained, thin to medium bedded greywacke and minor argillite. S0/S1 at 15 deg. to c.a. at 461.3m. S0/S1 at 55 deg. to c.a., S2 at 100 deg. to c.a. at 467.5m. S0/S1 at 15 deg. to c.a., S2 at 65 deg. to c.a. at 473.1m. S0 at 155 deg. to c.a. at 473.4m.	Weakly sericitized. 470.3-476.8 Moderately sericitized.		

P.A.P. - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
483.7-489.1 SERICITIZED ARGILLITE/ GREYWACKE	Pale green, aphanitic to very fine grained, thinly bedded argillite and greywacke.	483.7-489.1 Strongly sericitized.		
489.1-499.0 GREYWACKE/ ARGILLITE	Grey green, very fine to fine grained, thinly bedded greywacke and argillite. S0 at 165 deg. to c.a. at 491.7m. S0 at 25 deg. to c.a. at 491.9m. S0/S1 at 70 deg. to c.a. at 498.9m. Contact at 120 deg. to c.a. at 499.0m.			
499.0-502.7 FOLIATED, LEUCOXENITIC, MASSIVE MAFIC FLOW	Medium grey green, very fine grained, moderately foliated, leucoxenitic, massive mafic flow. S1 at 30 deg. to c.a. at 499.5m. Contact (parallel S1) at 70 deg. to c.a. at 502.7m.			
502.7-504.4 FOLIATED, MASSIVE MAFIC FLOW	Pale to medium grey green, aphanitic to very fine grained, moderately to strongly foliated, massive mafic flow S1 (pyrite) at 60 deg. to c.a. at 503.5m. Contact (parallel S1) at 50 deg. to c.a. at 504.4m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 4 OF 24

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
504.4-507.0 **FOLIATED, LEUCOXENITIC, MASSIVE, MAFIC FLOW**	Medium grey green, very fine grained, moderately foliated, leucoxenitic, massive mafic flow. Contact (parallel S1) at 65 deg. to c.a. at 507.0m.			
507.0-513.0 **FOLIATED, PILLOWED MAFIC FLOW**	Pale to dark grey green, aphanitic to very fine grained, strongly foliated and contorted, possibly pillowed mafic flow. Locally dark green, chloritic, narrow weakly developed selvages are noted. Contact (parallel S1) at 60 deg. to c.a. at 513.0m.			
513.0-527.3 **LEUCOXENITIC MASSIVE, MAFIC FLOW**	Medium grey green, very fine grained, weakly foliated, leucoxenitic, massive mafic flow. Contact (parallel S1) at 65 deg. to c.a. at 527.3m.			
527.3-532.6 **MASSIVE, MAFIC FLOW**	Medium grey green, aphanitic to very fine grained, weakly foliated, massive, mafic flow. 527.3-528.5 Dark green to black, chlorite filled amygdules are present, elongated parallel to a weakly developed S1 foliation. S0/S1 at 55 deg. to c.a. at 532.6m.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
532.6-533.1 **GREYWACKE/ ARGILLITE**	Medium grey green, very fine to fine grained, thinly bedded greywacke/argillite.			
533.1-535.0 **VARIOLITIC, MASSIVE MAFIC FLOW**	Medium grey green, aphanitic, locally variolitic, weakly foliated, massive mafic flow.			
535.0-536.6 **FOLIATED, VARIOLITIC, MAFIC FLOW BRECCIA**	Pale to dark grey green, aphanitic, strongly foliated, variolitic, flow brecciated mafic flow. S0/S1 at 50 deg. to c.a. at 535.0m. S1 at 55 deg. to c.a. at 536.6m.			
536.6-538.7 **SILICIFIED, PYRITIC, MASSIVE MAFIC FLOW**	Pale grey to grey green, very fine grained, massive mafic flow. Contact at 70 deg. to c.a. at 538.7m.	**536.6-538.7** 100% silicified.	**536.6-538.7** Pyrite trace to 2%, in S1 fracture filling form.	
538.7-541.6 **FOLIATED, VARIOLITIC, MAFIC FLOW BRECCIA**	Pale to medium grey green, aphanitic, strongly foliated, locally variolitic, mafic flow breccia.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 24

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
541.6-545.1 MASSIVE, MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. S1 at 40 deg. to c.a. at 545.1m. Not a flow contact.			
545.1-550.0 PILLOWED MAFIC FLOW	Grey green to bleached, aphanitic to fine grained, amygdaloidal pillowed mafic flow. Locally varioles form coalesced bands along S1 (ie at 545.2m). <5% S1-parallel qav's with associated bleaching. Contact placed at lower most selvage.	Local silicification, sericitization associated with qav's.		
550.0-554.35 MASSIVE FLOW BASE	Pale to medium green, very fine to fine grained massive flow base. Locally, bleaching is associated with S1-parallel qav's. S1 moderately developed, at 60 deg. to c.a. at 552.7m.	Local sericitization and ankeritization, chloritized.	550.7-551.2 Local massive pyrite clots in S1-parallel qav's.	
	553.0-553.9 20-40% qav's, folded, appear to be S1-parallel variety.	553.0-553.9 Sericitized, locally silicified.	553.0-553.9 5% fine to medium grained pyrite, disseminated along S1 and qav margins.	
	553.9-554.35 Yellow-buff, moderately (S1) foliated, <5% S1-parallel qav's, weak S2 alteration contact parallel to S1 at 45 deg.	553.9-554.35 Moderately sericitized and ankeritized, sericite overprints early chlorite.	553.9-554.35 1 to locally 3% fine grained pyrite. disseminated along S1 and S1-parallel qav's.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	554.35-554.75 Dark green to beige, strongly (S1) foliated, locally finely leucoxenitic. Boudinaged grey quartz ± ankerite veins, also rare chloritic fragments possibly boudinaged chlorite veins? This section may be fine-grained equivalent to underlying marker unit. Contact parallel to S1 at 45 deg. to c.a.	554.35-554.75 Locally chloritic or sericitic.		
554.75-555.4 FOLIATED ANKERITIZED KOMATIITIC BASALT	Dark green-grey, ribbon ankerite-chlorite-quartz ± leucoxene (?) marker unit. Very strong S1 foliation defined by ribbons of chlorite and ankerite-quartz, giving a coarse texture. Possibly a carbonated komatiitic basalt, or carbonate sediment. Contact at 50 deg. to c.a., parallel to S1, marked by sharp alteration change.	Very strongly ankeritized, chloritic. Local weak hematite.		
555.4-560.2 MASSIVE MAFIC FLOW	Dark green to yellow, fine grained, leucoxenitic, massive facies basaltic flow.			
	555.4-556.2 Grades from dark purple grey, hematized upper section (to 555.7m) to dark green, chloritic section. Strongly foliated at top, foliation intensity decreases downhole. Upper section similar to texture to overlying marker unit.	555.4-556.2 Local hematization, strong ankerite-chloritized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 8 OF 24

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	556.2-556.8 Medium green, chloritic, with local buff sericitic alteration haloes around flat set 3 qav's at 556.3m. Moderate to strong S1.	Chloritic, local sericitic moderately to strongly ankeritized.		
	556.8-560.2 Yellow-green, moderately foliated (S1). Local 5cm qav at 558.4m. 558.7m: S2 at 115 deg., S1 at 40 deg. to c.a. * S1/S2 = 60-90 deg. S1 flattens to 80-90 deg. to c.a. at lower contact.	Sericitized.		
560.2-561.1 HYALOCLASTITE/ MASSIVE FLOW BASE	Pale yellow to yellow-green, strongly foliated flow top hyaloclastite, grades to non-foliated, massive facies flow base. 560.2-560.4 Flow top.			
	560.4-561.1 Massive flow base, 10-30% grey to white stockwork qav's. Silicified zone is non-foliated, sharp contacts with non-silicified, strongly foliated adjacent units.	560.4-561.1 S1 (100), moderate sericitization and ankeritization.	560.4-561.1 2-4% fine to medium grained pyrite, disseminated and along qav margins.	
561.1-573.1 FOLIATED, HYALOCLASTITE LOCALLY VARIOLITIC	Yellow-green to dark green to locally purple, flow top hyaloclastite, locally variolitic, and minor massive flow. Moderate to locally strong S1 foliation.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 24

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	561.1-565.1 Yellow-green to yellow, variolitic (below 562.0m) hyaloclastite. Strongly foliated to 562.0m.	561.1-565.1 Moderate to strong sericitization and ankeritization, S1 (30).	Local trace pyrite.	
	Moderately foliated to 565.1. 2-3% 1-4cm varioles, S1 at ± 20 deg. to c.a., cut by orthogonal set 3 (flat) qav's, from 562.5-565.1m.	Flat veins have sericitic haloes, overprinting chloritized wall rock.		
	565.1-567.1 Dark green to purple-grey, strongly foliated variolitic hyaloclastite. Magnetite, varioles commonly magnetic. S1 at 20-30 deg. to c.a. throughout. 3-5% S1-parallel qav's, rare late flat qav's. 5% sub 1cm varioles.	565.1-567.1 Chloritized, moderately hematized. Moderately to strongly ankeritized.		
	567.1-571.3 Dark green, locally variolitic hyaloclastite with minor massive flow. No sharply defined flow contacts. Magnetic to 570.2. 1-3% S1-parallel qav's. Strongly foliated.	567.1-571.3 Chloritized, moderately ankeritized.		
	571.3-573.1 Yellow-green to weakly purplish, strongly foliated; possibly hyaloclastite. Contains 5 to locally 10% boudins of purplish grey quartz. Contact parallel to S1 at 30 deg. to c.a.	571.3-573.1 Strong sericitization, ankeritization, local silicification (S1 20).		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 24

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
573.1-577.25 **FOLIATED POLYLITHIC MAFIC FLOW BRECCIA (MARKER UNIT)**	Dark green, locally leucoxenitic, fine grained mafic matrix with 5-20% volcanic and possibly sedimentary fragments. Types include dark to pale (chloritic) green and fine grained basalt, amygdaloidal basalt, sericitized massive flow/sediment and cherty sediment. Lower 40cm possibly contains some greywacke as matrix. Fragments generally angular, but strongly flattened and stretched. Note: Upper 30cm is free of fragments, and is similar to the foliated, carbonated marker unit seam at 554.75-555.4. This grades downhole into the fragmental section described above-grading in fragment size indicates tops uphole. Contact sharp at 45 deg. to c.a., parallel to S1.	Moderately ankeritized.		
577.25-584.0 **SILICIFIED LOCALLY VARIOLITIC HYALOCLASTITE; 95% VARIOLITIC FLOW, AND MASSIVE MAFIC (LIGHTNING ZONE)**	577.25-578.2 Pale grey, locally variolitic hyaloclastite, varioles <1cm in size. Weakly S1 foliation to locally undeformed - foliation intensity decreases sharply below upper contact. 578.2-578.8 Yellow-green to locally pale grey, sericitized, very fine grained massive flow. Strong S1 foliation, at 70 deg. to c.a. at 578.2m. Gradational contact.	**577.25-578.2** S1 (100) strong weak to moderate ankeritization. **578.2-578.8** S1 (60)-weakly silicified, moderate to locally strong sericitization and ankeritization.	**577.25-578.2** Pyrite 5-7% fine grained to locally coarse grained; disseminated and in fractures, along S1. **578.2-578.8** Pyrite 5-8% medium to coarse grained, disseminated along S1.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	578.8-579.6 Pale grey, locally variolitic (<1%) hyaloclastite, varioles <1cm. Contact at 90 deg. to c.a., marked by 1cm of layered pyrite, sericite.	578.8-579.6 S1 (100), strong to moderate ankeritization.	578.8-579.3 Pyrite 5-7% fine to coarse grained, in clots and stringers, minor disseminated. 579.3-579.5 Pyrite 20% fine to medium grained, in large clot/stringer.	
	579.6-580.3 Pale grey, possibly massive flow. Weak S1 or non-foliated. Lacks clear hyaloclastite or variolitic textures. Gradational contact.	579.6-580.3 S1 (100) strong moderate ankeritization, local weak sericitization.	579.5-580.3 3 to locally 5% pyrite, fine to coarse grained, disseminated in local stringers.	
	580.3-581.8 Pale grey to pale cream, 95% variolitic flow. Could mistake as massive flow, but can see local radiating variolitic textures, and anastomosing sericite-pyrite "stringers" marking variole margins. Varioles 0.5 to 4cm in size. Weakly to moderately deformed-S1 at 30 deg. to c.a. at 580.9m. Matrix only locally visible-possibly massive flow? Cut by 2-3% flat-lying grey qav's orthogonal to S1 at 135 deg. to c.a. These have pale grey, locally sericitic and pyritic 2cm alteration haloes, over-printing both chloritic green matrix and cream coloured variolitic flow. 15cm qav at 581.2m. Gradational contact, sericitic and foliated, S1 at 30 deg. to c.a.	580.3-581.8 S1 (95) moderate to strong, weakly sericitized, moderately ankeri-tized locally chlor-itic groundmass, generally sericitic.	580.3-581.8 1-3% pyrite fine grained, along S1 and in qav's and haloes.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	581.8-584.0 Pale grey hyaloclastite, locally variolitic, possibly minor massive flow. Varioles <1cm in size. Foliation generally weak to absent; but local section has moderately developed S1 and S2, at 582.6-582.8m.	581.8-584.0 S1 (95) strong except for bottom 30cm. Weak to moderate ankeritization.	581.8-583.7 3% fine to coarse grained pyrite, disseminated along S1 and in qav's. 583.7-584.0 5-7% medium to coarse grained pyrite, disseminated along S1.	
	S1 at 60 deg., S2 at 140 deg.-in zone of strong silicification. F2 folding at least in part predates Lightning Zone silicification. 1-3% irregular white/grey qav's, probably set 3. Becomes strongly foliated, with banded sericitized/silicified sections, below 583.7m. Contact placed at lower most pale grey alteration.	583.7-584.0 Moderate to strong sericitization.		
584.0-586.5 SILICIFIED, SERICITIZED FOLIATED VARIOLITIC MASSIVE FLOW; MASSIVE FLOW	Pale yellow-green to cream, moderately to locally strongly foliated, variolitic massive flow, massive flow and local flow breccia/hyaloclastite. S1 at 40-50 deg. to c.a. throughout. 584.0-584.8 10-50% cream coloured, 1-4cm varioles in massive flow. Varioles deformed, X:Z=3-5:1. 584.8-585.6 Non-variolitic, local flow top textures. 585.6-586.5 Massive, non-variolitic flow.	S1 (70), weak to moderate. Pervasive moderate sericitization and weak to moderate ankeritization.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 24

Project No. 155 Hole No. NW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 at 30-45 deg. to c.a. throughout contact at 45 deg. to c.a.			
568.0-588.0 FOLIATED FLOW BRECCIA/ ARGILLITE-GREYWACKE	Dark brownish grey, strongly foliated, banded fine grained sericite and medium to coarse grained ankerite-quartz, locally with flow top textures. Possibly fine grained sediments.	Strongly ankeritized, moderately sericitized.		
588.0-603.1 TALC-CHLORITE ULTRAMAFICS	Dark green-grey to dark grey, strongly foliated to massive, ultramafic flows and breccias. Spinifex at 589.0m. S1 broadly folded to 591.0m. S1 at 60 deg. to c.a. at 597.0m. 600.6 5cm fault gouge, parallel to S1 at 30 deg. to c.a.	Talc-chlorite, local serpentine.		
603.1-638.3 MASSIVE BASALTIC FLOWS	Pale grey-green to dark green-grey, moderately to locally strongly foliated, locally leucoxenitic (618.0 to 619.2), massive basaltic flows. Strongly foliated to 607.0m, S1 at 65 deg. to c.a. at 604.5m. S1 at 40 deg. to c.a. at 617.0m. 625.7-626.3 Gradational colour change development of patchy pale grey alteration.	Pervasive moderate ankeritization; Moderately sericitized, locally weakly fuchsitic. 614.9-626.3 Chloritic, moderately ankeritized.		

P.A.P. - E1568

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 15 OF 24

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	649.2-651.0 Gradational contact to non-fuchsitic ultramafic flow breccia.			
651.0-710.0 FOLIATED, ANKERITIC FLOW BRECCIATED ULTRAMAFIC FLOW	Pale grey, very fine grained, strongly ankeritic matrix with olive green, ultramafic flow brecciated fragments (0.5-7cm) elongated parallel to S1 foliation. S1 foliation is moderately to strongly developed. S1 at 35 deg. to c.a. at 651.0m. S1 at 10 deg. to c.a., S2 (chlorite, sericite) at 140 deg. to c.a. at 657.0m. S1 at 20 deg. to c.a., S2 at 130 deg. to c.a. at 666.9m. 685.5-686.7 Massive, beige, basaltic komatiitic flow, with possible varioles at 686.6m. S1 at 25 deg. to c.a. at 687.5m. 693.5-697.0 S1 foliation at 15 deg. to c.a. Relic spinifex texture is noted. S1 at 40 deg. to c.a., S2 at 140 deg. to c.a. at 699.3m. 703.4-704.2 Grey to beige, quartz replacement vein, cut by later white quartz veins (flat; set 3?) 705.2-706.2, 706.7-707.2 Replacement quartz (silicification) cut by later white quartz as above replacement quartz cuts S1.	651.0-710.0 Strongly ankeritized, weak talc, serpentine.		Note: Double standard core barrel 693.0-1060.0 meters. S1/S2 intersect perpend. to core axis (subhori-tonzal, E-W if S1 strikes E-W).

P.A.P. - E-1658

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W1

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	626.3-638.3 Pale to medium grey, fine to medium grained, coarsely leucoxenitic. S1 fairly constant at 25-50 deg. to c.a. S1 at 30 deg. to c.a. at 636.8m. Contact parallel to S1 at 40 deg. to c.a. at 638.3m.	626.3-638.3 Strong ankeritization, chlorite/sericite.		
638.3-640.8 FOLIATED, MASSIVE, LEUCOXENITIC, MAFIC FLOW	Medium green to pale grey, very fine to fine grained, moderately to strongly foliated, leucoxenitic, massive, mafic flow. S1 (sericite, pyrite) at 40 deg. to c.a., parallel contact at 40 deg. to c.a. at 640.8m.	638.3-640.8 Moderately chloritized.		
640.8-646.8 MASSIVE, MAFIC FLOW	Medium grey green, very fine grained, weakly foliated, massive mafic flow. S1 (sericite, pyrite) at 50 deg. to c.a. at 644.4m. Contact (parallel S1) at 40 deg. to c.a. at 646.8m.	640.8-646.8 Dark green chlorite, and pale green sericite along S1 foliation.		
646.8-651.0 FOLIATED, ANKERITIC, FUCHSITIC, FLOW BRECCIA ULTRAMAFIC	Olive to pale green to pale grey, very fine grained to fine grained, weakly to moderately foliated, strongly ankeritic, fuchsitic, ultramafic flow breccia. 646.8-649.2 Moderately to strongly developed S1 foliation. S1 (fuchsite) at 20 deg. to c.a. at 648.2m.	646.8-649.2 Strongly ankeritic and fuchsitic.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	649.2-651.0 Gradational contact to non-fuchsitic ultramafic flow breccia.			
651.0-710.0 FOLIATED, ANKERITIC FLOW BRECCIATED ULTRAMAFIC FLOW	Pale grey, very fine grained, strongly ankeritic matrix with olive green, ultramafic flow brecciated fragments (0.5-7cm) elongated parallel to S1 foliation. S1 foliation is moderately to strongly developed. S1 at 35 deg. to c.a. at 651.0m. S1 at 10 deg. to c.a., S2 (chlorite, sericite) at 140 deg. to c.a. at 657.0m. S1 at 20 deg. to c.a., S2 at 130 deg. to c.a. at 666.9m. 685.5-686.7 Massive, beige, basaltic komatiitic flow, with possible varioles at 686.6m. S1 at 25 deg. to c.a. at 687.5m. 693.5-697.0 S1 foliation at 15 deg. to c.a. Relic spinifex texture is noted. S1 at 40 deg. to c.a., S2 at 140 deg. to c.a. at 699.3m. 703.4-704.2 Grey to beige, quartz replacement vein, cut by later white quartz veins (flat; set 3?) 705.2-706.2, 706.7-707.2 Replacement quartz (silicification) cut by later white quartz as above replacement quartz cuts S1.	651.0-710.0 Strongly ankeritized, weak talc, serpentine.		Note: Double standard core barrel 693.0-1060.0 meters. S1/S2 intersect perpend. to core axis (subhori-tonzal, E-W if S1 strikes E-W).

P.A.P.-E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
710.0-727.5 **PILLOWED/ MASSIVE BASALTIC KOMATIITE**	Pale green to olive green, massive basaltic komatiite grading to pillowed same, at 713.1m (1st selvage). Selvages 1-3cm, dark green to black, chloritic, spaced 10-40cm, locally 1.8m. Moderate to strong S1 foliation, consistent at 10-40 deg. to c.a. <2% S1-parallel qav's. S1 at 25 deg. to c.a. at 714.5m. Pillowed to 722.5m. 722.5-727.5 Massive komatiitic flow; foliation becomes stronger downhole. Local 10-20% qav's. S2 at 135 deg. to c.a. at 725.4m.	Weak ankerite, weak to strong (in selvages) chlorite.		
727.5-752.6 **TALC-SERPENTINE ULTRAMAFIC FLOW**	Pale green to black, weakly foliated to schistose, talc-serpentine altered ultramafic flows. 727.5-736.5 Overall 10-20% boudinaged and broken qav's. 733.7-739.1 Strongly foliated to schistose fault zone with scattered narrow fault gouge and seams - see geotechnical log. S1 at 40-60 deg. throughout. 739.1-745.2 Strongly foliated, S1 at 45 deg. to c.a. at 744.5m.	Talc, serpentine. **739.1-745.2** Talc, serpentine.		**727.5-752.6** Ductile-brittle fault zone. **727.5-736.5** 10-20% broken quartz-carbonate veins. **733.7-739.1** Strongly foliated, local fault gouge zones.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 17 OF 24

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	745.2-748.2 Fault zone-strongly foliated to schistose, local gouge, see geotechnical log. 748.2-752.6 Strongly foliated, S1 at 60 deg. to c.a. at 751.0m. Contact at 70 deg. to c.a.			745.2-748.2 Local gouge zones, strongly foliated. Note: Cemented hole 720-845 on May 2/91. When drilling cement, parts were soft and not set (waited 16-19 hrs).
752.6-754.5 LEUCOXENITIC MAFIC FLOW	Medium green, fine grained, leucoxenitic, massive facies basaltic flow. Moderately developed S1 and S2 fractures. S2 at 135 deg. to c.a. at 753.6m. 30cm qav at lower contact.	Strongly ankeritized.	Trace to local 1-3% medium to coarse grained pyrite, generally disseminated along s1.	
754.5-773.6 TALCOSE ULTRAMAFIC VOLCANIC	Green-grey to olive green, talcose ultramafic flow. S1 moderately to strongly developed, local S2. S1 at 35 deg. to c.a. at 759.5m. S2 at 120 deg. to c.a. at 760.6m. 764.6-764.85 Lens of basaltic flow, green-grey, mineralized. S1 at 30 deg. to c.a. at 771.5m.	Moderately to strongly ankeritized, talc-serpentine.	764.6-764.85 3% medium to coarse grained, disseminated and clustered pyrite.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
773.6-807.5 CONGLOMERATE/ GREYWACKE	Medium green to locally grey-green, weakly foliated poorly bedded and sorted conglomerate with a mafic/greywacke matrix. Fragments are subrounded-subangular and are up to 1-2cm size. Unit is locally folded with sharp hinges and long limbs. At 781.0, S0 = S1 = 50 deg. Locally fine leucoxene occurs in the matrix. At 789.0, S1 = 40 deg. to c.a. 789.8-790.4 Zone of fractured core. At 794.0, S1 = S0 = 10 deg. to c.a. At 801.0, S1 = S0 = 45 deg. to c.a.	Chloritized, moderate to weak ankerite.		789.8-790.4 Fracture zone RQD 5%
807.5-823.7 GREYWACKE	Grey to pale yellow-green, fine to medium grained, locally coarse grained greywacke. Moderate to locally very strongly foliated - S1 at 90 deg. to c.a. at 810.0m. Local S2 crenulation cleavage - S1 at 0-10 deg., S2 at 120 deg. to c.a. at 812.6m. Overall 5% quartz ankerite veins.	Local sericitization associated with qav's. Pervasive moderate ankeritization.		
823.7-874.8 POLYLITHIC CONGLOMERATE	Grey to grey-green, poorly bedded and sorted, polylithic conglomerate. Clasts are subrounded, range up to 5cm in size and are weakly to moderately flattened in S1. Clast size and abundance increases downhole from 823.7m, indicating tops are uphole.	Pervasive moderate ankeritization. Pervasive weak to moderate sericiti-zation, locally fuchsitic.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Clast types include amygdaloidal basalt, grey massive basalt, greywacke-sandstone, no felsic granitic clasts or jasper. Moderately to strongly foliated, S1 locally crenulated by S2. Matrix is similar to overlying greywacke. S1 at 30 deg. to c.a. at 835.7m. Note: S1 is generally folded. Clast compositions include feldspar porphyry, fuchsitic ultramafic, quartz. Size ranges from 0.3cm - 15cm. S1 at 25 deg. to c.a. at 838.1m. S1 at 35 deg. to c.a. at 847.3m (pyrite). S1 at 50 deg. to c.a. at 870.2m.			
874.8-892.4 FOLIATED GREYWACKE	Medium grey green, strongly foliated, and folded, greywacke and lithic greywacke with <3% argillite beds. Note: S0/S1 is folded and ranges from subparallel to generally 50 deg. to c.a. S0/S1 at 65 deg. to c.a. at 877.4m. S0/S1 at 50 deg. to c.a. at 880.0m. S0/S1 at 50 deg. to c.a. at 887.2m, S2 = 130 deg.	Moderate ankerite, local weak sericite. 875.5-881.0 Weak to moderate sericite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 20 OF 24

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Unit is characterized by 3-10% augend quartz and ankerite fragments up to 10cm sized, also 2-10% foliation parallel ankerite bands (veins) and alteration bands. Locally crenulation cleavage is well developed. Throughout unit appears to be possibly tuffaceous on certainly reworked sediment. 1-2% <0.1mm sized sub-angular quartz crystals in matrix together with chlorite/amphibole crystals of same size, 3-5% of rock. Locally see pale buff, ripped up soft sediment-mud clasts that have been deformed.			
892.4-897.7 GREYWACKE	Medium grained, well bedded, medium to light green grey greywacke with local 0.5-1cm subangular clasts (<1%) at 895.0, S0 = 20 deg. 895.8-897.7 Medium to dark green interbedded greywacke with 5% argillite, cut by 10-15% quartz veining. Zone strongly fractured.			895.8-897.7 Fractured quartz vein zone, RQD= 35-40%.
897.7-907.5 GREYWACKE/ ARGILLITE	Dark green, finely interbedded greywacke and argillite. Moderately folded overall and well crenulated. At 900.0, S0 = 0 deg., S2 = 125 deg. Contact bedded at 55 deg. to c.a., parallel to S1.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 21 OF 24

Project No. 155 Hole No. HW-91-107W.

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
907.5-937.7 **CONGLOMERATE**	Yellow-grey, poorly sorted, matrix-supported polylithic conglomerate. Clasts up to 5cm in size are common, clast types include quartz veins cherty sediment, fuchsitic ultramafic (?), and sericitic mafic volcanics. Leucoxene occurs locally in the matrix, which is a fine to coarse grained greywacke. Moderate to strong S1 foliation, locally tightly folded with S2 crenulations. S1 at 45 deg. to c.a. at 911.6m. 917.4-919.4 10-15%, 3-10cm grey qav's, parallel to S1 at 40-60 deg. to c.a. S1 at 40 deg. to c.a. at 930.0m. 936.4-937.7 Matrix of conglomerate has local concentrations of 1-2% plagioclase crystals. Gradational to underlying section.	Weakly sericitized, weakly to moderately ankeritized. Becomes weakly to moderately calcitic below 930.0m.	917.4-921.5 Locally 1-2% medium grained pyrite in matrix. 927.6-940.2 1-3% locally 3-20% fine to coarse grained pyrite, disseminated in matrix also possible very fine grained sphalerite	
907.5-937.7 **POLYLITHIC CONGLOMERATE WITH REWORKED PLAGIOCLASE CRYSTALS IN MATRIX**	Grey-green, polylithic conglomerate as above, but with local 5-10% 1-5mm, subangular to slightly rounded plagioclase crystals in groundmass, along with >60% subangular to subrounded quartz. Feldspar from reworking of crystal tuff.	weak sericite moderate calcite	Lower contact sharp at 30° to core axis. associated with the fine grained pyrite.	

P.A.P. - E.1568

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway (P.D) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
940.2-942.5 GREYWACKE/ ARGILLITE	Green-grey, medium grained greywacke with rare local clasts (same as matrix to conglomerate), with minor interbedded argillite. S0 at 40 deg. to c.a. at 941.0m. Bedded contact at 50 deg. to c.a.	Moderate calcite.	Locally trace to 1% pyrite.	
942.5-947.2 CONGLOMERATE WITH REWORKED PLAGIOCLASE CRYSTALS IN MATRIX	Green-grey, plagioclase crystal-rich conglomerate, similar to 937.7-940.2 but lacking the clast variety and abundance. Minor interbedded fine grained greywacke and argillite. Local gash-type qav's, generally subparallel to S1 at 30-50 deg. to c.a. Sharp contact, at approximately 40 deg. to c.a.	Moderate to strong calcite.	Locally 1-2% coarse grained pyrite.	
947.2-950.6 GRADED, CHLORITIC GREYWACKE/ CONGLOMERATE, WITH REWORKED PLAGIOCLASE CRYSTALS	Dark grey to grey, graded unit of greywacke and basal conglomerate, with increasing size and percentage of plagioclase crystals downhole. The lower conglomeratic section (949.0-950.6m) is similar to 942.5-947.2. Moderate to strong S1, at 45 deg. to c.a. at 949.0m. Lower contact at 50 deg. to c.a.	Moderate to strong calcite. Chloritized to 949.0m.	Locally trace to 1% coarse grained pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-107W.

Property Holloway (P.D) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
950.6-955.7 MASSIVE BASALTIC FLOW	Dark green-grey, very fine grained, massive basaltic flow, locally amygdaloidal. Coarsely leucoxenitic from 955.0-955.7. Moderate S1 foliation at 40-60 deg. to c.a. Contact broken.	Chlorite-calcite.		
955.7-972.7 TALC-CHLORITE KOMATIITIC FLOWS	Grey-green, komatiitic flows with well developed spinifex-bearing tops grading to massive flow bases. Flow thickness increases downhole, from 0.9m to 2.4m. to (8). Moderately foliated, with local 5-10% S1-parallel quartz-carbonate (ankerite/calcite) veins. S1 at 30 deg. to c.a. at 956.0m. S1 at 40 deg. to c.a. at 966.5m. Lower contact at 25 deg. to c.a. at 972.7m.	Talc-chlorite-ankerite, local calcite in veins.		
972.7-974.2 PILLOWED MAFIC FLOW TOP	Pale to medium grey green, aphanitic, weakly developed pillowed mafic flow top. S1 at 45 deg. to c.a. at 974.2m.			
974.2-981.6 MASSIVE, MAFIC FLOW	Medium grey green, very fine to fine grained, massive mafic flow. Fine grained flow center is noted.			

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DIAMOND DRILL CORE LOG

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Project No. 155

Hole No. HW-91-107W.

Property

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization Holloway (P.D) Lightning Zone
981.6-985.1 PILLOWED, VARIOLITIC FLOW TOP BRECCIA	Pale to dark grey green, aphanitic, pillowed, variolitic flow top breccia. Angular flow breccia fragments and locally weakly developed selvages are noted. Irregular, sharp upper contact is noted. Contact gradational at 987.8m.		
985.1-987.8 MASSIVE MAFIC FLOW BASE	Medium grey green, very fine grained, massive mafic flow base. Contact at 40 deg. to c.a. at 987.8m.		
987.8-999.4 PORPHYRITIC, MASSIVE MAFIC FLOW	Medium to dark grey green, fine grained, porphyritic mafic flow. Locally "ovoid" carbonate alteration, resembling amygdules, is present. Dark green, chloritized, subhedral pyroxene (?) phenocrysts are noted (104mm). Gradational lower contact.		
999.4-1001.4 FLOW BRECCIATED MAFIC FLOW	Medium grey green, very fine grained, weakly flow brecciated mafic flow base. Dark green chlorite and pyrite infilling irregular fractures. Contact at 50 deg. to c.a. at 1001.4m.		999.4-1000.4 Pyrite 1-2% in very fine grained, fracture filling blebs.
1001.4-1060.0 TALC-	Olive grey green, talc-serpentine ultramafic komatiite flow(s). Well developed spinifex texture is present	Talc-serpentine moderately to strongly ankeritized.	1005.8-1007.7 RQD = 20 Frac. freq. =

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-107B

Property Holloway)P.D) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
SERPENTINE ULTRAMAFIC KOMATIITE FLOW	to 1005.5m. 1005.5-1012.3 Locally massive. 1012.3-1015.4 Flow brecciated, and poorly developed polysuturing. 1021.9-1025.5 Polysuturing is moderately developed. 1030.8-1060.0 Irregular, dark green to black, chlorite filled annealed fractures, local polysuturing.			0.5-30cm. Problems with sand and water pressure from seams-4hrs to recover tube, hole stopped.
1060.0	END OF HOLE			

P.A.P. - E-1568

Appendix to DD Core Log

HW-91-~~29W~~ 107W

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
394.0-397.0	Cut-off from 107W, no core return.						
397.0-405.0 GREYWACKE	S2 at 115 deg. to c.a., sericitic.	90-100	4	10-70cm	13-17	100	
405.0-416.0	Directional drilling, no core return.						
416.0-418.1 ULTRAMAFIC SEDIMENT	S1 at 10-30 deg. to c.a., sericitic-carbonate.	90-100	3	5-50cm	3-7	100	
418.1-423.4 GREYWACKE/ ARGILLITE	S1 at 10-40 deg. to c.a., local S2 at 110-140 deg.	90-100	4	5-30cm	3-7, 13-17	100	
423.4-426.9 FOLIATED ULTRAMAFIC SEDIMENT	S1 at 10 to 20 deg. to c.a.	90-100	3	5-30cm	5-7	100	
426.9-499.0 GREYWACKE/ ARGILLITE	S1 at 5-50 deg. to c.a.	90-100	4	5-100cm	3-7	100	
499.0-507.0 MASSIVE, MAFIC FLOW	S1 at 50-70 deg. to c.a.	90-100	4	10-80cm	7-9	100	

NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 2 OF 9

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
507.0-513.0 PILLOWED MAFIC FLOW	S1 contorted	90-100	4	10-70cm	7-9	100	
513.0-532.6 MASSIVE, MAFIC FLOW	S1 at 60-65 deg. to c.a.	90-100	4	5-70cm	7-9	100	
532.6-533.1 GREYWACKE/ ARGILLITE	S1 at 55 deg. to c.a.	90-100	4	5-40cm	7-9	100	
533.1-535.0 VARIOLITIC, MASSIVE MAFIC FLOW	S1 at 40-60 deg. to c.a.	90-100	4	40-90cm	7-9	100	
535.0-536.6 FOLIATED, VARIOLITIC, MAFIC FLOW BRECCIA	S1 at 40-60 deg. to c.a.	90-100	4	10-90cm	7-9	100	
536.6-538.7 SILICIFIED, PYRITIC MASSIVE MAFIC FLOW	Irregular qav, associated pyrite & silicification	90-100	5	10-90cm	7-9	100	

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NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
538.7-541.6 FOLIATED, VARIOLITIC MAFIC FLOW BRECCIA	S1 at 30-70 deg. to c.a.	90-100	4	10-60cm	7-9	100	
541.6-545.1 MASSIVE MAFIC FLOW	S1 at 40 deg. to c.a.	90-100	4	10-50cm	7-9	100	
545.1-550.0 PILLOWED FLOW	S1 at 30-50 deg. to c.a., chlorite, sericite.	90-100	4	20-50cm	7-9	100	
550.0-560.2 MASSIVE FLOW	S1 at 30-60 deg. to c.a., chlorite, sericite, locally strongly foliated.	90-100	4	10-50cm	5-9	100	
560.2-573.1 VARIOLITIC HYALOCLASTITE	S1 at 20-50 deg. to c.a., chlorite, sericite, generally strongly foliated. Local S2 at 120-140 deg. to c.a.	90-100	4-5	10-50cm	5-9	100	
573.1-577.25 POLYLITHIC MAFIC FLOW BRECCIA	Strong S1 foliation at 30-40 deg. to c.a, chlorite, sericite.	80-100	4	1-70cm (S1)	3-9	100	

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NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 4 OF 9

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
577.25-584.0 SILICIFIED HYALOCLASTITE (LIGHTNING ZONE)	Weak S1 to massive. S1 at 30-60 deg. to c.a.	90-100	5	10-50cm	11-19	100	
584.0-588.0 VARIOLITIC FLOW, FLOW BRECCIA, ARGILLITE/ GREYWACKE	S1 at 30-60 deg., chlorite, sericite.	90-100	4-5	10-40cm	5-9	100	
588.0-603.1 TALC-CHLORITE ULTRAMAFICS	S1 at 0-90 deg. to c.a. (folded) talc-chlorite-serpentine, locally strong S1. <u>599.0-600.6</u> S1 at 30-60 deg. to c.a. 600.6: 5cm fault gouge along S1 at 30 deg. to c.a. <u>600.6-603.1</u> S1 at 40-70 deg. to c.a.	80-100	3	5-40cm	1-7	100	
603.1-638.3 FOLIATED, MASSIVE, MAFIC FLOW	S1 at 40 to 60 deg. to c.a.	90-100	4	10-80cm	7-9	100	

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NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Sheet No. 5 OF 9

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
638.3-640.8 FOLIATED, LEUCOXENITIC, MASSIVE MAFIC FLOW	S1 at 40 deg. to c.a.	90-100	4	10-80cm	7-9	100	
640.8-646.8 MASSIVE, MAFIC FLOW	S1 at 40-50 deg. to c.a.	90-100	4	10-80cm	7-9	100	
646.8-651.0 FOLIATED, ANKERITIC, FUCHSITIC, FLOW BRECCIATED ULTRAMAFIC	S1 at 20-40 deg. to c.a.	90-100	3-4	10-80cm	7-9	100	
651.0-710.0 FOLIATED, ANKERITIC FLOW BRECCIATED ULTRAMAFIC	S1 at 10-35 deg. to c.a. S2 at 130-140 deg. to c.a., locally.	80-100	2-4	10-80cm	7-9	100	
	666.8-667.6 S2 spaced 3-10cm	30-40	2-3	3-10cm	3-9	100	
	670.5-671.0 S1 at ± 20 deg. to c.a. S2 weak or absent below 680m.	10-20	2	<5cm	3-5	100	
	693.5-696.5 S1 at approximately 15 deg. to c.a. Fracturing at 20-30 deg. to c.a.	50	3	10-40cm	5-9	95	

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NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 6 OF 9

GEOTECHNICAL LOG

Project No. 155 Hole No. HN-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
710.0-727.5 **BASALTIC KOMATIITE**	S1 at 10-40 deg. to c.a.	90-100	3	5-50cm	1-9	100	
727.5-752.6 **TALC-SERPENTINE FOLIATED ULTRAMAFICS**	727.5-736.5 10-20% boudinage qav's in foliated ultramafic-irregular orientation.	727.5-733.7 70-90	3	10-30cm	3-9	100	
	733.7-739.1 Fault zone, with talc/clay gouge at 733.7-733.8, 734.9, 736.0-736.4 (with grit), 738 (grit seam), 738.2-738.5 (local, along S1), and 739.1. All gouge zones along S1 at 40-50 deg. to c.a.	733.7-739.1 0-10	0-2	<20cm	1-5	80-90	
	739.1-745.2 Strong foliated to schistose, talcose S1 at 45 deg.	70-80	2	10-40cm	1-5	100	
	745.2-748.2 Schistose, local talcose gouge along foliation planes at 745.3 (5cm gouge), at 746.7-748.2 (RQD=0, RH=0)-rock crumbles under pressure.	0-10	0-2	<10cm	1-3	90-95	
	748.2-752.6 Strongly foliated (60 deg.) to schistose, talcose; no fault gouge.	10	1-2	<15cm	1-5	100	
752.6-754.5 **LEUCOXENITIC MAFIC FLOW**	Chloritic S1 and S2 foliations. S2 at 120-140 deg. to c.a.	90-100	3-4	5-40cm	5-11	100	

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NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 7 OF 9

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
754.5-773.6 TALC-SERPENTINE ALTERED ULTRAMAFIC VOLCANIC	Talcose/chloritic S1, local S2 S1 at 30-70 deg. to c.a. S2 at 120 deg. to c.a.	90-100	3	5-50cm	5-11	100	
773.6-807.5		90-100	3-4	10-70cm	5-11	100	
CONGLOMERATE	789.8-790.4 Fracture zone.	0-5	3-4	<10cm	5-11	80	Reduced water return. Drilling mud helped get return back.
807.5-823.7 GREYWACKE	Moderately to strongly S1 folded by s2.	90-100	3-4	10-60cm	5-11	100	
823.7-874.8 CONGLOMERATE	Moderately foliated, S1 folded by S2.	90-100	3-4	10-70cm	5-11	100	
874.8-892.4 FOLIATED GREYWACKE	Strongly foliated, S1 over-printed by S2 crenulation cleavage.	90-100	3-4	5-60	5-11	100	
	896.2-897.7 Fracture zone with 10-15% quartz veining.	35-40	3-4	2-30	8-11	100	896.2-897.7 Drill rods become tight after drilling past this fracture zone. Greased rods and drilled OK.

PAP - E-1958

NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 8 OF 9

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
892.4-907.5 GREYWACKE/ ARGILLITE	Weakly foliated, well bedded, moderately folded and crenulated.	90-100	3-4	10-70	7-11	100	
907.5-937.7 CONGLOMERATE	Sericitic S1 at 40-60 deg. to c.a., moderately developed. Also fractures orthogonal to S1.	90-100	3-4	20-100cm	S1 5-11 fractures 3-7	100	
937.7-950.6 FELDSPAR-CRYSTAL CONGLOMERATE LOCAL GREYWACKE	S1 at 40-60 deg. to c.a., fractures orthogonal to S1.	90-100	3-4	20-80cm	S1 5-11 fractures 3-7	100	
950.6-955.7	950.6-954.7 S1 at 40-60 deg.	90-100	3-4	10-40cm	S1, 5-11	100	
BASALTIC FLOW	954.7-955.7 Mechanically broken core.	0	2-3	<5cm		80	954.7-955.7 Reported seam; returned broken core.
955.7-972.7 KOMATIITIC FLOWS	Moderate S1 (talc-chlorite) at 30-50 deg.	80-100	3	15-50cm	S1 5-11	100	
972.7-1001.4 MAFIC FLOWS	Weak S1 at 45-5- deg. to c.a. locally.	90-100	3-4	10-90cm	5-9	100	

PAP E 1558

NORANDA EXPLORATION COMPANY LIMITED

Sheet No. 9 OF 9

GEOTECHNICAL LOG

Project No. 155 Hole No. HW-91-107W

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
1001.4-1060.0 KOMATIITIC ULTRAMAFIC (TALC-SERPENTINE)	Irregular fracture pattern.	80-100	3	2-70cm	5-11	100	
	1005.8-1007.7 Blocky, irregular fractures 10-30 deg. to c.a.	20	3	0.5-20cm	5-11	100	
1060.0	END OF HOLE						

PAP E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
OLE NO: 107w
RID: HOLLOWAY

DATE: May 13 1991
SURVEY BY: DB RBA
INSTRUMENT: avgv-336:corgv-1027:fict

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-78.42	360.00	5700.000	4493.090	2.110
31.00	-77.79	359.00	5699.944	4499.479	-28.224
61.00	-77.50	358.30	5699.793	4505.897	-57.530
92.00	-77.04	358.00	5699.573	4512.724	-87.768
122.00	-77.00	357.50	5699.308	4519.457	-117.001
153.00	-76.96	357.50	5699.003	4526.435	-147.204
183.00	-76.83	357.00	5698.677	4533.229	-176.423
214.00	-76.58	357.00	5698.304	4540.348	-206.592
244.00	-76.14	357.20	5697.946	4547.414	-235.746
275.00	-76.04	357.10	5697.575	4554.857	-265.837
305.00	-75.79	355.00	5697.073	4562.140	-294.935
336.00	-75.58	355.60	5696.444	4569.779	-324.972
350.50	-75.50	355.90	5696.176	4573.390	-339.013
365.70	-75.42	358.30	5695.983	4577.201	-353.726
396.20	-70.00	366.10	5696.331	4586.259	-382.848
426.70	-68.83	372.30	5698.046	4596.845	-411.401
457.20	-69.33	369.60	5700.114	4607.537	-439.890
487.70	-68.83	367.10	5701.696	4618.313	-468.379
518.10	-68.08	365.20	5702.892	4629.412	-496.655
548.60	-67.08	363.80	5703.804	4641.009	-524.850
609.60	-66.17	364.30	5705.514	4665.150	-580.843
640.10	-65.42	365.70	5706.604	4677.608	-608.662
670.50	-65.42	366.60	5707.958	4690.180	-636.307
701.00	-65.83	367.30	5709.481	4702.675	-664.088
731.50	-65.42	368.70	5711.233	4715.140	-691.870
762.00	-64.75	367.70	5713.066	4727.858	-719.531
792.40	-64.00	368.30	5714.896	4740.877	-746.941
823.00	-63.08	368.60	5716.899	4754.364	-774.336
853.40	-63.33	366.50	5718.700	4767.949	-801.471
888.90	-62.67	366.60	5720.538	4783.961	-833.102
914.40	-61.33	365.30	5721.779	4795.868	-855.617
944.80	-60.50	365.70	5723.196	4810.578	-882.184
975.30	-60.03	365.90	5724.724	4825.628	-908.668
1005.80	-59.00	366.20	5726.355	4841.015	-934.952
1027.10	-58.50	366.20	5727.549	4852.000	-953.161
1060.00	-58.00	366.00	5729.388	4869.214	-981.138

SUMMARY LITHO LOG
PROPERTY: HOLLOWAY
HOLE No.: 107w

LITHO UNIT	DEPTH	EASTINGS	NORTHINGS	ELEVATION	CORE ANGLE
	365.00	5695.99	4577.03	-353.05	none
WEDGE S1	368.00	5696.01	4577.88	-355.92	none
1b	377.00	5696.11	4580.56	-364.52	none
DIR DRILL	397.00	5696.38	4586.54	-383.60	none
1b	405.00	5696.83	4589.31	-391.09	none
DIR DRILL	416.00	5697.44	4593.13	-401.38	none
5a ank fol	418.10	5697.56	4593.86	-403.35	none
1b.c.ser	423.40	5697.86	4595.70	-408.31	none
5a ank fol	426.90	5698.06	4596.92	-411.59	none
1b.c.ser	435.00	5698.61	4599.75	-419.15	none
1b	483.70	5701.49	4616.90	-464.64	none
1c.b.ser	489.10	5701.75	4618.82	-469.68	none
1b.c	499.00	5702.14	4622.44	-478.89	none
3a.1x.fol	502.70	5702.29	4623.79	-482.33	none
3a.fol	504.40	5702.35	4624.41	-483.91	none
3a.1x.fol	507.00	5702.46	4625.36	-486.33	none
3b.fol	513.00	5702.69	4627.55	-491.91	none
3a.1x	527.30	5703.17	4632.91	-505.16	none
3a	532.60	5703.33	4634.93	-510.06	none
1bc	533.10	5703.34	4635.12	-510.52	none
3a var	535.00	5703.40	4635.84	-512.28	none
3c var fol	536.60	5703.45	4636.45	-513.76	none
3a sl(100) p	538.70	5703.51	4637.24	-515.70	none
3c var fol	541.60	5703.59	4638.35	-518.38	none
3a	545.10	5703.70	4639.68	-521.61	none

SUMMARY LITHO LOG
PROPERTY: HOLLOWAY
HOLE No.: 107w

LITHO UNIT	DEPTH	EASTINGS	NORTHINGS	ELEVATION	CORE ANGLE
3b loc sl	550.00	5703.84	4641.56	-526.13	none
3a l sl	554.35	5703.97	4643.28	-530.13	none
3d fg ank fo	555.40	5703.99	4643.70	-531.09	none
3a chl ank	560.20	5704.13	4645.60	-535.50	none
3c;3a sl(100	561.10	5704.15	4645.96	-536.32	none
3c hval lvr	565.10	5704.27	4647.54	-540.00	none
3c hvl vr he	567.10	5704.32	4648.33	-541.83	none
3c hyl lvr c	571.30	5704.44	4649.99	-545.69	none
3c ser ank s	573.10	5704.49	4650.70	-547.34	none
3d,loc1b? fo	577.25	5704.61	4652.35	-551.15	none
3c hval l va	580.30	5704.69	4653.55	-553.95	none
3ca sl(90)	584.00	5704.80	4655.02	-557.34	none
3ac lvr sl(7	586.50	5704.87	4656.01	-559.64	none
3c/1c ank se	588.00	5704.91	4656.60	-561.02	none
4ab l.fol	600.60	5705.26	4661.59	-572.58	none
FZ	600.70	5705.26	4661.63	-572.67	none
4ab l.fol	603.10	5705.33	4662.58	-574.88	none
3a fol	638.30	5706.54	4676.87	-607.02	none
3a lx fol	640.80	5706.63	4677.90	-609.30	none
3a	646.80	5706.90	4680.38	-614.75	none
4c bx ank fo	651.00	5707.09	4682.12	-618.57	none
4 flbx ank f	710.00	5710.00	4706.35	-672.29	none
4a plw	727.50	5711.00	4713.51	-688.23	none
4ab fol	733.70	5711.37	4716.06	-693.87	none
4ab f.z.	739.10	5711.69	4718.31	-698.76	none

SUMMARY LITHO LOG
PROPERTY: HOLLOWAY
HOLE No.: 107W

LITHO UNIT	DEPTH	EASTINGS	NORTHINGS	ELEVATION	CORE ANGLE
4ab fol	745.20	5712.06	4720.85	-704.29	none
4ab f.z.	748.20	5712.24	4722.10	-707.02	none
4ab fol	752.60	5712.50	4723.94	-711.01	none
3a lx lpv1-3	754.50	5712.62	4724.73	-712.73	none
4a fol	773.60	5713.76	4732.83	-729.99	none
1f cgl/1b	807.50	5715.88	4747.53	-760.46	none
1b fol	823.70	5716.94	4754.68	-774.96	none
1f cgl	874.80	5719.81	4777.60	-820.54	none
1b.str.fol	892.40	5720.71	4785.60	-836.19	none
1b	897.70	5720.97	4788.07	-840.87	none
1b.c	907.50	5721.44	4792.65	-849.52	none
1f cgl	937.70	5722.86	4807.14	-875.98	none
1f cgl;plag	940.20	5722.98	4808.35	-878.16	none
1b.c	942.50	5723.09	4809.46	-880.17	none
1f cgl;plag	947.20	5723.32	4811.76	-884.27	none
1b,cgl,plag.	950.60	5723.49	4813.44	-887.22	none
3a	955.70	5723.74	4815.96	-891.65	none
4a,spfx	972.70	5724.59	4824.34	-906.41	none
3b	974.20	5724.67	4825.09	-907.71	none
3a	981.60	5725.06	4828.81	-914.10	none
3b,var.fbx	985.10	5725.25	4830.57	-917.11	none
3a	987.80	5725.39	4831.93	-919.44	none
3a.px.por	999.40	5726.01	4837.79	-929.44	none
3c	1001.40	5726.12	4838.80	-931.16	none
4ab loc spfx	1060.00	5729.39	4869.21	-981.14	none

** DORSURV **

ASSAY LOG
PROPERTY: HOLLOWAY
HOLE No.: 107w

FROM	TO	WIDTH	Au g/t	R1	R2
499.00	499.05	0.05	N.S.	N.S.	N.S.
535.00	536.60	1.60	0.030	N.S.	N.S.
536.60	537.60	1.00	0.400	N.S.	N.S.
537.60	538.70	1.10	0.080	N.S.	N.S.
538.70	540.00	1.30	0.070	N.S.	N.S.
552.00	553.00	1.00	0.020	0.020	0.030
553.00	553.90	0.90	0.760	0.790	0.720
553.90	554.40	0.50	0.120	0.100	0.140
554.40	555.40	1.00	0.010	0.010	0.010
557.40	558.40	1.00	0.040	N.S.	N.S.
558.40	559.40	1.00	0.010	N.S.	N.S.
559.00	560.40	1.40	3.680	3.700	3.670
560.40	561.10	0.70	10.540	10.390	10.700
561.10	562.10	1.00	1.400	1.340	1.470
575.00	576.10	1.10	0.120	0.070	0.170
576.10	577.25	1.15	0.220	0.140	0.310
577.25	578.20	0.95	23.640	23.310	22.970
578.20	579.30	1.10	25.340	25.300	25.370
579.30	579.50	0.20	45.340	45.530	44.160
579.50	580.30	0.80	28.820	28.460	27.980
580.30	581.80	1.50	10.680	10.800	10.560
581.80	583.00	1.20	17.250	17.250	17.250
583.00	584.00	1.00	22.580	23.310	21.840
584.00	585.00	1.00	0.600	0.690	0.510
585.00	586.00	1.00	0.070	0.070	0.070
588.00	588.05	0.05	N.S.	N.S.	N.S.
638.30	638.31	0.01	N.S.	N.S.	N.S.
698.50	700.00	1.50	0.030	N.S.	N.S.
700.00	701.40	1.40	1.680	N.S.	N.S.
701.40	702.40	1.00	0.020	N.S.	N.S.
702.40	703.40	1.00	1.710	N.S.	N.S.
703.40	704.20	0.80	25.390	29.010	22.010
704.20	705.20	1.00	0.100	N.S.	N.S.
705.20	706.20	1.00	0.010	N.S.	N.S.
706.20	706.70	0.50	0.010	N.S.	N.S.
706.70	707.20	0.50	0.010	N.S.	N.S.
707.20	708.30	1.10	0.010	N.S.	N.S.
708.30	709.40	1.10	0.010	N.S.	N.S.
751.60	752.60	1.00	0.010	N.S.	N.S.
752.60	753.60	1.00	0.010	N.S.	N.S.
753.60	754.50	0.90	0.010	N.S.	N.S.
754.50	755.50	1.00	0.010	N.S.	N.S.
916.00	917.40	1.40	0.010	N.S.	N.S.
917.40	918.30	0.90	0.030	N.S.	N.S.
918.30	919.40	1.10	0.010	N.S.	N.S.
919.40	920.70	1.30	0.010	N.S.	N.S.
920.70	921.60	0.90	0.010	N.S.	N.S.
921.60	923.00	1.40	0.010	N.S.	N.S.
923.00	924.50	1.50	0.030	N.S.	N.S.
924.50	926.00	1.50	0.010	N.S.	N.S.

ASSAY LOG
PROPERTY: HOLLOWAY
HOLE No.: 107W

FROM	TO	WIDTH	Au g/t	R1	R2
926.00	927.50	1.50	0.010	N.S.	N.S.
927.50	929.00	1.50	0.010	N.S.	N.S.
929.00	930.50	1.50	0.010	N.S.	N.S.
930.50	932.00	1.50	0.010	N.S.	N.S.
932.00	933.50	1.50	0.010	N.S.	N.S.
933.50	935.00	1.50	0.010	N.S.	N.S.
935.00	936.30	1.30	0.010	N.S.	N.S.
936.30	937.00	0.70	0.030	N.S.	N.S.
937.00	937.70	0.70	0.010	N.S.	N.S.
937.70	939.00	1.30	0.010	N.S.	N.S.
939.00	940.20	1.20	0.010	N.S.	N.S.
940.20	941.20	1.00	0.010	N.S.	N.S.
941.20	942.20	1.00	0.010	N.S.	N.S.
942.20	943.30	1.10	0.010	N.S.	N.S.
943.30	944.90	1.60	0.010	N.S.	N.S.
944.90	946.40	1.50	0.010	N.S.	N.S.
946.40	947.20	0.80	0.020	N.S.	N.S.
947.20	948.20	1.00	0.010	N.S.	N.S.

AVERAGED ASSAY INTERVALS
PROPERTY: HOLLOWAY
HOLE No: 107w

==========

1. LZ (6.75 d.t. Core Angle: 60 5.85 t.t.)

		EASTINGS:	5704.61
FROM:	577.25	NORTHINGS:	4652.35
		ELEVATION:	-551.15

20.673 Au g/t (Cut to: 34.290)
21.046 R1
20.641 R2

		EASTINGS:	5704.80
TO:	584.00	NORTHINGS:	4655.02
		ELEVATION:	-557.34

2. 1/3 CONTACT (0.05 d.t. Core Angle: 90 0.05 t.t.)

		EASTINGS:	5702.14
FROM:	499.00	NORTHINGS:	4622.44
		ELEVATION:	-478.89

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5702.14
TO:	499.05	NORTHINGS:	4622.46
		ELEVATION:	-478.94

3. 3/4 CONTACT (0.05 d.t. Core Angle: 90 0.05 t.t.)

		EASTINGS:	5704.91
FROM:	588.00	NORTHINGS:	4656.60
		ELEVATION:	-561.02

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5704.91
TO:	588.05	NORTHINGS:	4656.62
		ELEVATION:	-561.06

4. FWZ (1.80 d.t. Core Angle: 90 1.80 t.t.)

		EASTINGS:	5709.56
FROM:	702.40	NORTHINGS:	4703.25
		ELEVATION:	-665.36

12.234 Au g/t (Cut to: 34.290)
12.893 R1
9.782 R2

		EASTINGS:	5709.67
TO:	704.20	NORTHINGS:	4703.98
		ELEVATION:	-667.00

5. MZ (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	5703.45
FROM:	536.60 ----------	NORTHINGS:	4636.45
		ELEVATION:	-513.76

0.400 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5703.48
TO:	537.60 ----------	NORTHINGS:	4636.83
		ELEVATION:	-514.68

LATITUDE 5700.0E

DEPARTURE 4493.09N

ELEVATION +2.11m

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 408.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS Wedged from 107, plug at 373m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See gyro for 107WA			

Sheet No. 1 OF 1

Project No. 155 Hole No. HW-91-107WA

Property Holloway

NTS. _____ TWP. Holloway Claim No. _____

Date started April 10, 1991 completed April 14, 1991

Contractor Bradley Bros.

Logged by D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
365.0-368.0	Steel wedge.			
368.0-377.0 **GREYWACKE**	Medium grey-green, fine to medium grained greywacke interbedded with local argillite. Moderate S1. 370.4-371.6 50% quartz ankerite veins. S0 at 35 deg. to c.a. at 376.0m. Local well-developed S2 at 110-130 deg. to c.a.	Weak sericite, moderate ankerite.		
377.0-408.0 **DIRECTIONAL DRILLING**	No core return.			Dogleg at end of directional run, cut-off hole at 397.0m.
408.0	END OF HOLE			

P.A.P. - 14064

NORANDA EXPLORATION COMPANY LIMITED

GEOTECHNICAL LOG

Sheet No. 1 OF 1

Project No. 155 Hole No. HW-91-107WA

Property Holloway

Depth and Lithology	General Notes	RQD	Rock Hardness	Fracture Frequency	Joint Roughness Coefficient	Percent Core Recovery	Drilling Information
368.0-377.0 **GREYWACKE**	Folded S1, S2 at 110-130 deg. to c.a. 370.4-374.0 Breaks along S2, local 50% QAV.	4	3-15cm	15	100		
377.0-408.0 **DIRECTIONAL DRILLING**	No core return.						
408.0	END OF HOLE						

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

LATITUDE 5885E
DEPARTURE 4580N
ELEVATION 306
DIP AT COLLAR ____ BEARING ____
TOTAL DEPTH 602.0m CORE SIZE NQ
CORE STORAGE Canamax East Zone Site
REMARKS Wedged from HW-90-130

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Gyro from 130 to 225			
Gyroed to 549.0m			
587.0m	-84.25°		370°

Sheet No. 1 OF 13
Project No. 155 Hole No. HW-91-130Y
Property Holloway
NTS. 32D/12 TWP. Holloway Claim No. 10477
Date started Jan. 21, 1991 completed Feb. 3, 1991
Contractor Bradley Bros.
Logged by D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
225.0-227.0	Steel Wedge			
227.0-228.5 SERICITIZED GREYWACKE/ ARGILLITE	Yellow-green, thinly bedded, fine grained greywacke and argillite. Strongly developed S1 foliation. 228.0, S1 at 15 deg. to c.a. Contact sharp but folded.			
228.5-231.8 SILICIFIED SANDSTONE	Medium grey to greenish grey, massive-bedded fine grained sandstone. Weak to moderate S1 foliation, locally folded. 228.5-229.5 5 to locally 40% white quartz ankerite veins, set 3 variety, orthogonal and subparallel to weak S1, 228.9, S1 at 45 deg. to c.a. Lower contact sharp but folded.	S1 (95) local weak to moderate sericite.		
231.8-236.7 SERICITIZED GREYWACKE	Pale yellow-green, thickly to locally thinly bedded fine to medium grained greywacke, with minor interbedded argillite. Weakly to moderately foliated (S1), locally folded.	Moderate to strong sericite. Gradual reduction in sericite downhole.		

P.A.P. - 14084

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	284.4, S0 at 30 deg. to c.a.			
236.7-250.0 GREYWACKE	Pale to dark grey, fine to coarse grained greywacke, 10-40cm graded beds. Weak to locally moderate S1 foliation. Local quartz ankerite vein with sericitic haloes. 243.0, S0 at 30 deg. to c.a. 248.0, S0 at 25 deg. to c.a.	236.7-238.3 Weak sericite. 248.1-250.0 Weak sericite.		
250.0-302.5 DIRECTIONAL DRILLING	No core return.			
302.5-463.6 GREYWACKE/ ARGILLITE	Medium grey green to pale green, aphanitic to fine grained, greywacke thinly S1 at 40 deg. to c.a. at 305.0m. S1 at 15 deg. to c.a. at 313.0m. <u>Note:</u> 320.4-345.5m: S0 is folded and locally and S2 is weakly developed. 344.5, S0 at 40 deg. to c.a. <u>345.5-355.0</u> Moderately foliated (S1), fairly consistent core angles with local fold closures. S0 at 20-40 deg. throughout. 351.5, S0 at 30 deg. to c.a.	309.4-320.4 Moderately to strongly sericitized. 354.0-397.8 Weakly to moderately sericitized.		346.6 Minor gouge along S1 at 20 deg. to c.a.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 13

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	355.0-360.0 Moderately developed, spaced S2 cleavage. S0/S1 at +/- 30 deg. to c.a., crenulated. 355.8, S2 at 120 deg. to c.a. 360.4, S0/S1 at 10 deg. to c.a. S0/S1 at 15 deg. to c.a., S2 at 40 deg. to c.a. at 363.0m. 370.0-374.1 20-30% quartz-ankerite veining is generally crosscutting S1 foliation. Irregular contacts are noted. 374.1-390.8 Pale grey green, very fine grained to fine grained, quartzose-feldspathic (arkose) sandstone. 397.8-463.6 Medium grey, aphanitic to fine grained, relatively unaltered, thinly interbedded greywacke and lesser argillite. Note: Minor small scale folding is noted. S0/S1 ranges between 0 and 60 deg. to c.a., and a weakly developed S2 is noted locally. S0/S1 at 40 deg. to c.a., S2 at 110 deg. to c.a. at 401.6m. S0 at 45 deg. to c.a., S2 at 110 deg. to c.a. at 401.6m. S0 at 45 deg. to c.a. at 421.7m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0 at 50 deg. to c.a. at 431.6m. S0 at 30 deg. to c.a., S2 at 70 deg. to c.a. at 447.1m. S0 at 45 deg. to c.a. at 462.0m.			
463.6-468.4 **CARBONACEOUS ARGILLITE, GREYWACKE**	Black carbonaceous argillite, thinly bedded lesser grey, fine grained greywacke. Proportion of argillite increases downhole. Weak S1 foliation, bedding and foliation tightly folded. Local narrow quartz ankerite veins. Lower contact at 20 deg. to c.a.		Local 1-2% pyrite, bedded and replacing grey wacke boudins/ beds.	
468.4-477.5 **ANKERITIZED MASSIVE FLOW WITH AMYGDALOIDAL FLOW TOP**	Pale to medium grey, aphanitic to fine grained, massive mafic flow. Minor flow top hyaloclastite from 468.4 to 468.6, amygdaloidal to 469.4. Moderately developed S1 foliation, weakly folded into F2 folds with local S2 cleavage. 1-2% S1 foliation - parallel quartz ankerite veins. 471.7, S2 at 115 deg., S1 at 0-10 deg. to c.a. 476.0, S1 at 30 deg. to c.a. <u>476.0-477.3</u> Amygdaloidal. <u>477.3-477.5</u> Flow base? 1-2cm of hyaloclastite at 477.5, with bands of clustered pyrite parallel to S1 in grey-green overlying aphanitic flow. Contact at 35 deg. to c.a.	Strong pervasive ankerite.	Local trace to 1% pyrite associated with quartz ankerite veins.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
477.5-483.1 **SILICIFIED LOCALLY HEMATIZED HYALOCLASTITE/MASSIVE FLOW, LOCALLY VARIOLITIC**	Pale grey-green to purple-grey, silicified massive flow and weakly pillowed flow, with green, non-silicified hyaloclastite (interpillow material) at 478.2-478.7, 479.3-479.6. The hyaloclastite contains up to 20% 1-8mm incipient varioles which coalesce towards the pillow cores. Moderate to locally strong S1 foliation, at 20 deg. to c.a. at 481.4m, 0 deg. to c.a. at 481.8. 482.4-483.1 10% foliation - parallel quartz ankerite veins. Lower contact subparallel to core axis from 482.4-483.1.	S1 (80) **479.6-483.1** Weak to locally moderate hematite.	**480.6-481.3** Trace to 1-3% fine grained, in clusters of disseminated grains, subparallel to S1.	
483.1-484.6 **CHLORITIZED MAFIC FLOW**	Green-grey, massive mafic flow (?) or possible interflow sediment, fine grained, weakly foliated. No bedding present. 5-10% foliation-parallel quartz ankerite veins. Foliation folded, generally at ±20 deg. to c.a. Minor fold-repeated section of silicified flow at 483.4-483.8. Lower contact at 25 deg. to c.a.	Strong ankerite, chlorite.	**483.8-484.2** 70-80% fine grained massive pyrite, with 20% quartz vein and minor chloritized wall rock. Irregular contacts, overall suborthogonal to core axis.	
484.6-493.7 **SILICIFIED MASSIVE FLOW**	Pale to medium grey, locally purplish, aphanitic to fine grained massive mafic flow.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 13

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	484.6-489.6 Massive to very weakly foliated, 5% translucent to white set 3 quartz ankerite veins, 0.5 to 2cm, rarely with sericitic haloes. Predominant orientation at 110-130 deg. to c.a., also branching sets. Earlier 1-5mm pyritic fractures tend to run at low angles to core axis, and have sericitic haloes.	484.6-491.0 S1 (100) local hematite, weak sericite.	484.6-489.6 Trace to 1-3% fine to medium grained pyrite, in stringers and locally disseminated.	
	489.6-490.0 Strongly developed S1 foliation at 35 deg. to c.a. No set 3 quartz ankerite veins.		489.6-490.0 Trace pyrite.	
	490.0-491.0 Weakly to moderately developed S1 foliation, 1-2% set 3 veins; 1% pyritic fractures.		490.0-491.0 1 to locally 2-3% pyrite fine grained, disseminated and clustered along S1.	
	491.0-491.5 Moderately foliated, S1 at 40-50 deg. to c.a. 10-20% S1 - subparallel quartz ankerite veins. Contact at 45 deg. to c.a.	491.0-491.5 S1 (10) strong ankerite.	491.0-491.8 Trace pyrite.	
	491.5-491.8 Green, chloritized, moderately to strongly foliated, fine to medium grained mafic flow top? Lower contact obscured by 10cm quartz ankerite vein.	491.5-491.8 Chlorite, ankerite.	491.8-493.7 Trace to locally 1 to 3% pyrite.	
	491.8-493.7 Pale to medium grey, massive mafic flow as above. 5cm quartz ankerite vein at 90 deg. to c.a. at 493.7m.	491.8-493.7 S1 (100).		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
493.7-515.6 **LEUCOXENITIC MASSIVE FLOW**	Medium to dark green and grey-green, aphanitic to coarse grained, leucoxenitic massive mafic flow. 2-5% S1 parallel quartz ankerite veins. 493.7-493.8 Grey-green chloritized medium grained mafic flow top/sediment? as above from 483.1 to 484.6m. Overall weakly to moderately foliated. S1 at 70 deg. to c.a. at 494.5m. Weak S2 at 110 deg. to c.a. at 501.5m. S2 at 100 deg. to c.a. at 508.4m. Contact strongly foliated with quartz ankerite vein at 80 deg. to c.a.	Pervasive moderate to locally strong ankerite. **508.4-509.4** Bleached, strongly ankeritized.		
515.6-518.0 **FOLIATED ANKERITIZED LEUCOXENITIC MASSIVE FLOW**	Medium green to locally purplish grey, medium grained leucoxenitic massive flow-same flow unit as above. Strongly developed S1 foliation, spaced local S2 cleavage. 516.3, S2 at 120 deg. to c.a. 517.5, S1 at 25 deg. to c.a. 5-10% S1 foliation - parallel quartz ankerite veins. Sharp alteration contact parallel to S1 at 30 deg. to c.a.	Strong ankerite, local sericite. Local weak hematite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
518.0-519.6 **FOLIATED HEMATIZED LEUCOXENITIC MASSIVE FLOW**	Purple-grey, strongly foliated (S1) Leucoxenitic massive flow, same flow unit as above. Gradational alteration contact.	Moderate pervasive hematite. S1 (30) moderate pervasive ankerite.		
519.6-535.1 **FOLIATED LEUCOXENITIC MASSIVE FLOW**	Pale to dark green, medium to coarse grained leucoxenitic flow. Same flow unit as above. Locally 5-15% S1 parallel quartz ankerite veins. Moderate to locally strongly developed S1 foliation, folded into F2 tight folds. S1 core angle fairly consistent from 528.5-535.1, at 30-50 deg. to c.a. S1 at 45 deg. to c.a. at 534.6. Lower contact sharp at 40 deg. to c.a.	Pervasive moderate ankerite. Local weak hematite. **532.2-535.1** Weak pervasive sericite.		
535.1-543.7 **FOLIATED VARIOLITIC HYALOCLAS-TITE/FLOW BRECCIA, MASSIVE FLOW BASE**	Dark to pale green, mafic hyaloclastite and lesser flow breccia, with cream-coloured strongly variolitic sections. Overall, moderately to strongly developed S1 foliation, locally crenulated by S2. Some minor weakly flow-brecciated massive flow. Varioles generally fall into 2 size categories-a larger, 1-2cm size group, and a smaller 1-5mm group. Coalesced varioles of the larger size locally form 90% of the rock. Varioles are deformed with X:Z ratios of 2-4:1, and a modest amount of Y:Z flattening (<2:1), in plane of S1.	Pervasive moderate ankerite. Local sericite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 13

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	536.1, S1 at 30 deg. to c.a. 539.0, S1 at 0 deg. to c.a. Locally, 5-10% S1 - parallel quartz ankerite vein, 1-2% orthogonal set 3 quartz ankerite vein with local bleached sericitic halos. Grades to massive flow base from 542.4-543.7. Contact strongly foliated and folded, rather indistinct.		**543.2** Trace sulphides in S2 crenulation bands adjacent, parallel set 3 quartz ankerite vein.	
543.7-547.2 **FOLIATED HYALOCLAS-TITE/MASSIVE SERICITIZED FLOW BASE**	Dark to pale green hyaloclastite flow top, textures poorly developed below 543.9. Moderate to strong S1 foliation, at 30 deg. to c.a. at 544.0m. 5 to locally 10% S1 - parallel, folded quartz ankerite veins, rare orthogonal set 3 quartz ankerite veins, both with sericitic haloes. Gradational contact to underlying flow base.	**543.7-545.8** Pervasive moderate ankerite, local sericite. **545.5-545.8** Strongly sericitized.	Locally trace pyrite-occurs in set 3 vein at 544.5m, 545.4m; also along S1 foliation.	
	545.8-547.2 Massive leucoxenitic flow base. Yellow-green to locally dark green where unaltered. Spaced (1-5cm) set 3 quartz ankerite veins at 125 deg. to c.a., orthogonal to moderate S1 foliation at 50 deg. to c.a. Contact zone strongly foliated; S1 and contact parallel at 35 deg. to c.a.	Strong sericite, local unaltered section is dark green, chloritic sericitization related to set 3 quartz ankerite veins.	Trace pyrite occurs in irregularly oriented, S1-parallel and (least commonly) in S1-orthogonal veins.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
547.2-548.6 **FOLIATED SERICITIZED VARIOLITIC HYALOCLASTITE**	Yellow-green to locally dark green variolitic hyaloclastite. Moderate to strong S1 foliation, at 25 deg. to c.a. at 548.2m. Varioles vary from 1mm to 3cm in size, with varioles increases from 1-5% to 10-20% from 548.5-548.6. Gradational contact.	Strong sericite, local less-altered chloritic section, moderate to strongly ankeritic.		
548.6-552.7 **SERICITIZED MASSIVE FLOW BASE**	Pale green massive flow base. Weakly to locally strongly developed S1 foliation. 548.9-549.1 10cm, S1-parallel quartz vein with irregular branches, all with associated pyrite. 549.7 Laminated S1 - parallel quartz veins, with dark pyritic laminae. Orthogonal quartz veins cut the laminae but are contemporaneous with the S1-parallel quartz. 551.3-552.7 Basal section of flow (overlying LZ host) is massive to weakly foliated. 2-3% grey-white quartz ankerite veins at 140 deg. to c.a. and 1-2% hairline pyritic fractures. Contact at 65 deg., marked by underlying quartz vein.	Local silicification pervasive weak to strong sericite. **551.3-552.7** Pervasive weak to moderate sericitization.	**548.6-549.3** 1 to locally 5% fine to coarse grained pyrite; associated with quartz ankerite veins. **551.3-552.7** 3-10% fine to medium grained, predominantly disseminated pyrite, locally vein related, also minor fracture-hosted and banded (along S1).	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 11 OF 13

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
552.7-572.45 **SILICIFIED LOCALLY VARIOLITIC HYALOCLAS-TITE/FLOW BRECCIA (LIGHTNING ZONE)**	Pale grey to yellow/buff, strongly silicified hyaloclastite and flow breccia. Locally variolitic-typically varioles are sub 1cm and dark purple-grey (hematized). Other primary textures very difficult to distinguish. Massive texture-only a weak local S1 foliation is developed. Host rock is cut by up to 10% stockwork quartz +/- ankerite veins, as well as minor chloritic veins and 1-2% irregular pyritic fractures. The fractures are generally the earliest of the vein structures. 552.7-552.9 Quartz vein forms upper margin to L.Z.	**552.7-553.1** S1 (50). **553.1-572.45** S1 (100) moderate pervasive ankerite, local weak sericite.	**552.7-553.1** Quartz vein is barren; underlying wall rock has 4-6% pyrite. **553.1-555.6** 3 to locally 5% fine to medium grained pyrite, predominantly in fractures. **555.6-556.0** 3 to locally 10-20% pyrite in aggregated masses possibly related to quartz ankerite veins. **556.0-559.6** 3 to locally 5% pyrite fine to medium grained, in fractures and disseminated.	

P.A.P. - E-1568

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 12 OF 13

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Contact at 65 deg. to c.a.		**559.6-560.0** 3 to locally 10% fine to medium grained pyrite, in masses. **560.0-565.8** 3 to 5% pyrite in fractures and disseminated. **565.8-568.8** 5-8% clustered pyrite occurs along margins of quartz ankerite veins; veins at +/-15 deg. to c.a.- drilled down dip. **568.8-569.3** 3% pyrite. **569.8-569.7** 5 to locally 10% clustered pyrite, fine to medium grained. **569.7-572.45** 3 to locally 7% pyrite, in fractures and disseminated.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 13

Project No. 155 Hole No. HW-91-130Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
572.45-577.0 **TALC-SERPENTINE ULTRAMAFICS**	Drab green-grey to dark grey ultramafic volcanics. 10-30% ankerite stockwork veins, deformed by development of S1 foliation, and locally crenulated by S2. Moderate to strong S1 at variable orientation to c.a. 577.7 S1 at 15 deg. to c.a. 578.2 S1 at 60 deg. to c.a. Minor later set 3 quartz veins, at 120-140 deg. to c.a., from 572.45-573.4.	**572.45-574.3** Talc-chlorite-ankerite. **574.3-577.0** Serpentine-ankerite.		
577.0-595.3 **TALCOSE, SCHISTED ULTRAMAFIC FLOWS AND BRECCIAS**	Drab green-grey, talcose ultramafic flows and breccias. 5 to locally 50% ankeritic stockwork veins. Strongly foliated to locally schistose, S1 foliation commonly at +/- 30 deg. to c.a. Also, local massive to weakly foliated sections. 584.7 S1 at 20 deg. to c.a. Contact at 30 deg. to c.a.	Talc, ankerite local serpentine.		**589.0-589.1** Minor talcose gouge.
595.3-602.0 **LEUCOXENITIC MAFIC FLOW**	Dark grey, fine to medium grained, leucoxenitic mafic flow. Coarse 1-3mm leucoxene from 595.3 to 595.6. Moderate S1 foliation, weaker downhole. Local 5% quartz ankerite vein with minor bleached haloes. S1 at 40 deg. to c.a. at 596.0	Pervasive moderate ankerite chlorite.		
602.0	END OF HOLE			

P.A.P. - E-1558

** CORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 130v
GRID: holloway

DATE: May 9 19[illegible]
SURVEY BY: DB
INSTRUMENT: avg -210;corav-547;corss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-77.17	377.00	5884.900	4579.960	-1.910
30.00	-76.67	375.00	5886.771	4586.486	-31.132
60.00	-75.90	373.10	5888.498	4593.386	-60.276
90.00	-75.73	372.50	5890.127	4600.555	-89.362
120.00	-75.47	371.50	5891.678	4607.853	-118.419
150.00	-75.31	372.20	5893.232	4615.259	-147.449
180.00	-75.19	373.00	5894.896	4622.713	-176.460
210.00	-75.09	373.10	5896.635	4630.208	-205.457
225.00	-74.96	371.70	5897.468	4633.994	-219.948
244.00	-73.50	367.80	5898.342	4639.083	-238.232
275.00	-75.92	364.90	5899.246	4647.207	-268.135
305.00	-82.50	370.40	5899.994	4652.774	-297.605
336.00	-83.00	372.30	5900.764	4656.309	-328.357
366.00	-83.42	372.70	5901.532	4660.072	-358.146
397.00	-83.67	373.00	5902.307	4663.470	-388.950
427.00	-84.25	373.30	5903.025	4666.544	-418.783
458.00	-84.17	369.30	5903.638	4669.611	-449.625
488.00	-84.00	366.40	5904.060	4672.673	-479.466
519.00	-83.67	365.00	5904.391	4675.986	-510.286
549.00	-84.00	369.90	5904.808	4679.181	-540.113
587.00	-84.25	368.00	5905.413	4683.023	-577.913
602.00	-84.25	368.00	5905.623	4684.511	-592.838

** FORSURV **

FROM	TO	WIDTH	Au g/t	R1	R2
[illegible]	467.00	1.50	0.010	N.S.	N.S.
[illegible]	468.40	1.40	0.010	N.S.	N.S.
[illegible]	470.00	1.60	0.010	N.S.	N.S.
[illegible]	477.20	1.00	0.010	N.S.	N.S.
[illegible]	477.50	0.30	0.040	N.S.	N.S.
[illegible]	479.00	1.50	0.020	N.S.	N.S.
[illegible]	480.60	1.60	0.060	N.S.	N.S.
480.60	481.60	1.00	0.020	N.S.	N.S.
481.60	483.10	1.50	0.150	N.S.	N.S.
483.10	483.75	0.65	0.010	N.S.	N.S.
483.75	484.20	0.45	0.060	N.S.	N.S.
484.20	484.60	0.40	0.010	N.S.	N.S.
484.60	486.00	1.40	0.010	N.S.	N.S.
486.00	487.50	1.50	0.050	N.S.	N.S.
487.50	489.00	1.50	0.020	N.S.	N.S.
489.00	490.30	1.30	0.010	N.S.	N.S.
490.30	491.50	1.20	0.020	N.S.	N.S.
491.50	491.80	0.30	0.010	N.S.	N.S.
491.80	492.90	1.10	0.020	N.S.	N.S.
492.90	493.70	0.80	0.030	N.S.	N.S.
493.70	494.70	1.00	0.010	N.S.	N.S.
515.00	515.10	0.10	N.S.	N.S.	N.S.
547.70	548.70	1.00	0.010	0.020	0.010
548.70	549.30	0.60	6.010	6.170	5.860
549.30	549.80	0.50	0.130	0.170	0.100
549.80	551.30	1.50	0.120	0.140	0.100
551.30	552.20	0.90	1.610	1.470	1.750
552.20	553.10	0.90	2.740	2.670	2.810
553.10	554.10	1.00	5.740	6.340	5.140
554.10	555.60	1.50	3.790	3.810	3.770
555.60	556.00	0.40	22.980	22.460	23.490
556.00	557.00	1.00	2.370	2.330	2.400
557.00	558.10	1.10	4.680	4.560	4.800
558.10	559.60	1.50	2.790	2.910	2.670
559.60	560.00	0.40	16.120	16.490	15.740
560.00	561.50	1.50	7.290	7.030	7.540
561.50	563.00	1.50	3.740	3.770	3.700
563.00	564.40	1.40	6.050	6.100	6.000
564.40	565.80	1.40	6.670	7.200	6.140
565.80	567.30	1.50	13.760	13.780	13.750
567.30	568.80	1.50	5.870	6.070	5.660
568.80	569.30	0.50	1.190	1.100	1.270
569.30	569.70	0.40	10.480	10.560	10.390
569.70	570.80	1.10	3.000	2.980	3.020
570.80	571.60	0.80	7.060	6.990	7.130
571.60	572.45	0.85	2.400	2.400	2.400
572.45	573.50	1.05	0.030	0.030	0.030
573.50	575.00	1.50	0.010	0.010	0.020

1. 1/3 CONTACT (1.60 d.t. Core Angle: 90 1.60 t.t.)

	EASTINGS:	5903.78
FROM: 468.40	NORTHINGS:	4670.67
	ELEVATION:	-459.97
0.010 Au g/t ((Cut to: 34.290)		
-0.000 R1		
-0.000 R2		
	EASTINGS:	5903.81
TO: 470.00	NORTHINGS:	4670.84
	ELEVATION:	-461.56

2. LZ (18.50 d.t. Core Angle: 50 14.17 t.t.)

	EASTINGS:	5904.87
FROM: 553.10	NORTHINGS:	4679.60
	ELEVATION:	-544.19
6.287 Au g/t ((Cut to: 34.290)		
6.356 R1		
6.214 R2		
	EASTINGS:	5905.17
TO: 571.60	NORTHINGS:	4681.47
	ELEVATION:	-562.59

3. 3/4 CONTACT (1.05 d.t. Core Angle: 90 1.05 t.t.)

	EASTINGS:	5905.18
FROM: 572.45	NORTHINGS:	4681.55
	ELEVATION:	-563.44
0.030 Au g/t ((Cut to: 34.290)		
0.030 R1		
0.030 R2		
	EASTINGS:	5905.20
TO: 573.50	NORTHINGS:	4681.66
	ELEVATION:	-564.48

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

	EASTINGS:	5904.35
FROM: 515.00	NORTHINGS:	4675.56
	ELEVATION:	-506.31
-0.000 Au g/t ((Cut to: 34.290)		
-0.000 R1		
-0.000 R2		
	EASTINGS:	5904.35
TO: 515.10	NORTHINGS:	4675.57
	ELEVATION:	-506.41

LATITUDE 5950E

DEPARTURE 4688N

ELEVATION

DIP AT COLLAR -81° BEARING 360°

TOTAL DEPTH 482.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site.

REMARKS Casing left in hole

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Gyro to 372m			
55 to 482m			
406m	-81°	365°	
437m	-79.5m	361	

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. L10477

Date started Jan. 20, 1991 completed Jan. 30, 1991

Contractor Bradley Bros.

Logged by B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-19.0	Casing			
19.0-247.6	Argillite/greywacke.			**19.0-32.2**
ARGILLITE/ GREYWACKE	19.0-32.2 Pale green to buff coloured, very fine grained, argillite and greywacke. Locally orangy brown, hematite/limonite staining is present. Minor clay-grit fault seam at 21.0m. Minor clay-grit fault seam at 27.8m.	Moderately to strongly sericitized, locally hematized.		RQD = 50% Frac. Freq.= 2cm-30cm
	32.2-41.0 Pale grey to pale green, very fine grained to fine grained, argillite and greywacke. Locally orangy brown hematite alteration is noted.	Moderately sericitized and locally silicified, locally hematized.		
	41.0-112.2 Pale grey to grey green, very fine grained to fine grained, argillite and greywacke. Small scale folding is noted locally. 10-20% quartz veining is present.	Moderately sericitized and silicified locally.		
	S0/S1 at 60 deg. to c.a. at 37.2m. S0/S1 at 30 deg. to c.a. at 49.3m. S0/S1 at 30 deg. to c.a. at 75.4m. S0/S1 at 30 deg. to c.a. at 101.3m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	112.2-132.9 Grey green, fine grained, thin to medium bedded greywacke. S0/S1 at 40 deg. to c.a. at 112.8m. S0/S1 at 35 deg. to c.a. at 123.8m.	Weakly sericitized.		
	132.9-142.7 Pale green to grey green, very fine grained to locally fine grained, argillite and minor greywacke; with 30% quartz veining present. Small scale folding is noted.	Moderately sericitized.		
	142.7-247.6 Medium green-grey, very fine grained to fine grained, thinly bedded greywacke and argillite. S0/S1 at 55 deg. to c.a., S2 (sericite) at 110 deg. to c.a. at 145.9m. S0/S1 at 25 deg. to c.a., S2 at 110 deg. to c.a. at 155.5m. S0/S1 at 30 deg. to c.a. at 176.7m. S0/S1 at 50 deg. to c.a. at 189.2m. S0/S1 at 55 deg. to c.a. at 205.4m. S0/S1 at 20 deg. to c.a. at 215.3m. S0/S1 at 20 deg. to c.a. at 231.4m. S0/S1 at 30 deg. to c.a. at 247.6m.	Weakly sericitized.		Standard Core Barrel from 155m.
247.6-262.7 **CARBONACEOUS ARGILLITE**	Dark grey to black, aphanitic to very fine grained, possibly weakly carbonaceous argillite thinly interbedded with very fine grained, medium grey siltstone (minor). S0 is locally folded and ranges between 0 and 30 deg. to c.a. Locally minor pyrite nodules are present, and pyrite replacement of silty bands (1.0cm).			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	NOTE: Lower contact is irregular and marked by a quartz-ankerite vein.			
	256.7-258.2 Pale grey, aphanitic, silicified, pyritic massive basalt.	256.7-258.2 100% silicified.	256.7-258.2 Pyrite 3-5% in very fine grained, disseminated and fracture filling form.	
262.7-274.4 SILICIFIED, PYRITIC, LOCALLY VARIOLITIC, MASSIVE MAFIC FLOW	Pale grey, aphanitic to very fine grained, strongly altered, and locally pyritized, moderately foliated, locally variolitic to massive mafic flow.	262.7-269.2 45% silicified, moderately to strongly ankeritic.		
	262.7-263.5 70% quartz-ankerite veining.	269.2-273.1 Moderately to strongly ankeritic.	262.7-263.5 Pyrite 3-10%.	
			263.5-266.9 Pyrite trace to 1%.	
	263.5-263.8 Carbonaceous argillite and siltstone.		266.9-269.2 Pyrite 1-2% in very fine grained, S1 fracture filling form.	
	S1 at 25 deg. to c.a. at 269.2m. S1 at 65 deg. to c.a. at 273.1m. Contact at 55 deg. to c.a. at 274.4m.			
			269.2-273.1 Pyrite trace to 1%.	
		273.1-274.4 60% silicified, moderately to strongly ankeritic.	273.1-274.4 Pyrite 1-3% in very fine grained, S1 fracture filling form.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
274.4-279.4 **LEUCOXENITIC MASSIVE MAFIC FLOW**	Medium grey green, very fine grained, leucoxenitic, massive mafic flow. Lower contact is at 60 deg. to c.a. at 279.4m.	Weakly sericitized.		
279.4-291.6 **PILLOWED MAFIC FLOW**	Pale grey green, aphanitic, weakly to moderately foliated, pillowed mafic flow. Dark green, chloritized, moderately developed selvages are present. S1 at 150 deg. to c.a. at 279.7m. (measured relative to the contact at 279.4m). NOTE: S1 is folded and generally ranges between 10 and 30 deg. to c.a.	Sericitized (weakly).		
291.6-300.0 **LEUCOXENITIC MASSIVE MAFIC FLOW**	Medium to dark grey green, very fine grained, massive, leucoxenitic, mafic flow.	Weakly chloritized.		
300.0-308.7 **PILLOWED FLOW**	Pale grey green to medium green grey, aphanitic to very fine grained, pillowed flow. 304.5-308.7 Medium green grey, very fine grained, massive to moderately foliated flow base. Possibly leucoxenitic.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
308.7-312.1 **MASSIVE MAFIC FLOW**	Pale purple grey to green grey, fine grained to medium grained, massive mafic flow.	Moderately hematized.		
312.1-323.2 **LEUCOXENITIC MASSIVE MAFIC FLOW**	Dark grey green, very fine grained, leucoxenitic, massive mafic flow. 316.3-321.3 Pale purplish grey to grey green, very fine grained to fine grained, massive mafic flow. Weakly to moderately developed S1 foliation is present.	**316.3-321.3** Weakly hematized and ankeritic.		
323.2-331.3 **ANKERITIZED FOLIATED, MASSIVE MAFIC FLOW**	Pale grey to locally pale green grey, aphanitic to very fine grained, weakly to moderately foliated, strongly altered, massive mafic flow. S1 at 40 deg. to c.a., S2 (sericite) at 105 deg. to c.a. at 325.0m. Lower contact is based upon alteration only.	**323.2-331.3** Bleached, moderately to strongly carbonatized (ankerite), 10% silicified.		
331.3-340.7 **SILICIFIED, LOCALLY HEMATIZED, FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW**	Dark purple grey to dark grey green, very fine grained, weakly to moderately foliated, locally altered, locally leucoxenitic, massive, mafic flow. S1 at 20 deg. to c.a. at 336.4m.	**331.3-340.7** Locally strongly hematized, 80% silicified.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
340.7-353.6 **FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW**	Dark grey green, very fine grained to fine grained, moderately foliated and contorted, leucoxenitic, massive mafic flow. 20-30% folded (set 1) quartz-ankerite veinlets are present. S1 ranges generally between 0 and 30 deg. to c.a. Lower contact (parallel S1) at 30 deg. to c.a. at 353.6m.			
353.6-369.8 **FOLIATED, FLOW TOP BRECCIATED, VARIOLITIC MAFIC FLOW**	Pale to medium grey green, aphanitic, moderately foliated, moderately altered flow top breccia. Minor hyaloclastic texture is noted, as well as angular fragments (up to 1cm). Variolites noted. S1 at 15 deg. to c.a. at 359.3m. S1 at 25 deg. to c.a. at 363.5m. Lower contact (parallel to S1) at 30 deg. to c.a. at 369.8m.	Weakly to moderately sericitized.		
369.8-419.0 **FOLIATED, LEUCOXENITIC MASSIVE, MAFIC FLOW**	Dark grey green, very fine grained, weakly to moderately foliated, leucoxenitic, massive mafic flow. S1 (qav) at 30 deg. to c.a. at 382.2m. S0/S1 at 20 deg. to c.a., S2 at 50 deg. to c.a. at 390.9m. S0/S1 at 20 deg. to c.a. at 399.4m. NOTE: S0/S1 is folded and generally ranges between 0 and 30 deg. to c.a.	Locally weakly ankeritic.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	410.0-419.0 Strongly foliated, commonly with quartz-ankerite vein boudins entrained along (S1) foliation. S1 crenulated and folded by local S2 cleavage and F2 folds (closures spaced <50cm). 1-20% folded quartz ankerite veins.	Weak to locally strongly sericitized pervasive moderate to strong ankerite.		
419.0-421.5 SERICITIZED, ANKERITIC FLOW TOP BRECCIA	Yellow-green hyaloclastite and minor flow breccia. Strong S1 foliation imparts layering, this is crenulated by well-developed S2 cleavage, locally spaced 0.5-2cm. Strongly sheared zone. S2 at 110-130 deg. to c.a. Gradational contact to underlying flow base.	Strong sericite, strong ankerite.		
421.5-425.3 SERICITIZED, ANKERITIC LEUCOXENITIC MASSIVE, MAFIC FLOW	Yellow-green to locally purple-grey, aphanitic to medium grained leucoxenitic massive flow. Moderately to locally strongly developed S1 foliation, only local weak S2. 422.9-423.2 Zone of coalesced yellow-cream varioles. 423.3, S1 at 40 deg. to c.a. 424.0 Weak S2 is subparallel to translucent set 3 quartz veins, weakly deformed and locally continuous with folded foliation - parallel quartz veins.	Strong to moderate sericite, strong ankerite. Local weak hematite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-134

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
425.3-431.2 **SILICIFIED, PYRITIC, LEUCOXENITIC, MASSIVE MAFIC FLOW**	Dark purple grey, aphanitic to very fine grained, weakly hematized patches with yellowish-green to buff coloured alteration penetrative along fractures. Unaltered sections contain leucoxene. Weakly to locally strongly developed S1 foliation is present. S1 (pyrite) at 25 deg. to c.a. at 427.3m. S1 at 65 deg. to c.a. at 431.1m.	**425.3-431.2** 80% silicified.	**425.4-427.4** Pyrite trace to 1% in very fine grained, disseminated and S1 fracture filling form. **427.4-430.8** Pyrite trace. **430.8-431.2** Pyrite 1-2%, as above.	
431.2-437.5 **LEUCOXENITIC, LOCALLY SILICIFIED MASSIVE MAFIC FLOW**	Dark grey to pale green grey, very fine grained, locally foliated to massive, leucoxenitic mafic flow. S1 at 65 deg. to c.a. at 432.7m. 435.3-437.0 Chlorite filled fractures are present subparallel to the core axis. 436.7-437.5 Strongly developed S1 foliation at 60 to 65 deg. to c.a.	**434.7-436.8** 90% silicified.		
437.5-483.0 **TALC-CHLORITE ULTRAMAFIC FLOW**	Dark grey green, very fine grained, weakly to locally strongly foliated, talc-chlorite ultramafic. 454.7-482.0 Locally weakly magnetic.			
482.0	END OF HOLE			

P.A.P. - E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 134
GRID: HOLLOWAY

DATE: Feb 6 1991
SURVEY BY: RBA
INSTRUMENT: GYRO TO 372/SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-81.25	360.00	5950.360	4687.650	-1.670
30.50	-81.67	359.40	5950.336	4692.179	-31.832
60.90	-81.67	359.00	5950.275	4696.583	-61.911
91.50	-81.75	360.10	5950.240	4700.995	-92.191
121.90	-81.67	360.20	5950.252	4705.378	-122.274
152.40	-82.00	358.90	5950.218	4709.710	-152.465
182.90	-82.00	360.50	5950.195	4713.954	-182.668
213.40	-81.58	362.10	5950.294	4718.309	-212.855
243.90	-81.17	363.60	5950.522	4722.877	-243.010
274.40	-81.58	363.20	5950.793	4727.443	-273.165
304.90	-82.00	360.90	5950.949	4731.796	-303.353
335.40	-81.83	361.80	5951.050	4736.084	-333.550
365.80	-81.67	362.10	5951.198	4740.444	-363.635
371.90	-81.58	362.90	5951.237	4741.331	-369.670
406.00	-81.00	365.00	5951.593	4746.483	-403.377
437.00	-79.50	361.00	5951.867	4751.726	-433.929
482.00	-82.00	360.00	5951.930	4758.959	-478.344

** BORSURV **

ASSAY LOG

PROPERTY: HOLLOWAY

HOLE No.: 134

FROM	TO	WIDTH	Au
255.20	256.70	1.50	0.030
256.70	258.20	1.50	0.110
258.20	259.70	1.50	0.030
259.70	261.20	1.50	0.030
261.20	262.70	1.50	0.010
262.70	263.50	0.80	0.010
263.50	265.00	1.50	0.010
265.00	266.00	1.00	0.010
266.00	266.90	0.90	0.010
266.90	268.00	1.10	0.010
268.00	269.20	1.20	0.010
269.20	270.50	1.30	0.010
270.50	272.00	1.50	0.140
272.00	273.10	1.10	0.920
273.10	274.40	1.30	3.280
274.40	276.00	1.60	0.010
342.00	342.10	0.10	N.S.
424.30	425.30	1.00	0.020
425.30	426.30	1.00	0.080
426.30	427.40	1.10	0.030
427.40	429.10	1.70	0.080
429.10	430.80	1.70	0.010
430.80	431.20	0.40	0.900
431.20	432.00	0.80	0.020
432.00	433.00	1.00	0.040
433.00	434.50	1.50	0.030
434.50	436.00	1.50	0.040
436.00	437.50	1.50	0.030
437.50	437.60	0.10	0.010

** BORSURV **

AVERAGED ASSAY INTERVALS
PROPERTY: HOLLOWAY
HOLE No: 134

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1. LZ (0.40 d.t. Core Angle: 30 0.20 t.t.)

		EASTINGS:	5951.81
FROM:	430.80	NORTHINGS:	4750.68
		ELEVATION:	-427.82
	0.900 Au		
		EASTINGS:	5951.82
TO:	431.20	NORTHINGS:	4750.74
		ELEVATION:	-428.21

2. 3/4 CONTACT (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5951.87
FROM:	437.50	NORTHINGS:	4751.81
		ELEVATION:	-434.42
	0.010 Au		
		EASTINGS:	5951.87
TO:	437.60	NORTHINGS:	4751.82
		ELEVATION:	-434.52

3. 1/3 CONTACT (1.30 d.t. Core Angle: 90 1.30 t.t.)

		EASTINGS:	5950.78
FROM:	273.10	NORTHINGS:	4727.25
		ELEVATION:	-271.88
	3.280 Au		
		EASTINGS:	5950.79
TO:	274.40	NORTHINGS:	4727.44
		ELEVATION:	-273.17

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5951.08
FROM:	342.00	NORTHINGS:	4737.03
		ELEVATION:	-340.08
	-0.000 Au		
		EASTINGS:	5951.08
TO:	342.10	NORTHINGS:	4737.04
		ELEVATION:	-340.18

LATITUDE 5900E

DEPARTURE 4457N

ELEVATION

DIP AT COLLAR -78° BEARING 360°

TOTAL DEPTH 825.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site.

REMARKS

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Gyro to 687.0m			
717m	-72.25°		358°
744m	-72.5°		356°
795m	-72°		359°
825m	-71.5°		355°

Project No. 155 Hole No. HW-91-136

Property Holloway

NTS. 32D/12 TWP. Holloway Claim No. L10534

Date started Jan. 29, 1991 completed Feb. 17, 1991

Contractor Bradley Bros.

Logged by B. Alexander|| D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-25.0	Overburden			
25.0-36.3 MASSIVE MAGNETIC MAFIC FLOW	Dark green, very fine grained to fine grained, massive mafic flow. Weak local S1 foliation, generally unfoliated. Magnetic, an Fe-tholeiite.	Local epidote veinlets. Pervasive weak to moderate ankerite, chloritized.		25.0-89.0 SEAGER HILL Volcanic Flows. 29.0-29.7 RQD=10% Minor clay and gouge, broken core minor rusty weathering.
36.3-38.2 PILLOW BRECCIA/ HYALOCLASTITE	Dark green to black, pillow breccia with minor hyaloclastite. Weak to moderate S1 foliation, at 50 deg. to c.a. at 37.5m. Magnetic Fe tholeiite.	Chloritized pervasive weak to moderate ankerite.		36.3-36.5 Rubble zone, minor rusty weathering.
38.2-54.2 MASSIVE MAGNETIC MAFIC FLOW	Dark green, very fine grained to medium grained, massive mafic flow. Generally weak to non-existent S1 foliation. Magnetic Fe tholeiite.	Chloritized, pervasive weak to moderate ankerite.		

P.A.P. - 1004

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
54.2-74.0 **MAGNETIC PILLOWED MAFIC FLOW**	Medium grey green, aphanitic to very fine grained, magnetic, pillowed mafic flow. Dark green, chloritized, usually magnetic selvages are moderately to strongly developed. Gradational lower contact.	**54.2-54.4** S1 (100) hematite.	**54.2-54.4** 1-3% fine to medium grained pyrite, banded along S1.	
74.0-78.0 **MAGNETIC, MASSIVE MAFIC FLOW**	Medium to dark grey green, very fine grained to fine grained, magnetic, massive mafic flow. Gradational lower contact.			
78.0-89.0 **MAGNETIC FLOW TOP BRECCIA**	Pale to dark grey green, aphanitic to very fine grained, magnetic flow top breccia. Angular fragments and hyaloclastite are present. Possibly a pillowed flow top breccia. Upper contact (parallel to S1) at 50 deg. to c.a. at 78.0m. 83.9-86.2 Orangy brown to pinkish grey, aphanitic to very fine grained, syenitic dyke. Contacts are weakly chilled and sharp. Lower contact of mafic flow is at 50 deg. to c.a. at 89.0m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
89.0-260.2 **POLYLITHIC CONGLOMERATE**	Medium grey green, fine to medium grained, arkosic sandstone matrix contains 10-30% polylithic fragments (up to 10cm). Fragment composition includes greywacke, argillite, jasper, basalt and feldspar porphyry. The interval is locally magnetic. S1 at 25 deg. to c.a. at 145.3m. S1 at 20 deg. to c.a. at 179.2m. S1 at 50 deg. to c.a. at 197.8m. S0 at 50 deg. to c.a. at 212.0m. S1 at 30 deg. to c.a. at 235.2m. S1 at 40 deg. to c.a. at 244.3m. S1 at 35 deg. to c.a. at 256.0m.			**150.0-157.5** RQD = 10-15% FF = 0.5-15cm **182.1-184.2** RQD = 20% **192.0-196.0** RQD = 20-30% broken and rubbly core. **225.0-234.5** RQD = 60-70% broken along S1, and vuggy quartz-carbonate veins. **254.9-261.5** RQD = 10-30% blocky ground. **260.0-260.2** 5cm fault gouge.
260.2-268.8 **SERICITISED LOCALLY SILICIFIED GREYWACKE/ ARGILLITE**	Yellow to yellow-green, fine grained greywacke, locally bedded with lesser argillite. Moderate to strong S1 foliation, local strong S2 cleavage S1 folded. 263.5, S2 at 130 deg. to c.a.	Strongly sericitized, decreasing downhole. **260.2-263.1** S1 (100), 5-20% quartz ankerite veins.		

PAP E1568

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
268.8-365.0 **GREYWACKE/ ARGILLITE**	Medium grey, fine to locally medium grained greywacke, locally thinly bedded with argillite. Moderate S1 foliation, folded, local S2 cleavage overall 2-5% quartz ankerite veins, generally subparallel to S1. 284.4, S1 at 60 deg. to c.a. 291.0, S0 at 40 deg. to c.a. 308.3, S1 at 50 deg. to c.a. 318.0-320.5 40% quartz-ankerite veining. S0 at 23 deg. to c.a. at 327.9m. S0 at 50 deg. to c.a. at 336.1m 337.6-344.7 35-40% quartz-ankerite veining (set 1) with pyritic halos associated. S0/S1 at 25 deg. to c.a., S2 at 50 deg. to c.a. at 350.2m. 357.5-358.1 25-35% quartz-ankerite veining (set 1 and set 3). Pyritic and silicified haloes are associated with set 1 veining. S1 at 20 deg. to c.a., S2 (sericite) at 50 deg. to c.a. at 362.3m.	Moderate pervasive ankerite. Local weak sericite. 311.9-(358.6) Moderately to strongly sericitized.	337.6-344.7 Pyrite 1-3% in very fine fine to fine grained, disseminated and fracture filling form. 357.6-358.1 Pyrite trace to 3%, as above.	
365.0-393.0 **DIRECTIONAL DRILLING**	No core return.			

P.A.P. E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
393.0-420.8 **GREYWACKE/ MINOR ARGILLITE**	Pale green grey, very fine to fine grained, greywacke and minor argillite (thinly interbedded). S0/S1 at 35 deg. to c.a. at 395.5m. S0/S1 at 30 deg. to c.a. at 404.2m. S1 at 25 deg. to c.a. at 412.4m. S1 at 30 deg. to c.a. at 419.9m. 413.0-415.0 35% quartz-ankerite veining with local pale grey, pyritic alteration haloes associated.	**393.0-420.8** Weakly sericitized and ankeritic. 70-80% silicified.	**413.0-415.0** Pyrite trace to 2% associated with quartz ankerite vein haloes.	
420.8-444.9 **FOLIATED LITHIC GREYWACKE**	Medium grey green, very fine grained to fine grained, greywacke matrix with 3-10% subangular, lithic fragments. Fragment composition is dark grey argillite, to buff greywacke. 420.8-438.3 Moderately to strongly foliated. S1 at 20 deg. to c.a. at 421.0m. S1 at 30 deg. to c.a. at 433.0m. S1 at 155 deg. to c.a. at 433.3m. S0/S1 at 30 deg. to c.a. at 438.3m. 438.3-442.9 Weakly foliated, moderately sericitized, lithic greywacke with subrounded quartz fragments (up to 4cm). 442.9-444.9 Strongly foliated, lithic greywacke. S1 at 60 deg. to c.a. at 442.9m.	**438.3-442.9** Moderately sericitized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 15

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
444.9-450.2 FOLIATED GREYWACKE	Pale to medium grey green, fine grained, strongly foliated greywacke and minor argillite. S0/S1 at 20 deg. to c.a. at 450.2m.			
450.2-603.1 GREYWACKE/ ARGILLITE	Pale to medium grey green, fine to medium grained thinly interbedded greywacke and argillite. S0/S1 at 0-10 deg. to c.a., S2 (sericite) at 120 deg. to c.a. at 467.6m. Unit is strongly folded. At 485.0, strongly folded, S1=S0=0 deg., S2=120 deg. S0/S1 at 30 deg. to c.a., S2 at 60 deg. to c.a. at 497.4m. S0/S1 at 0-10 deg. to c.a., S2 at 75 deg. to c.a. at 506.5m. S0/S1 at 15 deg. to c.a. at 518.8m. S0/S1 at 80 deg. to c.a. at 527.4m. S0/S1 at 35 deg. to c.a. at 543.0m. S0/S1 at 65 deg. to c.a. at 548.7m. S0/S1 at 55 deg. to c.a. at 566.9m. S0/S1 at 70 deg. to c.a. at 577.5m. S0/S1 at 0-10 deg. to c.a. at 580.5m. 602.6-603.1 Dark grey to black, very fine grained, carbonaceous argillite. S0/S1 at 25 deg. to c.a. at 602.6m.	Weakly sericitized. 479.5-507.0 Moderate to strong sericite. 507.0-548.7 Moderately sericitized.		

P.A.P. - E-1658

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
603.1-606.1 FOLIATED, SILICIFIED, MAFIC FLOW	Pale grey to pale grey green, aphanitic, strongly altered and foliated, massive mafic flow. Contact at 60 deg. to c.a. at 603.1m. S1 is folded and variable between 0 and 60 deg. to c.a. S1 at 70 deg. to c.a. at 606.1m.	90% silicified, strongly ankeritic.		
606.1-621.3 FOLIATED, LEUCOXENITIC MAFIC FLOW	Dark grey green to locally pale grey or purple grey, fine grained, strongly foliated, leucoxenitic mafic flow. S1 at 20 deg. to c.a. at 610.4m. S1 at 40 deg. to c.a. at 616.4m. Contact at 40 deg. to c.a.a t 621.3m.	Moderately ankeritic, locally hematized.		
621.3-624.7 FOLIATED, LEUCOXENITIC MAFIC FLOW	Medium grey green to pale grey, aphanitic to very fine grained, strongly foliated, leucoxenitic mafic flow. 621.3-622.5 Strongly foliated, strongly altered, variolitic flow top. S1 at 40 deg. to c.a. at 624.0m.	621.3-622.5 Strongly ankeritic.		
624.7-627.9 FOLIATED, SILICIFIED, MAGNETIC MASSIVE MAFIC FLOW	Grey green to pale purple grey, very fine grained, moderately foliated, hematized, magnetic, massive mafic flow. S1 at 627.9m at 45 deg. to c.a.	624.7-627.9 100% silicified, moderately hematized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
627.9-631.4 PILLOWED MAFIC FLOW	Medium grey green, aphanitic to very fine grained, weakly pillowed locally weakly magnetic, mafic flow. Dark green, chloritized selvages are noted. S1 at 40 deg. to c.a. at 629.5m.	627.9-631.4 Weakly to moderately ankeritic.		
631.4-643.7 FOLIATED, MAGNETIC, VARIOLITIC FLOW TOP BRECCIA	Pale to dark grey green to locally pale purple, aphanitic to very fine grained, locally variolitic, locally hyaloclastic, moderately magnetic, flow brecciated mafic flow top. Contact/S1 at 50 deg. to c.a. at 631.4m. S1 (magnetic) at 30 deg. to c.a. at 633.3m. S1 at 25 deg. to c.a. at 642.0m.	632.0-639.1 70% silicified locally hematized or chloritic.		
643.7-649.0 WEAKLY FOLIATED, MAFIC FLOW BASE	Medium grey green, very fine grained, weakly foliated, weakly amygdaloidal, massive mafic flow base. Contact/S1 at 20 deg. to c.a. at 649.0m (sharp).			
649.0-683.2 FOLIATED, VARIOLITIC FLOW BRECCIA	Grey green to locally pale purple grey, aphanitic to very fine grained, locally hematized and silicified, strongly foliated, locally variolitic, flow top breccia. S1 at 5-10 deg. to c.a. at 654.8m.	651.6-655.4 80% silicified, associated hematization (parallel S1).		

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	661.0-666.7 Pale purple grey, hematized and silicified and strongly magnetic. S1 (pyrite) at 20 deg. to c.a. at 664.4m. S1 at 20 deg. to c.a. at 666.7m. S1 at 10 deg. to c.a. at 668.7m. S1 at 20 deg. to c.a. at 677.5m. 666.7-672.0 Grey green, chloritized, weakly magnetic locally. S1 at 20 deg. to c.a. at 683.2m.	661.0-666.7 90% silicified associated magnetic hematite alteration.	661.0-666.7 Pyrite trace to 3% locally in very fine grained, disseminated and minor S1 fracture filling form.	
683.2-698.6 MASSIVE MAFIC FLOW	Dark grey green, very fine to fine grained, massive to weakly foliated, mafic flow. 690.8-698.6 Pale grey green, very fine grained to fine grained, bleached and strongly altered, massive flow. S1 at 20 deg. to c.a. at 698.6m.	690.8-698.6 Strongly ankeritic, moderately		
698.6-703.0 ANKERITIC, VARIOLITIC, FLOW TOP BRECCIA	Pale to dark grey green, aphanitic, variolitic, flow top breccia. 700.0-703.0 30% quartz-ankerite veining with associated silicification and pyrite haloes.	Strongly ankeritic. 700.0-703.0 70% silicified, strongly ankeritic.	700.0-703.0 Pyrite 1-4% in very fine to fine grained disseminated and S1 fracture filling form.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
703.0-777.8 **SILICIFIED, PYRITIC, VARIOLITIC FLOW TOP**	Pale purple grey, aphanitic, strongly altered, variolitic flow top breccia. S1 (pyrite) at 40 deg. to c.a. at 703.0m. 709.9-710.1 Pale green, strongly sericitized, with pyrite S1 fractures noted. Upper and lower contacts crosscut S1 fabric. S1 at 20-30 deg. to c.a, S2 (contact) at 110 deg. to c.a. at 709.9m. Contact at 40 deg. to c.a. at 710.1m. 720.7-722.7 Purple grey coloured, hematized section with associated decreasing pyrite content.	**703.0-709.9** 100% silicified, moderately to strongly ankeritic. **709.9-710.1** Strongly sericitic. **710.1-743.1** 100% silicified, moderately to strongly ankeritic.	**703.0-709.9** Pyrite 5-10%, in very fine grained, disseminated and fracture filling stockwork form. **709.9-710.1** Pyrite 2-3%. **710.1-710.9** Pyrite 3-7% **710.9-711.7** Pyrite trace to 1%. **711.7-712.5** Pyrite 3-7% **712.5-714.9** Pyrite 3-5%, in very fine grained, disseminated form. **714.9-720.7** Pyrite 5-7%. **720.7-721.6** Pyrite trace to 1%. **721.6-722.1** Pyrite 2-4%. **722.1-722.7** Pyrite trace to 1%.	**703.0-753.5** Lightning Zone

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Foliated (pyrite) at 50 deg. to c.a. at 737.6m. S1 at 60 deg. to c.a., S2 (pyrite) at 130 deg. to c.a. S1 (pyrite) at 30 deg. to c.a., S2 (silica) at 120 deg. to c.a. and the lower contact at 80 deg. to c.a. crosscuts S1 and S2.		722.7-736.8 Pyrite 3-7% 736.8-737.6 Pyrite 1-3%. 737.6-743.1 5-10%.	
	743.1-745.6 Whitish grey, aphanitic, foliated variolitic, flow top breccia. Strongly developed S1 foliation is subparallel to 30 deg. to c.a. Contains 80-95% 1-4cm varioles, white to locally grey where less altered. Percentage of varioles decreases downhole from 745m- groundmass is sericitized, weakly flow brecciated. Varioles moderately deformed, X:Y:Z aspect ratios of 3:2-1 at 745.3m, parallel to S1 at 25 deg. to c.a. gradational contact.	743.1-745.6 Bleached, 100% silicified, strongly ankeritic. Sericitized ground-mass below 745.0m.	743.1-745.6 Pyrite 1-3% in S1 fracture filling form. Occurs in matrix between varioles.	
	745.6-746.7 Pale to medium grey, massive to weakly flow-brecciated mafic flow. Weak layering (S1?) is disrupted by set 3 vein stockwork, predominantly at 90-110 deg. to c.a. Flow top textures well-developed downhole from 746.4m.	745.6-746.7 S1 (100).	745.6-746.7 1-3% pyrite in S1 (?)-parallel bands and stringers.	
	746.7-748.9 Beige/grey to darker green-grey, locally variolitic hyaloclastite/ flow breccia. Varioles sub 0.5cm in size hematized to a dark purple. Percentage varioles increases below 747.8m.	746.7-748.9 S1 (100) weak to moderate sericite, grades to chlorite below 747.8m.	746.7-747.3 10-30% very fine grained to fine grained pyrite, massive and in banded aggregates masses and stringers.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
			747.3-747.8 3-10% fine to medium grained pyrite in stringers and clusters. 747.8-748.9 3-5% pyrite.	
	748.9-751.9 Dark purple to locally grey-green, variolitic flow, possibly massive flow undeformed. Lower contact marked by bleached sericitic alteration halo around 2cm quartz ankerite vein at 35 deg. to c.a., subparallel to S1.	S1 (100) moderate to strong hematite local sericite, overprints hematite.	748.9-751.9 Trace to 2% pyrite. 748.9-751.9 Trace to 2% pyrite.	
	751.9-753.5 Pale to medium grey, locally variolitic, possibly massive mafic flow. 5% translucent set 3 veins. Rock is massive to weakly foliated. Gradational contact.	S1 (100) moderate ankerite. Weak sericite below 753m. 10cm quartz ankerite vein at 752.5-752.6.	751.9-753.5 3-5% pyrite, fine to medium grained, in stringers. Local 5-10% pyrite at margins of quartz ankerite vein at 751.9m.	
	753.5-759.0 Yellow-green to beige to purple-grey, variolitic hyaloclastite and massive flow.	S1 (100) moderate to strong ankerite.		
	753.5-754.4: Yellow-green, sericitized massive flow.	753.5-755.6 Moderate to locally strong	753.5-755.6 1-3% pyrite.	
	754.4-759.0: Yellow-grey to grey, variolitic hyaloclastite. Varioles are sub 1cm in size from less than 2% of rock.	755.6-759.0 Weak to locally moderate sericite.	755.6-759.0 Trace to 1% pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	759.0-774.1 Yellow-green to dark purple-black, variolitic massive flow. Variolitic below 760.5, varioles 0.5-4cm in size, form 10-95% of the rock. Varioles are generally white from 760.5 to 761.3, grading to grey or dark purple, commonly zones, to 764.5. Varioles weakly to moderately deformed. S1 at 25 deg. to c.a. at 762.0m. Locally, spherulitic textures are developed without distinct spherule/ groundmass contacts, these may form 80-100% of the rock.	759.0-760.5 S1 (100), moderate to strong sericite, overprints local remnant hematite/ magnetite. 760.5-774.1 S1 (100) local sericite, strong hematization of groundmass.	759.0-774.1 Trace to 1% pyrite.	Zonation of varioles-commonly hematized in centre, with white grey cherty margins
	774.1-774.6 Pale grey, LZ style alteration, overprints hematite. Variolitic massive flow.	774.1-774.6 S1 (100) bleached.	744.1-744.6 1-3% fine grained pyrite.	
	774.6-776.3 Purple-grey, weakly hematized spherulitic and variolitic	774.6-776.3 S1 (100) weak hematite.	744.6-776.3 Trace to 1% pyrite.	
	776.3-777.8 Pale grey variolitic massive flow and lesser flow breccia. 30-90% varioles. Local set 3 quartz veins with pyritic margins. Contact at 45 deg., parallel to quartz vein.	776.3-777.0 S1 (100) sericitized groundmass.	776.3-777.0 1-2% pyrite.	
777.8-779.9 FLOW BRECCIA/ HYALOCLASTITE	Medium green flow breccia and hyaloclastite. Moderately developed S1 foliation, at 40 deg. to c.a. at 778.0m. Gradational contact to underlying flow base.	Moderate to locally strong ankerite, where bleached.		

PAP - E1350

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 14 OF 15

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
779.9-788.8 LEUCOXENITIC MASSIVE FLOW	Medium to dark green, aphanitic to fine grained, leucoxenitic massive flow base. Locally bleached around 2-5%. S1 parallel quartz ankerite veins. Moderate S1 at 40 deg. to c.a. at 786.0m. Quartz vein at contact.	Local strong ankerite, chloritized.		
788.8-790.3 FLOW BRECCIA/ HYALOCLASTITE	Medium green to locally purple, flow breccia and hyaloclastite. Moderate S1 foliation.			
	788.8-789.0 Bleached contact zone. S1 at 40 deg. to c.a. at 790.5m. Gradational contact to underlying flow base.	788.8-789.0 Strong ankerite, moderate sericite. 789.7-790.1 S1 (100) weak to strong hematite.	788.8-789.0 1-3% pyrite. 789.7-790.1 Trace to locally 1-2% pyrite.	
790.3-792.2 LEUCOXENITIC MASSIVE FLOW	Medium green massive leucoxenitic mafic flow. Lower contact at 35 deg. to c.a.			
792.2-793.5 FOLIATED MAFIC FLOW	792.2-793.3 Grey-green, strongly ankeritized, possibly a komatiitic basalt.	792.2-793.3 Chlorite, ankerite.		
	793.3-793.5 Purplish-grey, silicified massive mafic flow/fine grained sediment? Lower contact sharp at 40 deg. to c.a.	793.3-793.5 S1, weak hematite.	793.3-795.5 Trace to 1% pyrite.	

P.A.P. - E-1556

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 15 OF 15

Project No. 155 Hole No. HW-91-136

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
793.5-815.8 TALC-SERPENTINE ULTRAMAFICS	Dark blue-grey to green-grey, variably talcose or serpentine altered ultramafic flows and flow breccias. Spinifex at 795.0m. Moderately developed S1 foliation; 5 to locally 10% quartz ankerite veins. 796.6m, S1 at 35 deg. to c.a. Lower contact at 10 deg. to c.a.	Talc-serpentine, ankerite.		
815.8-825.0 GREYWACKE	Pale grey to green-grey, fine grained to medium grained, massive-textured greywacke? <u>815.8-816.2</u> Greenish grey, moderately to strongly foliated, sharp lower contact at 10 deg. to c.a. <u>816.2-817.2</u> Grey-green, moderately to strongly foliated, possibly ultramafic sediment. 10-20% boudinaged and folded quartz ankerite veins from 816.6-817.2. Gradational contact. <u>817.2-825.0</u> Grey, fine grained (medium grained in uppermost 0.5m) greywacke? with scattered fragments/ clasts of dark emerald green (fuchsitic?) medium grained mafic flow. No bedding, no primary volcanic features preserved. Would log as mafic volcanic except for these fragments. S1 at 30 deg. to c.a. at 824.0m.	Moderate to strongly ankeritized.		
825.0	END OF HOLE			

P.A.P. - E.1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 136
GRID: HOLLOWAY

DATE: April 30 1991
SURVEY BY: RBA
INSTRUMENT: avgy335;corgv-687;corss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-78.42	360.00	5899.790	4456.700	-4.770
31.00	-78.35	361.00	5899.844	4462.941	-35.135
61.00	-78.21	361.50	5899.977	4469.034	-64.510
92.00	-78.08	361.30	5900.133	4475.400	-94.849
122.00	-78.02	361.30	5900.274	4481.611	-124.198
153.00	-77.71	361.10	5900.410	4488.126	-154.506
183.00	-77.71	360.30	5900.488	4494.511	-183.818
214.00	-77.44	359.70	5900.488	4501.181	-214.092
244.00	-77.02	358.50	5900.384	4507.812	-243.350
275.00	-77.04	358.70	5900.214	4514.767	-273.559
305.00	-77.20	359.80	5900.127	4521.454	-302.804
335.00	-77.41	359.10	5900.063	4528.047	-332.071
366.00	-77.50	353.50	5899.629	4534.766	-362.331
374.00	-76.83	347.50	5899.336	4536.519	-370.131
381.00	-75.25	348.20	5898.980	4538.170	-376.924
388.00	-75.08	350.40	5898.647	4539.931	-383.691
397.00	-75.42	349.70	5898.251	4542.188	-392.394
427.00	-75.42	349.80	5896.908	4549.619	-421.428
458.00	-75.42	351.40	5895.633	4557.318	-451.430
488.00	-75.67	351.50	5894.520	4564.723	-480.480
519.00	-75.50	352.00	5893.412	4572.361	-510.504
549.00	-74.92	351.10	5892.287	4579.936	-539.510
580.00	-74.75	351.70	5891.074	4587.954	-569.431
610.00	-73.92	351.40	5889.884	4595.967	-598.316
641.00	-73.42	351.00	5888.551	4604.580	-628.066
671.00	-73.25	352.50	5887.316	4613.095	-656.806
687.00	-73.00	352.70	5886.718	4617.701	-672.117
717.00	-72.25	356.10	5885.844	4626.617	-700.748
744.00	-72.50	354.10	5885.145	4634.762	-726.481
795.00	-72.00	354.10	5883.547	4650.228	-775.053
825.00	-71.50	353.10	5882.500	4659.564	-803.544

FROM	TO	WIDTH	Au g/t	R1	R2
603.10	603.11	0.01	0.010	N.S.	N.S.
659.50	661.00	1.50	0.010	N.S.	N.S.
661.00	662.50	1.50	0.010	N.S.	N.S.
662.50	663.50	1.00	0.010	N.S.	N.S.
663.50	665.00	1.50	0.030	N.S.	N.S.
665.00	666.70	1.70	0.010	N.S.	N.S.
666.70	668.00	1.30	0.030	N.S.	N.S.
690.80	692.00	1.20	0.010	N.S.	N.S.
692.00	693.50	1.50	0.110	N.S.	N.S.
693.50	695.00	1.50	0.120	N.S.	N.S.
695.00	696.00	1.00	3.530	3.630	3.430
696.00	697.00	1.00	0.090	N.S.	N.S.
697.00	698.60	1.60	0.010	N.S.	N.S.
698.60	700.00	1.40	0.690	0.720	0.650
700.00	701.50	1.50	3.810	3.770	3.840
701.50	703.00	1.50	1.030	1.060	0.990
703.00	704.50	1.50	4.990	5.010	4.970
704.50	706.00	1.50	3.580	3.770	3.390
706.00	707.50	1.50	5.760	5.930	5.590
707.50	709.00	1.50	3.520	3.840	3.190
709.00	709.90	0.90	4.100	4.320	3.870
709.90	710.10	0.20	0.690	0.690	N.S.
710.10	710.90	0.80	10.200	9.940	10.460
710.90	711.70	0.80	0.620	0.720	0.510
711.70	712.50	0.80	1.940	2.190	1.680
712.50	713.50	1.00	3.710	3.670	3.740
713.50	714.90	1.40	2.590	2.500	2.670
714.90	716.50	1.60	2.540	2.880	2.190
716.50	718.00	1.50	4.440	4.970	3.910
718.00	719.50	1.50	5.750	5.730	5.760
719.50	720.70	1.20	4.370	4.110	4.630
720.70	721.60	0.90	0.090	0.100	0.070
721.60	722.10	0.50	2.830	3.020	2.640
722.10	722.70	0.60	0.070	0.070	0.070
722.70	724.00	1.30	1.700	1.750	1.650
724.00	725.50	1.50	0.770	0.890	0.650
725.50	727.00	1.50	2.400	2.160	2.640
727.00	728.50	1.50	2.040	1.920	2.160
728.50	730.00	1.50	2.490	2.850	2.130
730.00	731.50	1.50	1.800	1.820	1.780
731.50	733.00	1.50	1.970	1.990	1.950
733.00	734.50	1.50	2.000	1.950	2.060
734.50	735.80	1.30	2.160	2.130	2.190
735.80	736.80	1.00	4.390	4.110	4.660
736.80	737.60	0.80	0.720	0.820	0.620
737.60	739.00	1.40	3.720	3.870	3.570
739.00	740.50	1.50	1.750	1.680	1.820
740.50	742.00	1.50	4.410	4.320	4.490
742.00	743.10	1.10	7.010	7.200	6.820
743.10	744.60	1.50	0.600	0.550	0.650

PROPERTY: HOLLOWAY

HOLE No.: 136

FROM	TO	WIDTH	Au g/t	R1	R2
744.60	745.60	1.00	0.750	0.790	0.690
745.60	746.70	1.10	3.230	3.190	3.260
746.70	747.30	0.60	31.240	31.200	31.270
747.30	747.80	0.50	4.180	4.110	4.250
747.80	748.90	1.10	1.390	1.270	1.510
748.90	750.40	1.50	0.220	0.170	0.270
750.40	751.90	1.50	0.190	0.210	0.170
751.90	752.60	0.70	2.870	2.610	3.120
752.60	753.50	0.90	4.130	4.560	3.700
753.50	754.40	0.90	5.590	5.350	5.830
754.40	755.70	1.30	0.550	0.580	0.510
755.70	757.20	1.50	0.060	N.S.	N.S.
757.20	758.80	1.60	0.040	N.S.	N.S.
758.80	760.30	1.50	0.460	N.S.	N.S.
760.30	761.80	1.50	0.010	N.S.	N.S.
773.00	774.10	1.10	0.060	N.S.	N.S.
774.10	774.60	0.50	0.690	N.S.	N.S.
774.60	775.30	0.70	0.010	N.S.	N.S.
775.30	776.30	1.00	0.010	N.S.	N.S.
776.30	777.00	0.70	0.060	N.S.	N.S.
777.00	777.80	0.80	0.980	N.S.	N.S.
777.80	778.80	1.00	0.050	N.S.	N.S.
792.20	793.20	1.00	0.020	N.S.	N.S.
793.20	793.50	0.30	0.120	N.S.	N.S.
793.50	794.50	1.00	0.010	N.S.	N.S.

1. LZ2 (1.20 d.t. Core Angle: 30 5.10 t.t.)

		EASTINGS:	5885.31
FROM:	737.60	NORTHINGS:	4632.83
		ELEVATION:	-720.38
	4.725 Au g/t		
	4.729 R1		
	4.716 R2		
		EASTINGS:	5885.03
TO:	747.80	NORTHINGS:	4635.91
		ELEVATION:	-730.10

2. 1/3 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5890.16
FROM:	603.10	NORTHINGS:	4594.12
		ELEVATION:	-591.67
	0.010 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5890.16
TO:	603.11	NORTHINGS:	4594.13
		ELEVATION:	-591.68

3. LZ1 (7.90 d.t. Core Angle: 30 3.95 t.t.)

		EASTINGS:	5886.25
FROM:	703.00	NORTHINGS:	4622.46
		ELEVATION:	-687.39
	4.907 Au g/t		
	5.038 R1		
	4.755 R2		
		EASTINGS:	5886.02
TO:	710.90	NORTHINGS:	4624.80
		ELEVATION:	-694.93

4. LZ2 (4.20 d.t. Core Angle: 30 2.10 t.t.)

		EASTINGS:	5885.86
FROM:	716.50	NORTHINGS:	4626.47
		ELEVATION:	-700.27
	4.888 Au g/t		
	4.996 R1		
	4.776 R2		
		EASTINGS:	5885.75
TO:	720.70	NORTHINGS:	4627.73
		ELEVATION:	-704.27

5. 3/4 CONTACT (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	5883.59
FROM:	793.50	NORTHINGS:	4649.77
		ELEVATION:	-773.62
	0.010 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5883.56
TO:	794.50	NORTHINGS:	4650.08
		ELEVATION:	-774.58

6. LZ (51.40 d.t. Core Angle: 30 25.70 t.t.)

		EASTINGS:	5886.25
FROM:	703.00	NORTHINGS:	4622.46
		ELEVATION:	-687.39
	3.221 Au g/t		
	3.262 R1		
	3.174 R2		
		EASTINGS:	5884.82
TO:	754.40	NORTHINGS:	4637.92
		ELEVATION:	-736.39

7. MZ (1.30 d.t. Core Angle: 90 1.30 t.t.)

		EASTINGS:	5887.49
FROM:	666.70	NORTHINGS:	4611.87
		ELEVATION:	-652.69
	0.030 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5887.44
TO:	668.00	NORTHINGS:	4612.24
		ELEVATION:	-653.93

LATITUDE 5899.79E

DEPARTURE 4456.7N

ELEVATION 295.2

DIP AT COLLAR Directional Hole BEARING

TOTAL DEPTH 727.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS Plug at 434m, top of wedge 429; directional hole off HW-91-136.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data			

Sheet No. 1 OF 10

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. L1053-A

Date started Feb. 17, 1991 completed Feb. 28, 1991

Contractor Bradley Bros.

Logged by B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
431.0-443.0 LITHIC GREYWACKE	Grey to yellow-green, coarse grained, poorly sorted lithic greywacke. Moderate to locally strongly S1 foliation, locally developed S2 cleavage. S2 at 110 deg. to c.a. at 435.4m. S1 at 40 deg. to c.a. at 435.9m.	431.0-437.8 Moderate ankerite, weak sericite increasing downhole. 437.8-443.0 Strong to moderate sericite, moderate to strong ankerite.		
443.0-494.5 DIRECTIONAL DRILLING	No core return.			
494.5-572.2 GREYWACKE/ ARGILLITE	Grey to grey green, very fine grained to fine grained, thinly interbedded greywacke and argillite. S1 at 35 deg. to c.a. at 499.8m. S0/S1 at 40 deg. to c.a. at 518.2m. S0/S1 at 50 deg. to c.a. at 527.1m. S0/S1 at 70 deg. to c.a. at 537.2m. S0/S1 at 85 deg. to c.a. at 551.1m. S0/S1 at 15 deg. to c.a. at 556.4m.	494.5-508.5 Moderately sericitized. 508.5-537.2 Weakly to moderately seri-		

P.A.P. - 14084

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 10

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Note: Small scale folding noted between 556.0 and 561.0m. S0/S1 at 70 deg. to c.a. at 562.1m.			
572.2-574.0 CARBONACEOUS ARGILLITE	Dark grey to black, aphanitic to very fine grained, carbonaceous argillite with pale grey, very fine grained, silty laminations. Silty laminations are locally partially replaced by pyrite. S0 (contact) at 60 deg. to c.a. at 572.2m. S0 (contact) at 60 deg. to c.a. at 574.0m.			
574.0-576.2 SILICIFIED, PYRITIC, VARIOLITIC, MAFIC FLOW TOP BRECCIA	Pale grey, aphanitic, variolitic flow top brecciated mafic flow. S1 at 50 deg. to c.a. at 574.9m. S1 (contact) at 60 deg. to c.a. at 576.2m.	574.0-576.2 90% silicified, strongly ankeritic.	574.0-576.2 Pyrite trace to 2% in very fine grained, disseminated and fracture filling form.	
576.2-579.1 FOLIATED, ANKERITIC MAFIC FLOW BASE	Pale grey to locally grey green, very fine grained, strongly foliated, strongly altered (bleached), massive mafic flow. S1 (quartz ankerite vein) at 35 deg. to c.a. at 579.1m.	Strongly ankeritic.		
579.1-596.4 FOLIATED, ANKERITIC LEUCOXENITIC MAFIC FLOW	Grey green to locally pale grey, very fine grained to fine grained, moderately to strongly foliated, leucoxenitic mafic flow. S1 at 45 deg. to c.a. at 583.9m.	Moderately to strongly ankeritic.		

P.A.P. E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	583.9-585.7 30% quartz-ankerite veinlets parallel to S1. S1 (quartz ankerite vein) at 30 deg. to c.a., S2 (sericite) at 70 deg. to c.a. at 584.1m.			
	586.6-591.3 Pale purple grey, very fine grained, strongly foliated. Foliated (S1) at 55 deg. to c.a. at 591.3m.	586.6-591.3 Moderately hematized.		
596.4-599.1 MASSIVE LEUCOXENITIC MAFIC FLOW	Pale to dark green, aphanitic to very fine grained, massive to weakly foliated, leucoxenitic mafic flow. 596.4-597.0 Pale green, aphanitic, variolitic flow top. Contact at 40 deg. to c.a. at 596.4m.			
599.1-610.4 FOLIATED, PILLOWED FLOW TOP BRECCIA	Pale green to dark green, aphanitic to very fine grained, locally variolitic, locally hyaloclastite, possibly weakly pillowed mafic flow top breccia. 605.0-610.4 Locally weakly magnetic. S1 at 60 deg. to c.a. at 605.0m. S1 at 50 deg. to c.a. at 610.4m.	Moderately to strongly ankeritic.		
610.4-626.9 MASSIVE, LEUCOXENITIC MAFIC FLOW LIGHTNING ZONE	Pale to dark green, very fine grained, massive mafic flow. Leucoxenitic overprinting noted in less altered rock.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	611.6-614.4 Purple grey, very fine grained, strongly magnetic, massive mafic flow.	611.6-614.4 Moderately hematized, 100% silicified, moderately ankeritic.	611.6-614.4 Pyrite trace to 1%.	
	614.4-615.2 Medium green, very fine grained, massive leucoxenitic mafic flow.			
	615.2-617.9 Pale grey green, very fine grained, altered and bleached massive mafic flow, and 20% quartz-ankerite veining. Pyrite is associated with quartz ankerite vein haloes.	615.2-617.9 90% silicified, strongly ankeritic.	615.2-617.9 Pyrite 1-3% in very fine to fine grained, disseminated and fracture filling form.	
	617.9-619.5 Buff alteration penetrative along fractures in purple grey (hematized), magnetic, massive flow.	617.9-619.5 100% silicified, moderately to strongly ankeritized, locally hematized.	617.9-619.5 Pyrite 1-3% in very fine grained, disseminated and fracture filling form.	
	619.5-620.3 Medium grey green, very fine grained, leucoxenitic, magnetic, massive mafic flow.	619.5-620.3 Moderately to strongly magnetic.		
	620.3-622.4 Pale green to buff to locally grey green, very fine grained, locally leucoxenitic, massive mafic flow. The interval is locally magnetic.	620.3-622.4 90% silicified, moderately to strongly ankeritic, locally sericitic.	620.3-622.4 Pyrite 1-3% in very fine grained, disseminated and fracture filling form.	
	622.4-624.2 Pale purple grey to grey green, very fine grained, leucoxenitic, strongly magnetic, massive mafic flow.	622.4-624.2 90% silicified, moderately hematized, strongly ankeritic.	622.4-624.2 Pyrite trace.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 10

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	624.2-625.5 Medium grey green, very fine grained, leucoxenitic, massive mafic flow.	624.2-625.5 Moderately to strongly ankeritic.		
	625.5-626.9 Pale green, very fine grained, leucoxenitic massive mafic flow. Contact at 30 deg. to c.a. at 626.9m.	625.5-626.9 80% silicified, moderately to strongly ankeritic.	625.5-626.9 Pyrite trace to 2% in very fine to fine grained, disseminated and minor fracture filling form.	
626.9-664.1 SILICIFIED, PYRITIC, VARIOLITIC MAFIC FLOW TOP BRECCIA LIGHTNING ZONE	Pale green to pale purple grey, aphanitic, variolitic, flow top breccia. 626.9-628.5 15% quartz-ankerite veining with irregular orientation.	626.9-628.5 90% silicified, locally sericitized, weakly to strongly ankeritic.	626.9-628.5 Pyrite 3-7% in very fine grained, fracture filling form associated with quartz ankerite vein haloes.	
	628.5-632.6 Pale grey to pale green coloured.	628.5-632.6 90% silicified, weakly sericitized, moderately ankeritic.	628.5-632.6 Pyrite trace to 2%.	
	632.6-635.3 Pale grey to grey green, chloritized patches. Pale grey alteration penetrative along fractures and is generally predominant.	632.6-635.3 100% silicified, locally chloritized, moderately ankeritic.	632.6-635.3 Pyrite 3-7% in predominantly fracture filling and blebs, minor disseminated.	
	635.3-641.7 Pale purple grey to pale grey coloured, and becomes locally weakly magnetic between 638.2 and 641.7m.	635.3-641.7 100% silicified, weakly hematized, moderately ankeritic.	635.3-641.7 Pyrite 3-5% in very fine grained, disseminated and fracture filling form.	

PAP - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	641.7-643.0 Pale grey to purple grey to green patches, and locally magnetic.	641.7-643.0 100% silicified, moderately ankeritic, locally chloritized.	641.7-643.0 Pyrite trace to 1%.	
	643.0-645.0 Pale grey coloured.	643.0-645.0 100% silicified, moderately ankeritic.	643.0-645.0 Pyrite 3-5% in very fine to fine grained, disseminated and fracture filling form.	
	645.0-647.8 Purple grey coloured, magnetic.	645.0-647.8 100% silicified, moderately to strongly hematized.	645.0-647.8 Pyrite trace to 1%.	
	647.8-650.1 Pale grey to pale purple grey coloured, locally magnetic.	647.8-650.1 100% silicified, weakly hematized, moderately ankeritic.	647.8-650.1 Pyrite 2-4% as above.	
	650.1-653.5 Pale grey coloured with grey green, relic patches.	650.1-653.5 100% silicified, locally chloritized, moderately ankeritic.	650.1-651.1 Pyrite trace to 2%. 651.1-651.9 Pyrite 3-7%, associated with quartz ankerite vein halo. 651.9-653.0 Pyrite 1-3%. 653.0-653.5 Pyrite 5-10%, in very fine grained, fracture filling form.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	653.5-664.1 Dark purple grey, strongly hematized and magnetic sections and pale grey alteration with associated increase in pyrite content. Pale grey alteration is penetrative along fractures and overprints dark purple grey, hematized alteration. Contact at 55 deg. to c.a. at 664.1m.	653.5-654.1 100% silicified, strongly hematized. 654.1-655.1 100% silicified. 655.1-656.3 100% silicified, strongly hematized. 656.3-658.2 100% silicified, locally hematized. 658.2-661.3 100% silicified, strongly hematized. 661.3-662.0 100% silicified. 662.0-662. 7 100% silicified, strongly hematized. 662.7-663.3 100% silicified. 663.3-664.1 100% silicified, strongly hematized.	653.5-654.1 Pyrite trace to 1%. 654.1-655.1 Pyrite 2-4%. 655.1-656.3 Pyrite trace to 2%. 656.3-658.2 Pyrite 1-3%. 658.2-661.3 Pyrite trace to 1%. 661.3-662.0 Pyrite 1-3%. 662.0-662.7 Pyrite trace to 1%. 662.7-663.3 Pyrite 2-4%. 663.3-664.1 Pyrite trace to 1%.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
664.1-666.6 MAGNETIC VARIOLITIC PILLOWED MAFIC FLOW	Medium grey green, aphanitic, locally variolitic, locally weakly magnetic, weakly foliated, possibly pillowed flow. Dark green, chloritized bands contain hyaloclastite.			
666.6-669.0 VARIOLITIC MAFIC FLOW TOP BRECCIA	Dark to medium grey green, aphanitic, variolitic flow top breccia. Strongly developed S1 foliation is present. S1 (contact) at 50 deg. to c.a. at 666.6m.			
669.0-677.6 MASSIVE MAFIC FLOW BASE	Medium grey green, very fine grained, weakly foliated, locally weakly magnetic, massive mafic flow. S1 at 45 deg. to c.a. at 671.0m. Contact at 40 deg. to c.a. at 677.6m.			
677.6-679.8 LEUCOXENITIC MASSIVE MAFIC FLOW	Medium grey green, very fine grained, weakly foliated, leucoxenitic, massive mafic flow. S1 (contact) at 35 deg. to c.a. at 679.8m.			
679.8-683.0 TRANSITIONAL MAFIC/ ULTRAMAFIC	Olive green to dark grey green, very fine grained to fine grained, weakly to strongly foliated, transitional mafic to ultramafic flow.	Weakly to moderately ankeritic, locally carbonatized.		

PAF - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 10

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	681.2-682.3 Ultramafic agglomerate with pale green to pale grey, subangular clasts or fragments (up to 2cm) elongated parallel to S1 foliation. S1 at 40 deg. to c.a. at 681.8m. 682.3-682.7 Carbonaceous argillite. S0/S1 at 40 deg. to c.a. at 682.3m.			
683.0-684.8 CARBONACEOUS ARGILLITE	Dark grey to black, very fine grained, thinly bedded, carbonaceous argillite. Minor pyritic replacement of pale grey, silty laminations. S0/contact at 25 deg. to c.a. at 683.0m. S0/contact at 30 deg. to c.a. at 684.8m.			
684.8-687.4 GREYWACKE	Grey green, very fine grained, locally laminated, greywacke. S0/contact at 45 deg. to c.a. at 687.4m.			
687.4-705.8 TALC-CHLORITE ULTRAMAFIC FLOW	Dark grey green, very fine grained, weakly foliated, talc-chlorite ultramafic flow. S1 at 25 deg. to c.a. at 703.6m. Contact at 15 deg. to c.a. at 705.8m.			

PAP - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 10

Project No. 155 Hole No. HW-91-136W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
705.8-727.0 MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained to fine grained, massive to weakly foliated mafic flow. S1 at 15 deg. to c.a. at 716.0m.			
727.0	END OF HOLE			

P.A.P. E1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: [illegible]
GRID: HOLLOWAY

DATE: April 30 1991
SURVEY BY: RBA
INSTRUMENT: avav-335;corav-640;corss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-78.42	360.00	5899.790	4456.700	-4.770
31.00	-78.35	361.00	5899.844	4462.941	-35.135
61.00	-78.21	361.50	5899.977	4469.034	-64.510
92.00	-78.08	361.30	5900.133	4475.400	-94.849
122.00	-78.02	361.30	5900.274	4481.611	-124.198
153.00	-77.71	361.10	5900.410	4488.126	-154.506
183.00	-77.71	360.30	5900.488	4494.511	-183.818
214.00	-77.44	359.70	5900.488	4501.181	-214.092
244.00	-77.02	358.50	5900.384	4507.812	-243.350
275.00	-77.04	358.70	5900.214	4514.767	-273.559
305.00	-77.20	359.80	5900.127	4521.454	-302.804
335.00	-77.41	359.10	5900.063	4528.047	-332.071
366.00	-77.50	353.50	5899.629	4534.766	-362.331
374.00	-76.83	347.50	5899.336	4536.519	-370.131
381.00	-75.25	348.20	5898.980	4538.170	-376.924
388.00	-75.08	354.20	5898.706	4539.941	-383.691
397.00	-75.42	349.70	5898.385	4542.210	-392.394
427.00	-75.42	349.80	5897.041	4549.641	-421.428
457.30	-70.42	348.40	5895.358	4558.380	-450.392
487.80	-66.03	359.30	5894.146	4569.629	-478.716
518.30	-64.17	355.10	5893.519	4582.455	-506.380
548.80	-62.75	353.90	5892.213	4596.021	-533.666
579.30	-62.42	353.90	5890.721	4609.984	-560.741
609.80	-62.00	354.80	5889.321	4624.135	-587.723
640.30	-61.67	354.70	5888.003	4638.471	-614.612
692.00	-60.00	357.30	5886.246	4663.605	-659.757
727.00	-60.25	356.30	5885.273	4681.011	-690.106

ASSAY LOG
PROPERTY: HOLLOWAY
HOLE No.: 136W

FROM	TO	WIDTH	Au g/t	R1	R2
572.50	574.00	1.50	0.030	N.S.	N.S.
574.00	575.00	1.00	0.010	N.S.	N.S.
575.00	576.20	1.20	0.070	N.S.	N.S.
576.20	577.50	1.30	0.010	N.S.	N.S.
614.40	615.20	0.80	0.050	N.S.	N.S.
615.20	616.60	1.40	0.710	N.S.	N.S.
616.60	617.90	1.30	0.550	N.S.	N.S.
617.90	619.50	1.60	0.600	N.S.	N.S.
619.50	620.30	0.80	0.150	N.S.	N.S.
620.30	621.30	1.00	0.440	N.S.	N.S.
621.30	622.40	1.10	0.960	N.S.	N.S.
622.40	624.20	1.80	0.020	N.S.	N.S.
624.20	625.50	1.30	0.010	N.S.	N.S.
625.50	626.90	1.40	0.120	0.100	0.140
626.90	628.50	1.60	1.540	1.540	1.540
628.50	630.00	1.50	0.380	0.410	0.340
630.00	631.50	1.50	0.360	0.410	0.310
631.50	632.60	1.10	0.360	0.310	0.410
632.60	634.00	1.40	3.120	3.020	3.220
634.00	635.30	1.30	1.890	1.950	1.820
635.30	636.50	1.20	1.410	1.470	1.340
636.50	638.00	1.50	2.200	2.130	2.260
638.00	639.50	1.50	1.590	1.710	1.470
639.50	640.50	1.00	2.730	2.780	2.670
640.50	641.70	1.20	0.860	0.890	0.820
641.70	643.00	1.30	0.740	0.790	0.690
643.00	644.00	1.00	5.440	5.450	5.420
644.00	645.00	1.00	5.160	5.280	5.040
645.00	646.50	1.50	0.070	0.070	0.070
646.50	647.80	1.30	0.310	0.270	0.340
647.80	649.00	1.20	3.650	3.870	3.430
649.00	650.10	1.10	3.310	3.460	3.150
650.10	651.10	1.00	0.500	0.550	0.450
651.10	651.90	0.80	2.250	2.300	2.190
651.90	653.00	1.10	0.090	0.070	0.100
653.00	653.50	0.50	3.980	3.840	4.110
653.50	654.10	0.60	0.140	0.100	0.170
654.10	655.10	1.00	3.160	3.290	3.020
655.10	656.30	1.20	0.330	0.240	0.410
656.30	657.30	1.00	0.810	0.790	0.820
657.30	658.20	0.90	0.240	0.240	0.240
658.20	659.70	1.50	0.290	0.270	0.310
659.70	661.30	1.60	0.230	0.210	0.240
661.30	662.00	0.70	1.530	1.610	1.440
662.00	662.70	0.70	0.590	0.450	0.720
662.70	663.30	0.60	5.450	5.690	5.210
663.30	664.10	0.80	0.090	0.070	0.100
664.10	665.50	1.40	0.070	0.070	0.070
665.50	666.60	1.10	0.010	N.S.	N.S.
679.80	679.90	0.10	0.010	N.S.	N.S.

** BORSURV **

AVERAGED ASSAY INTERVALS — Page 1 of 1
PROPERTY: HOLLOWAY
HOLE No: 136w

---

1. 1/3 CONTACT (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	5890.90
FROM:	574.00	NORTHINGS:	4607.56
		ELEVATION:	-556.04
	0.010 Au g/t (Cut to: 34.290)		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5890.93
TO:	575.00	NORTHINGS:	4608.02
		ELEVATION:	-556.92

2. 3/4 CONTACT (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5886.66
FROM:	679.80	NORTHINGS:	4657.67
		ELEVATION:	-649.10
	0.010 Au g/t (Cut to: 34.290)		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5886.66
TO:	679.90	NORTHINGS:	4657.72
		ELEVATION:	-649.19

3. LZ (2.00 d.t. Core Angle: 40 1.29 t.t.)

		EASTINGS:	5887.91
FROM:	643.00	NORTHINGS:	4639.78
		ELEVATION:	-616.97
	5.300 Au g/t (Cut to: 34.290)		
	5.365 R1		
	5.230 R2		
		EASTINGS:	5887.84
TO:	645.00	NORTHINGS:	4640.76
		ELEVATION:	-618.72

4. MZ (7.20 d.t. Core Angle: 90 7.20 t.t.)

		EASTINGS:	5889.09
FROM:	615.20	NORTHINGS:	4626.67
		ELEVATION:	-592.48
	0.595 Au g/t (Cut to: 34.290)		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5888.78
TO:	622.40	NORTHINGS:	4630.06
		ELEVATION:	-598.83

LATITUDE 5899.79 East

DEPARTURE 4456.7 North

ELEVATION -4.77

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 749.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Wedged from 136X at 339.0m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data			

Sheet No. 1 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. L1053-A

Date started March 12, 1991 completed March 27, 1991

Contractor Bradley Bros.

Logged by D. Broughton, B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
339.0-342.0	Steel wedge.			Note: Plug in 136X at 344m.
342.0-356.7 SILICIFIED, GREYWACKE SANDSTONE, ARGILLITE	Pale grey to grey green, aphanitic to very fine grained, thinly bedded greywacke, arkosic sandstone, and argillite. S0/S1 at 50 deg. to c.a. at 344.0m. S0/S1 (sericite, qav) at 50 deg. to c.a. at 348.7m.	342.0-354.9 95% silicified.		
356.7-362.0 GREYWACKE/ ARGILLITE	Pale grey to grey green, very fine grained to fine grained, thinly interbedded greywacke and minor argillite. S1 at 40 deg. to c.a. at 358.1m. S0/S1 at 50 deg. to c.a. at 360.5m.			
362.0-381.0 DIRECTIONAL DRILLING	No core return.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
381.0-410.7 **GREYWACKE/ ARGILLITE**	Pale grey green, very fine grained to fine grained, thinly bedded greywacke and argillite. S0/S1 at 25 deg. to c.a. at 383.1m. S0/S1 at 40 deg. to c.a. at 390.3m. S0/S1 at 0 deg. to c.a., S2 (sericite) at 65 deg. to c.a. at 392.5m. S0/S1 at 20 deg. to c.a. at 402.3m. 404.7-405.4 Quartz-ankerite vein. S0/S1 at 15 deg. to c.a., S2 (sericite) at 135 deg. to c.a. at 408.0m. Contact at 10 deg. to c.a.	Moderately to strongly sericitized. 405.4-410.7 Locally silicified.		Note: Double hexagonal core barrel used 389.0-515.0m.
410.7-413.3 **SILICIFIED SANDSTONE**	Buff to yellow-green, massive sandstone. Local 5-20% qav's, notably at contacts.	S1 (100) weak sericite.	Trace to local 1-2% fine grained pyrite.	
413.3-439.3 **SERICITIZED GREYWACKE**	Yellow to yellow-green, fine grained to locally coarse grained greywacke. Interbedded with 5-15% argillite. Locally developed S2 crenulation cleavage, S1 overall is moderately developed. 2-5% S1 and S2-parallel qav's. S0 at 50 deg. to c.a. at 421.7m. 423.5-424.7 Silicified grey-brown sandstone as above.	Strong to moderate sericite, ankerite. 423.5-424.7 S1 (100).		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 at 50 deg. to c.a. at 424.8m. S2 at 120 deg. to c.a. at 434.0m. Contact at approximately 50 deg. to c.a., folded by S2, parallel to S0.			
439.3-452.3 **SILICIFIED SANDSTONE/ ARKOSIC SANDSTONE**	Buff to yellow green, fine to medium sandstone and arkosic sandstone, interbedded with local fine grained greywacke and argillite. Can recognize bedding locally in sandstones. Weakly foliated to massive, except in sections of (non-silicified) greywacke-argillite, which are strongly foliated and crenulated (S2). S0 at 50 deg. to c.a. at 441.0m. S1 at 0-20 deg. to c.a. at 449.5m. At 448.5, 449.3, 449.9m, silicification contacts cut across S1. S0 uncertain. Contacts at 50-60 deg. to c.a. (=120-130 deg., subparallel to general S2 attitude?). Lower contact at 10 deg. to c.a.	S1 (80) moderate to strong (in greywacke/argillites) sericite.	Trace to local 1-2% fine grained pyrite.	
452.3-459.8 **GREYWACKE, MINOR ARGILLITE & SANDSTONE**	Grey to grey-green, fine grained to locally coarse grained or lithic greywacke, interbedded with minor argillite and sandstone. S0 at 30 deg. to c.a. at 453.0m. S0 at 60 deg. to c.a. at 457.7m. Contact cut by qav's.	Local silicification in sandstones. Moderate ankerite local sericite.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 4 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
459.8-466.1 SILICIFIED ARKOSIC SANDSTONE, GREYWACKE	Buff to yellow-green, massive arkosic sandstone interbedded with lesser greywacke. Moderate to weak S1 foliation. S1 at 10 deg. to c.a. at 463.0m. Lower contact marked by loss of silicification at qav margin.	S1 (90) moderate to strong sericite moderate ankerite.	Trace to local 1% pyrite.	
466.1-510.0 GREYWACKE/ ARGILLITE	Pale yellow-grey to buff, moderately foliated, fine to medium grained greywacke and minor interbedded argillite. Locally developed S2 crenulation cleavage. <u>466.1-475.3</u> 5 to local 10% qav's. S0 at 35 deg. to c.a. at 477.1m. S2 at 110 deg. to c.a. at 482.5m. S0 at 45 deg. to c.a. at 496.3m. S0 at 35 deg. to c.a. at 506.5m. S0/S1 at 20 deg. to c.a., S2 (sericite) at 120 deg. to c.a. at 507.2m.	466.1-507.6 Weak to moderate sericite. Moderate ankerite.		
510.0-513.0	Wedge (steel).			<u>Note:</u> Azimuth drifting to far west, therefore, wedge necessary. Bottom at 515.0m.
513.0-555.9 GREYWACKE ARGILLITE	Grey green, very fine to fine grained, thinly bedded greywacke and argillite. S0/S1 at 40 deg. to c.a. at 514.8m. S0/S1 at 30 deg. to c.a., S2 at 125 deg. to c.a. at 517.3m. S0/S1 at 40 deg. to c.a., S2 at 110 deg. to c.a. at 517.6m.	513.0-520.0 Weak to moderate sericite.		<u>Note:</u> Standard core barrel used 513.0-522.0m.

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0 at 55 deg. to c.a. at 526.2m. S0 at 65 deg. to c.a. at 534.1m. Lower contact at 80 deg. to c.a.			Note: Double hexagonal core barrel 522.0-749.0m.
555.9-559.6 CARBONACEOUS ARGILLITE, LOCALLY GRAPHITIC	Black, carbonaceous to locally graphitic argillite, thinly bedded, with minor interbedded grey fine grained greywacke. Local 5-10% S0/S1 - parallel qav's. Lower contact sharp at 70 deg. to c.a.			558.0-559.6 Local 1-3% pyrite replacing wacke beds.
559.6-559.9 SILICIFIED, PYRITIC ARGILLITE AND 30% QAV	559.6-559.9 Grey, very fine grained, silicified unit, possibly a sediment, cut by 20-40% qav stockwork. Massive gradational lower contact parallel to S1 developed in underlying unit.	559.6-559.9 S1 (100) moderate ankerite.	559.6-559.9 3-5% fine grained pyrite.	
559.9-562.2 SILICIFIED, PYRITIC VARIOLITIC FLOW BRECCIA	559.9-562.2 Pale grey, strongly foliated flow top breccia. S1 at 60-70 deg. to c.a., variolites noted.	559.9-560.9 Moderate to strong ankerite, weak silicification. 560.4-562.2 100% silicified.	559.9-560.4 Pyrite trace to 1%. 560.4-562.2 Pyrite trace to 1%.	
562.2-565.3 FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW	Grey green, very fine to fine grained, strongly foliated, leucoxenitic massive mafic flow. S1 at 60 deg. to c.a. at 563.1m.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
565.3-571.1 FOLIATED, MASSIVE MAFIC FLOW	Grey green, very fine grained, strongly foliated, massive mafic with 20% narrow quartz-ankerite veinlets. Small scale folding evident. S1 at 65 deg. to c.a. at 571.1m.	Moderately sericitized.		
571.1-575.3 HEMATIZED, MASSIVE MAFIC FLOW	Purple grey, very fine to fine grained, weakly foliated, massive mafic flow.	Moderately hematized.		
575.3-580.0 FOLIATED, LEUCOXENITIC MAFIC FLOW	Grey green, very fine grained, moderately to strongly foliated, leucoxenitic, massive mafic flow. S1 at 75 deg. to c.a. at 577.6m.			
580.0-585.8 FOLIATED, VARIOLITIC FLOW TOP AND MASSIVE MAFIC FLOW	Dark grey green, aphanitic, variolitic, hyaloclastite, strongly foliated segments (0.3-1.5m wide) alternating with medium grey green, very fine grained, massive segments of mafic flow. S1 at 80 deg. to c.a. at 580.0m. S1 at 75 deg. to c.a. at 585.8m.			
585.8-598.9 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. 595.0-598.8 Locally weakly magnetic. Contact sharp at 50 deg. to c.a.	598.8-598.9 Moderate sericite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136XA

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
598.9-636.4 **SILICIFIED VARIOLITIC FLOW BRECCIA, MINOR MASSIVE FLOW (LIGHTNING ZONE)**	598.9-599.1 Yellow-green, moderately to strongly foliated hyaloclastite and flow breccia. Possible varioles. S1 at 50-60 deg. to c.a. Sharp contact at 60 deg. to c.a.	**598.9-599.1** Strong sericite, moderate ankerite.		
	599.1-599.2 Weak yellow/buff to grey, hyaloclastite/flow breccia. Grades downhole from foliated to massive. 2-5% grey qav's, form stockwork with predominant orientation orthogonal to S1. Sharp contact at 50 deg. to c.a., marked by pyritic stringer, cut by the grey qav's.	**599.1-599.2** S1 (100), strong sericite, weak to moderate ankerite.	**599.1-599.2** 1% fine grained pyrite, disseminated and in stringers.	
	599.2-604.2 Pale to dark purple-grey, variolitic flow breccia/hyaloclastite. Varioles typically 0.5cm in size, subspherical (undeformed). Grey stockwork qav's locally form up to 40% of the rock, and may carry hematite (change to purple vein stockworks) ie from 599.8 to 601.5m. Moderately to strongly magnetic from 600.3 to 604.6 (hematized varioles are magnetic, groundmass is not). Minor irregular (squeezed) intercalated grey fine grained argillaceous sediment at 601.5m, with nodular pyrite masses.	**599.2-604.2** S1 (100) strong hematite, weak ankerite. **603.3-603.6** Halo pale grey LZ alteration, around minor vein stockwork.	**599.2-604.2** Trace to local 1-2% fine grained disseminated and fracture-filling pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	604.2-607.3 Variolitic flow breccia, grades from grey to purple to locally chloritic green. Varioles hematized (purple) and locally magnetized, weakly deformed, X:Z=2:1. Chloritic qav's form narrow vein breccias throughout, at 135-145 deg. to c.a. Chlorite slip along qav at 145 deg., with weak slickensides. 604.3-605.6: S1 at 60 deg., set 3 quartz ankerite chlorite vein at 135 deg., same strike. Weakly deformed varioles pitch at 65 deg. from east on S1. 605.6: slickesides pitch 76 deg. from east on chlorite slip at 145 deg. to c.a., same strike as S1; probably an S2 structure. 606.5: S1 at 45 deg., lineated varioles pitch roughly 70 deg. from east on S1. Set 3 qav at 125 deg, strike 65 deg. east of S1. 607.0: Chlorite slip at 145 deg., strike 65 deg. east of S1, slickensides (1cm grooves) pitch 80 deg. from S. 607.3: Chlorite slips marks contact with underlying pale grey mineralized LZ; unit above contact is purplish hematized non-pyritic flow breccia. Slip has same strike as S1, with slickensides pitching at 15 deg. from east (chlorite minerals) and 70 deg. from west (1cm grooves).	S1 (100) local weak hematite patchy sericitization.	604.2-607.3 Overall 1-3% fine to medium grained pyrite, in stringers (1-2mm) and disseminated.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136X[A]

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	607.3-626.2 Pale grey to green/grey. Variably developed Lightning Zone in variolitic flow breccia/hyaloclastite. Generally massive, weak local S1. Varioles hematized in green, chloritic poorly/non-mineralized sections; varioles generally cherty grey/white in pale grey, mineralized (LZ) sections. Varioles predominantly <1cm in size, weakly deformed. 5-20% grey/white qav's in better sections, predominantly parallel to S1.	607.3-626.2 S1 (100) local chlorite; weak sericite and ankerite.	607.3-608.0 2-5% fine to medium grained pyrite, disseminated clots and grains, some stringers. 608.0-608.5 1-2% pyrite. 608.5-608.7 5-15% fine to coarse grained pyrite, in stringers at 135 deg. to c.a., subparallel in strike to S1.	
		608.7-610.1 Local chlorite, hematite/ magnetite.	608.7-610.1 1 to local 3% pyrite.	
	613.5-614.4 Chloritic slip subparallel to c.a. slickensides orthogonal to c.a.		610.1-611.3 3-7% fine to medium grained pyrite, in disseminated clusters and lesser stringers.	613.6-613.8 Core broken, recovery 90-95%.
	512.4-613.6 Possible massive flow.			
	618.3-619.4 Cream-white varioles, 1-3cm in size, in pale beige sericitic groundmass possibly a flow breccia.	618.3-619.4 Sericitized.	611.3-613.1 Trace to 1% pyrite. 613.1-613.6 3-5% pyrite, fine grained in stringers with sericite. 613.6-616.9 1 to local 3% pyrite.	

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DIAMOND DRILL CORE LOG

Sheet No. 10 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
			616.9-617.9 3 to local 5% pyrite disseminated and in stringers. Local 1-2% aspy in quartz ankerite vein. 617.9-619.4 1-3% pyrite. 619.4-620.3 3 to local 8% pyrite in stringers and disseminated.	
	619.4-622.4 Varioles generally sub 0.5cm, dark purple grey, 5-15% of rock. Overall dark, chloritic. 622.4-625.0 Good LZ pale grey, typical style. Varioles small as above, but non-hematized, possibly less abundant.		620.2-622.4 1 to locally 3% pyrite. 622.4-625.0 5 to local 7% pyrite, disseminated clusters and grains, stringers. 1cm pyrite stringers at 80 deg. to c.a. at 623.7m.	
	625.0-626.2 Locally 20-30% hematized varioles, sub 1cm, weakly deformed to subspherical. Contact at 20 deg. to c.a. roughly orthogonal to set 3 qav's. Massive roughly variolitic flow base.		625.0-626.2 3-5% pyrite as above.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 11 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	626.2-627.2 Yellow to dark green, medium to coarse grained poorly sorted greywacke. Moderate to locally strong (shear plane) S1 foliation at 20 deg. to c.a. at 627.0m.	626.2-627.2 Non-silicified, sericitized. 627.2-636.4 S1 (100).	626.2-627.2 Trace pyrite.	
	627.2-629.1 Grey to purple or black, variolitic flow breccia, grades from weakly hematized matrix with black magnetic varioles to pervasive purple hematization. Cut by 2-10cm spaced chlorite veins at 130 deg. to c.a.	627.2-629.1 Moderate to strong hematite varioles locally magnetic.	627.2-629.1 Trace pyrite.	
	629.1-630.8 Dark green variolitic flow breccia, locally overprinted by pale grey pyritic, vein associated LZ alteration. Lower contact is a chloritic slip at 20 deg. to c.a., and striking 90 deg. east of set 3 qav's (at 135 deg. to c.a.) Chlorite slickensides pitch 40 deg. from east.	629.1-630.8 Magnetic where dark green.	629.1-630.8 3 to local 5-7% pyrite, fine to medium grained, disseminated with higher % due to 1-10mm stringers-generally parallel to set 3 qav's at 130-140 deg. to c.a.	
	630.8-636.4 Dark green/black to purplish grey, magnetic, variolitic flow breccia; local, vein-associated pale grey LZ alteration and mineralization (non-magnetic) strongly hematized/magnetic from 630.8-631.7m. Lower contact placed at loss of silicification-coincident with gradation to massive flow base.	Hematite/magnetite.	630.8-631.7 Trace to local 2% pyrite. 631.7-636.4 1-3%, local 5% pyrite associated with qav's.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136I

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
636.4-637.1 MIXED FLOW BRECCIA, MASSIVE AND PILLOWED FLOW MINOR SEDIMENT	Dark green to grey, fine grained massive flow. Sharp contact at 636.6 with underlying flow top with poorly developed pillow structured, grading to mixed fine grained flow breccia/ argillaceous sediment. Magnetic where dark green. Lower contact cut by quartz-albite vein.	Chloritic.	Trace to local 1-3% pyrite replacing coarser sedimentary material and in stringers.	
637.1-642.9 TALC-SERPENTINE ULTRAMAFICS	637.1-637.2 Dark green, non-magnetic possibly ultramafic flow breccia/ hyaloclastite. 637.2-642.9 Dark brown/green to dark blue-black, massive textured ultramafic flow. Moderately to very strongly foliated/ sheared, with S2 crenulation planes forming shear bands. 5-40% S1-parallel qav. 638.1, S2 at 120 deg. to c.a. Contact cut by quartz ankerite vein.	Talc-serpentine-strong ankerite.		
642.9-663.0 MASSIVE MAGNETIC BASALTIC FLOW	Dark green to green-black, magnetic, massive basaltic flow. Fine grained and leucoxenitic to 643.2, grades sharply to coarse-grained and strongly magnetic. 5-10% 1-3mm magnetite grains. S1 foliation weak or absent. Leucoxenitic, non-magnetic from 651.2 to 654.4m, magnetic to 655.8m. Leucoxenitic, non magnetic to 663.0m. Contact at 45 deg. to c.a.	Calcite alteration of groundmass. Minor ankerite chloritic.	Local trace to 1% fine grained disseminated pyrite.	Fe-tholeiitic basalt.

PAP E:1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
663.0-675.4 MASSIVE BASALTIC FLOW	Medium green, non-magnetic, fine grained massive basaltic flow. Minor shearing at upper flow contact. Becomes vesicular below 668.2m.	Calcite alteration chloritic.		MG-tholeiitic basalt.
675.4-683.7 MASSIVE MG THOLEIITIC FLOW	Pale green, very fine to medium grained, Mg tholeiitic massive flow. 15cm flow top at 675.4-675.55. Weakly to non-foliated.	Calcite, chlorite.		
683.7-698.6 PILLOWED MG THOLEIITIC FLOW	Pale to medium green, very fine grained, weakly pillowed Mg tholeiitic flow. Selvage dark chloritic green, pyritic. Weak to moderate S1 at 25 deg. to c.a. at 689.0m. S2 at 130 deg. to c.a. at 689.3m. Lower contact obscured by qav parallel to S1.	Calcite, chlorite.		
698.6-734.9 MASSIVE ULTRAMAFIC FLOWS	Dark grey-green, fine to medium grained, locally talcose, massive ultramafic flows. Talc commonly associated with 2-5% wispy qav, and also along slip (S1) planes. The wall rock is only locally soapy. Weak to moderate S1 foliation, generally at 10-40 deg. to c.a., becomes stronger downhole. S1 at 10 deg. to c.a. at 717.1m. S1 at 15 deg. to c.a. at 732.6m.	Talc, chlorite, calcite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 14 OF 14

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	736.0-739.0 10-30% narrow quartz-ankerite vein stockwork, deformed into attitude of S1 at 35 deg. Gradational contact.	736.0-739.0 Moderate to strongly talcose, moderate ankerite.		Minor talcose gouge at 734.5, along S1 foliation.
739.6-747.0 ULTRAMAFIC & LEUCOXENITIC MAFIC FLOWS	Mixed grey, leucoxenitic, fine to medium grained, possibly mafic flows and brown/ drab buff fine to medium grained ultramafic flows. 10-15cm quartz veins at 746.0 and 747.4m, parallel to S1 and with sheared margins. S1 at 40 deg. to c.a. at 747.0m.	Local sericite, moderate to strong ankerite.		
747.0-749.0 TALCOSE ULTRAMAFIC FLOW	Drab brown or buff grey, moderately foliated ultramafic flow. 20-30% ankerite veining.	Weakly talcose. Moderate to strong ankerite.		
749.0	END OF HOLE			

PAP - E1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 176W
GRID: HOLLOWAY

DATE: April 30 1991
SURVEY BY: D.Broughton
INSTRUMENT: avgy-275;corgy-620;corss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-78.42	360.00	5899.790	4456.700	-4.770
31.00	-78.35	361.00	5899.844	4462.941	-35.135
61.00	-78.21	361.50	5899.977	4469.034	-64.510
92.00	-78.08	361.30	5900.133	4475.400	-94.849
122.00	-78.02	361.30	5900.274	4481.611	-124.198
153.00	-77.71	361.10	5900.410	4488.126	-154.506
183.00	-77.71	360.30	5900.488	4494.511	-183.818
214.00	-77.44	359.70	5900.488	4501.181	-214.092
244.00	-77.02	358.50	5900.384	4507.812	-243.350
275.00	-77.04	358.70	5900.214	4514.767	-273.559
305.00	-77.33	361.10	5900.203	4521.421	-302.812
339.00	-68.70	363.50	5900.601	4531.346	-335.329
354.00	-67.50	363.80	5900.957	4536.929	-349.246
366.00	-65.30	360.30	5901.129	4541.730	-360.243
381.00	-62.30	354.90	5900.852	4548.347	-373.702
397.00	-63.00	354.00	5900.141	4555.663	-387.913
427.00	-63.30	353.50	5898.666	4569.132	-414.679
458.00	-63.20	351.90	5896.893	4582.972	-442.361
488.00	-62.00	347.40	5894.413	4596.554	-468.996
519.00	-60.30	348.20	5891.252	4611.174	-496.148
549.00	-59.70	347.90	5888.146	4625.849	-522.129
580.00	-59.30	348.20	5884.888	4641.242	-548.839
610.00	-59.00	347.50	5881.650	4656.281	-574.595
620.00	-59.00	347.50	5880.535	4661.309	-583.166
635.00	-59.00	347.50	5878.863	4668.852	-596.024
677.00	-58.00	347.50	5874.113	4690.277	-631.835
749.00	-58.50	347.50	5865.913	4727.266	-693.060

DAY LOG
PROPERTY: HOLLOWAY
HOLE No.: 136X

FROM	TO	WIDTH	Au g/t	R1	R2
558.10	559.60	1.50	0.050	0.070	0.020
559.60	559.90	0.30	0.040	0.100	0.070
559.90	561.00	1.10	0.050	0.070	0.030
561.00	562.20	1.20	0.090	0.100	0.070
562.20	563.50	1.30	0.060	0.100	0.020
586.00	586.10	0.10	N.S.	N.S.	N.S.
598.10	599.10	1.00	0.100	0.100	0.100
599.10	600.60	1.50	0.070	0.070	0.070
600.60	602.00	1.40	0.050	0.070	0.030
602.00	603.60	1.60	0.080	0.100	0.050
603.60	604.60	1.00	0.170	0.170	0.170
604.60	606.10	1.50	2.210	2.230	2.190
606.10	607.30	1.20	0.790	0.750	0.820
607.30	608.40	1.10	4.870	4.800	4.940
608.40	608.70	0.30	20.330	20.430	20.230
608.70	610.10	1.40	1.200	1.170	1.230
610.10	611.30	1.20	9.710	9.810	9.600
611.30	613.10	1.80	0.090	0.100	0.070
613.10	613.60	0.50	9.910	9.940	9.870
613.60	614.60	1.00	10.790	10.700	10.870
614.60	616.10	1.50	1.100	1.170	1.030
616.10	616.90	0.80	3.330	3.220	3.430
616.90	617.90	1.00	5.230	4.770	5.690
617.90	619.40	1.50	3.060	2.850	3.260
619.40	620.20	0.80	17.200	16.730	17.660
620.20	621.40	1.20	1.890	1.780	1.990
621.40	622.40	1.00	0.260	0.270	0.240
622.40	623.30	0.90	3.930	3.940	3.910
623.30	623.90	0.60	6.360	6.380	6.340
623.90	625.00	1.10	6.680	6.750	6.620
625.00	626.20	1.20	3.220	3.150	3.290
626.20	627.20	1.00	0.160	0.170	0.140
627.20	628.20	1.00	0.050	0.070	0.030
628.20	629.10	0.90	0.070	0.070	0.070
629.10	630.20	1.10	1.920	1.820	2.020
630.20	630.80	0.60	10.200	9.810	10.590
630.80	631.70	0.90	0.260	0.270	0.240
631.70	633.20	1.50	0.330	0.310	0.340
633.20	633.90	0.70	1.940	1.990	1.890
633.90	635.00	1.10	0.840	0.790	0.890
635.00	636.40	1.40	0.970	0.990	0.960
636.40	637.20	0.80	0.190	0.210	0.170
637.20	638.20	1.00	0.050	0.070	0.030
698.60	698.61	0.01	N.S.	N.S.	N.S.
743.60	744.70	1.10	0.030	N.S.	N.S.
744.70	745.85	1.15	0.010	N.S.	N.S.
745.85	746.10	0.25	0.010	N.S.	N.S.
746.10	747.30	1.20	0.010	N.S.	N.S.
747.30	747.50	0.20	0.010	N.S.	N.S.
747.50	749.00	1.50	0.010	N.S.	N.S.

1. 1/3 CONTACT (1.10 d.t. Core Angle: 90 1.10 t.t.)

		EASTINGS:	5887.00
FROM:	559.90	NORTHINGS:	4631.26
		ELEVATION:	-531.52
	0.050 Au g/t		
	0.070 R1		
	0.030 R2		
		EASTINGS:	5886.88
TO:	561.00	NORTHINGS:	4631.81
		ELEVATION:	-532.47

2. 3/4 CONTACT (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	5878.61
FROM:	637.20	NORTHINGS:	4669.97
		ELEVATION:	-597.90
	0.050 Au g/t		
	0.070 R1		
	0.030 R2		
		EASTINGS:	5878.50
TO:	638.20	NORTHINGS:	4670.48
		ELEVATION:	-598.75

3. LZ (13.90 d.t. Core Angle: 60 16.37 t.t.)

		EASTINGS:	5881.94
FROM:	607.30	NORTHINGS:	4654.93
		ELEVATION:	-572.28
	4.745 Au g/t		
	4.678 R1		
	4.807 R2		
		EASTINGS:	5879.84
TO:	626.20	NORTHINGS:	4664.43
		ELEVATION:	-588.48

4. FWZ (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5871.65
FROM:	698.60	NORTHINGS:	4701.37
		ELEVATION:	-650.20
	-0.000 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5871.65
TO:	698.61	NORTHINGS:	4701.38
		ELEVATION:	-650.21

5. MY (0.10 d.t. Core Angle: 90 0.10 t.r.)

		EASTINGS:	5884.24
FROM:	586.00	NORTHINGS:	4644.25
		ELEVATION:	-553.99
	-0.000 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5884.23
TO:	586.10	NORTHINGS:	4644.30
		ELEVATION:	-554.08

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 1 OF 2

LATITUDE 5899.79E
DEPARTURE 4456.7N
ELEVATION 295.2m
DIP AT COLLAR Directional Hole BEARING
TOTAL DEPTH 356.0m CORE SIZE NQ
CORE STORAGE Canamax East Zone Site
REMARKS Plug at 310.5m top of wedge at 305.5. Pulled back from EOH at 356 to 339m and drilled 136XA

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data			

Project No. 155 Hole No. HW-91-136XA
Property Holloway (P.D.) Lightning Zone
NTS. 32D/12 TWP Holloway Claim No. L1053-A
Date started Feb. 28, 1991 completed March 12, 1991
Contractor Bradley Bros.
Logged by D. Broughton, B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
305.5-309.5 **WEDGE**				
309.5-317.0 **GREYWACKE, 10% QAV**	Grey-green to yellow-green, fine grained greywacke. Moderate S1 foliation, folded. Local 10% S1-parallel quartz ankerite veins with sericitized, silicified haloes.	Patchy sericite and silicification.		
317.0-328.0 **DIRECTIONAL DRILLING**	No core return.			
328.0-335.0 **SILICIFIED ARKOSIC SANDSTONE, GREYWACKE, ARGILLITE**	Interbedded beige silicified sandstone and lesser yellow-green non-silicified sericitized fine grained greywacke and argillite. Folded throughout, with core angles of +/- 40 deg. - drilling downdip. Silicified sandstone sections host 5-40% quartz ankerite veins. S0 at 30 deg. to c.a. at 329.1m. S0 at 135 deg. to c.a. at 329.5m.	328.0-333.5 80% silicified.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136XA

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
335.0-349.0 DIRECTIONAL DRILLING	No core return.			
349.0-356.0 SILICIFIED GREYWACKE & ARGILLITE	Pale grey to grey green, aphanitic to very fine grained, thinly interbedded greywacke and argillite. <u>Note:</u> Cemented 344.0-356.0 meters and pulled back to redrill at 339.0, 136XA.	349.0-354.7 90% silicified.		<u>Note:</u> Due to excessive flattening between 337 and 349 meters, cemented between 340 and 356m. <u>Note:</u> Attempt to drill without wedge failed. Drilled to 344m. <u>Note:</u> Steel plug at 344m.
356.0	END OF HOLE			

LATITUDE 5899.79

DEPARTURE 4456.7

ELEVATION (297m) -4.77m

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 700.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS Cut off from 136Y at 423m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Note: Gyro to 609 meters			
619	-62deg.	378°	
661	-61.5deg.	377deg.	
700	-61deg.	377deg.	

Sheet No. 1 OF 10

Project No. 155 Hole No. HW-91-136Y.

Property HOLLOWAY

NTS. 32D/12 TWP. Holloway Claim No. L10534

Date started April 10, 1991 completed April 21, 1991

Contractor Bradley Bros.

Logged by B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
423.0-427.0	Cut-off 136Y, no core return.			Note: Standard core barrel 426.0-504.0m.
427.0-453.3 FOLIATED LITHIC GREYWACKE	Grey, poorly sorted, medium to coarse grained lithic greywacke. 5 to 20% lithic fragments (including jasper), strongly deformed to define an S1 foliation at 5-25 deg. to c.a. Overall, 1-3% S1-parallel qav's. S1 at 10 deg. to c.a. at 432.0m. S1 at 25 deg. to c.a. at 436.4m. S2 at 134 deg., S1 at 25 deg. to c.a. at 446.5m, *S1/S2 ±10 deg. intersection of S1/S2 pitches 5 deg. (from east) on S2. S2 at 120 deg., S1 at 10 deg. to c.a. at 448.0m, *S1/S2 ±10 deg. L1 (mineral lineation) pitches 75 deg. (from east) on S1. Intersection of S1/S2 pitches 20 deg. (from east) on S1. Contact folded.	427.0-428.0 Weakly sericitized, associated with 10% S1-parallel qav's. Moderately ankeritized, locally sericitized throughout. 450.8-453.3 Moderate to strongly sericitized, strongly ankeritized.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 10

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
453.3-489.3 **SERICITIZED GREYWACKE, ARGILLITE**	Grey-green to yellow-green, thinly bedded fine to medium grained and lesser argillite. Tight F2 folds (<0.5m), spaced S2 cleavage. Overall 10% qav's, both S1 and S2-parallel. 459.0 S2 at 125 deg., S0 at 45 deg. to c.a., *S1/S2 ±10 deg. S0 at 30 deg. to c.a. at 469.3m. S2 at 150 deg. to c.a. at 480.0m. S2 at 125 deg., S0 at 30 deg. to c.a. at 489.0m. Alteration contact.	453.3-461.0 Pervasively moderately ankeritized, weakly to locally strongly sericitized, minor silicification. 461.0-489.3 Pervasively moderately to strongly ankeritized and sericitized.	465.8 VG in 1-2cm qav, parallel to local S1/S2 at 90 deg. to c.a.	
489.3-504.0 **GREYWACKE**	Grey to yellow-grey, thickly bedded fine to medium grained greywacke with minor thinly interbedded argillite. Strong S1 foliation subparallel to bedding. S1 at 30 deg. to c.a. at 496.4m. 136yA 423.0-503.0. 136y B 496.0-504.0. Note: Wedged to flatten hole. Bottom of 1st wedge at 504.0m; broke at top of core barrel when started to core. Left NQ step bit, shell, round barrel and core tube assembly in hole. Bottom of 2nd wedge at 499.0m.	489.3-491.5 Weakly sericitized, moderately ankeritized. 491.5-497.0 Moderately ankeritized. 497.0-504.0 Weakly sericitized, moderately ankeritized.		Accounting Note: Standard core barrel 496.0-____ meters Steel wedge 494.0-496.0m.

P.A.P. E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 10

Project No. 155 Hole No. HW-91-136X

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
496.0-528.7 **GREYWACKE**	Medium grey to yellow-grey, fine to medium grained, thickly bedded greywacke with minor thinly interbedded argillite. Moderately developed S1 foliation, local S2 crenulations. S0 at 60 deg. to c.a. at 499.2m. S1 at 20 deg. to c.a. at 516.5m. Bedding contact at 50 deg. to c.a.	**496.0-513.2** Pervasive weak sericitization, weak ankeritization. 1-2% S1-parallel grey qav's. **513.2-528.7** Weak ankeritization.		
528.7-577.7 **FOLIATED GREYWACKE/ ARGILLITE**	Yellow-grey to yellow-green, thinly interbedded fine grained greywacke and argillite, with sections of thickly bedded greywackes. S1 at 50 deg. to c.a. at 529.5m. Strongly developed S2 from 533.9-537.0 at 120-140 deg. to c.a., spaced 0.5-2cm 1-3% S1-parallel qav's. S0 at 60 deg. to c.a. at 546.7. <u>551.0-577.7</u> Grey, thinly bedded greywacke-argillite. 557.3-560.0: 10-20%, 1-20cm S1-parallel qav's. 565.7, S0 at 25 deg., S2 at 115 deg. to c.a.	**528.7-551.0** Weak to moderate sericitization. **533.1-533.4** S1 (90). **547.5-547.9** S1 (60). **551.0-577.7** Weak ankerite.		Graded bedding indicates tops uphole. <u>Note:</u> Broke rods at 567m.
577.7-580.7 **CARBONACEOUS ARGILLITE**	Dark grey to black, aphanitic to very fine grained, very thinly bedded, carbonaceous argillite, and minor silty laminations.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 4 OF 10

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0/S1 at 55 deg. to c.a. at 577.7m. Contact at 60 deg. to c.a. at 580.7m.			
580.7-583.2 FOLIATED, VARIOLITIC MAFIC FLOW	Pale to medium grey green, aphanitic, variolitic, moderately foliated mafic flow. Probable flow top. S1 at 63 deg. to c.a. at 583.2m.			
583.2-585.1 MASSIVE MAFIC FLOW	Medium to dark grey green, very fine to fine grained, massive mafic flow S0/S1 at 70 deg. to c.a. at 585.1m.			
585.1-588.0 FOLIATED, VARIOLITIC MAFIC FLOW TOP	Pale to medium grey green to locally pale purple grey, aphanitic, variolitic, locally hyaloclastite, moderately to strongly foliated mafic flow top. S1 at 50 deg. to c.a. at 588.0m.			
588.0-593.9 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, weakly foliated, massive mafic flow. S1 at 50 deg. to c.a. at 593.9m.			
593.9-596.6 FOLIATED, ANKERITIC MASSIVE MAFIC FLOW	Pale to medium grey green, very fine grained, moderately to strongly foliated, massive mafic flow. S1 at 20 deg. to c.a. at 596.6m.	593.9-596.6 Moderately to strongly ankeritic.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 10

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
596.6-600.6 FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW	Medium grey green, very fine grained, moderately to strongly foliated, leucoxenitic, massive mafic flow. S1 at 25 deg. to c.a. at 600.6m.			
600.0-605.3 FOLIATED, MASSIVE MAFIC FLOW	Pale to medium grey green, to locally pale grey, very fine grained, moderately to locally strongly foliated, massive mafic flow. S1 at 45 deg. to c.a. at 605.3m.	600.6-605.3 Moderately ankeritic.		
605.3-617.6 FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW	Medium grey green, very fine grained, strongly foliated, leucoxenitic, massive mafic flow. S1 at 40 deg. to c.a. at 612.5m. Contact at 40 deg. to c.a. at 617.6 (parallel S1). <u>614.7-617.0</u> Foliated massive mafic flow.			
617.6-621.3 FOLIATED, VARIOLITIC MASSIVE FLOW	Pale to medium grey green, aphanitic, locally variolitic, moderately foliated, massive mafic flow. Varioles elongated parallel S1. S1 at 40 deg. to c.a. at 621.2m. <u>Note:</u> Probable flow top to massive flow base.			

PAP - E1556

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
621.3-623.5 MASSIVE MAFIC FLOW	Medium grey green, very fine to fine grained, weakly foliated, massive mafic flow, weakly foliated.			
623.5-633.4 SILICIFIED, PYRITIC MASSIVE MAFIC FLOW	Pale grey to pale green to locally medium grey green, very fine grained, strongly altered, massive mafic flow. Pale grey alteration is penetrative along fractures locally. Weakly sheared at 30 deg. to c.a. at 625.5m. S1 (pyrite) at 55 deg. to c.a. at 624.5m. S1 (pyrite) at 50 deg. to c.a. at 629.3m. Weakly sheared (chlorite) at 10 deg. to c.a. at 628.3m. Weakly sheared (chlorite) at 20 deg. to c.a. at 628.8m.	623.5-633.4 80% silicified, locally strongly sericitized.	623.5-625.5 Pyrite 1-3% in S1 fracture filling form. 625.5-626.3 Pyrite trace. 626.3-627.9 Pyrite 1-3% in irregular fracture filling form. 627.9-629.0 Pyrite trace. 629.0-629.5 Pyrite 1-2% in S1 fracture filling form. 629.5-633.4 Pyrite trace.	
633.4-639.8 SILICIFIED, PYRITIC FLOW BRECCIA AND MASSIVE MAFIC FLOW	Pale grey, aphanitic to very fine grained, locally flow brecciated and weakly tectonically brecciated, mafic flow. Dark green, chloritic filled fractures (1-4mm wide) are present. Weakly sericitized matrix surrounds pale grey, angular flow brecciated fragments (2-10mm)	633.4-639.8 100% silicified, weakly sericitized, moderately to strongly ankeritic.	633.4-639.8 Pyrite trace to 1% in very fine grained, disseminated and fracture filling form.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 10

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Chlorite filled fractures at 45 deg. to c.a. at 634.6m. Chlorite filled fractures at 40 deg. to c.a. at 639.7m. Weakly sheared contact at 160 deg. to c.a. at 639.8m.			
639.8-646.3 FOLIATED, ANKERITIC, MASSIVE MAFIC FLOW	Pale grey green to pale grey, aphanitic to very fine grained, weakly foliated, massive mafic flow. Dark green, chlorite filled fractures are still present but in decreasing quantity. S1 at 30 deg. to c.a., chlorite filled fractures at 150 deg. to c.a. at 644.8m.	Moderately ankeritic, weakly sericitized.		
646.3-649.1 FOLIATED, VARIOLITIC FLOW BRECCIATED MAFIC FLOW	Pale to medium grey green, aphanitic, variolitic, strongly foliated, brecciated, mafic flow. Pale grey to buff coloured varioles (0.5-2cm) are elongated parallel to S1 foliation. 648.6-649.1 Foliated, leucoxenitic, sericitized, massive mafic flow. S1 at 30 deg. to c.a. at 648.6m. Contact (parallel) at 30 deg. to c.a. at 649.1m.	Weakly to moderately sericitized.		
649.1-649.9 SILICIFIED ARGILLITE	Medium to dark grey, very fine grained, thinly bedded argillite. S0/contact at 40 deg. to c.a. at 649.9m.	649.1-649.9 90% silicified.		

PAP - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
649.9-652.5 FOLIATED, TALC SERPENTINE ULTRAMAFIC FLOW	Pale to medium grey green, very fine to fine grained, strongly foliated, flow brecciated, talc-serpentine ultramafic flow. Pale green, subangular fragments (0.5-3cm) are elongated parallel to S1 foliation. S1/contact at 25 deg. to c.a. at 652.5m.			
652.5-655.3 GREYWACKE	Medium grey, very fine to fine grained, thin to medium bedded greywacke and minor argillite. S0/S1 at 45 deg. to c.a. at 655.3m.			
655.3-656.0 FOLIATED, TALC-SERPENTINE ULTRAMAFIC FLOW	Same as above interval between 649.9 and 652.5m. Contact at 45 deg. to c.a. at 656.0m.			
656.0-659.7 SILICIFIED GREYWACKE/ ARGILLITE	Medium grey, very fine grained to fine grained, thinly bedded, greywacke and minor argillite. S0/S1 at 40 deg. to c.a. at 658.8m. S0/S1 at 25 deg. to c.a. at 659.7m.	656.0-659.7 70% silicified.	658.8-659.7 Pyrite 20-30% in replacement form and nodules.	

P.A.P. E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-13wYA

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
659.7-671.7 TALC-CHLORITE ULTRAMAFIC FLOW	Dark grey green, very fine grained, locally weakly foliated, talc-chlorite ultramafic flow. Weakly sheared at 25 deg. to c.a. at 671.7m.			
671.7-676.0 GREYWACKE AND TALC-SERPENTINE ULTRAMAFIC	Dark grey to reddish brown, aphanitic to very fine grained, cherty bands and argillite. Tectonically brecciated. 672.6-673.2 Medium grey green, aphanitic to very fine grained, talc-serpentine ultramafic. S1 at 35 deg. to c.a. at 672.6m. S1 at 15 deg. to c.a. at 673.2m. 674.1-676.0 Grey green, very fine grained, massive greywacke. S1 at 25 deg. to c.a. at 674.1m. S1 at 25 deg. to c.a. at 676.0m.			
676.0-682.5 TALC-SERPENTINE ULTRAMAFIC FLOW	Medium green to grey green, fine grained, strongly foliated, talc-serpentine ultramafic. S1 (pyrite) at 25 deg. to c.a. at 676.1m. Contact at 15 deg. to c.a. at 682.5m.			
682.5-693.8 MASSIVE, MAFIC FLOW	Medium to dark grey green, very fine grained, weakly to moderately foliated, massive mafic flow.			

PAP-E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 10

Project No. 155 Hole No. HW-91-136Y

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	682.5-685.0 Contact appears weakly tectonically brecciated with narrow qav parallel to S1 foliation and contact.			
693.8-698.1 FOLIATED FLOW BRECCIATED AND MASSIVE FLOW	Medium to dark grey green, aphanitic to very fine grained, moderately to strongly foliated, locally flow brecciated to locally massive mafic flow. Upper and lower contacts between massive and flow brecciated sections are sharp and no good top indicator was observed. Carbonate filled amygdules, elongated parallel to S1 foliation, are noted locally. S1 parallel contact at 30 deg. to c.a. at 698.1m.			
698.1-700.0 FOLIATED, LEUCOXENITIC MASSIVE, MAFIC FLOW	Medium grey green, very fine grained to fine grained, moderately foliated, leucoxenitic, massive, mafic flow.			
700.0	END OF HOLE			

PAP - E1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 136v
GRID: HOLLOWAY

DATE: April 30 199
SURVEY BY: RBA
INSTRUMENT: avqv-275;corqv-610;corss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-78.42	360.00	5899.790	4456.700	-4.770
31.00	-78.35	361.00	5899.844	4462.941	-35.135
61.00	-78.21	361.50	5899.977	4469.034	-64.510
92.00	-78.08	361.30	5900.133	4475.400	-94.849
122.00	-78.02	361.30	5900.274	4481.611	-124.198
153.00	-77.71	361.10	5900.410	4488.126	-154.506
183.00	-77.71	360.30	5900.488	4494.511	-183.818
214.00	-77.44	359.70	5900.488	4501.181	-214.092
244.00	-77.02	358.50	5900.384	4507.812	-243.350
275.00	-77.04	358.70	5900.214	4514.767	-273.559
305.00	-77.42	365.50	5900.457	4521.394	-302.817
335.00	-77.67	364.00	5900.993	4527.842	-332.111
365.70	-78.17	366.90	5901.603	4534.238	-362.131
381.00	-77.00	370.80	5902.109	4537.488	-377.073
396.00	-74.33	372.70	5902.866	4541.124	-391.606
411.50	-68.75	374.20	5904.007	4545.897	-406.309
423.00	-66.42	384.90	5905.475	4550.030	-416.940
442.00	-66.50	385.60	5908.712	4556.893	-434.359
457.00	-66.67	383.30	5911.179	4562.319	-448.124
494.00	-66.17	383.20	5917.021	4575.919	-482.034
518.00	-64.25	382.40	5920.921	4585.195	-503.823
548.60	-63.75	377.20	5925.465	4597.816	-531.326
579.00	-63.69	375.10	5929.209	4610.745	-558.583
609.60	-63.33	373.20	5932.545	4623.980	-585.971
619.00	-61.50	370.60	5933.443	4628.239	-594.302
700.00	-61.00	370.60	5940.610	4666.534	-665.317

FROM	TO	WIDTH	Au g/t	R1	R2
459.80	461.50	1.70	0.030	N.S.	N.S.
461.50	463.20	1.70	0.190	N.S.	N.S.
463.20	464.40	1.20	0.030	N.S.	N.S.
464.40	464.90	0.50	0.660	N.S.	N.S.
464.90	465.20	0.30	2.810	N.S.	N.S.
465.20	466.00	0.80	0.180	N.S.	N.S.
580.69	580.70	0.01	N.S.	N.S.	N.S.
618.00	618.10	0.10	N.S.	N.S.	N.S.
622.00	623.50	1.50	0.010	N.S.	N.S.
623.50	624.50	1.00	0.150	N.S.	N.S.
624.50	625.50	1.00	0.140	N.S.	N.S.
625.50	626.30	0.80	0.130	N.S.	N.S.
626.30	627.90	1.60	0.410	N.S.	N.S.
627.90	629.00	1.10	0.040	N.S.	N.S.
629.00	629.50	0.50	0.950	N.S.	N.S.
629.50	631.00	1.50	0.030	N.S.	N.S.
631.00	632.00	1.00	0.030	N.S.	N.S.
632.00	633.40	1.40	0.040	N.S.	N.S.
633.40	635.00	1.60	0.110	N.S.	N.S.
635.00	636.50	1.50	0.460	N.S.	N.S.
636.50	638.00	1.50	0.450	N.S.	N.S.
638.00	639.00	1.00	0.220	N.S.	N.S.
639.00	639.80	0.80	0.170	N.S.	N.S.
639.80	641.00	1.20	0.020	N.S.	N.S.
641.00	642.50	1.50	0.010	N.S.	N.S.
649.10	649.11	0.01	N.S.	N.S.	N.S.

** BORSURV **

AVERAGED ASSAY INTERVALS
PROPERTY: HOLLOWAY
HOLE No: 136v

==========

1. LZ (0.50 d.t. Core Angle: 55 0.41 t.t.)

		EASTINGS:	5934.33
FROM:	629.00	NORTHINGS:	4632.97
		ELEVATION:	-603.07

0.950 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5934.37
TO:	629.50	NORTHINGS:	4633.20
		ELEVATION:	-603.51

2. 1/3 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5929.39
FROM:	580.69	NORTHINGS:	4611.48
		ELEVATION:	-560.10

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5929.39
TO:	580.70	NORTHINGS:	4611.48
		ELEVATION:	-560.11

3. 3/4 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5936.11
FROM:	649.10	NORTHINGS:	4642.47
		ELEVATION:	-620.69

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5936.11
TO:	649.11	NORTHINGS:	4642.47
		ELEVATION:	-620.70

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5933.35
FROM:	618.00	NORTHINGS:	4627.79
		ELEVATION:	-593.42

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5933.36
TO:	618.10	NORTHINGS:	4627.83
		ELEVATION:	-593.50

LATITUDE 5899.7E

DEPARTURE 4456.7N

ELEVATION (297m)

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 426.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Plug at 303m, wedge at 90° right

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See gyro for 136Y			

Sheet No. 1 OF 3

Project No. 155 Hole No. HW-91-136YA

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No L-1053A

Date started April 2, 1991 completed April 10, 1991

Contractor Bradley Bros.

Logged by D. Broughton, K. Green|| B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
298.0-301.0	Steel wedge.			RQD ≥ 75% unless noted.
301.0-312.6 GREYWACKE	Dark green to grey, moderately folded, locally weakly sericitic finely bedded greywacke with <5% argillite. S0/S1 is crenulated. Lower contact is gradational. At 310.5, S0 = 0 deg., S2 = 100 deg.	Moderate ankerite. Local weak sericite. 311.9-312.6 Moderate sericite.		
312.6-317.6 SERICITIZED FOLIATED GREYWACKE	Light green, moderately foliated, sericitized greywacke with 10-25% foliation parallel ankerite veining (minor quartz). Core angles are 0-20 deg. to c.a. and undulating. S1 is crenulated at 110 deg. to c.a. where S1 = 0-10 deg.	10-20% foliation parallel ankerite veinlets. Strong sericite.		
317.6-320.85 SERICITIZED ARGILLITE	Light khaki yellow-green, strongly sericitized foliated argillite (1-5% greywacke laminae). Unit is cut by 10-20% foliations parallel and oblique quartz-ankerite-chlorite veins (up to 5cm wide). Foliation is generally 0-25 deg. to c.a.	Strong sericite. 10-20% quartz-ankerite-chlorite veining.		

PAP - 14064

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 3

Project No. 155 Hole No. HW-91-136Y

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	320.3-320.85 Sericitic greywacke.			
320.85-362.0 SERICITIC/ SILICIFIED GREYWACKE/ MINOR ARGILLITE	Light green, fine bedded, strongly silicified overprinting strong sericite, greywacke. Bedding is generally 0-20 deg. to c.a. (<10% finely folded argillite).	Strong sericite, overprinted by 70-90% silicification.		
	321.2-322.0 10% fine stockwork quartz veinlets.		321.2-322.0 Trace fine pyrite.	
	At 322.5, S1 = 5 deg. At 326.0, S1 = 10 deg.			
	325.2-336.9 Light green, finely interbedded greywacke and argillite. Unit is moderately folded.	Strongly sericitized. Local 20-50% silicified in greywacke beds.		
	Note: S1 is folded, contacts of the quartz vein zones are parallel.	327.9-328.5 70% silicified, 10% quartz veining.		
	336.9-344.3 40% quartz-ankerite veining with pyritic haloes (0.5-10cm width). S1 at 45 deg. to c.a. at 344.3m.		336.9-344.3 Pyrite 1-3% in very fine grained, disseminated and fracture filling form.	
	349.7-350.8 50% quartz-ankerite veining.	352.2-359.2 80% silicified.		
	357.1-359.2 30% quartz-ankerite veining. S1 at 35 deg. to c.a. at 357.1m. S1 at 20 deg. to c.a., S2 at 140 deg. to c.a. at 359.7m.	352.2-359.2 80% silicified.	357.1-359.2 Pyrite trace to 1%.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 3

Project No. 155 Hole No. HW-91-136Y A

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	359.2-362.0 Spaced S2 (2-5cm) at 130-140 deg.	359.2-362.0 Strong sericite, weak patchy silicification.		
362.0-426.0 DIRECTIONAL DRILLING	No core return.			Directional drilling to 426.0m Cut-off hole at 423.0m.

PAP - E 1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 134va
GRID: HOLLOWAY

DATE: April 30 1991
SURVEY BY: RBA
INSTRUMENT: avg g ro 275

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-78.42	360.00	5899.790	4456.700	-4.770
31.00	-78.35	361.00	5899.844	4462.941	-35.135
61.00	-78.21	361.50	5899.977	4469.034	-64.510
92.00	-78.08	361.30	5900.133	4475.400	-94.849
122.00	-78.02	361.30	5900.274	4481.611	-124.198
153.00	-77.71	361.10	5900.410	4488.126	-154.506
183.00	-77.71	360.30	5900.488	4494.511	-183.818
214.00	-77.44	359.70	5900.488	4501.181	-214.092
244.00	-77.02	358.50	5900.384	4507.812	-243.350
275.00	-77.04	358.70	5900.214	4514.767	-273.559
305.00	-77.42	365.50	5900.457	4521.394	-302.817
335.00	-77.67	364.00	5900.993	4527.842	-332.111
365.70	-78.17	366.90	5901.603	4534.238	-362.131
381.00	-77.00	370.80	5902.109	4537.488	-377.073
396.00	-74.33	372.70	5902.866	4541.124	-391.606
411.50	-68.75	374.20	5904.007	4545.897	-406.309
423.00	-66.42	384.90	5905.475	4550.030	-416.940
442.00	-66.50	385.60	5908.712	4556.893	-434.359
457.00	-66.67	383.30	5911.179	4562.319	-448.124
494.00	-66.17	383.20	5917.021	4575.919	-482.034
503.00	-66.25	382.00	5918.417	4579.270	-490.269

LATITUDE 5999.8E

DEPARTURE 4480.1N

ELEVATION 305.3

DIP AT COLLAR -80° BEARING 360°

TOTAL DEPTH 449m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing

Project No. 155 Hole No. HW-91-137

Property Holloway

NTS. 32D/12 TWP. Holloway Claim No. L10534

Date started Jan. 31, 1991 completed Feb. 18, 1991

Contractor Bradley Bros.

Logged by D. Broughton, B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-22.0	Casing			
22.0-26.1 LEUCOXENITIC, MASSIVE, MAFIC FLOW	Medium grey green, fine to medium grained, weakly foliated, leucoxenitic, massive basalt. 24.9-26.1 Pale grey, fine grained, bleached and altered.	24.9-26.1 Moderately ankeritic.	24.9-26.1 Pyrite trace.	NOTE: Double hex. core barrel used 31 to 354m.
26.1-29.4 SYENITIC DYKE	Pink grey to grey green, very fine grained to fine grained, weakly porphyritic, possible syenitic intrusive (dyke). Locally white, subhedral, feldspar phenocrysts (1-2mm) are present.			
29.4-31.2 SILICIFIED, MAGNETIC PILLOWED MAFIC FLOW	Pale to dark grey green, aphanitic to very fine grained, pillowed flow top. Dark green, chloritized selvages are noted.	29.4-31.2 70% silicified.	29.4-31.2 Pyrite 1-3%.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. BW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
31.2-65.7 **MAGNETIC, MASSIVE MAFIC FLOW**	Dark grey green, very fine to fine grained, magnetic, massive mafic flow. Contact broken.	**31.2-32.4** 50% silicified. **52.5-53.35** S1 (70) 2 zones of pale buff silicification with both gradational and sharp contacts to unaltered rock. **62.3-65.7** Local hematization.	**31.2-32.4** Pyrite trace to 1%. **52.5-53.35** 1-5% disseminated pyrite. **54.2-54.5** 1-3% pyrite associated with quartz ankerite vein.	
65.7-230.7 **POLYLITHIC CONGLOMERATE**	Poorly sorted polylithic conglomerate, dark grey, typically with coarse arkosic matrix and mafic-felsic-sedimentary clasts. Weakly to locally moderately developed S1 foliation. Locally magnetic throughout. S1 at 40 deg. to c.a. at 84.0m. S1 at 45 deg. to c.a. at 99.6m. S1 at 40 deg. to c.a. at 116.0m. S1 at 40 deg. to c.a. at 142.1m. S1 at 40 deg. to c.a. at 159.5m. S1 at 30 deg. to c.a. at 194.5m. S1 at 30 deg. to c.a. at 215.9m.	Patchy hematization, local silicification.		**95.0-96.4** RQD = 0 Mechanically broken core. **103.5-104.5** RQD = 20% Rusty-weathered rubbly core and grit. **129.5-134.9** RQD = 20-30% Blocky ground, some weathering of vuggy carbonate veins. **165.999-168.8** RQD = 40% FF = 1-40cm

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 13

Project No. 155 Hole No. BW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	219.0-229.6 Medium green grey, fine grained to medium grained, weakly foliated to massive, quartzose feldspathic sandstone. S1 at 55 deg. to c.a. at 225.9m. S0/S1 at 55 deg. to c.a. at 229.6m. Fault plane (1cm clay seam) at 50 deg. to c.a. at 230.4m.			**172.0-180.6** RQD = 20% FF = 1-50cm **230.4-230.7** RQD = 0 FF = 0.5-6cm
230.7-354.0 **SERICITIZED GREYWACKE/ ARGILLITE**	Medium to pale grey green, very fine to fine grained, thinly bedded greywacke and argillite. S0/S1 at 30 deg. to c.a. at 235.2m. S0/S1 at 55 deg. to c.a. at 243.0m. 241.5-252.8 20-30% quartz-ankerite veining (2-80cm). 258.8-267.5 20-30% quartz-ankerite veining (2-60cm). S0/S1 at 20 deg. to c.a. at 269.9m. S0/S1 at 15 deg. to c.a. at 292.5m. S0/S1 at 50 deg. to c.a. at 301.5m. S0/S1 at 30 deg. to c.a. at 315.1m.	**230.7-276.3** Moderately to strongly sericitized. **276.3-301.5** Weakly sericitized and ankeritic, 60% silicified. **301.5-308.5** Weakly sericitized and ankeritic, 15% silicified.		NOTE: Rod count at 267m (corrected from 266m).

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	329.3-330.5 70% quartz-ankerite veining with tourmaline associated. 330.5-336.8 15% quartz-ankerite veining (3-30cm) crosscutting the foliation. S1 at 20 deg. to c.a. at 332.6m. 336.8-341.1 60% quartz-ankerite veining with tourmaline associated. 341.1-348.9 Medium green grey, fine grained, greywacke and minor thin interbeds of argillite. 348.9-354.0 Pale to medium green grey, very fine grained to fine grained, thinly interbedded greywacke and argillite. S0/S1 at 35 deg. to c.a. at 347.1m.	308.5-329.3 Weakly sericitized and ankeritic, 90% silicified. 330.5-341.1 Strongly sericitized, locally silicified. 341.1-343.1 Weakly to moderately sericitized, locally silicified.		
354.0-389.0 DIRECTIONAL DRILLING	No core return.			
389.0-410.0 GREYWACKE/ ARGILLITE	Pale green to grey, very fine grained to fine grained, thinly interbedded greywacke and argillite. S0/S1 at 5-15 deg. to c.a. at 393.5m. S0/S1 at 30 deg. to c.a. at 408.5m. 404.3-406.2 40% quartz-ankerite veining with pyritic halos.	389.3-409.8 Strongly sericitized.	404.3-406.2 Pyrite trace to 2% associated with quartz ankerite vein.	NOTE: Double hex. core barrel from 389.0-749.0m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
410.0-518.0 **GREYWACKE/ MINOR ARGILLITE**	Medium grey to locally pale green, fine to medium grained, medium bedded greywacke, minor thin interbeds of argillite. S0 at 40 deg. to c.a.a t 434.0m. S0/S1 at 0-10 deg. to c.a. at 445.6m. S0/S1 at 30 deg. to c.a., S2 at 125 deg. to c.a. at 456.7m. S0/S1 at 35 deg. to c.a. at 466.1m. S0/S1 at 30 deg. to c.a. at 473.2m. S0/S1 at 10 deg. to c.a. at 482.3m, S2 at 55 deg. to c.a. S0/S1 at 150 deg. to c.a. at 482.7m, S2 at 55 deg. to c.a. Note: Increasing argillite content below 470.0m. Small scale folding is noted, with S2 cleavage. 497.5, S0 at 55 deg. to c.a.	**430.0-435.6** Moderately sericitized. **479.0-518.0** Weakly to moderately sericitized.		
518.0-576.6 **GREYWACKE/ ARGILLITE**	Grey, thickly bedded medium to course grained greywacke, with intercalated sections of thinly bedded fine grained greywacke/argillite. 518.7, S0 at 40 deg. to c.a. 537.7, S0 at 35 deg. to c.a.			

PAP - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	544.7-548.4 Section with higher proportion of argillite, locally carbonaceous; cut by 5-25% quartz ankerite veins. 554.0, S0 at 60 deg. to c.a. 561.5-563.7 S0 at +/- 5 deg. to c.a.		**545.3** Local 1-3% pyrite.	
576.6-583.0 **CARBONACEOUS ARGILLITE**	Black carbonaceous to locally graphitic argillite thinly bedded with minor grey fine grained greywacke. Locally crenulated, with S2 cleavage. 576.9, S0 at 50 deg. to c.a. Lower contact at 35 deg. to c.a.		Local trace to 1% pyrite, as replacement of wacke beds.	
583.0-583.7 **SILICIFIED GREYWACKE/ ARGILLITE**	Grey, very fine grained greywacke/argillite, locally thinly bedded. S0/S1 at 60 deg. to c.a. at 583.4m. Lower contact sharp but irregular.	Moderately ankeritized S1 (90).	3-5% fine to medium grained pyrite, in bands and clusters parallel to S0/S1.	
583.7-586.0 **ANKERITIC, FOLIATED VARIOLITIC FLOW BRECCIA**	Pale green to beige, locally variolitic flow top hyaloclastite and minor breccia. Moderately to locally strongly developed S1 foliation; varioles deformed with X:Z aspect ratios of 3-5:1, Y:Z of 1.5-2:1. 585.4-585.9 Coalesced varioles form 95% of the rock, which has a beige colour. Contact at 30 deg. to c.a. 585.9-586.0 Flow breccia, with chloritic green matrix and mm to cm sized fragments.	Chloritized, moderate to strong ankerite. Local 5% quartz ankerite veins.	Local 1-2% fine grained pyrite banded along S1.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
586.0-587.2 **SILICIFIED MASSIVE FLOW**	Beige-grey, aphanitic to very fine grained massive mafic flow. Massive to weakly foliated. Minor quartz veining at upper contact. Lower contact broken.	S1 (90) moderate ankerite.	Trace to 1% fine grained disseminated pyrite.	
587.2-592.2 **VARIOLITIC HYALOCLASTITE**	Pale to medium green variolitic hyaloclastite. Moderately to locally strongly developed S1 foliation. Deformed varioles X:Z ratios from 3-6:1. S1 at 50 deg. to c.a. at 590.1m. Local 2-5% S1 parallel quartz ankerite veins. Gradational contact.	Moderate ankerite.	Local trace to 1% pyrite.	
592.2-593.5 **MASSIVE MAFIC FLOW**	Medium green, fine grained to aphanitic, massive flow base to overlying unit. Moderately developed S1 foliation. Local quartz ankerite vein parallel S1. Contact parallel to S1 at 40 deg. to c.a.	Moderate ankerite.		
593.3-594.7 **AMYGDALOIDAL FLOW TOP**	Grey, amygdaloidal flow top. Moderate S1 foliation. Gradational contact.		Local 0.5cm bands of pyrite at 593.5m.	
594.7-611.0 **LEUCOXENITIC MASSIVE FLOW, LOCALLY HEMATIZED**	Medium green to grey, aphanitic to medium grained leucoxenitic massive flow. Base to overlying amygdaloidal top. Moderate S1 foliation. S1 at 35 deg. to c.a.a t 597.5m.	Moderate to strong ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	600.0-603.0 Rock becomes dark green-grey, with disseminated 1mm ankerite grains.	**600.0-603.0** Strong ankerite, weak hematite.		
	603.0-603.7 Purple-grey, silicified and hematized section of same massive flow unit silicification/hematization alteration contact is parallel to S1 at 30 deg. to c.a. at 603.0m.	**603.0-603.7** S1 (90) strong hematite.	Trace to locally 1% pyrite, fine disseminated.	
	603.7-609.9 Grey to purple-grey, leucoxenitic massive flow. Moderate to strong S1 at 25 deg. to c.a.	**603.7-609.9** Local hematite, strong ankerite.		
	609.9-611.0 Green, chloritic massive flow. Contact at 30 deg. to c.a.			
611.0-620.7 **PILLOWED FLOW**	Medium to pale green, aphanitic, weakly pillowed flow. Locally amygdaloidal. Moderate to strong S1 foliation, 5% S1-parallel quartz ankerite veins. Gradational contact.	Strong ankerite, local sericite.		
620.7-674.9 **LEUCOXENITIC MASSIVE FLOW LOCALLY HEMATIZED**	Grey to green to purple, leucoxenitic massive flow. Moderately to strong S1 foliation, locally folded. Local 5-10% S1-parallel quartz ankerite veins.			
	620.7-633.7 Green to grey, locally purple, medium to coarse grained. S1 at 10 deg. to c.a. at 628.0m.	Strong ankerite, local hematite.		
	633.7-637.7 Grey to purple grey, moderately foliated, fine to medium grained.	**633.7-637.7** Local hematite and associated silicification.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	637.7-645.6 Green/grey, fine to medium grained, moderate S1 foliation. S1 at 35 deg. to c.a. at 639.1m.	637.7-645.6 Moderate ankerite.		
	645.6-660.7 Pale green to very pale grey, moderate to locally strong S1 foliation. 652.5: S1 at 25 deg. to c.a.	645.6-660.7 Strong ankerite, local weak to moderate sericite.		
	660.7-670.3 Medium to dark grey/green, moderate S1 foliation, medium to course grained leucoxene. 668.0, S1 at 25 deg. to c.a.	660.7-670.3 Moderate ankerite.		
	670.3-674.9 Pale green to yellow-green, altered, medium grained. Moderate S1 foliation. Lower contact marked by quartz ankerite vein, appears gradational (tops north).	670.3-674.9 Strong ankerite, moderate to locally strong sericite. Local green sericite.		
674.9-677.0 SERICITIZED ANKERITIZED FOLIATED FLOW BRECCIA/ HYALOCLASTITE	Medium green to yellow-green, strongly foliated, flow breccia and minor hyaloclastite. S1 strongly developed, and locally crenulated by S2. S2 at 120 deg. to c.a. at 676.1m. Sharp lower contact at 30 deg. to c.a.	Strong ankerite, moderate to locally strong sericite.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
677.0-681.7 **SILICIFIED MASSIVE FLOW**	Pale grey to yellow-grey, aphanitic to very fine grained massive mafic flow. Yellow tint due to minor amounts of disseminated sericite. Massive to locally weakly foliated. Contact weakly folded, at roughly 20 deg. to c.a.	**677.0-681.7** Sl (100) strong ankerite; weak sericite; increases slightly from 680.4-681.7m.	Trace to locally 1-2% fine grained pyrite, in small stringers and local clusters.	
681.7-685.3 **SILICIFIED VARIOLITIC FLOW BRECCIA**	Grey to yellow, variolitic flow breccia. 681.7-683.1 Grey, massive to weakly deformed, with 5-30% sub 1cm weakly hematized varioles. Groundmass pale grey, locally weakly sericitized. Local sericite seams at 0-30 deg. to c.a. Contact at 20 deg. to c.a., marked by underlying sericitic band. 683.1-683.7 Yellow, sericitized section with <5% varioles in sericitized groundmass. 5% 1-2cm Sl-parallel quartz ankerite veins. Sl moderately developed throughout at 20-25 deg. to c.a. Lower silicification contact parallel to sericitic band at 20 deg. to c.a. 683.7-685.3 Yellow-grey, with 60-95% varioles. Sericitized groundmass. Varioles have X:Z aspect ratios of 2-3:1. Weak to moderate Sl at 30 deg. to c.a. at 685.0m. Contact marked by 1-2cm quartz vein with pyritic halo at 35 deg. to c.a.	**681.7-683.1** Sl (100) weak sericite moderate ankerite. **683.1-683.7** Strong sericite, moderate to strong ankerite. **683.7-685.3** Sl (100) sericitized moderate ankerite.	**681.7-685.3** Trace to local 1% pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 11 OF 13

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
685.3-690.15 **SILICIFIED VARIOLITIC FLOW BRECCIA/ HYALOCLASTITE (LIGHTNING ZONE)**	Pale grey to medium grey variolitic flow breccia and hyaloclastite. 685.3-687.1 Locally variolitic flow breccia. 30-40% quartz ankerite veins from 685.3 to 685.7m. 687.1-687.9 20-50% variolitic flow breccia. Sub 5mm chlorite veinlets run subparallel to c.a., both cut by and intersecting orthogonal set 687.9-690.15 Locally variolitic flow breccia as above. Gradational lower contact.	**685.3-690.15** S1 (100) moderate ankerite, weak local sericite.	**685.3-686.2** 1-5% pyrite, trace aspy in stringers, cut by chloritic veinlets. **686.2-687.1** 1-2% fine grained pyrite in stringers and quartz ankerite veins, trace aspy. **687.1-687.7** 1-3% pyrite, fine to medium grained, trace aspy; stringers and disseminated. **687.7-690.15** 5-7% pyrite, trace arsenopyrite.	
690.15-698.1 **LEUCOXENITIC MASSIVE FLOW**	Pale green-grey to dark green-grey, fine to medium grained leucoxenitic massive flow. Weak to moderate S1 foliation. S1 at 35 deg. to c.a. at 693.5m. Contact rather indistinct, parallel to S1 at 20 deg. to c.a.	**690.15-690.5** S1 (100). **690.5-692.7** Strongly ankeritized, weak to moderate sericite; decreasing downhole. **692.7-698.1** Moderate ankerite, chlorite.		

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
698.1-703.3 **AMYGDALOIDAL WEAKLY PILLOWED FLOW**	Medium to dark green amygdaloidal weakly pillowed mafic flow. Moderate S1 foliation at 30-40 deg. to c.a. Gradational lower contact to underlying flow base.	Chloritized, moderate ankerite.		
703.3-711.9 **LEUCOXENITIC MASSIVE FLOW**	Dark green, fine grained leucoxenitic massive flow. Weak to moderate S1 at 40 deg. to c.a. at 711.5m. Becomes dark grey, weakly silicified from 711.2-711.7, with quartz ankerite vein system at 711.6-711.7. Contact sharp but irregular, folded.	Chloritized, moderate ankerite. **711.2-711.7** Weak S1.	**711.2-711.7** Trace to 2% fine grained disseminated pyrite.	
711.9-713.7 **TALC-SERPENTINE ULTRAMAFICS**	Dark blue-black to green, serpentine-talc ultramafics. Gradational contact.			
713.7-717.1 **ULTRAMAFIC/ KOMATIITIC FLOW**	Dark grey to black, grading to hematized purple/grey from 716.0-717.1, aphanitic, massive unit. Gradational upper and lower contacts with talcose ultramafics suggest the unit is of ultramafic affinity. Possibly slightly mafic in composition.	**715.5-717.1** 70% weak silicification. **716.0-717.1** Weak to strong hematite, increasing downhole.	**716.0-717.1** Trace to 1-2% medium to coarse grained disseminated and clustered pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 13

Project No. 155 Hole No. HW-91-137

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
717.1-749.0 TALC-SERPENTINE ULTRAMAFICS	Dark blue-black to green, talcose and serpentinized ultramafic flow and flow breccia. Overall, S1 is weakly to moderately developed. S1 at 40 deg. to c.a. at 739.0m.	Talc-serpentine ankerite.	717.1-717.3 1% pyrite as above.	
749.0	END OF HOLE			

P.A.P. - E.1568

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 137
GRID: Holloway

DATE: Feb 18 1991
SURVEY BY: DB
INSTRUMENT: SS/fictious; to gyro

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-80.00	360.00	5999.800	4480.100	-5.300
31.00	-78.00	360.00	5999.800	4486.015	-35.730
59.00	-77.50	360.00	5999.800	4491.956	-63.093
110.00	-76.00	360.00	5999.800	4503.645	-112.735
140.00	-77.75	361.00	5999.859	4510.457	-141.952
172.00	-76.00	361.00	5999.986	4517.723	-173.116
212.00	-74.75	361.00	6000.162	4527.821	-211.820
265.00	-74.00	358.00	6000.038	4542.095	-262.861
302.00	-74.00	354.00	5999.326	4552.269	-298.428
342.00	-74.25	356.00	5998.373	4563.169	-336.902
345.00	-74.00	354.00	5998.301	4563.986	-339.788
351.00	-74.50	355.00	5998.145	4565.608	-345.562
354.00	-74.00	355.00	5998.074	4566.419	-348.450
357.00	-74.50	353.00	5997.989	4567.229	-351.337
360.00	-75.50	350.00	5997.874	4567.997	-354.235
363.00	-76.00	349.00	5997.740	4568.723	-357.143
366.00	-76.25	347.00	5997.590	4569.426	-360.055
372.00	-77.00	348.00	5997.290	4570.781	-365.892
374.00	-77.25	348.00	5997.197	4571.217	-367.842
378.00	-77.00	351.00	5997.035	4572.094	-371.741
381.00	-77.00	354.00	5996.947	4572.763	-374.665
386.00	-77.00	354.00	5996.829	4573.881	-379.536
389.00	-77.75	358.00	5996.783	4574.535	-382.464
413.00	-79.00	360.00	5996.699	4579.371	-405.972
443.00	-78.50	360.00	5996.699	4585.224	-435.395
490.00	-78.00	357.00	5996.448	4594.791	-481.410
553.00	-78.50	353.00	5995.330	4607.572	-543.090
601.00	-77.75	353.00	5994.127	4617.376	-590.063
658.00	-76.75	351.00	5992.376	4629.833	-645.657
700.00	-76.00	350.00	5990.743	4639.591	-686.475
749.00	-75.00	349.00	5988.507	4651.654	-733.915

FROM	TO	WIDTH	Au g/t	R1	R2
24.90	26.10	1.20	0.120	N.S.	N.S.
26.10	27.50	1.40	0.210	N.S.	N.S.
27.50	28.50	1.00	0.130	N.S.	N.S.
28.50	29.40	0.90	0.130	N.S.	N.S.
29.40	31.20	1.80	0.120	N.S.	N.S.
31.20	32.40	1.20	0.050	N.S.	N.S.
51.50	52.50	1.00	0.030	N.S.	N.S.
52.50	53.35	0.85	0.200	N.S.	N.S.
53.35	54.20	0.85	0.020	N.S.	N.S.
54.20	54.50	0.30	0.070	N.S.	N.S.
54.50	55.30	0.80	0.030	N.S.	N.S.
580.40	581.90	1.50	0.010	N.S.	N.S.
581.90	583.00	1.10	0.020	N.S.	N.S.
583.00	583.70	0.70	0.110	N.S.	N.S.
583.70	585.00	1.30	0.020	N.S.	N.S.
585.00	586.00	1.00	0.020	N.S.	N.S.
586.00	587.20	1.20	0.020	N.S.	N.S.
587.20	588.20	1.00	0.010	N.S.	N.S.
681.50	683.10	1.60	0.050	0.030	0.070
683.10	684.30	1.20	0.020	0.010	0.030
684.30	685.30	1.00	0.030	0.030	0.020
685.30	686.20	0.90	4.550	4.460	4.630
686.20	687.10	0.90	1.130	0.960	1.300
687.10	688.40	1.30	2.800	2.850	2.740
688.40	690.15	1.75	10.130	9.840	10.420
690.15	691.00	0.85	0.120	0.100	0.140
691.00	692.00	1.00	0.030	0.020	0.030
710.20	711.30	1.10	0.010	N.S.	N.S.
711.30	711.90	0.60	0.010	N.S.	N.S.
711.90	713.00	1.10	0.010	N.S.	N.S.
713.70	714.80	1.10	0.010	N.S.	N.S.
714.80	716.00	1.20	0.010	N.S.	N.S.
716.00	717.30	1.30	0.010	N.S.	N.S.
717.30	718.80	1.50	0.010	N.S.	N.S.
845.00	845.10	0.10	N.S.	N.S.	N.S.

** BORSURV **

'ERAGED ASSAY INTERVALS

PROPERTY: Holloway

HOLE No: 137

==========

1. LZ (4.85 d.t. Core Angle: 40 3.12 t.t.)

		EASTINGS:	5991.31
FROM:	685.30	NORTHINGS:	4636.18
		ELEVATION:	-672.19

5.460 Au g/t (Cut to: 34.290)
5.320 R1
5.595 R2

		EASTINGS:	5991.13
TO:	690.15	NORTHINGS:	4637.30
		ELEVATION:	-676.90

2. 1/3 CONTACT (1.30 d.t. Core Angle: 90 1.30 t.t.)

		EASTINGS:	5994.56
FROM:	583.70	NORTHINGS:	4613.84
		ELEVATION:	-573.13

0.020 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5994.53
TO:	585.00	NORTHINGS:	4614.11
		ELEVATION:	-574.41

3. 3/4 CONTACT (0.60 d.t. Core Angle: 90 0.60 t.t.)

		EASTINGS:	5990.23
FROM:	711.30	NORTHINGS:	4642.37
		ELEVATION:	-697.42

0.010 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5990.20
TO:	711.90	NORTHINGS:	4642.52
		ELEVATION:	-698.00

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5979.05
FROM:	845.00	NORTHINGS:	4650.02
		ELEVATION:	-786.10

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5979.04
TO:	845.10	NORTHINGS:	4650.02
		ELEVATION:	-786.15

LATITUDE 5900.27E

DEPARTURE 4431.8N

ELEVATION -6.17m

DIP AT COLLAR -80° BEARING 360°

TOTAL DEPTH 867.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS Casing left in hole, cemented 450.0-867.0m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. L-1053A

Date started Feb. 3, 1991 completed Feb. 23, 1991

Contractor Bradley Bros.

Logged by D. Broughton, K. Green, B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-34.0	Casing			
34.0-69.8 **MAGNETIC, MASSIVE MAFIC FLOW**	Dark grey green, aphanitic to very fine grained, massive, magnetic mafic flow. <u>Note:</u> Minor selvage are visible between 43.5 and 47.0m. Therefore possibly a pillowed interval. Contacts are not visible due to blocky ground. Local selvages at 63.4-64.6. Aphanitic from 69.4-69.8. Contact placed at 1cm chert bed, at 40 deg. to c.a.	Chlorite, ankerite.		**34.0-50.6** RQD = 20% FF = 0.5-70cm. <u>Note:</u> Single hexagonal core barrel used between 34 and 236m.
69.8-127.9 **MAGNETIC, MASSIVE MAFIC FLOW**	Dark grey green, aphanitic to medium grained, massive, locally magnetic mafic flow. <u>116.0-118.1</u> Development of S1 foliation, increasing in intensity downhole to 117.8. Loss of magnetism, leucoxene appears. 117.8, S1 at 35 deg. to c.a.	Chlorite, ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	118.1-120.3 Brick red, hematized, feldspar porphyritic felsic (?) dyke. Background hematization is overprinted by yellowish (sericitic?) haloes around stockwork quartz veins - gives an orangy colour where weak. Predominant vein orientation is at 130 deg. to c.a. (set 3 veins). Dyke contacts cut across S1 in the mafic flow - upper contact at 65 deg, lower contact at 30 deg. to c.a. 120.3-127.9 Massive mafic flow as above. Lower contact broken.	**118.1-120.3** S1 (100).		
127.9-302.0 **POLYLITHIC CONGLOMERATE**	Grey to locally brick red where hematized, poorly sorted polylithic conglomerate. Matrix is medium to coarse grained, arkosic; clast types include mafic volcanics, granitoids, jasper, clastic sediments. Massive to locally moderately foliated. Very locally weakly magnetic. S0 at 30 deg. to c.a. at 128.1m. S1 at 20 deg. to c.a. at 145.0m. S1 at 30 deg. to c.a. at 162.0m. S1 at 40 deg. to c.a. at 192.4m. S1 at 30 deg. to c.a. at 198.1m. S1 at 30 deg. to c.a. at 214.0m. S1 at 30 deg. to c.a. at 247.0m. S1 at 40 deg. to c.a. at 275.0m. S1 at 30 deg. to c.a. at 296.9m. Lower contact is not cored.	Local silicification, local hematization. **299.8-302.0** Bleached reddish to grey silicification (70-90).	At 260.9, vuggy fracture with 1cm wide pyrite seam at margin of pinkish quartz vein. **277.4-280.0** Specular hematite occurs along vuggy quartz lined fractures (1-2%).	**258.7-261.2** RQD = 50-60%. **277.4-280.0** RQD = 50%, 15% vuggy pink quartz veins. **286.7-303.0** Overall a fracture zone. RQD = 40-50% sections up to 2.0m wide of rubbly, broken core separated by more competent sections up to 1.0-1.3m wide.

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
				301.0 12cm wide mud-clay gouge zone.
302.0-304.5 TECTONIZED GREYWACKE	Tectonized zone of strongly folded, altered and quartz-ankerite veined greywacke. 30-40% foliation parallel creamy to faint red coloured vein material.	Moderate ankerite, weak sericite.		
304.5-401.2 GREYWACKE/ MINOR ARGILLITE	Light grey to green, strongly folded, moderately foliated fine-grained greywacke. Generally foliation is subparallel to core axis, but is highly folded and crenulated. At 310.0, S1 = 0 deg., S2 = 110 deg. <u>319.4-324.9</u> 20% quartz-ankerite veining. S0/S1 at 50 deg. to c.a. at 329.2m. S0/S1 at 20 deg. to c.a. at 341.6m. S0/S1 at 0-10 deg. to c.a. at 352.4m. <u>354.4-366.3</u> 10-30% quartz-ankerite veining (set 1), parallel to S1. S0/S1 at 35 deg. to c.a. at 359.1m. S0/S1 at 15 deg. to c.a., S2 (sericite) at 70 deg. to c.a. at 373.5m.	Weak sericite. 354.4-366.3 Moderately to strongly ankeritic.		

P.A.P. - E-1556

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	370.1-372.8 Pale green, very fine grained, sericitized argillite, and 10% quartz-ankerite veining. S0/S1 at 50 deg. to c.a. at 401.2m.	370.1-372.8 Strongly sericitized.		
401.2-421.3 SERICITIZED ARGILLITE/ MINOR GREYWACKE	Pale green, very fine grained, argillite and minor pale grey, thin interbeds of fine grained, greywacke. Small scale folding is present. S0/S1 at 50 deg. to c.a. at 408.0m. S2 at 100-110 deg. to c.a. at 413.2m. S1 at 15 deg. to c.a. at 418.0m. Contact is sharp but irregular, roughly at 90 deg. to c.a., and defined by alteration front (silicification) that cuts across S1; and is related to quartz veins.	401.2-415.1 Strongly sericitized. 415.1-421.3 Weakly to moderately sericitized.		
421.3-456.2 SILICIFIED SANDSTONE/ LESSER GREYWACKE	Interbedded grey-green, massive arkosic sandstones and yellow-green, poorly bedded greywackes with minor argillite. 421.3-425.8 Arkosic sandstone, 5 to local 30% quartz +/- ankerite veins. 425.8-428.7 Mg greywacke, 1-3% qav's. 428.7-456.2 Arkosic sandstone, minor greywacke. 2-5% sub 1cm stockwork qav's, locally foliated.	Weak to moderate ankerite. 421.3-425.8 S1 (100). 425.8-428.7 Moderate to strong sericite. 428.7-456.2 S1 (90) weak to moderate sericite.	Trace to local 1-2% very fine grained pyrite. Trace to local 1-2% very fine grained pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 at 30 deg. to c.a. at 433.7m. S2 at 125 deg. to c.a. at 451.0m. S1 at 30 deg. to c.a. at 455.0m. 10cm quartz vein at 455.9-456.0. Gradational alteration contact.			
456.2-461.0 **GREYWACKE**	Pale grey-green, medium grained greywacke and sandstone, with minor argillite. Well-developed S2 cleavage defined by sericite. S2 at 120 deg. to c.a. at 459.0m.	Weak to moderate sericite. Pervasive moderate ankerite.		<u>Note:</u> Standard core barrel used 236 and 461m.
461.0-482.0 **DIRECTIONAL DRILLING**	No core return.			
482.0-518.5 **LITHIC GREYWACKE**	Dark to medium grey, strongly foliated lithic rich greywacke. Unit is moderately folded. Overall 2-10% rounded to subrounded, stretched sericitic, ankeritic and siliceous pale yellow-green to grey clasts, average 8mm size, but up to 3cm size. At 489.0, S1 = 0 deg. to c.a. At 494.0, S1 = 35 deg., S2 = 60 deg. At 511.0, S1 = 0 deg., S2 = 120 deg. 5-8% brecciated foliation parallel ankerite-quartz veinlets. <u>512.2-518.5</u> Foliation decreases in intensity to weak to moderate.	Local weak sericite. **515.8-518.5** Moderate sericite.		<u>Note:</u> Single hexagonal core barrel between 482.0 and 488.0m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
518.5-543.9 **GREYWACKE/ ARGILLITE**	Light green-grey interbedded fine to medium grained greywacke with <10% argillite. At 528.0, S0 = 50 deg. At 540.0, S0 = 40 deg.	**518.5-525.5** Moderate to strong sericite. **529.5-530.2** 70% quartz vein, 100% silicified. **540.0-541.25** 70% silicified (buff) as halos around quartz veins 10%. Moderate sericite. **543.3-543.9** 50% silicified, 40% quartz veining. Strong sericite.	**529.5-530.2** Trace to 2% pyrite. **540.0-541.35** Trace fine pyrite.	
543.9-583.4 **GREYWACKE**	Medium green coloured, fine grained greywacke or dirty sandstone. Local 2-20cm wide argillite beds (<2%). At 565.0, S0 = 45 deg. 569.8-571.5 60% sericitized argillite interbedded with greywacke.	**550.4-554.9** Strong sericite (5-10% quartz veins causing sericitization). **569.4-571.8** Strong sericite.		
583.4-587.4 **SILICIFIED GREYWACKE/ SANDSTONE**	Dark green, fine grained, finely bedded silicified greywacke/sandstone. At 586.0, S0 = 15 deg. to c.a.	80% silicified.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
587.4-604.0 **GREYWACKE**	Medium green, fine grained greywacke. Bedding is 15-20 deg. to c.a. Several .50-1m wide argillite beds. Below 602.5-604.0, bedding 45 deg. to c.a.			
604.0-610.5 **GREYWACKE/ ARGILLITE**	Medium green, interbedded argillite with 30% greywacke. Bedding 35-45 deg. to c.a.			
610.5-620.5 **GREYWACKE**	Medium green, fine grained, finely bedded greywacke. At 614.0, S0 = 40 deg. Lower contact gradational.	**614.4-615.5** 70% silicified associated with 15% quartz-ankerite veinlets. Moderate ankerite.	Trace pyrite.	
620.5-678.2 **GREYWACKE/ ARGILLITE**	Light to medium green-grey interbedded greywacke and argillite. Locally folded. At 630.0, S0 = 45 deg. 636.5, S0 at 50 deg. 644.6, S0 at 20 deg. 658.4, S0 at 40 deg. 669.3, S0 at 25 deg.			
678.2-684.7 **CARBONACEOUS ARGILLITE**	Black carbonaceous argillite thinly bedded with minor grey fine grained greywacke. Moderate S1 foliation, locally folded. S0 at 15 deg. to c.a. at 679.5m.		Local 1-3% fine grained pyrite, replacing greywacke beds and in nodular masses.	

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DIAMOND DRILL CORE LOG

Sheet No. 8 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Contact sharp but folded, at approximately 35 deg. to c.a.		684.1-684.1 5-20% pyrite as above.	
684.7-687.0 **LEUCOXENITIC MASSIVE FLOW**	Pale green-grey, fine to medium grained, leucoxenitic massive mafic flow. Moderate S1 foliation. Contact at 35 deg. to c.a.	Moderate to strong ankerite, weak sericite.		
687.0-708.2 **ANKERITIZED MASSIVE TO LOCALLY WEAKLY**	Pale grey, aphanitic to very fine grained, strongly S1 foliated, massive to weakly pillowed mafic flow. 2-5% S1-parallel qav's. S1 at 40 deg. to c.a. at 689.0m. 695.6 Gradational alteration contact to less-altered massive section. 695.6-704.4 Grey to green or locally purple-grey, moderately to locally strongly foliated, medium grained. S1 at 20 deg. to c.a. at 699.3m. 704.4: Gradational alteration contact. 704.4-708.2 Pale yellow-green to grey-green, fine to medium grained massive flow. Moderately foliated. S1 at 55 deg. to c.a. at 704.8m. S1 at 40 deg. to c.a. at 706.2m.	Strong ankerite, (bleaching). Weak sericite. **695.6-704.4** Moderate ankerite, local weak **704.4-708.2** Moderate to strong ankerite, weak sericite increasing downhole.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Local F2 folding of S1 fabric, minor development of S2 cleavage. Indistinct contact, placed below 3cm qav parallel to S1 at 25 deg. to c.a.			
708.2-709.5 SERICITIZED FLOW TOP HYALOCLASTITE	Yellow to yellow-green, moderately to strongly foliated flow top hyaloclastite and breccia. Gradational contact to underlying flow base.	Moderate to strong sericite, strong ankerite.		
709.5-749.9 MASSIVE FLOW	Dark green, fine grained to aphanitic, massive mafic flow. Moderately to weakly developed S1 foliation. Local weak pillows to 714.0m. Leucoxenitic S1 at 15 deg. to c.a. at 730.8m. S1 at 45 deg. to c.a. at 743.9m. Contact sharp but irregular, at approximately 30 deg. to c.a.	Chloritized weak to moderate ankerite. 748.0-749.9 Local weak hematite; strongly ankeritized.		
749.9-761.9 FLOW BRECCIA/ HYALOCLAS-TITE/MASSIVE FLOW, LOCALLY VARIOLITIC	Dark green to green-grey, intercalated flow breccia/hyaloclastite/massive flow Unit grades between flow top material and and local massive flow material, with no clear flow contacts. Flow breccia and hyaloclastite are locally variolitic; and the massive flow is commonly variolitic.	Chloritized. Moderate to local strong ankerite. 749.9-750.2 Sl (90) weak hematite.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 foliation is moderately developed throughout, varioles have X:Z aspect ratios of 3-4:1. Overall 1-3%, S1-parallel qav's. Facies contacts subparallel to S1. S1 at 55 deg. to c.a. at 751.4m. S1 at 60 deg. to c.a. at 758.6m. Alteration contact parallel to S1 at 60 deg. to c.a.	**761.7-761.9** S1 (80) weak hematite.		
761.9-763.2 **SERICITIZED, FLOW BRECCIA/ HYALOCLASTITE**	Pale yellow-green, locally variolitic flow breccia and minor hyaloclastite. Moderate S1 foliation at 50-60 deg. to c.a. Local 5-10% S1-parallel qav. Contact at 50 deg. to c.a.	Moderate to locally strong sericite. Strong ankerite, local S1.		
763.2-777.4 **SILICIFIED HEMATIZED FLOW BRECCIA/ HYALOCLAS-TITE, LOCALLY VARIOLITIC LIGHTNING ZONE**	Purple-grey flow breccia/hyaloclastite with minor interflow argillaceous sediment, from 763.2-763.9. Locally variolitic. Hematite alteration is overprinted by pyritic bleached sericitic haloes around sub 5mm set 3 quartz veinlets. Varioles are hematized to black, range up to 1cm in size, and are subcircular. <u>Note:</u> Locally weakly magnetic.	**763.2-777.4** S1 (100) strong hematite, locally overprinted by sericite-pyrite qav haloes.	Overall trace to local 1% pyrite. **763.2-763.9** 3-5% very fine grained nodular pyrite. **763.9-765.2** 2-4% pyrite. **765.2-767.0** Trace to 2% pyrite, hematized.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 11 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
			767.0-767.6 3-10% pyrite in qav haloes and stringers, and fine grained masses. 767.6-769.0 Trace to 2% pyrite, hematized. 769.0-772.3 1 to locally 5% pyrite, in haloes around scattered qav's. 772.3-772.9 10-15% fine to coarse grained pyrite in clusters and aggregate masses. 772.9-774.9 Trace to locally 3% pyrite hematized. 774.9-775.5 3-5% fine grained pyrite in qav haloes. 775.5-777.4 Trace to 2% pyrite, hematized.	<u>Note:</u> 772.9-773.3 Oversized core-drilled out bit sampled separately.

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 12 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
777.4-807.3 **SILICIFIED, PYRITIC, VARIOLITIC FLOW BRECCIA**	777.4-779.6 Pale purple grey, aphanitic, variolitic flow breccia.	**777.4-779.6** 100% silicified moderately ankeritic.	**777.4-779.6** 5-7% pyrite.	
	779.6-782.5 Predominantly pale purple grey alteration with relic patches of green grey, locally weakly magnetic.	**779.6-782.5** 100% silicified, moderately ankeritic, minor chloritic patches.	**779.6-782.6** Pyrite 3-5%.	
	782.5-784.6 Pale purple grey, aphanitic, variolitic flow breccia. Contact at 35 deg. to c.a. at 784.6m.	**782.5-784.6** 100% silicified, moderately ankeritic.	**782.5-784.6** Pyrite 5-10%.	
	784.6-785.7 White to pale grey, aphanitic, strongly variolitic (1-2cm), strongly foliated, flow breccia. S1 (pyrite) at 30 deg. to c.a. at 785.6m.	**784.6-785.7** 100% silicified, moderately ankeritic, minor chloritic patches.	**784.6-785.7** Pyrite 1-2% in S1 fracture filling form.	
	785.7-792.0 Pale purple grey, aphanitic, variolitic, flow breccia.	**785.7-792.0** 100% silicified, moderately ankeritic.	**785.7-792.0** Pyrite 5-10%, in fracture filling stockwork form.	
	792.0-792.8 White to pale grey, aphanitic, variolitic (1cm) flow breccia.	**792.0-792.8** 100% silicified, moderately to strongly ankeritic.	**792.0-792.8** Pyrite 1-2%.	
	792.8-796.0 Pale purple grey to locally green grey, aphanitic, variolitic flow breccia.	**792.8-796.0** 100% silicified, moderately ankeritic.	**792.8-796.0** Pyrite 3-5%.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	796.0-802.6 Pale grey to pale green, aphanitic, variolitic, flow breccia. A weakly to moderately developed S1 foliation is present. S1 (pyrite) at 35 deg. to c.a. at 796.0m. S1 (qav, pyrite) at 30 deg. to c.a. at 798.9m. S1 (pyrite) at 40 deg. to c.a. at 800.1m. S1 (pyrite) at 30 deg. to c.a. at 802.6m.	796.0-802.6 85% silicified, moderately to strongly ankeritic, locally sericitized.	796.0-798.1 Pyrite 1-3%; in very fine to fine grained, disseminated and fracture filling form. 798.1-799.0 Pyrite 3-7%; in S1 fracture filling form associated with qav. 799.0-800.1 Pyrite 3-5%; in very fine grained, disseminated and fracture filling form. 800.1-802.6 Pyrite, 1-3%; in very fine grained, S1 fracture filling form. Trace arsenopyrite.	
	802.6-806.5 Pale grey to pale green, aphanitic, variolitic, flow breccia. Weakly to moderately developed S1 foliation is present. S1 (pyrite) at 30 deg. to c.a. at 806.5m.	802.6-806.5 100% silicified, moderately to strongly ankeritic.	802.6-806.5 Pyrite trace to 1%, in very fine grained, S1 fracture filling form.	
	806.5-807.3 Pale green to pale grey, aphanitic, variolitic flow breccia. Moderately to strongly foliated. S1 (pyrite) at 30 deg. to c.a. at 807.3m.	806.5-807.3 20% silicified, strongly ankeritic, weakly sericitized.	806.5-807.3 Pyrite 1-3%, in very fine grained, S1 fracture filling form.	

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
807.3-810.2 **SILICIFIED, MASSIVE MAFIC FLOW**	Pale purple grey, very fine grained, massive mafic flow.	**807.3-810.2** 100% silicified strongly ankeritic.	**807.3-810.2** Pyrite trace to 1%.	
810.2-827.5 **MASSIVE, MAGNETIC MAFIC FLOW**	Dark grey green, very fine grained to fine grained, weakly foliated, massive, locally magnetic basalt. S1 at 30 deg. to c.a. at 814.9m. S1 at 30 deg. to c.a. at 819.9m.			
827.5-835.7 **AMYGDALOIDAL FOLIATED MAFIC FLOW**	Medium grey green, very fine grained, weakly foliated, amygdaloidal, locally weakly magnetic basalt. S1 at 50 deg. to c.a. at 831.0m. 834.9-835.7 Possible interflow sediment.			
835.7-836.6 **SILICIFIED FOLIATED MAFIC FLOW**	Pale purple grey to grey green, very fine grained, foliated mafic flow. Contact at 35 deg. to c.a. at 835.7m. Contact at 50 deg. to c.a. at 836.6m.	**835.7-836.6** 90% silicified, strongly ankeritic.	**835.7-836.6** Pyrite trace to 1%.	
836.6-857.1 **TALC-CHLORITE**	Dark green, aphanitic, strongly foliated, talc-chlorite ultramafic flow. Foliated at 45 deg. to c.a. at 839.5m. Foliated at 40 deg. to c.a. at 855.1m. Contact at 45 deg. to c.a. at 857.1m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 15 OF 15

Project No. 155 Hole No. HW-91-138

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
857.1-862.0 **ULTRAMAFIC AGGLOMERATE**	Pale green to pale grey, fine grained, strongly foliated ultramafic agglomerate(?) Spinifex texture is noted locally. Fuchsite is noted locally. 35% quartz-ankerite veinlets are present parallel to the foliation. S1 at 45 deg. to c.a. at 862.0m.	Strongly ankeritic, locally fuchsitic.		
862.0-867.0 **FOLIATED, LEUCOXENITIC MAFIC FLOW**	Pale to dark green, very fine grained, moderately to strongly foliated, locally leucoxenitic mafic flow.	Moderately to strongly ankeritic.		
867.0	END OF HOLE			

P.A.P. - E.1568

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 138
GRID: Holloway

DATE: Feb.22,1991
SURVEY BY: RBA
INSTRUMENT: Gyro 775\SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-79.75	360.00	5900.000	4431.000	-6.300
30.00	-80.42	354.70	5899.761	4436.160	-35.852
60.00	-80.67	355.10	5899.323	4441.069	-65.444
90.00	-80.67	353.70	5898.849	4445.909	-95.048
120.00	-80.67	354.60	5898.353	4450.747	-124.651
150.00	-80.50	353.10	5897.827	4455.627	-154.247
180.00	-80.00	353.70	5897.243	4460.674	-183.813
210.00	-79.83	353.40	5896.653	4465.894	-213.350
240.00	-79.75	352.10	5895.982	4471.169	-242.875
270.00	-79.75	352.30	5895.257	4476.458	-272.396
300.00	-79.67	352.10	5894.530	4481.767	-301.913
330.00	-79.67	353.80	5893.870	4487.106	-331.427
360.00	-79.53	356.40	5893.407	4492.502	-360.934
390.00	-79.92	357.00	5893.099	4497.844	-390.453
420.00	-80.42	357.70	5892.862	4502.960	-420.013
450.00	-80.67	358.40	5892.695	4507.886	-449.605
480.00	-72.67	357.30	5892.435	4514.797	-478.797
510.00	-73.00	357.00	5891.995	4523.640	-507.461
540.00	-72.42	356.10	5891.458	4532.540	-536.105
570.00	-72.25	355.60	5890.800	4541.620	-564.690
600.00	-71.83	352.70	5889.857	4550.822	-593.229
630.00	-70.33	347.60	5888.193	4560.406	-621.608
660.00	-69.75	344.30	5885.707	4570.341	-649.806
690.00	-69.50	344.10	5882.863	4580.391	-677.929
720.00	-69.00	344.20	5879.960	4590.616	-705.983
750.00	-69.00	344.00	5877.014	4600.956	-733.990
775.00	-68.92	345.60	5874.661	4609.617	-757.323
822.00	-67.75	360.00	5872.486	4626.832	-801.003
853.00	-66.00	356.00	5872.061	4638.999	-829.512
867.00	-66.00	356.00	5871.664	4644.680	-842.302

** BORSURV **

ASSAY LOG

PROPERTY: Holloway
HOLE No.: 138

FROM	TO	WIDTH	Au g/t	R1	R2
684.70	684.71	0.01	N.S.	N.S.	N.S.
710.00	710.10	0.10	N.S.	N.S.	N.S.
760.90	761.90	1.00	0.080	0.100	0.070
761.90	763.20	1.30	0.030	0.030	0.030
763.20	763.90	0.70	0.140	0.140	0.140
763.90	765.20	1.30	0.080	0.100	0.070
765.20	766.30	1.10	0.010	0.010	0.010
766.30	767.00	0.70	0.070	0.070	0.070
767.00	767.60	0.60	0.290	0.300	0.270
767.60	769.00	1.40	0.080	0.100	0.070
769.00	770.20	1.20	0.660	0.620	0.690
770.20	770.90	0.70	0.150	0.140	0.170
770.90	772.30	1.40	2.480	2.500	2.470
772.30	772.90	0.60	37.890	37.520	38.260
772.90	773.30	0.40	1.260	1.230	1.300
773.30	774.90	1.60	0.300	0.270	0.340
774.90	775.50	0.60	2.980	2.740	3.220
775.50	777.00	1.50	0.290	0.310	0.270
777.00	777.40	0.40	0.240	0.170	0.310
777.40	778.40	1.00	4.750	4.870	4.630
778.40	779.60	1.20	4.290	4.290	4.290
779.60	781.00	1.40	2.160	2.060	2.260
781.00	782.50	1.50	0.770	0.750	0.790
782.50	783.50	1.00	8.380	8.430	8.330
783.50	784.60	1.10	15.920	15.390	16.460
784.60	785.70	1.10	0.560	0.580	0.550
785.70	787.00	1.30	5.550	5.790	5.310
787.00	788.50	1.50	12.260	11.930	12.580
788.50	790.00	1.50	5.450	5.110	5.790
790.00	791.00	1.00	4.680	4.800	4.560
791.00	792.00	1.00	3.380	3.290	3.460
792.00	792.80	0.80	1.630	1.610	1.650
792.80	794.00	1.20	0.580	0.550	0.620
794.00	795.00	1.00	1.070	1.170	0.990
795.00	796.00	1.00	1.150	1.100	1.190
796.00	797.00	1.00	1.630	1.890	1.370
797.00	798.10	1.10	0.080	0.070	0.100
798.10	799.00	0.90	1.300	1.270	1.340
799.00	800.10	1.10	0.700	0.690	0.720
800.10	801.10	1.00	0.310	0.310	0.310
801.10	802.60	1.50	0.460	0.480	0.450
802.60	804.00	1.40	0.380	0.380	0.380
804.00	805.50	1.50	0.270	0.270	0.270
805.50	806.50	1.00	0.310	N.S.	N.S.
806.50	807.30	0.80	0.230	N.S.	N.S.
807.30	809.00	1.70	0.010	N.S.	N.S.
809.00	810.20	1.20	0.010	N.S.	N.S.
834.50	835.70	1.20	0.120	N.S.	N.S.
835.70	836.60	0.90	0.080	N.S.	N.S.
836.60	838.00	1.40	0.010	N.S.	N.S.

PROPERTY: Holloway
HOLE No: 138

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1. LZ (14.60 d.t. Core Angle: 40 9.38 t.t.)

		EASTINGS:	5874.55
FROM:	777.40	NORTHINGS:	4610.50
		ELEVATION:	-759.55

5.646 Au g/t (Cut to: 34.290)
5.562 R1
5.729 R2

		EASTINGS:	5873.87
TO:	792.00	NORTHINGS:	4615.84
		ELEVATION:	-773.12

2. 1/3 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5883.37
FROM:	684.70	NORTHINGS:	4578.62
		ELEVATION:	-672.96

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5883.36
TO:	684.71	NORTHINGS:	4578.62
		ELEVATION:	-672.97

3. 3/4 CONTACT (1.40 d.t. Core Angle: 90 1.40 t.t.)

		EASTINGS:	5872.29
FROM:	836.60	NORTHINGS:	4632.56
		ELEVATION:	-814.43

0.000 Au g/t (Cut to: 34.290)
0.000 R1
0.000 R2

		EASTINGS:	5872.27
TO:	838.00	NORTHINGS:	4633.11
		ELEVATION:	-815.72

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5880.93
FROM:	710.00	NORTHINGS:	4587.21
		ELEVATION:	-696.63

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5880.92
TO:	710.10	NORTHINGS:	4587.24
		ELEVATION:	-696.72

LATITUDE 5900.27E

DEPARTURE 4431.8N

ELEVATION 283.8

DIP AT COLLAR -80° BEARING 360°

TOTAL DEPTH 782.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Wedged off HW-91-138 at 445m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data			

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. L1053-A

Date started Feb. 25, 1991 completed March 13, 1991

Contractor Bradley Bros.

Logged by B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
445.0-447.0	Steel wedge.			Note: Wedge 445.0-448.0m and steel plug at 450.0m.
447.0-458.0 **ARGILLITE GREYWACKE**	Pale green to green grey, very fine to fine grained, thinly interbedded greywacke and argillite. S1 at 50 deg. to c.a., S2 (sericite) at 125 deg. to c.a. at 451.2m.	Moderately to strongly sericitized.		
458.0-558.0	Directional drilling (no core return).			
558.0-583.2 **GREYWACKE, MINOR ARGILLITE**	Medium grey, fine to medium grained greywacke. Local thinly interbedded argillite. Weak to moderate S1 foliation. S0 at 55 deg. to c.a. at 558.1m. S1 at 25 deg. to c.a. at 564.1m. S0 at 55 deg. to c.a. at 568.0m. 568.5-568.9 Sericitized and silicified, bleached alteration zone associated with quartz ankerite vein stockwork.	Pervasive to moderate ankeritization.		Note: Hexagonal core barrel 558.0-782.0m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	577.3-581.2 Thinly bedded, fine grained greywacke and argillite.	569.6-572.7 Moderately sericitized and ankeritized.		
	581.2-583.2 Thickly bedded greywacke grading to sandstone.	580.6-583.2 Moderately sericitized and ankeritized.		
583.2-587.6 SILICIFIED SANDSTONE	Buff to beige, massive fine grained sandstone. Weak S1 foliation. Cut by irregular stockwork of ankeritic veinlets/fractures, which are deformed to define the weak foliation. Lower contact sharp but irregular.	S1 (100) moderate sericite, weak ankerite.	Trace to locally 1% very fine grained disseminated pyrite.	
587.6-591.0 FOLIATED ANKERITIZED GREYWACKE	Buff to dark green, strongly foliated and veined chloritic fine grained sediment. 10-20% S1 - parallel quartz ankerite veins. Local graded beds show tops south. S1 at 30 deg. to c.a. at 590.0m. Lower contact zone marked by intense carbonate alteration.	Very strongly ankeritized, chloritic dark green sediments, buff, sericitic argillaceous sediments are weakly ankeritic.		
591.0-606.6 GREYWACKE, MINOR ARGILLITE	Thinly bedded fine to medium grained greywacke with minor argillite. Moderate S1 foliation. S0 at 50 deg. to c.a. at 596.0m.	Pervasive moderate ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-130W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
606.6-633.6 **GREYWACKE/ ARGILLITE**	Grey, thinly bedded, fine grained greywacke and argillite. Weak to moderate S1 foliation. S0 at 70 deg. to c.a. at 613.7m. S0 at 65 deg. to c.a. at 624.6m. S0 at 50 deg. to c.a. at 633.6m.			
633.6-636.4 **CARBONACEOUS ARGILLITE**	Dark grey to black, carbonaceous argillite, thinly bedded with minor fine grained greywacke. Locally folded. S0 at 30 deg. to c.a. at 636.1m. 636.1-636.4 Grey, thickly bedded fine grained greywacke/argillite. Lower contact at 55 deg. to c.a.		**635.7-636.1 1-5% disseminated pyrite replacing wacke beds.** **636.1-636.4 1-3% very fine grained disseminated pyrite.**	
636.4-640.7 **FOLIATED LEUCOXENITIC MASSIVE FLOW WITH FLOW TOP HYALOCLASTITE**	636.4-637.4 Flow top hyaloclastite, minor flow breccia, variolitic in upper 20cm. Moderately to strongly developed S1 foliation. Local S2, with set 3 quartz ankerite vein injected parallel to the S2 cleavage at 637.7m at 125 deg. to c.a. Gradational contact. 637.4-640.7 Pale green grey, fine to medium grained leucoxene mafic flow base. Moderate to strong S1. S1 at 25 deg. to c.a. at 639.6m.	Moderate to strong ankerite. Moderate to strong ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
640.7-642.1 FOLIATED, VARIOLITIC, MAFIC FLOW TOP BRECCIA	Grey green, aphanitic to very fine grained, variolitic, flow top breccia. A moderately to strongly developed S1 foliation is present. S1 (contact) at 30 deg. to c.a. at 640.7m. S1 at 30 deg. to c.a. at 642.1m.			
642.1-647.5 FOLIATED, MASSIVE MAFIC FLOW BASE	Grey green, very fine grained to fine grained, moderately to strongly foliated, massive mafic flow. S1 at 40 deg. to c.a. at 647.5m. 645.2-647.5 5-10% quartz-ankerite veinlets (1-2cm) parallel to S1 foliation.			
647.5-660.8 FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW	Grey green, very fine to fine grained, moderately to strongly foliated, leucoxenitic, massive mafic flow. 5-10% narrow quartz-ankerite veining is parallel to S1 foliation. S1 at 30 deg. to c.a. at 656.1m.			
660.8-673.3 FOLIATED, HEMATIZED, MASSIVE MAFIC FLOW	Grey green to locally purple grey, very fine to fine grained, moderately to strongly foliated, locally weakly leucoxenitic, massive mafic flow. S1 at 30 deg. to c.a. at 673.3m.	Locally moderately to strongly hematized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 9

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
673.3-684.1 **MASSIVE MAFIC FLOW**	Grey green, very fine to fine grained, massive to weakly foliated, mafic flow. S1 at 20 deg. to c.a. <u>677.1-684.1</u> Grey green, aphanitic to very fine grained, strongly foliated, massive mafic flow. 5-15% narrow quartz-ankerite veinlets are present parallel to S1 foliation. S1 at 25 deg. to c.a. at 684.1m.	Moderately to strongly ankeritic.		
684.1-694.3 **FOLIATED, LEUCOXENITIC, MASSIVE MAFIC FLOW**	Grey green, very fine grained to fine grained, leucoxenitic, moderately to strongly foliated, massive mafic flow. 10-35% narrow, quartz-ankerite veining is present. Parallel to S1 foliation. S1 at 45 deg. to c.a. at 694.3m.	Moderately to strongly ankeritic.		
694.3-707.2 **LOCALLY SILICIFIED, VARIOLITIC, MAFIC FLOW BRECCIA**	Dark to locally pale green to pale grey, aphanitic, locally variolitic, mafic flow breccia. S1 at 30 deg. to c.a. at 698.4m. S1 at 30 deg. to c.a. at 702.2m.	Moderately to strongly ankeritic. **697.3-698.7** 60% silicified. **700.4-701.8** 100% silicified. **703.8-707.2** 70% silicified.	**701.8-707.2** Pyrite trace to 2%.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
707.2-710.7 SERICITIZED, MASSIVE MAFIC FLOW	Pale grey green, very fine grained, massive mafic flow.	Moderately ankeritic, and sericitized.		
710.7-718.5 SILICIFIED, PYRITIC, VARIOLITIC, MAFIC FLOW BRECCIA LIGHTNING ZONE	Pale grey to locally pale green, aphanitic, locally variolitic, mafic flow breccia. S1 at 30 deg. to c.a. at 710.7m. Note: Pyrite is generally in very fine grained, disseminated and fracture filling form (irregular stockwork). Lower contact at 70 deg. to c.a. at 718.5m.	710.7-714.4 100% silicified, moderately ankeritic. 714.4-714.9 Strongly sericitized. 714.9-718.5 100% silicified, moderately ankeritic.	710.7-711.3 Py 1-3% 711.3-712.2 Py 3-5% 712.2-712.9 Py 1-3% 712.9-713.7 Pyrite 10-15% in very fine grained, fracture filling and minor disseminated form. 713.7-714.4 Py 5-10% 714.4-714.9 Py 3-5%. 714.9-718.5 Pyrite 5-10%	710.7-718.5 Lightning Zone
718.5-723.2 MASSIVE MAFIC FLOW	Pale grey green, very fine grained, weakly to moderately folded, massive mafic flow. S1 at 35 deg. to c.a. at 720.5m.	Moderately to strongly ankeritic.	Pyrite trace to 2%, 2% arsenopyrite trace.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
723.2-725.6 LEUCOXENITIC MASSIVE MAFIC FLOW	Medium grey green, very fine to fine grained, leucoxenitic, massive mafic flow. S1 at 50 deg. to c.a. at 723.2m.	Strongly ankeritic.	Pyrite trace to 1%; in S1 fracture filling form.	
725.6-728.0 FOLIATED, VARIOLITIC MAFIC FLOW BRECCIA	Pale to medium grey green, aphanitic, moderately to strongly foliated, variolitic, mafic flow breccia. S1 (contact) at 55 deg. to c.a. at 725.6m.	Moderately to strongly ankeritic.	Pyrite trace to 1%; very fine grained disseminated and minor bleb form.	
728.0-740.9 MASSIVE MAFIC FLOW	Medium grey green, very fine to fine grained, massive mafic flow. 737.2-740.9 Strongly foliated. S1 at 20 deg. to c.a., S2 at 120 deg. to c.a. at 737.7m. S1 (contact) at 20 deg. to c.a. at 740.9m.	Strongly ankeritic.		
740.9-745.3 SILICIFIED, CARBONACEOUS ARGILLITE	Dark grey to black, very fine grained, carbonaceous argillite and minor medium grey, very fine to fine grained, "silty" greywacke interbeds. Locally pyrite replacement of silty beds is noted. S0 at 5 deg. to c.a. at 742.9m. S0 (contact) at 40 deg. to c.a. at 745.3m.	100% silicified.		

P.A.P. E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 8 OF 9

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
745.3-764.5 TALC-CHLORITE ULTRAMAFIC	Dark grey green, very fine grained, weakly to moderately foliated, talc-chlorite ultramafic flow. Subangular to subrounded fragments (0.5-2cm) are elongated parallel to S1 foliation at 20 deg. to c.a.			
764.5-766.9 VARIOLITIC, MAFIC FLOW TOP BRECCIA	Medium to dark grey green, aphanitic, locally variolitic and/or amygdaloidal, moderately foliated, mafic flow top breccia. S0/S1 (contact) at 45 deg. to c.a. at 764.5m. S1 at 30 deg. to c.a. at 766.9m.			
766.9-774.3 MAGNETIC, MASSIVE MAFIC FLOW	Medium grey green, very fine grained to fine grained, magnetic, massive mafic flow. S1 at 35 deg. to c.a. at 774.3m.			
774.3-780.6 LEUCOXENITIC, MASSIVE, MAFIC FLOW	Medium grey green, very fine to fine grained, leucoxenitic massive mafic flow. Contact at 30 deg. to c.a. at 780.6m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 9

Project No. 155 Hole No. HW-91-138W

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
780.6-782.0 FOLIATED, VARIOLITIC, MASSIVE MAFIC FLOW	Medium grey, aphanitic to very fine grained, locally variolitic, foliated, massive mafic flow.			
782.0	END OF HOLE			

P.A.P. - E-1568

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 138W
GRID: Holloway

DATE: March 13,1991
SURVEY BY: RSA
INSTRUMENT: Gyro 420/740/SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-79.75	360.00	5900.000	4431.000	-6.300
30.00	-80.42	354.70	5899.761	4436.160	-35.852
60.00	-80.67	355.10	5899.323	4441.069	-65.444
90.00	-80.67	353.70	5898.849	4445.909	-95.048
120.00	-80.67	354.60	5898.353	4450.747	-124.651
150.00	-80.50	353.10	5897.827	4455.627	-154.247
180.00	-80.00	353.70	5897.243	4460.674	-183.813
210.00	-79.83	353.40	5896.653	4465.894	-213.350
240.00	-79.75	352.10	5895.982	4471.169	-242.875
270.00	-79.75	352.30	5895.257	4476.458	-272.396
300.00	-79.67	352.10	5894.530	4481.767	-301.913
330.00	-79.67	353.80	5893.870	4487.106	-331.427
360.00	-79.53	356.40	5893.407	4492.502	-360.934
390.00	-79.92	357.00	5893.099	4497.844	-390.453
420.00	-80.42	357.70	5892.862	4502.960	-420.013
426.72	-80.25	355.02	5892.791	4504.086	-426.637
441.96	-80.50	356.28	5892.598	4506.627	-441.663
457.20	-79.58	364.96	5892.626	4509.263	-456.673
472.44	-76.08	380.07	5893.322	4512.399	-471.571
487.68	-74.17	366.55	5894.223	4516.206	-486.300
502.92	-71.50	366.36	5894.729	4520.676	-500.861
518.16	-68.17	366.36	5895.311	4525.897	-515.167
533.40	-62.33	364.99	5895.941	4532.246	-529.007
548.64	-58.00	372.12	5897.069	4539.744	-542.227
579.12	-56.83	373.67	5900.733	4555.745	-567.909
670.56	-55.75	371.77	5911.907	4605.248	-643.974
701.04	-55.50	371.64	5915.398	4622.099	-669.131
731.52	-54.67	371.25	5918.860	4639.198	-694.125
740.66	-54.42	370.45	5919.858	4644.405	-701.570
782.00	-54.00	378.00	5925.799	4667.840	-735.104

** DORSURV **

BAY LOG

PROPERTY: Holloway
HOLE No.: 138w

FROM	TO	WIDTH	Au g/t	R1	R2
634.70	635.70	1.00	0.020	N.S.	N.S.
635.70	636.40	0.70	0.030	N.S.	N.S.
636.40	637.40	1.00	0.010	N.S.	N.S.
679.00	679.10	0.10	N.S.	N.S.	N.S.
700.40	701.80	1.40	0.070	N.S.	N.S.
701.80	703.00	1.20	0.010	N.S.	N.S.
703.00	704.00	1.00	0.010	N.S.	N.S.
704.00	705.50	1.50	0.040	N.S.	N.S.
705.50	707.20	1.70	0.070	N.S.	N.S.
707.20	708.50	1.30	0.010	N.S.	N.S.
708.50	709.50	1.00	0.080	0.100	0.070
709.50	710.70	1.20	0.070	0.070	0.070
710.70	711.30	0.60	0.450	0.450	0.450
711.30	712.20	0.90	0.600	0.620	0.580
712.20	712.90	0.70	0.750	0.790	0.720
712.90	713.70	0.80	4.420	4.420	4.420
713.70	714.40	0.70	1.170	1.170	1.170
714.40	714.90	0.50	0.400	0.410	0.380
714.90	716.40	1.50	2.820	2.850	2.780
716.40	717.50	1.10	3.340	3.390	3.290
717.50	718.50	1.00	5.170	4.990	5.350
718.50	720.00	1.50	0.080	0.100	0.070
720.00	721.50	1.50	NIL	0.070	0.070
721.50	723.20	1.70	0.010	N.S.	N.S.
723.20	724.50	1.30	0.010	N.S.	N.S.
724.50	725.60	1.10	0.010	N.S.	N.S.
725.60	727.00	1.40	0.010	N.S.	N.S.
727.00	728.00	1.00	0.010	N.S.	N.S.
728.00	729.00	1.00	0.010	N.S.	N.S.
740.90	740.91	0.01	N.S.	N.S.	N.S.

** BORSURV **

AVERAGED ASSAY INTERVALS
PROPERTY: Galloway
HOLE No: 17 Sw

==========

1. LZ (2.10 d.t. Core Angle: 40 1.35 t.t.)

	EASTINGS:	5917.14
FROM: 716.40 ----------	NORTHINGS:	4630.72
	ELEVATION:	-681.73

4.211 Au g/t (Cut to: 34.290)
4.152 R1
4.271 R2

	EASTINGS:	5917.38
TO: 718.50 ----------	NORTHINGS:	4631.89
	ELEVATION:	-683.45

2. 1/3 CONTACT (1.00 d.t. Core Angle: 90 1.00 t.t.)

	EASTINGS:	5907.73
FROM: 636.40 ----------	NORTHINGS:	4586.75
	ELEVATION:	-615.56

0.010 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

	EASTINGS:	5907.85
TO: 637.40 ----------	NORTHINGS:	4587.30
	ELEVATION:	-616.39

3. 3/4 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

	EASTINGS:	5919.89
FROM: 740.90 ----------	NORTHINGS:	4644.54
	ELEVATION:	-701.76

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

	EASTINGS:	5919.89
TO: 740.91 ----------	NORTHINGS:	4644.55
	ELEVATION:	-701.77

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

	EASTINGS:	5912.87
FROM: 679.00 ----------	NORTHINGS:	4609.91
	ELEVATION:	-650.94

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

	EASTINGS:	5912.88
TO: 679.10 ----------	NORTHINGS:	4609.97
	ELEVATION:	-651.02

LATITUDE 5999.14E

DEPARTURE 4229.74N

ELEVATION -11.49

DIP AT COLLAR -70° BEARING 360°

TOTAL DEPTH 936.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Casing left in hole.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing

Sheet No. 1 OF 15

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No. L1053A

Date started Feb. 20, 1991 completed March 15, 199

Contractor Bradley Bros.

Logged by B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-34.0	Casing			
34.0-104.3 MASSIVE MAFIC FLOW	Dark grey green, fine to medium grained, massive mafic flow. Dark green, chlorite infilling fractures (irregular) is noted locally. Non-magnetic. Contact at 60 deg. to c.a. at 104.3m.	Moderately chloritized.		Note: Seager Hill Mafic Volcanics. Note: Double hexagonal core barrel 56.0-389.0m.
104.3-117.2 PILLOWED, MAFIC FLOW BRECCIA	Medium to dark grey green, aphanitic to very fine grained, weakly developed pillowed flow breccia.			
117.2-137.7 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. Dark green, chlorite infilling fractures (irregular) is noted locally.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
137.7-139.5 PORPHYRO-BLASTIC MAFIC FLOW	Pale grey green, very fine to fine grained, porphyroblastic mafic flow(?). White, feldspathic porphyroblasts are present (0.5-1cm). Locally resembles variolites. Contact at 40 deg. to c.a. at 139.5m.			
139.5-144.7 PILLOWED MAFIC FLOW TOP	Medium to locally dark grey green, aphanitic, weakly developed, pillowed flow top. Dark green, chloritized selvages are noted locally.			
144.7-154.6 MASSIVE, MAGNETIC MAFIC FLOW BASE	Medium grey green, very fine grained, locally magnetic, massive mafic flow base. Note: Non-magnetic below 149.0m.			
154.6-190.5 PILLOWED MAFIC FLOW TOP	Medium grey green, aphanitic to very fine grained, pillowed mafic flow. Pale green, narrow, weakly developed, epidotized selvages are present. 165.8-172.6 Pale green, aphanitic, strongly altered pillowed basalt and 40% quartz-ankerite veining. Alteration and pyritization is associated with the veining.	165.8-172.6 Strongly ankeritic, sericitic (bleached).	165.8-172.6 Pyrite 3-7%; in fine to medium grained, disseminated and fracture filling form.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 19

Project No. 155 Hole No. NW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
190.5-196.5 MASSIVE MAFIC FLOW BASE	Dark grey green, very fine to fine grained, massive, mafic flow base. Contact at 40 deg. to c.a. at 196.5m.			
196.5-202.4 MAFIC FLOW TOP BRECCIA	Dark grey green to pale green, aphanitic to very fine grained, mafic flow top breccia. Pale green, epidotized groundmass locally contains hyaloclastite. Dark green, subangular flow brecciated fragments range in size from 0.5cm-5cm.			
202.4-204.8 MASSIVE MAFIC FLOW BASE	Dark grey green, very fine grained, massive flow base. Contact at 50 deg. to c.a. at 204.8m.			
204.8-206.2 MAFIC, PILLOWED, FLOW TOP BRECCIA	Medium grey green to pale green, aphanitic to very fine grained, pillowed, mafic flow top breccia. Pale green, epidotized selvages are locally weakly developed.			
206.2-210.4 MASSIVE MAFIC FLOW BASE	Medium to dark grey green, very fine grained, massive mafic flow base. Contact at 55 deg. to c.a. at 210.4m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
210.4-210.9 MAFIC FLOW TOP BRECCIA	Medium grey green to pale green, aphanitic, mafic flow top breccia. Same as interval between 196.5 and 202.4m.			
210.9-243.2 MASSIVE MAFIC FLOW BASE	Medium to dark grey green, very fine to medium grained, massive flow base. 216.2-217.5 Leucoxenitic overprinting is noted. 217.5-243.2 Grain size increasing from medium to coarse grained.			
243.2-252.5 MASSIVE MAFIC FLOW	Medium grey green, aphanitic to very fine grained, massive mafic flow with a weakly developed pillowed flow top.			
252.5-263.1 PORPHYRO-BLASTIC MAFIC FLOW	Medium grey green, aphanitic to very fine grained, porphyroblastic, mafic flow. Dark green, chlorite filled amygdules are present in top 2 meters. White, feldspathic, anhedral porphyroblasts up to 1cm are present (2-3%).			
263.1-278.0 MASSIVE MAFIC FLOW	Dark grey green, very fine grained, massive mafic flow. Dark green, chlorite infilling fractures are present locally.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 15

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
278.0-298.3 MAGNETIC PILLOWED MAFIC FLOW	Medium to dark grey green, aphanitic to very fine grained, magnetic, pillowed mafic flow. Pale green, epidotized selvages are noted.			
298.3-329.7 MAGNETIC, MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, magnetic, massive flow. Minor patchy intervals are noted to contain leucoxene. Dark green, chlorite and very locally black, magnetite is present infilling fractures. S1 (qav, pyrite) at 45 deg. to c.a. at 314.2m.	298.3-299.5 Ovoid carbonate alteration. 317.0-318.1 Ovoid carbonate alteration.	313.6-314.3 Pyrite 3-7%; in fracture filling form, associated with qav.	
329.7-340.5 MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, massive mafic flow. 337.9-339.6 Strongly magnetic.			
340.5-415.7 POLYLITHIC CONGLOMERATE	Dark grey green to locally reddish brown, fine to medium grained, quartzose feldspathic (arkosic) matrix with subangular, polylithic fragments or clasts. Fragment composition ranges from dark green argillite and basalt, to red jasper, to pale to dark grey green greywacke. S1 (contact) at 60 deg. to c.a. at 340.5m. S1 at 65 deg. to c.a. at 345.0m. S1 at 60 deg. to c.a. at 355.5m. S1 at 50 deg. to c.a. at 373.0m.	Locally hematized.		Note: Standard core barrel 389.0-615.0m. 415.5-415.6 Rubble zone, grit.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 15

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Shear plane at 45 deg. to c.a. at 382.5m. S1 at 55 deg. to c.a. at 387.3m. S1 at 45 deg. to c.a. at 412.4m.			
415.7-429.1 SERICITISED GREYWACKE	Pale yellow-green to yellow-grey, coarse grained to fine grained greywacke, with local argillite. Moderate S1 foliation, local S2 crenulation cleavage. Local 2-5% qav's. 422.5, S2 at 100 deg. to c.a. 424.0, S0 at 60 deg. to c.a. Gradational alteration contact.	415.7-429.1 Moderate to strong sericite, decreasing downhole pervasive moderate ankerite.		
429.1-498.8 GREYWACKE	Medium to pale grey, fine to medium greywacke with minor argillite. Local 2-5% qav's. Moderately developed S2 foliation, weak S2. Folded (F2) throughout. 454.2, S0 at 35 deg. to c.a. 463.0, S2 at 100 deg. to c.a. 474.0, S0 at 55 deg. to c.a. 490.5, S0 at 50 deg. to c.a. Contact at 30 deg. to c.a.	Pervasive moderate ankerite, local weak sericite. 440.1-448.0 Moderate to locally strong sericite. 466.0-498.8 Moderate sericite.		
498.8-526.7 SANDSTONE/ GREYWACKE	Grey to greenish grey, thickly bedded fine grained to medium grained sandstone and lesser fine to coarse grained grey-wacke. Moderately developed S1 foliation, locally strongly foliated greywackes. Local fold closures.	Local silicification of sandstone. Weak sericite, moderate ankerite. 514.3-516.8 Local hematite.		

P.A.F. - E.1568

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 15

Project No. 155 Hole No. HW-91-139.

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Strong S1 at 50 deg. to c.a. at 502.4m. S1 at 35 deg. to c.a. at 524.6m.			
526.7-541.8 GREYWACKE	Grey to yellow-green, fine to medium grained greywacke with minor argillite. Strongly developed S1 foliation, and moderate to strong S2 crenulation cleavage. S1 at 40 deg. to c.a. at 526.9m. S2 at 120 deg. to c.a. at 528.5m.	Pervasive moderate to strong (where sericitic) ankerite. 527.1-527.7 Strong sericite. 528.0-528.5 Strong sericite below 10cm qav at 528.0-528.1. 528.5-532.4 Weak local sericite.		
	<u>532.4-533.8</u> Pale beige, feldspar-porphyry dyke. Hard to very hard, silicified/albitized. 10-20% sub 3mm feldspar phenocrysts. Weak S1 foliation. Sharp upper and lower contacts at 115 and 105 deg., subparallel to S2. S2 at 534.1 at 115 deg. to c.a. Lower bedding contact at 70 deg. to c.a.	532.4-533.8 S1 (90) weak sericite, moderate ankerite. 533.8-541.8 Moderate sericite and ankerite.	Trace to 1% fine grained pyrite associated with qav adjacent to lower contact.	
541.8-546.2 SILICIFIED SANDSTONE; GREYWACKE	Grey-beige silicified massive sandstone with lesser interbedded sericitic greywacke. Local 20% qav in greywacke. Lower bedding contact at 70-80 deg. to c.a.	S1 (70), weak to moderate sericite moderate ankerite.	Trace to local 1-2% pyrite associated with qav.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-139.

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
546.2-552.4 GREYWACKE	Yellow-green to grey, fine to medium grained greywacke. Moderate S1 foliation, becomes stronger downhole. From 549.2-552.4, shearing has caused tectonic layering (micaceous materials) and layer boudinage. Gradational contact to underlying lithic greywacke. S1 at 35 deg. to c.a. at 550.2m. Weak S2 at 110 deg. to c.a. at 550.2m.	Strong ankerite, local weak sericite.		
552.4-575.7 FOLIATED LITHIC GREYWACKE	Grey to green, moderately to strongly foliated medium to coarse grained lithic to conglomeratic greywacke, with lesser medium to coarse grained greywacke and minor fine grained sandstone. <u>560.0-566.5</u> Local 10-20% qav, cutting S0/S1. S1 at 60 deg. to c.a. at 556.5m. S1 at 45 deg. to c.a. at 573.0m. S0 at 40 deg. to c.a. at 574.1m. Lower bedding contact sharp at 65 deg. to c.a.	Strong ankerite. 557.0-575.7 Moderate to strong sericite.		
575.7-605.0 SERICITIZED GREYWACKE; MINOR LITHIC GREYWACKE	Pale yellow-green to buff, fine to coarse grained greywacke, with local coarse grained lithic greywacke as above. Local minor argillite. Moderate to strong S1 foliation.	Weak to strong sericite, moderate to strong ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 15

Project No. 155 Hole No. NW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0 at 50 deg. to c.a. at 588.3m. S0 at 55 deg. to c.a. at 599.8m. S1 at 40 deg. to c.a. at 601.7m; aspect ratios of deformed clasts are X:Y:Z = 3-4:1.5:1, ie- predominantly a stretching. Contact at lower margin of qav.			
605.0-609.6 SILICIFIED SANDSTONE	Pale beige/grey or buff, fine grained massive sandstone. Weak S1 foliation.	S1 (95) moderate sericite, weak to moderate ankerite.		
609.6-624.8 GREYWACKE/ ARGILLITE	Medium to dark grey green, very fine to fine grained, thinly interbedded greywacke and argillite. S0 at 50 deg. to c.a. at 621.0m. S0 at 45 deg. to c.a. at 624.8m.			Note: Double hexagonal core barrel 615-792m.
624.8-645.2 LITHIC GREYWACKE	Medium grey green, fine grained, greywacke matrix with 5-15% lithic, subangular clasts. Clast composition ranges from pale grey greywacke to dark green argillite. S1 at 40 deg. to c.a. at 636.0m. S0 at 40 deg. to c.a. at 645.2m.			
645.2-791.7 GREYWACKE/ ARGILLITE	Medium grey green, very fine grained to fine grained, thinly bedded greywacke and argillite.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 15

Project No. 155 Hole No. NW-91-139A

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0/S1 at 50 deg. to c.a., S2 at 110 deg. to c.a. at 647.9m. S0/S1 at 35 deg. to c.a. at 681.0m. S0/S1 at 15 deg. to c.a. at 703.3m. s0/S1 at 25 deg. to c.a. at 717.1m. 728.8-729.3 Quartz-ankerite veining. 733.1-753.5 Quartzose-feldspathic sandstone and minor greywacke. S0/S1 at 35 deg. to c.a. at 736.7m. S0/S1 at 50 deg. to c.a. at 753.5m. S0/S1 at 20 deg. to c.a. at 756.8m. 757.3-760.1 25% quartz-ankerite veining is generally parallel to S1 foliation (folding noted). S0/S1 at 55 deg. to c.a. at 762.1m. S0/S1 at 30 deg. to c.a. at 775.5m. S0/S1 at 45 deg. to c.a. 783.0m.			
791.7-795.6 CARBONACEOUS ARGILLITE	Dark grey to black, very fine grained, carbonaceous argillite and minor "silty" laminations. S0/S1 at 30 deg. to c.a. at 792.1m. S0/S1 (contact) at 40 deg. to c.a. 795.6m.			Note: Standard core barrel used 792.0-849.0m.

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-139..

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
795.6-796.7 FOLIATED, VARIOLITIC MAFIC FLOW TOP	Medium to dark grey green, aphanitic, strongly foliated, variolitic mafic flow top. S1 at 50 deg. to c.a. at 796.7m.			
796.7-828.0 LEUCOXENITIC, MASSIVE MAFIC FLOW	Grey green, very fine grained, leucoxenitic, weakly foliated to massive mafic flow. S1 at 35 deg. to c.a. at 806.1m. 806.1-806.5 Pale grey, very fine grained, silicified, pyritic massive mafic flow. 810.8-812.2 White, carbonate filled amygdules (1-3mm) are present. S1 at 50 deg. to c.a. at 813.0m. S1 at 55 deg. to c.a. at 828.0m.	806.1-806.5 100% silicified.	806.1-806.5 Pyrite 1-3% in S1 fracture filling form.	
828.0-830.5 AMYGDALOIDAL MAFIC FLOW TOP	Medium to dark grey green, aphanitic, moderately foliated, amygdaloidal flow top. S1 at 50 deg. to c.a. at 830.5m.			
830.5-843.2 LEUCOXENITIC, MASSIVE MAFIC FLOW	Medium grey green, very fine to fine grained, weakly foliated, leucoxenitic, massive mafic flow. S1 at 45 deg. to c.a. at 836.9m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 12 OF 15

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	836.9-843.2 Moderately developed S1 foliation is present with 2-5% quartz-ankerite veinlets (0.3-1cm) parallel. S1 (qav) at 45 deg. to c.a. at 843.1m.			
843.2-850.6 PILLOWED MAFIC FLOW	Pale to locally dark grey green, aphanitic, moderately foliated, pillowed mafic flow. Narrow, dark green, chloritized, weakly developed selvages are noted. Weakly developed, variolitic pillow margins are present. S1 at 50 deg. to c.a. at 846.0m.			Note: Double hexagonal core barrel 849-936m.
850.6-863.5 FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW	Dark to medium grey green to purple grey, very fine to fine grained, leucoxenitic, weakly to strongly foliated, massive mafic flow. S1 at 40 deg. to c.a. at 850.6m. S1 at 65 deg. to c.a. at 858.2m. 858.2-858.8 Foliated and variolitic (0.5cm). S1 at 60 deg. to c.a. at 863.5m.	852.1-856.0 Weakly to moderately hematized.		
863.5-864.8 SILICIFIED, PYRITIC, MASSIVE MAFIC FLOW	Pale grey to pale green to medium grey, aphanitic to very fine grained, strongly foliated, massive mafic flow. Minor varioles present in lower 20cm. S1 at 55 deg. to c.a. at 863.5m. S1 at 50 deg. to c.a. at 864.8m.	863.5-864.8 95% silicified, moderately ankeritic.	863.5-864.8 Pyrite 3-10% locally; in S1 fracture filling form.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 15

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
864.8-872.6 FOLIATED, MASSIVE MAFIC FLOW	Medium grey green to pale grey, very fine grained, weakly to locally strongly foliated, massive mafic flow. S1 at 50 deg. to c.a. at 867.0m.	867.0-868.5 Locally hematized.		
872.6-874.8 SILICIFIED, PYRITIC, MAGNETIC MASSIVE MAFIC FLOW	Pale purple grey, very fine grained, strongly foliated, magnetic, massive mafic flow. S1 at 30 deg. to c.a. at 872.6m. S1 at 40 deg. to c.a. at 874.8m.	872.6-874.8 90% silicified, moderately to strongly ankeritic.	872.6-874.8 Pyrite trace to 2%, in S1 fracture filling form.	
874.8-883.9 FOLIATED, MAGNETIC MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, weakly to strongly foliated, massive, locally weakly magnetic mafic flow. Minor patchy leucoxenitic overprinting is present. S1 at 40 deg. to c.a. at 878.8m. 878.8-879.4 Strongly foliated, amygdaloidal. Contact at 30 deg. to c.a. at 883.0m.			
883.9-887.3 TALC-CHLORITE ULTRAMAFIC FLOW BRECCIA	Dark green, very fine grained, foliated talc-chlorite ultramafic flow breccia. Subrounded fragments (1-3cm) are elongated parallel to the foliation. S1 at 45 deg. to c.a. at 885.0m.			

P&P - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 14 OF 1[illegible]

Project No. 155 Hole No. NW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
887.3-889.9 MAGNETIC, MASSIVE ULTRAMAFIC FLOW	Medium grey green, very fine grained, magnetic, massive ultramafic flow. Olive green, subhedral mineral grains indicated possible ultramafic composition.			
889.9-899.5 TALC-CHLORITE ULTRAMAFIC	Dark green, very fine grained, massive, talc-chlorite ultramafic flow. 889.4-893.4 Magnetic.			
899.5-907.1 TALC-CHLORITE ULTRAMAFIC	Dark green to olive green, very fine grained, talc-chlorite ultramafic flow breccia. Olive green, subangular to subrounded fragments (0.5-3cm) are present is a very fine grained talc-chlorite groundmass. S1 at 50 deg. to c.a. at 899.5m.			
907.1-914.7 MASSIVE ULTRAMAFIC	Medium grey green, very fine grained to fine grained, massive, chloritic ultramafic flow. 913.3-914.7 30-40% quartz-ankerite veining. Contact at 50 deg. to c.a. at 913.3m.			
914.7-936.0 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. Leucoxene over-printing is noted locally.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 15 OF 15

Project No. 155 Hole No. HW-91-139

Property Holloway (P.D.) Lighting Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	920.0-922.8 Weakly to moderately foliated interval with leucoxene overprinting present. S1 at 55 deg. to c.a. at 922.8m. S1 at 90 deg. to c.a. at 928.8m.			
936.0	END OF HOLE			

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 139
GRID: holloway

DATE: March 16,1991
SURVEY BY: RBA
INSTRUMENT: Gyro 922m

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-70.09	360.00	5999.140	4229.740	-11.500
30.48	-67.50	355.78	5998.734	4240.757	-39.916
60.96	-67.42	355.80	5997.876	4252.410	-68.068
91.44	-67.50	356.28	5997.069	4264.066	-96.220
121.92	-67.33	356.28	5996.310	4275.747	-124.362
152.40	-67.33	356.92	5995.613	4287.474	-152.487
182.88	-67.25	356.82	5994.971	4299.224	-180.604
213.36	-67.33	356.44	5994.279	4310.971	-208.721
243.84	-67.25	356.87	5993.592	4322.718	-236.838
274.32	-67.17	355.88	5992.846	4334.501	-264.938
304.80	-67.00	356.11	5992.017	4346.340	-293.013
335.28	-66.92	356.44	5991.242	4358.244	-321.062
365.76	-63.50	354.33	5990.214	4370.982	-348.733
396.24	-66.00	353.59	5988.846	4383.912	-376.301
426.72	-65.25	354.28	5987.517	4396.421	-404.064
457.20	-65.17	356.11	5986.446	4409.156	-431.735
487.68	-63.92	355.60	5985.499	4422.222	-459.256
518.16	-63.50	356.81	5984.606	4435.692	-486.584
548.64	-62.67	358.18	5984.003	4449.477	-513.762
579.12	-62.33	359.47	5983.714	4463.548	-540.798
609.60	-60.92	361.44	5983.829	4478.033	-567.616
640.08	-60.25	360.76	5984.116	4493.000	-594.167
670.56	-60.00	360.14	5984.236	4508.181	-620.596
701.04	-59.67	359.87	5984.237	4523.497	-646.949
731.52	-59.00	358.66	5984.038	4539.041	-673.167
762.00	-58.58	357.74	5983.541	4554.828	-699.235
792.46	-57.25	356.64	5982.748	4570.988	-725.043
822.96	-54.25	353.46	5981.267	4588.089	-750.254
853.44	-51.67	350.42	5978.693	4606.268	-774.584
883.92	-51.17	350.60	5975.559	4625.016	-798.411
914.40	-50.67	349.87	5972.300	4643.952	-822.071
922.02	-50.58	350.05	5971.457	4648.712	-827.962
936.00	-50.50	354.25	5970.244	4657.514	-838.755

** BORSURV **

ASSAY LOG

PROPERTY: holloway
HOLE No.: 139

FROM	TO	WIDTH	Au g/t	R1	R2
163.00	164.50	1.50	0.010	N.S.	N.S.
164.50	165.80	1.30	3.320	3.150	3.500
165.80	167.40	1.60	3.670	3.430	3.910
167.40	168.20	0.80	1.210	1.150	1.270
168.20	169.20	1.00	5.280	5.010	5.550
169.20	170.40	1.20	1.320	1.360	1.290
170.40	171.60	1.20	3.420	3.260	3.570
171.60	172.60	1.00	1.060	1.030	1.090
172.60	174.00	1.40	0.310	0.330	0.290
795.60	795.61	0.01	N.S.	N.S.	N.S.
804.50	806.10	1.60	0.010	N.S.	N.S.
806.10	806.50	0.40	0.020	N.S.	N.S.
806.50	808.00	1.50	0.010	N.S.	N.S.
843.00	843.10	0.10	N.S.	N.S.	N.S.
862.00	863.50	1.50	0.190	0.180	0.190
863.50	864.80	1.30	0.250	0.230	0.260
864.80	866.20	1.40	0.040	0.040	0.040
866.20	867.50	1.30	0.030	N.S.	N.S.
867.50	868.50	1.00	0.010	N.S.	N.S.
868.50	869.50	1.00	0.010	N.S.	N.S.
869.50	871.00	1.50	0.010	N.S.	N.S.
871.00	872.60	1.60	0.040	N.S.	N.S.
872.60	873.80	1.20	0.020	N.S.	N.S.
873.80	874.80	1.00	0.010	N.S.	N.S.
874.80	876.00	1.20	0.010	N.S.	N.S.
883.90	883.91	0.01	N.S.	N.S.	N.S.
911.10	912.80	1.70	0.010	N.S.	N.S.
912.80	913.30	0.50	0.010	N.S.	N.S.
913.30	914.70	1.40	0.010	N.S.	N.S.
914.70	915.80	1.10	0.010	N.S.	N.S.
915.80	917.00	1.20	0.020	N.S.	N.S.
917.00	917.40	0.40	0.020	N.S.	N.S.
917.40	918.80	1.40	0.010	N.S.	N.S.

==========

1. LZ (1.30 d.t. Core Angle: 50 1.00 t.t.)

		EASTINGS:	5977.66
FROM:	863.50	NORTHINGS:	4612.46
		ELEVATION:	-782.45

0.250 Au g/t (Cut to: 34.290)
0.230 R1
0.260 R2

		EASTINGS:	5977.52
TO:	864.80	NORTHINGS:	4613.26
		ELEVATION:	-783.46

2. 1/3 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5982.60
FROM:	795.60	NORTHINGS:	4572.75
		ELEVATION:	-727.64

0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5982.60
TO:	795.61	NORTHINGS:	4572.75
		ELEVATION:	-727.65

3. 3/4 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	5975.56
FROM:	883.90	NORTHINGS:	4625.00
		ELEVATION:	-798.40

0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5975.56
TO:	883.91	NORTHINGS:	4625.01
		ELEVATION:	-798.40

4. SHZ (7.10 d.t. Core Angle: 90 7.10 t.t.)

		EASTINGS:	5995.36
FROM:	164.50	NORTHINGS:	4292.14
		ELEVATION:	-163.65

3.116 Au g/t (Cut to: 34.290)
2.966 R1
3.268 R2

		EASTINGS:	5995.21
TO:	171.60	NORTHINGS:	4294.88
		ELEVATION:	-170.20

PROPERTY: Galloway

HOLE No: 139

5. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	5979.57
FROM:	843.00	NORTHINGS:	4600.04
		ELEVATION:	-766.25

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	5979.57
TO:	843.10	NORTHINGS:	4600.10
		ELEVATION:	-766.33

LATITUDE 6000E

DEPARTURE 4213N

ELEVATION 288.5

DIP AT COLLAR -68° BEARING 360°

TOTAL DEPTH 47.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS Casing pulled, stopped due to excessive flattening in casing.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing

Sheet No. 1 OF 1

Project No. 155 Hole No. HW-91-139A

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No L1053-A

Date started Feb. 18, 1991 completed Feb. 20, 1991

Contractor Bradley Bros.

Logged by Dave Broughton, Brian Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-31.5	Overburden			
31.5-47.0 MASSIVE MAFIC FLOW	Green to grey-green, fine grained massive mafic flow. Locally altered to light pink-purple colour along fractures.	32.0-34.6 S1 (95).		Note: Seager Hill Volcanics.
47.0	END OF HOLE Note: Large boulders present in overburden. Hole abandoned, excessive deviation.			

P.A.P. - 14264

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 139a
GRID: HOLLOWAY

DATE: Feb 20,1991
SURVEY BY: DB BA
INSTRUMENT: SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-68.00	360.00	6000.000	4213.000	-11.500
47.00	-64.00	362.00	6000.334	4232.114	-54.437

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

LATITUDE 4299.4N
DEPARTURE 6112.4E
ELEVATION -12.13
DIP AT COLLAR -70° BEARING 360°
TOTAL DEPTH 914m. CORE SIZE NQ
CORE STORAGE Canamax East Zone
REMARKS Casing left in hole.

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Gyro to 822.9m.			
863m	-56.75/359°		
914m	-56/359°		

Project No. 155 Hole No. HW-91-140
Property Holloway (P.D.) Lightning Zone
NTS. 32D/12 TWP. Holloway Claim No.
Date started March 14, 1991 completed April 10, 1991
Contractor Bradley Bros.
Logged by D. Broughton B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-25.0	Overburden			
25.0-71.3 MASSIVE MAFIC FLOWS	Pale grey to dark green, aphanitic to coarse-grained massive leucoxenitic mafic flows. S1 foliation weakly to moderately developed. S1 at 20 deg. to c.a. at 54.5m. 1 to locally 5-10% foliation-parallel qav's. 59.6-71.3 Magnetic.	Moderate to locally strong ankeritization, local silicification.	47.5-53.5 Local 1-5% fine to medium grained pyrite, associated with qav's and disseminated. 53.5-54.8 5-20% medium to coarse grained, in clusters and disseminated. 59.2-59.6 2-5% fine grained pyrite associated with 5cm qav.	Note: Double hexagonal core barrel used 44.0-248.0m.
71.3-84.9 MAGNETIC PILLOWED MAFIC FLOW	Medium grey green, aphanitic, pillowed mafic flow. Pale green, epidotized, narrow weakly developed selvages are present. The flow is locally weakly magnetic, and fracture filling magnetic is noted locally.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
84.9-91.9 MAGNETIC MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive, locally magnetic, mafic flow. Shear plane at 45 deg. to c.a. at 89.2m.			
91.9-97.5 MAGNETIC, MAFIC FLOW BRECCIA	Pale to medium grey green, aphanitic, locally magnetic, flow brecciated, mafic flow. Subangular to subrounded fragments (0.5-3cm) are present.			
97.5-99.8 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow.			
99.8-102.5 MAFIC FLOW BRECCIA	Pale to medium grey green, aphanitic, mafic flow breccia.			
102.5-155.0 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive, mafic flow. Grain size increasing below 111.0m, becomes medium to coarse grained. Grain size decreases below 135.4m, becomes fine grained to aphanitic. Medium grained from 149.8 to 152.5, becomes aphanitic.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
155.0-208.9 PILLOWED MAFIC FLOW	Pale green to medium green, aphanitic to very fine grained, pillowed mafic flow. Selvages commonly replaced with purplish hematite-carbonate, and have epidotized margins. Gradational contact.	Chloritized, local bleaching adjacent to qav's.		
208.9-227.8 MASSIVE MAFIC FLOW	Dark green, massive, fine to coarse grained mafic flow. Leucoxenitic. Becomes very fine grained to aphanitic below 224.0m. Gradational contact.	Chloritized, local silicification.		
227.8-263.3 PILLOWED MAFIC FLOW	Dark to medium green, very fine grained to aphanitic, weakly pillowed mafic flow. Pillows become better developed below 236.0m. Pale green, epidotized selvages are present. The interval is locally weakly magnetic.	Chloritized.		Note: Single hexagonal core barrel used 248.0-572.0m.
263.3-269.9 MASSIVE MAFIC FLOW BASE	Dark grey green, very fine grained, massive mafic flow base.			
269.9-271.6 MAGNETIC, MAFIC FLOW BRECCIA	Medium to dark grey green, aphanitic, strongly magnetic mafic flow breccia.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 4 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
271.6-275.6 **MASSIVE MAFIC FLOW**	Dark grey green, very fine grained, massive, mafic flow.			
275.6-278.3 **MAGNETIC, MAFIC FLOW BRECCIA**	Medium to dark grey green, aphanitic, strongly magnetic, mafic flow breccia. S1 (contact) at 30 deg. to c.a. at 275.6m.			
278.3-282.5 **MAGNETIC, MASSIVE MAFIC FLOW**	Dark grey green, very fine grained, locally magnetic, massive, mafic flow. Contact at 55 deg. to c.a. at 282.5m.			
282.5-340.1 **POLYLITHIC CONGLOMERATE**	Medium grey to orangy brown, fine to medium grained, quartzose-feldspathic sandstone matrix with 5-25% polylithic, subangular fragments (clasts). Size ranges from 0.5-4cm. Clast composition includes red jasper, grey green greywacke and argillite, orangy brown feldspar porphyry. S1 at 50 deg. to c.a. at 309.4m. S1 at 45 deg. to c.a. at 318.3m. S1 at 50 deg. to c.a. at 335.7m. <u>340.0-340.1</u> Polylithic breccia with mud matrix. 1cm gouge with quartz and conglomerate pebbles at 340.1m.	**336.0-340.1** S1 (100) weak to moderate sericite, increasing downhole.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
340.1-354.9 **SERICITIZED GREYWACKE**	Buff to yellow-green, poorly bedded, fine to medium grained greywacke with minor argillite. Bedding becomes better defined downhole. 5-10% qav, strongly folded along with S1 foliation. S1 at 35 deg. to c.a. at 346.2m. S2 at 125 deg. to c.a. at 350.5m.	**340.1-350.4** Strong sericite and moderate ankerite, local silicification. **350.4-354.9** Weak sericite.		**340.1-349.8** Local zones of broken core with minor fault gouge seams (generally 1cm wide). RQD = 20-30%.
354.9-357.5 **SILICIFIED SANDSTONE/ GREYWACKE**	Grey, fine to very fine grained, moderately to strongly foliated sandstone or greywacke.	S1 (100), strong ankerite.		**354.9-357.5** RQD = 5% mechanically broken core. 3cm gouge mud at 356.0m.
357.5-429.3 **GREYWACKE/ ARGILLITE**	Grey to grey green, aphanitic to very fine grained, thinly interbedded greywacke and sericitized argillite. Small scale folding is noted. S0/S1 at 30 deg. to c.a. at 368.0m. S0/S1 at 50 deg. to c.a. at 376.9m. S0/S1 between 10 and 170 deg. to c.a. at 385.0m. S0/S1 at 30 deg. to c.a., S2 (sericite) at 130 deg. to c.a. at 396.7m. S0/S1 at 30 deg. to c.a. at 411.4m. <u>411.7-413.0</u> Silicified beige sandstone/ greywacke. <u>413.0-429.3</u> Only minor argillite. 416.5, S2 at 130 deg. to c.a., S0 at 0 ± 20 deg. to c.a.	**357.5-375.8** Moderately ankeritic and sericitized. **375.8-422.5** Moderately to strongly sericitized. **422.5-429.3** Weak to moderate sericite.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	423.6-424.2: 30% quartz ankerite vein. 427.0, S1 at 30 deg. to c.a, weak S2 at 105 deg. Contact parallel to S1 at 25 deg. to c.a.			
429.3-433.1 **FOLIATED GREYWACKE**	Grey, strongly foliated greywacke. S1 at 15-30 deg. throughout. Lower contact somewhat indistinct.	Strong ankerite.		
433.1-472.8 **GREYWACKE, MINOR LOCAL ARGILLITE**	Grey to locally yellow where sericitized, fine grained to locally coarse grained or lithic greywacke. Minor interbedded argillite. Generally thickly bedded. 434.3-438.3 Fine grained greywacke/ argillite. S2 at 120 deg. to c.a. at 434.4m. S1 at 40 deg. to c.a. at 440.8m. 451.0-452.8 Coarse grained, lithic greywacke. S1 at 60 deg. to c.a. at 451.2m. 457.3-458.3 20% qav's. S2 at 110 deg. to c.a. at 456.3m. 461.8, S0 at 40 deg. graded bedding indicates tops uphole. 470.5, S0/S1 at 10-20 deg. to c.a. Gradational change to thinly bedded units.	Moderate ankerite, local sericite. **434.3-438.3** Strong sericite, moderate ankerite. **455.7-458.3** Weak to moderate sericite. Moderate to strong ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
472.8-477.9 **SERICITIZED GREYWACKE/ ARGILLITE**	Yellow-green, thickly bedded, fine to medium grained greywacke and argillite. S0 at 40 deg. to c.a. at 472.8m. 475.8-476.9 50% quartz ankerite veins.	**472.8-477.9** Moderate to strong sericite, moderate ankerite.		
477.9-502.9 **SERICITIZED GREYWACKE/ ARGILLITE**	Yellow-green to yellow-grey, interbedded greywackes and argillite. Locally thick, coarse grained wacke beds, separated by greywacke/argillite couplets. S0 at 35 deg. to c.a. at 485.4m. S2 at 115 deg. to c.a. at 492.2m. S0 at 25 deg., S2 at 120 deg. at 496.2m. Gradational contact.	**477.9-482.2** Weak sericite. **488.2-502.9** Moderate to locally strong sericite.		
502.9-520.6 **SERICITIZED GREYWACKE, LITHIC GREYWACKE**	Yellow-green to locally grey, interbedded fine to coarse grained greywacke and lesser lithic greywacke. Moderate to strong S1 foliation, weak to moderate S2. Local 5% S1-parallel qav's. 508.4, S0/S1 at 25 deg., S2 at 120 deg. to c.a. 519.5, S0 at 65 deg. to c.a. Gradational contact.	**502.9-517.5** Moderate to strong sericite, moderate to strong ankerite. **517.5-520.6** Weak to locally moderate sericite.	**509.9-520.6** Local 1-2% disseminated medium grained pyrite in sericitized sections.	
520.6-553.2 **FOLIATED GREYWACKE**	Grey-green to yellow-green, fine to medium grained greywacke with minor argillite. Moderate to strong S1, weak S2. Local 5% s1-parallel qav's.	**520.6-525.8** Local weak sericite, moderate to strong ankerite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 8 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	525.4m, S1 at 60 deg. to c.a. 528.6 Well-developed F2 folds with axial planar S2 at 125 deg. to c.a. subhorizontal plunge. S0 at 45 deg. to c.a. at 541.2m. 552.6-553.2 30% quartz ankerite veins. Gradational contact.	525.8-530.4 Moderate to locally strong sericite, moderate ankerite. 530.4-553.2 Local weak sericite, weak to moderate ankerite.	547.4 1-2cm band of fine grained pyrite.	
553.2-566.7 FOLIATED LITHIC GREYWACKE	Grey-green, fine to coarse grained and poorly sorted lithic greywacke. Moderate to strong S1 foliation. Large 4x6cm well rounded clast of silicified pyritic felsic intrusive (?) at 554.0m. S1 at 40 deg., weak S2 at 125 deg. at 554.8m. S1 at 60 deg. to c.a. at 566.6m. Gradational contact.	Chlorite, local sericite, moderate ankerite.		
566.7-651.0 GREYWACKE/ MINOR ARGILLITE	Grey, fine to medium grained greywacke with minor thinly interbedded argillite. S0 at 50 deg. to c.a. at 574.8m. S0 at 60 deg. to c.a. at 597.2m. Local qav's at 612.5-614.5, with pale yellow-green sericitic haloes; at 621.8, 624.7m. S0 at 50 deg. to c.a. at 617.7m. S0 at 60 deg. to c.a. at 634.8m. S0 at 40 deg. to c.a. at 647.1m tops uphole from graded bedding.	Weak ankerite. 581.0-581.3 Silicified, sericitic zone around S1 parallel qav's. 612.5-614.5 Local sericite, silicification.	Trace to 1% fine grained pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
651.0-708.2 **GREYWACKE/ ARGILLITE**	Grey, thinly bedded fine grained greywacke and lesser argillite. Well-developed, locally tight F2 folds and weak S2 cleavage. S2 at 125 deg. to c.a. at 657.4m. S0 at 30 deg. to c.a. at 664.8m. S0/S1 at 5 deg. to c.a. at 670.8m. S2 at 120 deg. to c.a. at 675.9m. S0 at 30 deg. to c.a., tops uphole at 679.0m. Intersection of S2 and S0 indicates subhorizontal, E-W F2 fold axis (S0 and S2 strike E-W). S0 at 50 deg. to c.a. at 690.0m. S1 at 30 deg. to c.a. at 699.2m. 702.0m, S2/S0 = 0 deg. 703.5m, S2/S0 = 60 deg. 704.7m, S2/S0 = 0 deg. S0 contact at 50 deg. to c.a.	Weak local sericite, moderate ankerite.		
708.2-715.1 **CARBONACEOUS ARGILLITE, MINOR GREYWACKE**	Black, thinly bedded carbonaceous argillite, locally graphitic along S0/S1 slip planes, with minor thinly interbedded fine grained greywacke. F2 fold closures occur throughout. Nodular and bedded pyrite common.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	711.6-712.4 Fine grained greywacke, minor argillite. Upper contact has graphitic gouge at 20 deg. to c.a. Lower contact marked by 3cm grey cherty bed, at 23 deg. to c.a. Lower contact zone hosts 80% bedded/ nodular pyrite, contact at 10-15 deg. to c.a.			
715.1-716.6 **MASSIVE FLOW**	Medium green, very fine grained to aphanitic, massive flow or possible sediment. No bedding or volcanic features visible. Lower contact gradational-wisps of underlying unit penetrate into base.	Very weakly silicified, locally weakly hematized.	Trace to 1% disseminated fine grained pyrite.	
716.6-721.8 **VARIOLITIC HYALOCLASTITE**	Medium to pale green, to cream where variolitic, fine grained mafic hyaloclastite, with alternating sections of high and very low variole content. Some of the latter are pillow selvages. Moderate to locally strong S1 foliation- varioles have X:Z aspect ratios of 2-4:1. S1 at 15 deg. to c.a. at 716.8m. S1 at 45 deg. to c.a. at 721.6m. Local weak S2 at 120 deg. to c.a. at 718.6m. S1 at 35 deg. to c.a. at 718.6m. X=± 10 deg. Lower contact placed at bottom of variolitic section - gradational to underlying flow base.			**719.4** S1 at 20 deg. E L1 on S1= 106° (74° from east on S1). Tension veins in varioles at 163 deg. to c.a. X:Y=2.5:1 X:Z=4:1 **721.0** S1 at 40 deg.;E L1 = 90° X:Y:Z=2:1.5:1 **721.7** S1 at 42° to c.a. X:Y=1.5:1 X:Z=2-2.5:1 E L1=85° from east.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 11 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
721.8-729.6 **MASSIVE MAFIC FLOW**	Medium green, fine grained to aphanitic, massive mafic flow. Moderate S1 foliation, 2-3% S1-parallel qav's. S1 at 45 deg. to c.a. at 725.4m.	Chlorite, moderate to strong ankerite.		
	Weak local S2 at 120 deg. at 728.2m, * S1/S2 = 0 deg., S1 at 50 deg.			728.4 S2 at 130° S1 at 40 deg. E L1 on S1 = 102° (78° from east).
	Local strongly foliated zones - possibly hyaloclastite?? at 728.0, 728.7, 729.1-729.5. Incipient pillow selvages? Contact marked by qav parallel to S1 at 45 deg.			
729.6-778.2 **MASSIVE MAFIC FLOW**	Medium green, fine grained to aphanitic mafic flow.	Moderate to strong ankerite, chlorite. Calcite veinlets parallel to S1 and oblique 5%.		
	729.6-730.1 Amygdaloidal flow top.			
	730.1-776.1 Weakly to moderately foliated, massive leucoxenitic flow. Local 5-20% S1-parallel qav's. Overall 5% qav. S1 at 55 deg. to c.a. at 737.4m.			
	At 750.0, S1 = 35 deg. At 767.0, S1 = 55 deg.			
	Becomes coarse grained downhole to 772.6m. Rapid transition (over 20cm) to aphanitic flow.	Moderate to strong iron calcite chlorite.		
	772.6-778.2 Aphanitic to fine grained.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 12 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	776.1-778.2 10cm spacing between dark green/black chloritic to weakly magnetic 1cm bands, usually with central veinlet parallel to S1. No reduction in grain size, therefore not pillow selvages. Unit becomes magnetic below 777.3m, also locally feldspar-pyritic contact subtle but sharp, parallel to S1 at 30 deg. to c.a. No evidence of faulting or discordance - very quiescent!.			
778.2-779.7	Dark green-grey, weakly to locally moderately talcose, fine grained, possibly ultramafic flow. Weakly magnetic. Moderate S1 foliation, 2-5% S1-parallel calcite/ankerite-quartz veins. Contact with overlying unit marked by change from aphanitic to fine grained, and appearance of talc. Lower contact marked by decrease in grain size, disappearance of talc, and change to strong magnetism. Contact parallel to S1 at 60 deg. to c.a.	Weak to local moderate talc. Moderate to strong calcite.		
779.7-813.5 MASSIVE MAFIC FLOW	Dark to pale grey-green, aphanitic to medium grained, massive mafic (?) flow. Possibly a sill(?). 779.7-787.7 Strongly magnetic, aphanitic to fine grained. Weak to moderate S1.	Weak ankerite.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	787.7-789.0 Weakly magnetic, fine to medium grained, grain size increasing downhole. 789.0-811.0 Coarse grained, leucoxenitic, massive to locally weakly foliated, with purplish hematitic calcite veins undulating at ± 20 deg. to c.a. S1 at 20 deg. to c.a. at 788.2m. Grades to fine grained section. 811.0-813.5 Fine grained, dark grey-green, moderately foliated with calcite veins along S1. No evidence of contact with underlying unit - placed at 1st appearance of leucoxene.			
813.5-823.0 FOLIATED, LEUCOXENITIC, MASSIVE MAFIC FLOW	Medium grey-green, coarsely leucoxenitic massive mafic flow. Moderate to strong S1 foliation, increasing downhole. S1 at 25 deg. to c.a. at 814.0m. Percentage of ankeritic S1-parallel veins increases downhole below 820.0m, to 5-10%. Contact parallel to S1 at 20 deg. to c.a.	Moderate ankerite, chlorite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 14 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
823.0-833.0 FOLIATED ANKERITIZED MASSIVE FACIES LEUCOXENITIC FLOW	Medium to pale grey-green, leucoxenitic flow with flow top. Strongly foliated. 823.0-824.1 Amygdaloidal flow top. 824.1-825.4 Leucoxenitic massive flow, 5-10% S1-parallel, boudinaged qav's. 825.4-825.9 Fine grained section, possibly a flow top. 825.9-827.3 Leucoxenitic massive flow, <5% quartz ankerite veins. 827.3-833.9 Leucoxenitic flow, 5 to 20% S1-parallel qav's. S2 crenulation cleavage spaced 1-2cm. S1 at 25 deg. to c.a. at 828.0m. S2 at 130 deg. to c.a. at 828.5m.	823.0-825.9 Moderate ankerite. 825.9-833.0 Strong ankerite.		
833.0-838.5 FOLIATED, VARIOLITIC FLOW BRECCIA; MASSIVE FLOW BASE	Pale grey to grey green, aphanitic, strongly foliated, variolitic flow breccia. S0/S1 at 50 deg. to c.a. at 833.0m. S1 at 50 deg. to c.a. at 837.3m. Grades to massive flow base below 837.9. Fine grained, pale green, leucoxenitic. 5% S1 - parallel qav's, boudinaged (steep rock to extension direction).	Moderately to strongly ankeritic, moderately sericitized.		Possible interbedded fine grained equivalent to 3 aggl. at 836.35-836.5m. Yellow-green (ser.), with strong S1 and no flow textures. Sharp contacts parallel to S1.

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Contact indistinct, placed at point of appearance of amygdules and change in grain size. Roughly subparallel to S1 at 45 deg.			
838.5-840.1 SILICIFIED SERICITIC VARIOLITIC HYALOCLAS-TITE/FLOW BRECCIA	Pale yellow-green to locally pale grey, fine grained variolitic hyalo-clastite. Possible minor flow breccia. Moderately developed S1 (sericite) foliation at 45-55 deg. to c.a. Unit contains 1-3% sub 1cm varioles, with moderate (X:Z=2-3:1) aspect ratios. Late chlorite vein at 0-5 deg. to c.a., orthogonal in strike to S1, occurs at 839.6-840.1m. Contact is marked by change to medium grey colour and loss of sericite-locally follows S1 and is sharp, locally is gradational.	838.5-838.6 Strong sericite, moderate ankerite. 838.6-840.1 S1 (95) moderate sericite, moderate ankerite.	Trace to 1% fine grained pyrite in localized patches of pale grey alteration-pyrite in stringers and along S1.	Lightning Zone hanging wall.
840.1-841.7 SILICIFIED VARIOLITIC HYALOCLASTITE (LIGHTNING ZONE)	Medium grey, fine to medium grained variolitic hyaloclastite, local flow breccia. Varioles generally <0.5cm, form <5% of rock, and are dark grey (hematized) below 840.7. Weak S1 foliation - varioles subspherical at 45-65 deg. to c.a. Overall, 5% 1-10cm white qav's, roughly orthogonal to S1, (flat-lying) with *S1/qav ± 20 deg. These are continuous with a stockwork of grey to translucent qav's, both orthogonal and parallel to S1, which contain pyrite. The larger (white) veins are only locally pyritic.	S1 (100), weak ankerite. 840.9-841.9 10-15% quartz ankerite veins.	3 to locally 5% fine to medium grained pyrite and <1% aspy, occurring in narrow stockwork qav's, stringers and clots along S1 and as disseminated grains.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Contact sharp, along S1 at 55 deg. to c.a., marked by colour changes, loss of silicification, and disappearance of grey stockwork qav's.			
841.7-847.0 VARIOLITIC HYALOCLASTITE, MASSIVE FLOW BASE	Pale yellow-green to green-grey, variolitic hyaloclastite grading to variolitic massive flow grading to massive flow. Variolitic hyaloclastite to 842.0m, moderate S1 foliation. 5 to local 10% sub 1cm varioles, cream coloured (not hematized) and deformed to X:Z aspect ratios of 3-5:1. Variolitic massive flow to 842.4m. Medium to dark green-grey massive fine grained leucoxenitic flow to (846.0). 3-5% S1-parallel qav's. S1 at 60 deg. to c.a. at 845.6m. Contact at 70 deg. to c.a., parallel to local S1.	841.7-844.1 Pale green-grey, pervasive weak sericite and moderate ankerite. 844.1-847.0 Medium to dark green-grey, pervasive chlorite-calcite.		
847.0-866.6 ULTRAMAFIC FLOWS AND BRECCIAS	Dark green-grey to blue-black ultramafic flows and breccias. Foliation moderately developed at 50-70 deg. to c.a. 848.3-849.0 Section of dark green, massive to moderately foliated mafic flow. Upper contact parallel to S1, lower contact somewhat gradational conformable.	Talc-chlorite, minor serpentine.		848.0-848.2 Broken core, very talcose.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 17 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	849.0-852.0 Fairly massive ultramafic flow. 852.0-858.3 Ultramafic breccia, moderately to locally strongly foliated (not sandstone). S1 at 55 deg. to c.a. at 855.5m. 858.3-866.6 Dark green to blue-black ultramafic flow, lesser flow breccia. Contact parallel to S1 at 55 deg.			
866.6-895.7 MASSIVE MAFIC FLOW	Medium grey-green, aphanitic to fine grained, massive mafic flow. Moderately developed S1 foliation. 866.6-868.1 Amygdaloidal, aphanitic to very fine grained. 868.1 Locally amygdaloidal, very fine grained to fine grained, leucoxenitic (1-2% possibly Mg tholeiitic). 872.0, S1 at 30 deg. to c.a. 874.2 S1-parallel qav's boudinaged in plane of foliation-lineation rakes steeply. Massive, coarse grained from 879.0 to 888.0m. Weak to moderate S1 qav's (3-5%) from 892.5m to contact. Contact at 20 deg. to c.a., parallel to local S1.	Chloritized, weakly ankeritized and/or calcitic. Local weak silicification and hematization at 884.8 to 885.8m associated with qav's and replacement veins.		

P.A.P. - E-1568

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 18 OF 18

Project No. 155 Hole No. HW-91-140

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
895.7-896.4 **TALCOSE ULTRAMAFIC**	Medium to pale green, talcose, strongly foliated ultramafic volcanic. 20% S1-parallel, folded quartz-ankerite veins. Contact at 40 deg. to c.a.	Talc-ankerite.		
896.4-903.3 **FOLIATED ANKERITIZED LEUCOXENITIC MAFIC FLOW**	Medium green-grey to grey, aphanitic to fine grained, finely to coarsely leucoxenitic, massive facies mafic flow. Generally 1-3% leucoxene. S1 foliation is moderately to strongly developed, and folded (F2, S2 cleavage). Overall, 10% S1-parallel qav's and <2% S2-parallel undeformed qav's. S1 and S2 generally intersect perpendicular to core axis (* 0) larger white quartz veins at 898.9-899.0 and 898.2-898.5m, margins parallel to S2, cutting S1. S2 at 115.0-135.0 deg. throughout. Lower contact at 80 deg. to c.a., placed at margin of qav, parallel to S1.	Chloritic, moderate to strong ankerite.	Local trace to 1% coarse pyrite.	
903.3-914.0 **TALC-SERPENTINE ULTRAMAFICS**	Grey-green, moderately to strongly foliated talcose/serpentinized ultramafics 20-40% S1-parallel qav's, local white quartz veins. Predominantly consists of in situ flow breccia and vein brecciated flow. Strong S2 at 120 deg. to c.a. at 906m.	Talc-serpentine-ankerite.		
914.0	END OF HOLE			

P.A.P. - E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 140
GRID: HOLLOWAY

DATE: May 1 1991
SURVEY BY: D. Broughton
INSTRUMENT: avgy-335;corgy-823;ss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-70.00	360.00	6112.400	4299.400	-12.130
30.50	-68.54	359.40	6112.343	4310.196	-40.655
61.00	-67.75	358.90	6112.175	4321.548	-68.963
91.00	-67.63	358.70	6111.936	4332.935	-96.718
122.00	-67.90	359.20	6111.722	4344.663	-125.412
152.00	-67.67	360.20	6111.662	4356.006	-153.186
183.00	-67.71	359.50	6111.631	4367.774	-181.865
213.00	-67.58	359.20	6111.502	4379.183	-209.610
244.00	-67.67	358.60	6111.275	4390.982	-238.276
274.00	-67.54	358.10	6110.946	4402.407	-266.014
305.00	-67.22	357.40	6110.478	4414.321	-294.629
335.00	-66.62	356.10	6109.811	4426.063	-322.228
365.70	-66.67	355.70	6108.941	4438.202	-350.412
396.20	-66.58	356.10	6108.076	4450.272	-378.409
426.70	-66.33	356.50	6107.290	4462.430	-406.370
457.20	-66.08	356.70	6106.560	4474.714	-434.277
487.70	-65.83	356.10	6105.780	4487.117	-462.131
518.10	-65.67	356.10	6104.930	4499.574	-489.848
548.60	-65.33	356.10	6104.070	4512.193	-517.602
579.10	-64.67	355.50	6103.126	4525.048	-545.244
609.60	-64.17	356.00	6102.150	4538.181	-572.755
640.10	-63.42	356.40	6101.258	4551.620	-600.120
670.50	-63.03	357.00	6100.469	4565.292	-627.261
701.00	-62.25	357.70	6099.821	4579.294	-654.349
731.50	-61.33	357.50	6099.217	4593.699	-681.226
762.00	-60.33	357.50	6098.569	4608.551	-707.858
792.40	-59.58	358.30	6098.011	4623.761	-734.173
822.90	-59.00	358.80	6097.617	4639.332	-760.396
863.00	-56.75	359.00	6097.208	4660.652	-794.356
914.00	-56.00	359.00	6096.715	4688.890	-836.823

ASSAY LOG

PROPERTY: HOLLOWAY
HOLE No.: 140

FROM	TO	WIDTH	Au g/t	R1	R2
46.50	47.50	1.00	0.010	N.S.	N.S.
47.50	48.90	1.40	0.050	N.S.	N.S.
48.90	50.70	1.80	0.040	N.S.	N.S.
50.70	51.40	0.70	0.080	N.S.	N.S.
51.40	52.60	1.20	0.010	N.S.	N.S.
52.60	54.00	1.40	0.020	N.S.	N.S.
54.00	54.80	0.80	0.090	N.S.	N.S.
54.80	56.00	1.20	0.010	N.S.	N.S.
56.00	57.00	1.00	0.010	N.S.	N.S.
57.00	58.20	1.20	0.050	N.S.	N.S.
58.20	59.20	1.00	0.010	N.S.	N.S.
59.20	59.60	0.40	0.090	N.S.	N.S.
59.60	60.60	1.00	0.040	N.S.	N.S.
715.10	715.20	0.10	0.010	N.S.	N.S.
779.00	779.10	0.10	N.S.	N.S.	N.S.
837.60	838.60	1.00	0.030	0.030	0.030
838.60	840.10	1.50	0.120	0.100	0.140
840.10	840.90	0.80	6.170	6.270	6.070
840.90	841.70	0.80	1.920	1.850	1.990
841.70	842.70	1.00	0.030	0.030	0.030
842.70	843.70	1.00	0.080	0.070	0.100
847.00	847.10	0.10	0.010	N.S.	N.S.
894.70	895.70	1.00	0.010	N.S.	N.S.
895.70	896.40	0.70	0.010	N.S.	N.S.
896.40	897.40	1.00	0.010	N.S.	N.S.
897.40	899.00	1.60	0.010	N.S.	N.S.
899.00	900.40	1.40	0.020	N.S.	N.S.
900.40	901.80	1.40	0.010	N.S.	N.S.
901.80	903.30	1.50	0.010	N.S.	N.S.
903.30	904.30	1.00	0.010	N.S.	N.S.

1. LZ (1.60 d.t. Core Angle: 35 0.92 t.t.)

		EASTINGS:	6097.44
FROM:	840.10	NORTHINGS:	4648.48
		ELEVATION:	-774.96

4.045 Au g/t
4.060 R1
4.030 R2

		EASTINGS:	6097.43
TO:	841.70	NORTHINGS:	4649.33
		ELEVATION:	-776.32

2. 1/3 CONTACT (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6099.54
FROM:	715.10	NORTHINGS:	4585.95
		ELEVATION:	-666.77

0.010 Au g/t
-0.000 R1
-0.000 R2

		EASTINGS:	6099.54
TO:	715.20	NORTHINGS:	4586.00
		ELEVATION:	-666.86

3. 3/4 CONTACT (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6097.37
FROM:	847.00	NORTHINGS:	4652.15
		ELEVATION:	-780.81

0.010 Au g/t
-0.000 R1
-0.000 R2

		EASTINGS:	6097.37
TO:	847.10	NORTHINGS:	4652.20
		ELEVATION:	-780.89

4. SHZ (11.70 d.t. Core Angle: 90 11.70 t.t.)

		EASTINGS:	6112.25
FROM:	47.50	NORTHINGS:	4316.52
		ELEVATION:	-56.43

0.034 Au g/t
-0.000 R1
-0.000 R2

		EASTINGS:	6112.18
TO:	59.20	NORTHINGS:	4320.88
		ELEVATION:	-67.29

5. FWZ (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	6096.82
FROM:	903.30	NORTHINGS:	4682.97
		ELEVATION:	-827.91
	0.010 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6096.81
TO:	904.30	NORTHINGS:	4683.52
		ELEVATION:	-828.75

6. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6098.26
FROM:	779.00	NORTHINGS:	4617.06
		ELEVATION:	-722.57
	-0.000 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6098.26
TO:	779.10	NORTHINGS:	4617.11
		ELEVATION:	-722.66

LATITUDE 6112.4

DEPARTURE 4299.4

ELEVATION -12.13

DIP AT COLLAR _____ BEARING _____

TOTAL DEPTH 807.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone Site

REMARKS Plug at 371m - top wedge at 366m.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data			

Sheet No. 1 OF ___

Project No. 155 Hole No. HW-91-140W

Property Holloway

NTS. 32D/12 TWP. Holloway Claim No. _____

Date started April 11, 1991 completed April 29, 19

Contractor Bradley Bros.

Logged by D. Broughton, B. Alexander

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
366.0-368.0	Steel wedge			
368.0-379.0 SERICITIZED FOLIATED GREYWACKE	Yellow-grey to yellow-green, moderately to locally strongly foliated (S1). Fine to medium grained greywacke, with spaced S2 cleavage and tight (<0.5m) F2 folds. 1-3% S2-parallel qav's. S2 at 90-110 deg. to c.a. (fanned) at 368.8m. S2 at 115 deg. to c.a. at 375m, S1 at 40-150 deg. to c.a.	Pervasive weak to locally strong sericite, moderate ankerite.		Angle x between S1 and S2 genera ± 20° indicatin approximately s horizontal, eas west F2 fold ax Locally changes to X=90° (S1 no planar prior to folding, and/or non-cylindrical folding).
379.0-444.0 DIRECTIONAL DRILLING	No core return.			
444.0-450.0 GREYWACKE	Medium grey green, very fine to fine grained, thin to medium bedded greywacke and minor argillite interbeds. S0/S1 at 20 deg. to c.a. at 450.0m.			Note: Standard core barrel use 444.0-505.0 mete

P.A.P. - 14064

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
450.0-471.1 GREYWACKE/ ARGILLITE	Pale green to medium grey green, very fine grained to fine grained, thinly bedded greywacke and argillite. S0/S1 at 10 deg. to c.a., S2 at 130 deg. to c.a. at 450.7m. S0/S1 at 40 deg. to c.a. at 455.3m.	Locally weakly to moderately sericitized.		
471.1-480.2 SERICITIZED, ARGILLITE/ GREYWACKE AND 20% QAV	Pale grey to locally pale green, very fine to fine grained, argillite and greywacke. 20% quartz-ankerite veining is present. Note: Bedding is strongly folded with weakly developed axial planar S2 present locally.	471.1-480.2 Moderately ankeritic, moderately to strongly sericitized.		
480.2-488.4 GREYWACKE/ ARGILLITE STRONGLY FOLIATED	Medium grey to grey green, very fine to fine grained, thinly bedded greywacke and argillite. S2 at 135 deg. to c.a. at 483.4m. Strongly developed S2 (spaced 0.5-2cm).			
488.4-502.2 LITHIC GREYWACKE, CONGLOMERATE	Grey to grey-green, strongly foliated, carbonated coarse grained (lithic) greywacke, grading to conglomerate. Local 5-10% S1-parallel qav's.			

P.A.P. - E 1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	488.4-491.0 Coarse grained (lithic) greywacke, strongly developed S1, weakly to moderately developed S2. "Granular" texture identical to that in marker unit in mafics. S2 at 140 deg. to c.a. at 488.6m. S1 at 55 deg. to c.a. at 490.5m.	488.4-491.0 Strong ankerite, weak sericite, moderate chlorite.		
	491.0-498.0 Dark grey-green conglomerate with 2-3% hematized granitic clasts, <5% mafic clasts grades to lithic coarse-grained greywacke as above. Strong S1 throughout.	491.0-498.0 Moderate to strong ankerite, chloritic.		
	498.0-502.2 Lithic greywacke, strongly foliated (S1). Locally consists of strongly carbonated, moderately foliated, thickly bedded units-carbonate sediment? S1 at 40 deg. to c.a. at 498.3m. Bedded contact parallel to S1 at 60 deg. to c.a.	498.0-502.2 Moderate to strong ankerite, moderate chlorite.		
502.2-515.1 GREYWACKE	Pale yellow-green to grey-green, fine to medium grained greywacke. Moderate to locally strong S1. Local S2, S1 folded. 513.5-513.7 20 cm quartz ankerite vein.	Moderately ankeritized, weakly to moderately sericitized.		Note: Hexagonal core barrel 505.0-698.0 meters (with std barrel in tandem).

PAP - E.1958

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 4 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
515.1-518.0 GREYWACKE, MINOR ARGILLITE	Pale grey-green, fine to medium greywacke with minor interbedded argillite. Tightly folded, weak to strongly developed S2. S2 at 140 deg. to c.a. at 516.2m.	Weakly sericitized, moderately ankeritized.		
518.0-527.2 GREYWACKE	Pale grey-green to weak yellow-green, fine to medium grained greywacke. Moderate S1 foliation, at 60 deg. to c.a. at 524.5m. Contact parallel to S1 at 50 deg. to c.a.	Moderately ankeritized, local sericitization.		
527.2-538.4 FOLIATED LITHIC GREYWACKE	Medium grey green to locally yellow-green, strongly foliated, medium to coarse grained greywacke and lithic greywacke/conglomerate. S1 fairly constant at 50-70 deg. to c.a., lineation pitches steeply on S1. 1-2% S1-parallel qav's. S1 at ± 10 deg. to c.a.at 537.2-537.3m. S2 at 145 deg. to c.a. at 538.3m. Gradational contact.	Weak to local moderate sericitization, moderate ankeritization.		
538.4-620.7 GREYWACKE, MINOR ARGILLITE	Medium grey green, fine to medium grained greywacke with lesser, thinly interbedded greywacke-argillite. F2 folds tight to open. S1 at 30 deg. to c.a. at 555.5m. S0 at 50 deg. to c.a. at 571.0m.	Moderate ankeritization, local weak sericitization.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	20cm qav zone at 580.9-581.1, minor ground core. S0 at 40 deg. to c.a. at 582.6m. S0 at 70 deg. to c.a. at 598.5m. Local tectonic brecciation-cutting S0/S1 at 608.5-608.6m. Brecciated fragments in muddy matrix-pipe? S0 at 35 deg. to c.a. at 608.7m. Graded bedding indicates tops uphole. S0 at 65 deg. to c.a. at 620.0m. S0 at 35 deg. to c.a. at 627.0m. S0 at 40 deg. to c.a. at contact.			
620.7-641.9 **GREYWACKE/ ARGILLITE**	Medium to dark grey, thinly bedded fine to medium grained and lesser argillite. S0/S1 generally broadly folded, locally crenulated. Bedded lower contact at 75 deg. to c.a.	Moderately ankeritized.		
641.9-655.9 **GREYWACKE, LITHIC GREYWACKE**	Medium grey to grey-green, thickly bedded, fine to coarse grained, lithic greywacke. Locally becomes conglomeratic. S1 moderately to strongly developed-clasts are flattened and lineated in S1. Graded bedding indicates tops downhole at 641.9, generally grading is ambiguous. S0/S1 at 65 deg. to c.a. at 643.5m. S0/S1 at 55 deg. to c.a. at 654.8m. Overall <2% S1-parallel qav's.	Moderately ankeritized, patchy weak to moderate sericitization.	649.4 Local 8% pyrite over 3cm in S1-parallel quartz-ankerite vein.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
655.9-671.4 GREYWACKE, MINOR ARGILLITE	Medium grey to locally yellow-green, thickly bedded fine to medium grained greywacke with minor argillite. Contact bedded at 75 deg. to c.a.	Local weak to moderate sericitization, moderate ankeritization.		
671.4-674.3 CARBONACEOUS ARGILLITE	Black carbonaceous, locally graphitic argillite with minor locally thinly interbedded fine grained greywacke. Lower contact cut by qav's, at 80 deg. to c.a.		Locally 10-20% replacement/bedded pyrite in greywacke beds from 673.8-674.3m.	
674.3-688.9 FOLIATED LEUCOXENITIC MASSIVE FLOW	674.3-674.8 Quartz vein zone - 70-90% vein breccia with mixed volcanic/sedimentary wall rock. 674.8-688.9 Grey-green, aphanitic to fine grained, leucoxenitic massive basaltic flow. Moderate to locally strong S1 foliation, 1-3% S1-parallel qav's. S1 at 30 deg. to c.a. at 680.5m. S1 at 65 deg. to c.a. at 687.1m.	674.3-674.8 S1 (100) weak to moderate sericitization, moderate to strong ankeritization. 674.8-688.9 Moderate to strong ankeritization, chloritized.		
688.9-690.4 FOLIATED, MAFIC FLOW BRECCIA	Pale to dark grey green, aphanitic, moderately foliated, mafic flow breccia. Subangular, mafic flow breccia fragments (up to 2cm) are elongated parallel to S1 foliation. S1 at 60 deg. to c.a. at 688.9m.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
690.4-693.0 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive, mafic flow. S1 at 60 deg. to c.a. at 693.0m.			
693.0-701.4 LEUCOXENITIC MASSIVE, MAFIC FLOW	Medium grey green, very fine to fine grained, leucoxenitic, massive, mafic flow. Lower contact at 701.4m, is gradational.	Chlorite-calcite.		698.0-807.0 Double hexagonal.
701.4-709.5 MAGNETIC, MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, locally magnetic, massive, mafic flow.	Chlorite-calcite, minor ankerite.		
709.5-728.5 PILLOWED, LOCALLY MAGNETIC MAFIC FLOW	Same flow as above, but with dark green/black chloritic, 1-2cm pillow selvages, spaced 20cm-2m. Weakly developed pillows. Magnetic to 712.1m, leucoxenitic below 712.1m. Weak to moderate S1 at 50 deg. to c.a. at 712.4m. Local 1-3% S1-parallel qav's. Lower contact cut by quartz-plag.-ankerite-tourmaline vein.	Chlorite-calcite, minor ankerite.		

FAP - E-558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 8 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
728.4-751.2 **COARSE GRAINED BIOTITIC MAFIC FLOW**	Dark green to pale green, locally purple where hematized, massive, biotite-bearing, coarse grained mafic flow (sill?). Distinctive unit. 728.4-732.8 Moderately to locally strongly foliated; dark green, with 2% biotite flakes, leucoxenitic (<2%) to 730.0m. Fine grained, S1 at 20-50 deg. to c.a. Foliation intensity decreases and grain size increases downhole from 732.8m. 732.8-733.7 Purple/green, hematized, medium grained, coarse biotite around qav at 733.5m. 5% biotite, 20-60% chloritized ferromagnesiam minerals, 5-10% hematite in irregular stockwork veinlets, remainder is altered feldspar. 733.7-741.5 Medium to pale green, coarse grained, massive to locally sheared-narrow (<10cm) zones of strong foliation. 5-30% biotite, 10-40% chlorite, remainder is altered feldspar. Local epidote and very coarse biotite associated with qav's, ie at 734.4m. 741.5-744.1 Medium to fine grained, foliated, becoming finer grained and more strongly foliated downhole. Biotite content also decreases. S1 at 60 deg. to c.a. at 743.2m.	Weak ankerite, pervasive weak to moderate calcite. Biotite flakes 1-3mm. Weak to moderate hematization. Weakly to moderately calcitic to 734.6m. Weakly calcitic-moderately ankeritic to 741.5m. Local hematite. Moderately ankeritic, becomes more chloritic downhole.		Distinctive unit-same as in 140 above LZ.

P.A.F. - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Lower contact is gradational - fine grained leucoxene noted at 744.6m. 10-20% ankerite-quartz and qav's from 744.6-745.0m. 744.1-751.2 Finely to coarsely leucoxenitic, medium to pale grey-green, tholeiitic massive flow. Moderately to strongly developed S1 foliation, local S2 2-5% S1-parallel qav's. S1 at 70 deg. to c.a. at 750.5m. S2 at 140 deg. to c.a. at 751.0m. *S1/S2 = ± 10 deg. - F2 fold axis is subhorizontal E-W. Lower contact broken, appears to parallel S1, at 45 deg. to c.a.	Moderately to strongly ankeritized. Chloritized, locally sericitized.		
751.2-753.0 SILICIFIED LEUCOXENITIC MASSIVE FLOW, MINOR CARBONATE SCHIST	Pale creamy grey to green grey, massive to locally strongly foliated, massive textured, leucoxene-bearing mafic flow? 2-3% wispy sericite defines S1; can see octahedral and skeletal 1-2mm leucoxene-2 to 5%. Remainder is quartz with minor feldspar and ankerite. Could be logged as sandstone. Becomes more strongly ankeritic and foliated below 752.5. Lower 8cm is ankerite-sericite-quartz schist, possibly equivalent to marker (carbonated) unit. Contact broken.	751.2-752.9 S1 (100) pervasive weak sericitization, weak to moderate ankeritization. 752.9-753.0 Strongly ankeritized, sericitized.	Trace to local 1% fine to medium grained disseminated and fracture filling pyrite.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
753.0-753.9 FOLIATED SERICITIZED MASSIVE FLOW	Pale green to cream, locally finely leucoxenitic, fine grained to aphanitic, massive mafic flow. Moderate to strong S1 foliation, at 55 deg. to c.a. at 753.4m. Contact at 50 deg. to c.a., parallel to S1.	Moderately to strongly sericitized and ankeritized.		
753.9-756.5 FOLIATED SERICITIZED HYALOCLASTITE	Pale yellow-green to cream, fine hyaloclastite. Strong S1 foliation, local S2 crenulation cleavage. 2-5% S1-parallel qav's. S1 at 40-50 deg. throughout. Contact parallel to S1, somewhat gradational to underlying flow base.	Pervasive strong sericitization, moderate to strong ankeritization.		
756.5-758.1 SERICITIZED PILLOWED FLOW	Pale yellow-green, moderately foliated, fine grained, pillowed mafic flow, with narrow 1cm selvages, vesicular throughout. Lower contact marked by chloritic slip and qav at 50 deg. to c.a., with slickensides raking at E=90 deg. (down-dip?).	Moderately sericitized, strongly ankeritized.		
758.1-763.0 SILICIFIED MASSIVE MAFIC FLOW (LIGHTNING ZONE)	Pale grey to locally grey-green, massive fine grained mafic flow. <u>758.1-758.3</u> Beige-sericitized upper contact zone, 5% S1-parallel qav's. Grades to underlying section-sericite overprints chlorite/ultramafic alteration.	758.1-760.2 S1 (100). 758.1-758.3 Sericite.	758.1-758.7 Trace pyrite.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	758.3-758.7 Grey, weakly hematized, chloritic massive flow. Fine grained leucoxene throughout. Weakly to non-foliated. Gradational contact.	758.3-758.7 Chlorite, weak hematite.	758.7-759.3 1 to locally 3% fine to medium grained pyrite in S1-parallel bands, and disseminated.	
	758.7-763.0 Buff grey to locally dark green where less altered, massive leucoxenitic flow. Stockwork of sub 0.5cm qav's control the sericitic alteration. These are cut by late, chlorite veins orthogonal to S1 (chlorite vein at 160 deg., S1 at 60 deg. at 762.0m). S1 generally weakly developed.	758.7-763.0 Albitized, pervasive, weak sericitization. Chloritic where less altered.	759.3-760.2 Trace pyrite. 760.2-760.4 1-3% coarse grained pyrite associated with qav's. 760.4-763.0 Trace to locally 3% fine to coarse grained pyrite, in qav's and disseminated.	
763.0-764.0 SILICIFIED, LOCALLY VARIOLITIC HYALOCLASTITE (LIGHTNING ZONE)	763.0-763.55 Grey to green-grey, variolitic hyaloclastite, cut by 10% grey to translucent quartz ± ankerite stockwork veins, and late, orthogonal (to S1) chlorite-quartz veins. S1 weakly to moderately developed below 763.3m, at 65 deg. to c.a.	763.0-763.55 S1 (100), locally chloritic groundmass to varioles.	763.0-763.55 Trace to 1-2% medium to coarse grained pyrite.	
	763.55-764.0 Purplish-grey, non-variolitic hyaloclastite, cut by 25% qav's. Lower contact parallel to S1 at 25 deg. to c.a.	763.55-764.0 S1 (100), weak hematite.	763.55-764.0 3 to locally 5% fine to medium grained pyrite in clusters.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 12 OF 13

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
764.0-764.3 MAGNETIC MAFIC FLOW	Dark green to black, very fine grained, strongly foliated, strongly magnetic mafic flow base. Wispy beige clay/ micaceous mineral forms stringers along S1. Lower contact obscured by quartz ankerite veins.	Chloritized, calcitic, weakly ankeritic.	Trace to locally 1% fine to coarse grained pyrite.	
764.3-797.1 TALCOSE-SERPENTINIZED ULTRAMAFIC FLOWS	Dark green to grey or black, talcose, moderately foliated ultramafic flows. 764.5-765.7 30% QAV's. Locally, black or dark grey green, and massive, only weakly talcose at 767.9 to 768.2, 771.2-772.4m. S1 at 70 deg. to c.a. at 766.2m.	Talc, minor serpentine, and chlorite (in massive, black sections). Moderately to weakly ankeritized; moderately calcitic. 765.7-792.2 Strong blue-green serpentinized. 792.2-797.1 Moderate talc-chlorite, weak moderate serpentine.		788.0-788.8 RQD = 10% Fracture Zone.

S.A.P. # 1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 1

Project No. 155 Hole No. HW-91-140W

Property Holloway

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
797.1-807.0 MASSIVE LEUCOXENITIC MAFIC FLOW/ FLOW TOP	Medium grey-green, weakly foliated leucoxenitic massive mafic flow. Upper contact sharp and at 80 deg. to c.a. at 802.0, S1 = 55 deg. 797.1-797.8 Very fine grained, moderately foliated and brecciated flow top or possibly volcaniclastic sediment?			803.5-807.0 Loca 5-30cm wide zones of vuggy. Fracture quartz veins (over all 10%). RQD = 60-70%.
807.0	END OF HOLE			

PAP E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 140W
GRID: HOLLOWAY

DATE: MAY 1, 1991
SURVEY BY: DB
INSTRUMENT: avgv-335:corgv-792:fict

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-70.00	360.00	6112.400	4299.400	-12.130
30.50	-68.54	359.40	6112.343	4310.196	-40.655
61.00	-67.75	358.90	6112.175	4321.548	-68.963
91.00	-67.63	358.70	6111.936	4332.935	-96.718
122.00	-67.90	359.20	6111.722	4344.663	-125.412
152.40	-67.67	360.20	6111.661	4356.157	-153.556
183.00	-67.71	359.50	6111.631	4367.773	-181.865
213.00	-67.58	359.15	6111.497	4379.183	-209.611
244.00	-67.67	358.60	6111.265	4390.981	-238.277
274.00	-67.54	358.10	6110.936	4402.406	-266.014
305.00	-67.22	357.40	6110.468	4414.320	-294.629
335.00	-66.62	356.10	6109.801	4426.062	-322.228
365.70	-65.92	356.30	6108.982	4438.389	-350.332
381.00	-64.33	356.10	6108.556	4444.811	-364.213
396.22	-62.67	356.40	6108.111	4451.587	-377.834
411.46	-60.08	356.40	6107.653	4458.874	-391.211
426.70	-57.58	357.00	6107.199	4466.749	-404.251
441.94	-54.33	358.00	6106.827	4475.273	-416.879
457.18	-54.08	358.60	6106.562	4484.183	-429.240
472.42	-54.08	358.40	6106.328	4493.120	-441.582
487.66	-53.83	358.40	6106.078	4502.084	-453.904
518.14	-53.50	356.90	6105.337	4520.129	-478.458
548.61	-51.83	354.00	6103.871	4538.550	-502.685
579.09	-50.75	353.80	6101.846	4557.503	-526.469
609.57	-50.50	353.20	6099.657	4576.715	-550.030
640.05	-49.92	353.50	6097.398	4596.091	-573.451
670.53	-49.33	353.80	6095.214	4615.714	-596.671
701.01	-48.42	353.40	6092.980	4635.636	-619.631
731.48	-48.00	352.60	6090.505	4655.790	-642.349
761.96	-47.75	351.30	6087.642	4676.033	-664.956
792.44	-47.75	350.60	6084.418	4696.272	-687.518
807.00	-47.50	350.00	6082.765	4705.945	-698.274

ASSAY LOG

PERTY: HOLLOWAY

.LE No.: 1404

FROM	TO	WIDTH	Au g/t	R1	R2
672.80	673.80	1.00	0.010	N.S.	N.S.
673.80	674.30	0.50	0.090	N.S.	N.S.
674.30	674.80	0.50	0.020	N.S.	N.S.
674.80	676.00	1.20	0.010	N.S.	N.S.
727.00	727.10	0.10	N.S.	N.S.	N.S.
757.10	758.10	1.00	0.020	0.020	0.020
758.10	758.80	0.70	0.030	0.030	0.030
758.80	759.30	0.50	0.560	0.480	0.690
759.30	760.20	0.90	0.160	0.100	0.210
760.20	760.45	0.25	2.690	2.880	2.500
760.45	761.90	1.45	0.280	0.210	0.340
761.90	763.00	1.10	2.640	2.780	2.500
763.00	763.55	0.55	1.130	1.200	1.060
763.55	764.00	0.45	4.450	4.490	4.420
764.00	765.00	1.00	0.030	0.030	0.020
765.00	766.00	1.00	0.050	0.030	0.070

1. LZ ([illegible].45 d.t. Core Angle: 20 0.15 t.t.)

		EASTINGS:	6087.47
FROM:	763.55	NORTHINGS:	4677.09
		ELEVATION:	-666.13

4.450 Au g/t (Cut to: 34.290)
4.490 R1
4.420 R2

		EASTINGS:	6087.43
TO:	764.00	NORTHINGS:	4677.39
		ELEVATION:	-666.47

2. 1/3 CONTACT (0.50 d.t. Core Angle: 90 0.50 t.t.)

		EASTINGS:	6094.94
FROM:	674.30	NORTHINGS:	4618.18
		ELEVATION:	-599.51

0.020 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	6094.90
TO:	674.80	NORTHINGS:	4618.51
		ELEVATION:	-599.89

3. 3/4 CONTACT (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	6087.43
FROM:	764.00	NORTHINGS:	4677.39
		ELEVATION:	-666.47

0.030 Au g/t (Cut to: 34.290)
0.030 R1
0.020 R2

		EASTINGS:	6087.32
TO:	765.00	NORTHINGS:	4678.05
		ELEVATION:	-667.21

4. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6090.87
FROM:	727.00	NORTHINGS:	4652.83
		ELEVATION:	-639.01

-0.000 Au g/t (Cut to: 34.290)
-0.000 R1
-0.000 R2

		EASTINGS:	6090.86
TO:	727.10	NORTHINGS:	4652.89
		ELEVATION:	-639.08

LATITUDE 6049.7E

DEPARTURE 4610.2N

ELEVATION -3.29 meters

DIP AT COLLAR -81° BEARING 360°

TOTAL DEPTH 600.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Casing left in hole.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro Data			

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No.

Date started April 23, 1991 completed May 4, 1991

Contractor Bradley Bros.

Logged by B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-22.0	Casing			RQD ≥75% unless noted.
22.0-81.5 **POLYLITHIC CONGLOMERATE**	Reddish brown to pinkish grey, fine grained, "arkosic" sandstone matrix with approximately 10% subangular to subrounded, polylithic clasts (up to 2cm size). Fracture (carbonate filled) at 25 deg. to c.a. parallel to S1 at 40.3m. S1 defined by long axis of clasts. 46.4-47.3 Weakly sheared, fractures (carbonate filled) at 20 to 30 deg. to c.a. Shear plane at 20 deg. to c.a. at 46.8m. 60.3-74.0 Fracturing at 15 to 25 deg. to c.a., parallel to S1 foliation. Fracture (qav filled) at 25 and 125 deg. to c.a. Shear plane at 25 deg. to c.a. at 66.2m. Fault gouge at 81.5m (grit and minor clay).	**22.0-32.8** Moderately to strongly hematized locally, limonitic staining on fracture surfaces.		Note: RQD = 5-10% and fracture frequency is 5-20cm between 22.0 and 32.8m. Note: Hexagonal core barrel 22.0-56.0m. Double hexagonal barrel used 56.0-261.0m. **60.3-74.0** RQD = 70%, frac. freq. = 10-90cm.

P.A.P. - 14064

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
81.5-99.7 ARKOSIC SANDSTONE	Medium grey, medium grained, massive quartzose feldspathic (arkosic) sandstone.			87.9-90.3 RQD = 10%, frac. freq. = 0.5-20cm.
99.7-111.1 ARKOSIC SANDSTONE & POLYLITHIC CONGLOMERATE	Medium grey to pale green to reddish brown, arkosic sandstone and polylithic conglomerate. Fault gouge (clay-grit seam) at 101.8m.	99.7-105.0 Weakly to moderately hematized. 108.8-111.1 Weakly to strongly sericitized.		90.3-105.0 RQD = 40-60%, frac. freq. is 0.5-50cm.
111.1-127.5 FOLIATED, SERICITIZED GREYWACKE/ ARGILLITE	Pale green to grey green, aphanitic to very fine grained, thinly bedded grey-wacke and argillite. S1 is moderately to strongly developed parallel narrow quartz-ankerite veining (20%). S0/S1 is folded and generally subparallel to the core axis. S0/S1 between 0 and 30 deg. to c.a. S0/S1 at 50 deg. to c.a., S2 at 110 deg. to c.a.a t 122.8m.	111.1-119.8 Moderately to strongly sericitized.		Note: Rod count at 126m, necessary to add 1.0m.
127.5-150.7 FOLIATED, ANKERITIC, SERICITIC GREYWACKE & ARGILLITE	Buff to pale green to dark green, strongly altered, moderately to strongly foliated, greywacke and argillite. S1 at 30 deg. to c.a. at 129.6m. S1 at 45 deg. to c.a. at 141.0m.	127.5-150.7 Bleached, strongly ankeritic, moderately to strongly sericitized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 16

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
150.7-154.3 **SILICIFIED GREYWACKE AND MINOR ARGILLITE**	Pale grey, very fine grained, strongly silicified, greywacke and approximately 30% sericitized, argillite interbeds. S0 at 60 deg. to c.a. at 150.7m.	**150.7-154.3** 70% silicified.		
154.3-162.0 **FOLIATED, SERICITIC, GREYWACKE/ ARGILLITE**	Pale green to pale grey, very fine grained to fine grained, greywacke and argillite. S0/S1 is generally folded and contorted, with S2 locally developed. S2 at 140 deg. to c.a. at 159.5m. S0 at 40 deg. to c.a. at 162.0m.	**154.3-162.0** Moderately to strongly sericitized, moderately ankeritic.		
162.0-169.4 **SILICIFIED GREYWACKE**	Pale grey, very fine grained, strongly silicified, sandstone. <u>164.9-168.2</u> Blocky, broken core. Irregular fracturing. Contact (narrow qav) at 50 deg. to c.a. at 169.4m.	**162.0-169.4** 100% silicified.		**164.9-168.2** RQD = 10%
169.4-181.0 **FOLIATED, SERICITIC GREYWACKE/ ARGILLITE**	Same as above interval 154.3-162.0m S0/S1 at 30 deg. to c.a., S2 at 115 deg. to c.a. at 175.2m. S0 at 40 deg. to c.a. at 181.0m.	**169.4-181.0** Moderately to strongly sericitized, moderately ankeritic.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
181.0-184.5 **SILICIFIED GREYWACKE**	Same as above interval 162.0-169.4m. S0 at 35 deg. to c.a. at 184.5m.	**181.0-184.5** 100% silicified, moderately ankeritic.		
184.5-193.8 **FOLIATED, LITHIC GREYWACKE**	Pale green to pale grey, fine to medium grained, moderately to strongly foliated lithic greywacke. Subangular, lithic (0.5-1.5cm) clasts are present (10-20%). Clast composition ranges from pale grey, silicified sandstone to green chloritic clasts.	**184.5-193.8** Moderately to strongly sericitized.		
193.8-249.1 **FOLIATED, SERICITIC GREYWACKE/ ARGILLITE**	Pale grey green, aphanitic to very fine grained greywacke and sericitic argillite interbeds. S0/S1 at 35 deg. to c.a. at 193.8m. Well developed, spaced S2 throughout, except in thicker greywacke beds. Generally S1/S2 intersect perpendicular to core axis, parallel to F2 fold axis; (E-W subhorizontal if S1/S2 strike is E-W). <u>212.9-216.2</u> 3-30cm qav's, spaced 10-50cm. Overall 10-20% veining. S2 at 120 deg., S0 at 30 deg. to c.a. at 221.5m. S2 at 120 deg., S0 at 10 deg. to c.a. at 248.5m. S0/S1 at 20 deg. to c.a. at 249.1m.		Local 1% disseminated fine grained pyrite in wacke beds. (ie) 206.7-207.6m.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
249.1-257.1 SILICIFIED GREYWACKE/ LITHIC GREYWACKE/ ARKOSIC SANDSTONE	Grey to beige, locally yellow-brown, massive to weakly foliated greywacke, coarse (lithic) greywacke, arkosic sandstone and minor argillite. 1-2% flat lying qav's. 249.6-250.8 Silicified coarse (lithic) greywacke, weak S1 defined by clasts. 252.3-253.5 20-30% stockwork qav's and vein breccias. Vein contact at 65 deg. to c.a. at 253.4m. 253.5-257.1 Grey, massive textured, "arkosic sandstone". Lower bedded contact at 25 deg. to c.a.	Silicification follows S0/S1 at upper contact. S1 (95)-local zones of no silicification in argillite. Weakly ankeritized and sericitized.	Trace to local 1-2% fine grained pyrite, associated with early grey qav's, and disseminated.	
257.1-261.0 SERICITIZED GREYWACKE/ ARGILLITE	Pale yellow-green; fine grained greywacke thinly bedded with argillite. S0/S1 folded.	Strong sericitization, weak to moderate ankeritization.		
255.0-261.0	Wedged at bottom of hole.			258.0-269.0 Standard barrel.
261.0-263.5 SERICITIZED GREYWACKE/ ARGILLITE	Same as from 257.1-261.0. S0 at 30 deg. to c.a. at 260.8m. Alteration contact parallel to S0/S1 at 40 deg.	Strongly sericitized, weakly to moderately ankeritized.		269.0-567.0 Double hexagonal.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
263.5-273.7 **SILICIFIED ARKOSIC SANDSTONE**	Grey-beige, massive-bedded, fine to medium grained arkosic sandstone. 2-3% grey ankeritic stockwork veins, locally mineralized, cut by later white qav's. Overall <5% veining increases below 272.5m. Contact marked by 1-3cm fault gouge.	Sl (100), locally weakly sericitized weakly to moderately ankeritized.	Trace to local 1% fine pyrite associated with grey ankerite-quartz vein stockwork.	
273.7-278.0 **SILICIFIED SANDSTONE/ GREYWACKE ARGILLITE**	Mixed grey/beige silicified sandstone/ greywacke and yellow-green, non-silicified, sericitized, fine grained greywacke/argillite. S2 at 120 deg. in silicified greywacke at 274.8m. S0 at 65 deg. to c.a. at 276.0m.	Sl (50).		
278.0-337.3 **GREYWACKE/ ARGILLITE**	Grey-green to grey, thinly interbedded fine grained to medium grained and lesser argillite. Argillite is locally weakly carbonaceous. <u>278.0-279.5</u> 30% qav, generally along S0/S1. Tightly folded, with local S2 axial cleavage. Overall 1% qav's. <u>286.2-286.3</u> Narrow bed of coarse, sericitized conglomerate/lithic greywacke. 292.7, S0 at 160 deg., S2 at 125 deg. to c.a. 293.0, S0 at 30 deg., S2 at 130 deg. to c.a.	**278.0-283.0** Moderately sericitized, alteration decreases downhole. **283.0-319.5** Weak local sericite, weak to moderate ankerite. **319.5-337.3** Moderate to strong pervasive sericite.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 16

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	At 312.0, S0 = 0 deg., S2 = 120 deg. At 327.0, S0 = 50 deg. At 335.0, S0 = 0 deg., S2 = 110 deg. 329.6-332.6 Foliated, ankeritic, medium green, sandstone unit.			
337.3-341.4 CARBONACEOUS ARGILLITE	Finely bedded; black carbonaceous argillite. Strongly crenulated and moderately foliated. S0 = 0-10 deg. to c.a., S2 = 125 deg. 340.5-341.4 50-60% milky white quartz veining.			
341.4-342.6 SILICIFIED GREYWACKE	Pale grey, moderately foliated, silicified greywacke with 10% quartz-ankerite veining and 3-5% pyrite 341.4-341.6 90% quartz veining.	90% silicified.	3-5% fine fracture filling pyrite.	
342.6-344.1 SERICITIZED GREYWACKE	Light green, moderately foliated sericitized greywacke. S1 = 0-25 deg. to c.a. Upper and lower contacts at 25 deg. to c.a.	Moderate to strong sericite, weak to moderate ankerite.	1-2% fine pyrite disseminated.	
344.1-346.05 CARBONACEOUS ARGILLITE	Black, finely foliated and bedded carbonaceous argillite. S1 = subparallel to c.a. (0-10 deg.).			

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
346.05-350.25 **ARGILLITE/ GREYWACKE**	Light grey, fine grained, locally foliated argillite with minor greywacke. At 346.5, S0 = 0 deg. At 348.0, S0 = 20 deg. 348.7-350.25 Very fine grained, weakly foliated, homogeneous, medium grey siltstone/greywacke.	**346.05-347.0** 80% silicified. Moderate ankerite.	**346.05-347.0** 1-3% very fine pyrite.	
350.25-352.5 **CARBONACEOUS ARGILLITE**	Black, finely foliated carbonaceous argillite, local 1-2cm wide bands of primary pyrite. S1 = 0-25 deg. to c.a. 350.8-351.3 Pale grey, siliceous greywacke bed.		Local 1-2cm wide primary pyrite bands. **350.8-351.3** 1-3% fine disseminated pyrite.	
352.5-354.0 **GREYWACKE/ SILTSTONE**	Medium grey, moderately foliated, very fine grained homogeneous siltstone/ greywacke as in 348.7-350.25 above. S1 = 0-10 deg., subparallel to c.a.	Moderate ankerite.		
354.0-364.9 **VARIOLITIC MAFIC FLOW**	Pale grey, bleached, ankeritic and moderately foliated variolitic massive mafic flow. Foliation is subparallel to c.a. At 358.0, S1=15 deg., S2= 125 deg. to c.a. Lower contact unclear and marked by quartz veins.	Moderate ankerite. **364.1-364.9** 80% silicified, 10-15%, milky white quartz-ankerite veins parallel to S2.	**364.1-364.9** 2-4% fine pyrite (disseminated).	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
364.9-367.6 **SILICIFIED GREYWACKE**	Pale grey, massive to weakly bedded fine grained greywacke/siltstone. Beginning 367.0, foliation becomes stronger. 367.0-367.6 Moderately foliated. At 367.5, S1 = 10 deg. to c.a.	Moderate ankerite. **364.9-366.95** 90% silicified, 5-10% quartz-ankerite veins.	**364.9-366.95** 2-4% very fine disseminated pyrite. **366.95-367.6** 10-15% fine bands of pyrite (0.5mm size) parallel to foliation.	
367.6-379.2 **CARBONACEOUS ARGILLITE/ MINOR GREYWACKE**	Black, finely foliated and crenulated carbonaceous argillite with deformed wispy ankerite veinlets (pale grey colour) parallel to S0. At 369.0, S0 = 0 deg. (folded tightly), S2 = 130 deg. 371.4-374.3 Light green, moderately foliated, sericitized greywacke with 10% interbedded carbonaceous argillite locally. At 373.0, S1=10 deg., S2=135 deg. 377.25-378.15 Two, massive pyrite bands, 20cm and 40cm wide separated by pale grey silicified greywacke/siltstone unit 20cm wide. At 376.4, S1 = 0 deg.	Strong sericite.	**367.6-372.4** 5-8% nodules of pyrite in carbonaceous argillite interbeds. **377.25-378.15** Two massive pyrite bands 20 and 40cm, separated by 20cm of pale grey siliceous siltstone/ greywacke. **378.8-379.2** 15%	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Lower contact sharp and at 65 deg. to c.a. roughly parallel to S2 crenulation cleavage in underlying mafics.		primary in semi-massive lenses and bands.	
379.2-383.4 **VARIOLITIC MASSIVE MAFIC FLOW**	Pale grey, moderately to strongly foliated, ankeritic variolitic massive mafic flow. Varioles are commonly coalesced into bands, but are usually 0.5mm-0.8mm size. At 381.0, S1 = 0 deg., S2 = 140 deg. At 383.0, S1 = 70 deg. At 383.8, S1 = 10 deg.	Moderate to strong ankerite-bleached. 379.55-380.4 20% quartz veining-barren.	379.55-380.4 1-3% very fine disseminated pyrite.	
383.4-388.9 **HYALOCLASTITE**	Medium green coloured, moderately foliated hyaloclastite. Locally variolitic. Well developed quenched textures. Strongly folded, S1 = 0-30 deg. to c.a. 384.2-386.7 In folded variolitic massive flow. At 388.0, S1 = 0 deg., S2 = 130 deg. Lower contact at 55 deg. to c.a., marked by 5cm wide quartz-ankerite vein.	Moderate ankerite.		
388.9-455.3 **MASSIVE LEUCOXENITIC MAFIC FLOW**	Medium green to grey, massive weakly leucoxenitic mafic flow. Weak to moderately foliated and folded. At 591.0, S1 = 10 deg., S2=130 deg. At 397.0, S1 = 50 deg. At 410.0, S1 = 15 deg.		388.9-393.5 Trace to 1% pyrite locally with ankerite veinlets parallel to S1.	

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	416.5-416.8 Lighter green, moderately foliated amygdaloidal section, possibly a flow top. S1 ≈ 15 deg. At 429.0, S1 = 45 deg. 428.4-455.3 3-10% foliation parallel ankerite-quartz veinlets. At 438.0, S1 = 25 deg. At 447.0, S1 = 20 deg. At 455.0, S1 = 25 deg. Lower contact is gradational and at 40 deg. to c.a.	Weak to moderate pervasive ankerite. 444.0-455.3 Minor calcite veinlets.		
455.3-457.2 PILLOWED MAFIC FLOW BRECCIA	Light to medium green, moderately foliated, weakly flow brecciated, poorly pillowed mafic flow. Locally 0.5mm size possible amygdules. Both upper and lower contacts are gradational (not hyaloclastite). Foliation - S1 = 25-30 deg. to c.a.	Weak to moderate ankerite. 3-5% calcite veinlets parallel and oblique to S1.		
457.2-497.0 LEUCOXENITIC MASSIVE MAFIC FLOW	Fine grained, weak to locally moderately foliated, finely leucoxenitic massive mafic flow, dark green. At 460.0, S1 = 35 deg. At 464.0, S1 = 20 deg.	Weak to moderate ankerite, weak to moderate calcite chloritized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	466.4-467.5 Grey, strongly foliated section, consisting of banded pale, carbonate-feldspar ± quartz and dark green chlorite. Gradational lower contact; sharply gradational upper contact - S1 in overlying flow swings parallel to S1 in foliated section at 40 deg. to c.a. 467.5-468.6: Medium grained leucoxene, very fine grained groundmass. 468.6-468.8 Pale grey-green, strongly foliated section, with sharp contacts (upper contact bounded by qav) parallel to S1 at 30-40 deg. to c.a., non-leucoxenitic; contains pale green (weakly fuchsitic sericite) micaceous flakes. 470.2-471.2 Medium green, strongly foliated, finely leucoxenitic section, with sharp contacts to adjacent dark green, coarsely leucoxenitic flow. Contacts parallel to S1 at 35 and 50 deg. to c.a. S1 at 0 deg. to c.a. at 470.6m. 471.3-475.6 Magnetic, locally leucoxenitic. 475.6-477.3 Coarsely leucoxenitic, fine to medium grained. 477.3-480.0 Magnetic, locally leucoxenitic.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	480.0-496.0 Coarsely leucoxenitic, fine to medium grained, moderate to strong S1 foliation. Local S1-parallel qav's. S1 at 30 deg. to c.a. at 481.6m. 496.0-497.0 Becomes fine grained to aphanitic downhole. Contact gradational, placed at 1st selvage.	Weak to moderate calcite and ankerite.	480.3 Local 1-2% pyrite associated with qav's.	
497.0-517.9 PILLOWED FLOW	Medium green, aphanitic to locally fine grained, pillowed to locally massive mafic flow. Dark green, chloritic, 1-2cm selvages. Weakly to locally strongly foliated - S1 at 30 deg. to c.a. at 508.3m. Local weak S2 at 125 deg. to c.a.a t 511.0m.	Moderately calcitic, very weakly ankeritic to 517.9. Becomes more ankeritic, less calcitic.	Local 1-2% pyrite, 2-4% specular hematite in S1-parallel, vuggy qav's at 506.8-507.3, 513.8-514.1.	
517.9-534.2 FOLIATED, HEMATIZED MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, moderately to strongly foliated, massive, mafic flow. Note: S1 is folded. S2 at 125 deg. to c.a. at 523.9m. S1 at 45 deg. to c.a. at 530.7m. S1 (pyrite) at 45 deg. to c.a. at 534.2m	523.5-534.2 Weakly to moderately hematized.	533.9-534.2 Pyrite trace to 1%, in S1 fracture filling form.	
534.2-543.8 FOLIATED, ANKERITIC PILLOWED MAFIC FLOW	Pale to locally dark grey green, aphanitic to very fine grained, moderately to strongly foliated, pillowed mafic flow.	534.2-543.8 Moderately ankeritic, weakly sericitic.		

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	540.1-543.8 Massive flow base with a gradational upper contact. S1 at 30 deg. to c.a. at 538.0m. S1 (pyrite) at 30 deg. to c.a. at 542.7m. S1 at 50 deg. to c.a. at 543.7m.		542.3-542.9 Pyrite 1-2% in S1 fracture filling and disseminated form (very fine grained).	
543.8-549.8 FOLIATED, ANKERITIC, SERICITIC, MASSIVE MAFIC FLOW	Pale to medium grey green, aphanitic to very fine grained, strongly foliated massive mafic flow. 543.8-544.1 Possibly weakly variolitic flow top. 546.3-549.8 S1 is strongly folded. S2 is weakly developed at 115 deg. to c.a. S1 is generally subparallel to the core axis. Contact at 65 deg. to c.a. at 549.8m.	543.8-549.8 Moderately to strongly ankeritic and sericitic.		
549.8-557.7 MASSIVE MAFIC FLOW	Dark grey green, very fine grained, weakly foliated, massive mafic flow. S1 at 30 deg. to c.a. at 550.5m. S1 at 50 deg. to c.a. at 551.4m.			
551.7-573.6 TALC-SERPENTINE ULTRAMAFIC FLOW	Medium to dark grey green, aphanitic to very fine grained, weakly foliated, talc-serpentine ultramafic flow. S1 at 50 deg. to c.a. at 552.0m.			Note: Bad ground reported at 570m. Unable to drill with hexagonal. Ground core noted.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	561.7-573.6 Medium grey green, very fine grained, flow brecciated ultramafic flow. Subrounded to subangular flow breccia fragments are present (up to 6cm). Note: Contacts are poorly defined.			Note: Standard core barrel used 567.0-600.0m.
573.6-581.5 TALC-CHLORITE ULTRAMAFIC FLOW	Dark grey green, very fine grained, talc-chlorite ultramafic flow. Irregular ankerite filled fractures are present. Possibly a poorly developed polygonal jointing. Contact is irregular at approximately 35 deg. to c.a. at 581.5m.			
581.5-597.1 TALC-CHLORITE ULTRAMAFIC FLOW BRECCIA	Dark to pale grey green, very fine grained, talc-chlorite ultramafic flow breccia. Subangular to subrounded fragments (up to 7cm) are present. S1 at 40 deg. to c.a. at 583.5m. Shear plane at 20 deg. to c.a. at 586.3m. 586.3-597.1 Poorly developed breccia, increasing foliation.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 16 OF 16

Project No. 155 Hole No. HW-91-141

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
597.1-600.0 FLOW BRECCIATED TALC-SERPENTINE ULTRAMAFIC FLOW	Olive green, very fine grained, talc-serpentine, ultramafic flow breccia(?).			
600.0	END OF HOLE			

P.A.P. - E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: HOLLOWAY
HOLE NO: 141
GRID: HOLLOWAY

DATE: May 15 1991
SURVEY BY: RBA DB
INSTRUMENT: SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-81.00	360.00	6049.700	4610.200	-3.290
44.00	-79.25	366.50	6050.128	4617.734	-46.638
81.00	-80.00	365.00	6050.795	4624.364	-83.033
132.00	-78.50	365.00	6051.624	4633.840	-133.138
204.00	-77.00	362.00	6052.557	4649.088	-203.499
257.00	-76.00	357.00	6052.449	4661.461	-255.034
276.00	-78.00	360.00	6052.337	4665.733	-273.547
306.00	-79.75	356.00	6052.135	4671.518	-302.984
342.00	-78.25	354.00	6051.537	4678.361	-338.322
389.00	-79.25	361.00	6051.137	4687.522	-384.419
456.00	-79.50	359.00	6051.137	4699.875	-450.270
503.00	-78.50	357.00	6050.824	4708.838	-496.407
539.00	-79.00	353.00	6050.211	4715.834	-531.715
567.00	-78.00	353.00	6049.531	4721.375	-559.153
600.00	-77.75	346.00	6048.268	4728.190	-591.417

** BORSURV **

SAY LOG
.OPERTY: HOLLOWAY
HOLE No.: 141

FROM	TO	WIDTH	Au g/t
340.40	341.40	1.00	0.030
341.40	342.60	1.20	0.280
342.60	344.10	1.50	0.090
354.00	354.10	0.10	0.010
363.10	364.10	1.00	0.110
364.10	364.90	0.80	0.070
364.90	366.10	1.20	0.220
366.10	366.95	0.85	0.070
366.95	367.90	0.95	0.340
367.90	369.00	1.10	0.010
376.20	377.25	1.05	0.010
377.25	378.15	0.90	0.640
378.15	378.80	0.65	0.010
378.80	379.20	0.40	0.580
379.20	379.55	0.35	0.020
379.55	380.40	0.85	0.010
380.40	381.40	1.00	0.010
465.00	465.10	0.10	N.S.
539.00	540.50	1.50	0.010
540.50	542.00	1.50	0.080
542.00	542.90	0.90	0.990
542.90	543.80	0.90	0.020
543.80	545.50	1.70	0.180
545.50	547.00	1.50	0.020
547.00	548.50	1.50	0.040
548.50	549.80	1.30	0.040
549.80	551.70	1.90	0.010
551.70	553.00	1.30	0.010
553.00	554.50	1.50	0.010

** BORSURV **

TRAGED ASSAY INTERVALS
PROPERTY: HOLLOWAY
HOLE No: 141

1. 1/3 CONTACT (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6051.43
FROM:	354.00	NORTHINGS:	4680.70
		ELEVATION:	-350.09
	0.010 Au g/t		
		EASTINGS:	6051.43
TO:	354.10	NORTHINGS:	4680.72
		ELEVATION:	-350.19

2. 3/4 CONTACT (1.30 d.t. Core Angle: 90 1.30 t.t.)

		EASTINGS:	6049.90
FROM:	551.70	NORTHINGS:	4718.35
		ELEVATION:	-544.16
	0.010 Au g/t		
		EASTINGS:	6049.87
TO:	553.00	NORTHINGS:	4718.60
		ELEVATION:	-545.43

3. LZ (1.90 d.t. Core Angle: 40 1.22 t.t.)

		EASTINGS:	6049.95
FROM:	549.80	NORTHINGS:	4717.97
		ELEVATION:	-542.30
	0.010 Au g/t		
		EASTINGS:	6049.90
TO:	551.70	NORTHINGS:	4718.35
		ELEVATION:	-544.16

4. 1/3 CONTACT A (1.20 d.t. Core Angle: 90 1.20 t.t.)

		EASTINGS:	6051.34
FROM:	364.90	NORTHINGS:	4682.82
		ELEVATION:	-360.78
	0.220 Au g/t		
		EASTINGS:	6051.33
TO:	366.10	NORTHINGS:	4683.06
		ELEVATION:	-361.96

5. 1/3 CONTACT B(-379.20 d.t. Core Angle: NONE)

		EASTINGS:	0.00
FROM:	379.20	NORTHINGS:	0.00
		ELEVATION:	0.00
	0.000 Au g/t		
		EASTINGS:	0.00
TO:	0.00	NORTHINGS:	0.00
		ELEVATION:	0.00

ERASED ASSAY INTERVALS
PROPERTY: HOLLOWAY
HOLE No: 141

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6. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6051.08
FROM:	465.00	NORTHINGS:	4701.59
		ELEVATION:	-459.11
	-0.000 Au g/t		
		EASTINGS:	6051.08
TO:	465.10	NORTHINGS:	4701.61
		ELEVATION:	-459.20

LATITUDE 5950.8E

DEPARTURE 4211.7N

ELEVATION 286.71

DIP AT COLLAR -73° BEARING 360°

TOTAL DEPTH 852.0m CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS 142D Abandoned portion not cemented.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
See Gyro data.			

Sheet No 1 OF 40

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

NTS 32D/12 TWP. Holloway Claim No

Date started April 29, 1991 completed June 2, 1991

Contractor Bradley Bros.

Logged by R.B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-36.0	Casing			
36.0-46.5 MASSIVE MAFIC FLOW	Pale grey to pale grey green, very fine grained, strongly altered massive mafic flow. Note: Blocky, highly fractured core. 36.0-41.0 40% core recovery. 41.0-48.0 60% core recovery. Carbonate staining shows pale purple (mauve or lilac) colour, therefore, ferrocalcite is present.	36.0-41.0 Limonite stain along fracture planes. 41.0-44.0 Moderately sericitized, and carbonated (ferro-calcite). 44.0-46.5 Strongly hematized (local limonite staining).	41.0-44.0 Pyrite 1-2% in very fine grained, disseminated and fracture filling form.	36.0-48.0 RQD = 5% FF. = 0.5-10cm Note: NW easing reamed down to 49m. HW casing to 102 feet. Note: Standard core barrel used 36-55m.
46.5-48.0 CARBONACEOUS FAULT ZONE	The interval is strongly sheared and faulted with white quartz vein fragments in a black, carbonaceous groundmass. 47.0-48.0 Minor clay-grit and highly fractured with hematite staining. Sheared contact at 15° to c.a. at 46.5m. Sheared contact at 10° to c.a. at 48.0m.			

P.A.P. 14064

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
48.0-56.0 **SILICIFIED, PYRITIC, MASSIVE, MAFIC FLOW & 25% QAV**	Pale grey, very fine grained, massive, mafic flow and 25% quartz-ankerite veining. S1 (pyrite) at 25 deg. to c.a. at 48.7m. 50.4-51.2 80% quartz-ankerite veining. Contact at 40 deg. to c.a. at 50.4m. Contact at 40 deg. to c.a. at 51.2m. 52.9-54.2 90% quartz-ankerite veining. Contact at 20 deg. to c.a. at 54.2m. Contact at 15 deg. to c.a. at 56.0m.	**48.0-56.0** 100% silicified.	**48.0-50.4** Pyrite 5-7%. **50.4-51.2** Pyrite 3-7%. **51.2-52.9** Pyrite 5-10%. **52.9-54.2** Pyrite 3-5% **54.2-56.0** Pyrite 5-10%.	Note: Hexagonal core barrel used 55-185m.
56.0-132.8 **MASSIVE, MAFIC FLOW**	Medium grey green, very fine grained, massive, mafic flow. Dark green, chlorite filled irregular fractures are present locally. 92.1-113.0 Grain size increasing becomes fine to medium grained. 113.0-132.8 Grain size increasing becomes medium grained.			
132.8-148.4 **FLOW BRECCIATED MAFIC FLOW**	Pale to medium grey green, aphanitic to very fine grained, flow brecciated, mafic flow. Subangular flow breccia fragments are present (up to 7cm). Contacts are sharp but irregular.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
148.4-175.9 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. Locally dark green, chlorite filled fractures are present in an irregular pattern. 173.0-175.0 Grain size increasing becomes fine grained. Probable flow centre. Grain size decreasing between 175.0-175.9m, probable chilled flow base.			Note: Standard core barrel used 185-325m.
175.9-181.4 PILLOWED MAFIC FLOW TOP	Pale to medium dark grey green, aphanitic, pillowed flow top. Narrow, dark green chloritized, weakly developed selvages are present.			
181.4-196.4 MASSIVE MAFIC FLOW BASE	Medium grey green, very fine to fine grained (towards base), massive mafic flow base. Contact (qav) at 50 deg. to c.a. at 196.7m.			
196.7-203.1 MASSIVE MAFIC FLOW	Medium grey green, aphanitic to very fine grained, massive mafic flow with 1-2mm carbonate filled amygdules at top of flow.			
203.1-206.4 PILLOWED MAFIC FLOW TOP	Medium grey green, aphanitic, pillowed mafic flow. Possibly a flow top to underlying massive flow base. Narrow, very weakly developed selvages(?). Gradational lower contact is noted.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
206.4-253.1 MASSIVE MAFIC FLOW BASE	Medium grey green, very fine to medium grained, massive mafic flow base. 210.6-253.1 Gradual coarsening of grain size, with a fine grained chilled flow base.			
253.1-257.2 FLOW TOP BRECCIA AND PILLOWED MAFIC FLOW TOP	Pale to medium grey green, aphanitic, flow top breccia (hyaloclastite) with underlying pillowed mafic flow. Flow top and selvage groundmass is pale grey green and epidotized. Lower contact is gradational to underlying fine grained massive mafic flow base.			
257.2-280.3 MASSIVE, MAFIC FLOW BASE	Medium grey green, very fine to fine grained, massive mafic flow base. Sharp irregular lower contact.			
280.3-292.1 MASSIVE, MAFIC FLOW	Medium grey green, aphanitic to very fine grained, massive mafic flow. White, carbonate filled and green, chlorite filled amygdules are present (1-2mm).			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 40

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
292.1-330.4 PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic, pillowed mafic flow. Pale green, narrow, weakly developed, epidotized selvages are noted. Contact at 65 deg. to c.a. at 292.1m. Note: Narrow hyaloclastite flow top breccia is present. Note: 311.0-312.4: No core recovery due to use of bullnose bit, drilling past clappison retrievable wedge. Note: 321.9-323.2: Blocky, minor ground core.			
330.4-355.0 MAGNETIC, MASSIVE MAFIC FLOW	Medium grey green, very fine to fine grained, locally leucoxenitic, weakly to strongly magnetic, massive mafic flow. 330.4-331.7 Weakly developed flow top breccia. Strongly sheared at 20 deg. to c.a. at 332.1m. 341.5-348.0 Locally leucoxenitic, with absence of magnetite noted.			
355.0-358.6 PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic, weakly developed pillowed flow. Narrow, very weakly developed, chloritized selvages are present.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
358.6-367.4 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow.			
367.4-373.4 FOLIATED, ANKERITIC MASSIVE MAFIC FLOW	Pale to medium grey green, very fine grained, bleached and altered, foliated, massive mafic flow. S1 at 60 deg. to c.a. at 367.4m. Contact at 25 deg. to c.a. at 373.4m.	367.4-373.4 Moderately to strongly ankeritic.		
373.4-453.3 POLYLITHIC CONGLOMERATE	Medium grey to locally reddish brown, fine grained, greywacke matrix with 5-15% subangular, polylithic clasts (0.5-8cm). Clasts composition includes red jasper, greywacke, siltstone, and feldspar porphyry. Unit is moderately to strongly foliated throughout. At 377.0, S1 = 10 deg. <u>379.75-380.1; 381.9-383.4</u> Light, bleached red, fine grained, moderately fractured felsic dyke. Sericite fills fractures. Upper contacts of both dykes at 75 deg. to c.a. (cutting foliation), whereas lower contacts are ~5 deg. to c.a., sub-parallel to c.a., weakly foliated.	378.9-381.9 Moderate to strong sericite, moderate ankerite. 5% quartz-ankerite veining parallel to foliation. 383.4-385.7 Moderate to strong sericite, moderate ankerite. Local minor flecks fuchsite. 5-8% quartz-ankerite veining parallel to foliation.	378.9-381.9 1-3% medium to coarse grained disseminated pyrite aggregates, parallel to foliation. 383.4-385.7 1-3% moderate to coarse grained pyrite aggregates disseminated and parallel to foliation.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 40

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	At 385.0, S1 = 5 deg. At 395.0, S1 = 45 deg. At 394.6, 2cm wide chloritic gouge slip at 20 deg. to c.a. At 407.0, S1 = 45 deg. At 421.0, S1 = 45 deg. <u>420.0-423.0</u> Steel wedge 90° right. (azimuth correction - subsequent gyro indicated no azimuth deviation). Not drilled off. 412.0-414.0: Steel wedge 15°R (bypass first wedge). <u>Original 412.0-425.0 = 142A</u> S1 at 40 deg. to c.a. at 420.0m. S1 at 50 deg. to c.a. at 430.2m. S1 at 35 deg. to c.a. at 443.2m. 1% clasts; arkosic sandstone below 443.0m. Contact at 60 deg. to c.a.	395.2-406.0 Weak to moderate hematite alteration of matrix locally (light red colour). 443.5-453.3 S1 (100), weak hematite, weak sericite.		395.3-395.6 Fractured core RQD = 5-10% At 395.6, 2cm wide chloritic slip with gouge, at 20° to c.a. At 399.8, 10cm wide rubble-fracture zone. At 404.8, 10cm rubbly core. Bullnose to 424, did not core. 2nd wedge placed above. 414.0-554.0 Standard core barrel. 443.5-459.6 RQD = 30-50 449.8 10cm unconsolidated, graphitic fault gouge. Local sericitic gouge along S1/S2.

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 8 OF 40

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
453.3-534.2 SERICITIZED FOLIATED GREYWACKE, MINOR ARGILLITE	Pale yellow green to local yellow-grey strongly folded and foliated, locally thinly bedded, fine grained greywacke and minor argillite. 478.5, S0 at 40 deg., S2 at 120° to c.a. 453.3-460.0 Local 5% quartz ankerite veins. 489.6-515.0 10 to locally 20% qav's. S2 at 120 deg. to c.a. at 496.0m. S0 at 35 deg. to c.a. at 516.1m. S0 at 160 deg. to c.a. at 516.4m. S2 at 135 deg. to c.a. at 530.0m. Alteration contact.	Moderately to strongly sericitized, moderately ankeritized. 453.3-460.0 Local 5% qav's. 480.0-484.0 Weak to absent sericite. 484.0-534.2 Moderately to strongly sericitized.		
534.2-543.6 SILICIFIED SANDSTONE/ GREYWACKE	Beige to pale yellow-green, massive to locally thinly bedded, fine grained sandstone, greywacke and minor argillite. Moderately to locally strongly foliated. S1 at 30 deg. to c.a. at 338.0m Contact at 75 deg. to c.a., strongly foliated.	S1 (60) patchy weak pervasive sericite.		
543.6-547.0 SHEARED CARBONATED SEDIMENT/ GREYWACKE	Grey-green to mustard yellow, strongly sheared carbonated sediment, interbedded with lesser fine grained greywacke. Boudinaged qav's throughout. S1 at 60-80 deg. to c.a. throughout contact at 65 deg. to c.a.	Moderate to very strong ankerite. Weak to moderate sericite.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 40

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
547.0-557.8 **SILICIFIED ARKOSIC SANDSTONE/ GREYWACKE**	Purple grey to green grey, silicified arkosic sandstone and greywacke. Weak to locally moderately developed S1 foliation. Local non-silicified dark green, carbonated sediment at 552.1-552.5m.	S1 (60-70), patchy hematization, moderate ankerite.		**554.0-723.0** Double hexagonal.
557.8-570.5 **WEAKLY SILICIFIED GREYWACKE**	Grey to grey green, locally purplish grey, fine to coarse grained greywacke; thickly bedded, with subangular quartz grains and lithic fragments. Locally dark green, chloritic, carbonated sediment is present, gradational contacts. S1 at 60 deg. to c.a. at 564.5m.	Weak pervasive silicification. **556.1-566.6** S1 (95) local hematite.		
570.5-576.5 **SERICITIZED GREYWACKE**	Yellow-green; fine to medium grained greywacke, with minor thinly interbedded argillite, folded throughout.	Pervasive moderate to strong sericitization.		
576.5-586.1 **GREYWACKE/ ARGILLITE**	Dark grey, thinly interbedded fine grained greywacke and argillite. Locally well-developed S2. S2 at 130 deg. to c.a. at 580.0m. S0/S1 at 70 deg. to c.a. at 584.3m. Contact bedded, at 60 deg. to c.a.			

PAP - E 1958

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
586.1-591.6 SERICITIZED GREYWACKE/ ARGILLITE	Pale yellow-green, thinly bedded fine grained greywacke and argillite with local thick beds of fine to coarse grained greywacke. Graded beds indicate tops uphole at 586.5-586.9m. Local 10-20cm qav's, overall <5%. S2 at 120 deg. to c.a. at 590.3m.	Weak to strong sericitization.		
591.6-604.0 GREYWACKE/ ARGILLITE	Grey, thinly interbedded fine grained greywacke and argillite. Folded throughout. S2 at 120 deg. to c.a. at 603.5m.			
604.0-614.4 FOLIATED SERICITIZED GREYWACKE	Pale green to yellow green, moderately to strongly foliated, fine grained to coarse grained greywacke, minor argillite below 610.4m. S0 at 15 deg, S2 at 155 deg. to c.a. at 606.0m. Gradational contact.	Pervasive weak to strong sericitization, weakly silicified (sl 20).		607.6-607.9 Strong foliation produces tectoni layering of anker ite-quartz lense separated by sericitic bands.
614.4-615.5 SHEARED CARBONATE SEDIMENT	Grey, strongly sheared, carbonate-quartz-chlorite/ sericite rock; with 10-30% boudins of ankerite ± quartz (tectonic layering of ankerite/ chlorite). Similar to "carbonated sediment" described above. S1 at 65 deg. to c.a. at 614.1m. S1 at 50 deg. to c.a. at 615.4m.			"boudins" contai subangular quart and lithic frag-ments, therefore are boudinaged tectonic layers.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 11 OF .

Project No. 155 Hole No. HW-91-1

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
615.5-618.8 GREYWACKE/ ARGILLITE	Grey, fine grained greywacke and argillite. Weakly to moderately foliated. Gradational contact.			
618.8-630.7 SHEARED CARBONATED SEDIMENT	Grey, strongly sheared, fine grained carbonated sediment as above. Boudin-aged tectonic layering of ankerite-quartz/chlorite/sericite. S1 at 60 deg. to c.a. at 618.9m. Lower contact is gradational and marked by increasing foliation and sericite alteration. S1 at 35 deg. to c.a. at 630.6m.	Strongly ankeritic.		
630.7-633.0 FOLIATED, ANKERITIC, SERICITIC, GREYWACKE/ ARGILLITE	Pale grey to grey green, very fine grained, moderately foliated, moderately ankeritic and sericitic sediment (possibly greywacke/argillite). Lower contact is gradational. S1 at 35 deg. to c.a. at 633.0m.	Moderately ankeritic, and sericitic.		
633.0-637.8 FOLIATED, SERICITIC, ANKERITIC GREYWACKE/ ARGILLITE	Pale green, very fine grained, strongly sericitized, greywacke/argillite. S1 at 45 deg. to c.a. at 637.8m.	Strongly sericitized, moderately ankeritic.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
637.8-653.7 SILICIFIED GREYWACKE/ ARGILLITE	Pale grey to locally grey green, very fine grained, silicified greywacke/ argillite. Locally S1 appears folded where silicification appears weaker. Locally strongly sericitized (as above) and non-silicified, strongly foliated, generally with sharp contacts with silicified zones - ie. at 30 deg. to c.a. at 642.0m, parallel to S1. 642.7-645.1 30-50% stockwork qav's. S1 at 35 deg. to c.a. at 652.4m. Contact sharp, parallel to S1 at 25 deg. to c.a.	637.8-645.1 90% silicified; local strong sericite and ankerite. 645.1-653.7 50% s1, weakly sericitized, moderately ankeritized.		
653.7-657.3 CONGLOMERATE/ GREYWACKE	Pale yellow-green to weak olive green, poorly sorted polylithic conglomerate grading downhole to medium to fine grained greywacke (tops uphole). Strongly foliated throughout. S1 at 25-45 deg. to c.a. Contact parallel to S1 at 35 deg. to c.a., marked by quartz ankerite vein.	Moderately ankeritized, moderately to strongly sericitized.		
657.3-663.5 WEAKLY SILICIFIED SANDSTONE/ GREYWACKE	Grey-green, weakly silicified sandstone/ greywacke. Moderately foliated (S1), local S2. 662.0-663.5 20% folded qav's running subparallel to c.a. Contact parallel to S1 at 60 deg., marked by sharp alteration change.	S1 (30), moderately ankeritized.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
663.5-677.9 **SILICIFIED SANDSTONE/ GREYWACKE**	Beige to green-grey, massive to bedded to locally thinly bedded, fine to medium grained sandstone and greywacke. Generally non-foliated. 672.5-672.9 Yellow-green, soft, fuchsite-flake bearing, moderately foliated, carbonate-sericite-fuchsite-quartz rock, either a carbonate sediment or dyke. Contains several % grey subangular quartz grains; predominantly carbonate. Sharp upper contact parallel to S1 at 30 deg. to c.a., folded and veined lower contact. S0 at 45 deg. to c.a. at 675.6m. Alteration contact.	S1 (100), weakly sericitized, weakly ankeritized.	Local pyrite in haloes to low angle qav's. 672.8-672.9 1-2% fine grained disseminated pyrite in lower portion of carbonate unit.	
677.9-649.9 **SERICITIZED GREYWACKE/ ARGILLITE**	Green-grey, locally thinly interbedded fine to medium grained greywacke and minor argillite. Moderately developed S1 foliation. S0 at 55 deg. to c.a. at 678.7m. Irregular contact - folded, cut by qav's.	Pervasive weak to locally strong sericitization, weak to moderate ankeritization. Local weak silicification.		
694.9-696.5 **CARBONATE SEDIMENT**	Yellow green to lime green, strongly foliated carbonate sediment/dyke. Contains 2-5% fuchsite flakes, occasional beige sedimentary fragments. Cut by 5% qav's, locally parallel to both S1 and S2. S2 at 130 deg. to c.a. at 695.5m.	Pervasively sericitized ankeritized, 2-5% fuchsite flakes.	Local trace to 1% fine grained disseminated pyrite at and around contacts and qav's.	

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	Lower contact roughly parallel to core axis, from 696.2-696.5, oblique to S1 foliation at 40-50 deg. Contact becomes parallel to S1 at 696.5m.			
696.5-707.8 SERICITIZED GREYWACKE/ ARGILLITE	Yellow-green, thinly interbedded, fine to medium grained greywacke and lesser argillite. Contact at 60 deg. to c.a. at 707.8m.	Strongly sericitized.		
707.8-713.0 SERICITIZED, FOLIATED CONGLOMERATE	Pale green, fine grained, greywacke matrix and 15-20% angular, very fine grained, beige, siltstone clasts. Strongly developed S1 foliation. S1 at 50 deg. to c.a. at 712.0m. Contact at 65 deg. to c.a. at 713.0m.	Strongly sericitized.		
713.0-723.1 GREYWACKE/ ARGILLITE	Grey green, very fine grained, thinly bedded greywacke/argillite. <u>Note:</u> Steel wedge placed at bottom of hole, lost wedge, 4 NQ rods, and bullnose bit when rods broke and stuck in wedge. Blasted rods and placed second wedge.	Weakly to moderately sericitized.		
698.0-699.0 WEDGE	Steel wedge (bypass first wedge) <u>Original 698.0-723.1 = 142B</u>			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
699.0-707.3 15% QAV AND SILICIFIED GREYWACKE	Medium green grey, very fine to fine grained, greywacke and 15% narrow irregular quartz-ankerite veinlets (1mm-3cm width).	699.0-707.3 85% silicified.	699.0-707.3 Pyrite trace to 1%.	Note:
707.3-714.0 LITHIC GREYWACKE	Pale green, very fine grained, altered lithic greywacke. Strongly developed S1 foliation is present. Angular, lithic clasts (up to 3cm). Clast composition includes buff argillite, emerald green fuchsitic, white quartz. S0/S1 at 35 deg. to c.a. at 707.9m. Contact at 60 deg. to c.a. at 714.0m.			
714.0-718.8 SILICIFIED GREYWACKE	Pale green grey, very fine grained, thinly bedded greywacke. Contact at 50 deg. to c.a. at 718.8m.	714.0-718.8 90% silicified.		
718.8-724.4 FOLIATED, SERICITIC GREYWACKE/ ARGILLITE	Medium grey green, very fine grained, thinly bedded, strongly foliated (S1) greywacke and argillite. S1 at 60 deg. to c.a. at 720.1m. S0/S1 at 30 deg. to c.a. at 724.3m	Moderately sericitized.		Note Double hexagonal 726-854m.

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
724.4-738.1 SILICIFIED GREYWACKE	Medium grey green to locally purple grey, very fine grained, thinly bedded greywacke. Locally buff coloured alteration is penetrative along fractures.	724.4-738.1 90% silicified.		
738.1-823.65 GREYWACKE/ ARGILLITE	Medium to dark grey green, very fine to fine grained, thinly bedded greywacke/argillite. S0/S1 at 45 deg. to c.a. at 738.1m. S0/S1 at 30 deg. to c.a. at 741.0m. S0/S1 at 10 deg. to c.a. at 748.5m. S0/S1 at 5 deg. to c.a. at 755.5m. 761.85-762.1 Narrow shear zone with 25% foliation parallel quartz-carbonate veins. Zone is crenulated and folded. Average 25 deg. to c.a. (but folded). At 770.0, S1/S0 = 10 deg. 772.2-772.9 Zone of 50% quartz-carbonate veining with sericitic alteration halo. Veins parallel to S1/S1 at 50 deg. to c.a. At 787.0, S1/S0 = 65 deg. At 797.0, S1/S0 = 60 deg.			

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	771.0-823.65 Bedding is 50-70 deg. to c.a. consistently. Very general increase in grain size of greywacke from fine to medium grained down section. 823.5-823.65: Dark, reddish brown chert replacement zone cut by later translucent quartz and dirty white carbonate veining.			
823.65-840.9 **TALCOSE CARBONATED ULTRAMAFIC/ INTRUSIVE?**	Very dark green, weakly to moderately foliated, talcose, carbonated marker unit, possibly an intrusive. Scattered 1-3cm dark chloritized angular fragments (xenoliths?). At 828.0, S1 = 40 deg. At 836.0, S1 = 45 deg. 840.2-840.9 Contact zone, interleaved marker unit and fine grained sediment, non-talcose.	Moderate calcite as veinlets and pervasive talc/chlorite. Weak hematization, local biotization.		Similar to biotit flow in 140, 140 and to upper ultr mafic on 5250E.
840.9-848.6 **GREYWACKE/ ARGILLITE**	Grey-green, interbedded fine to medium grained greywacke and argillite. Locally strong S1 foliation, local weak S2, fairly broad (<1m) F2 folds. S0 at 40 deg. to c.a. at 844m.	Chloritized, local weak sericite.		

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	847.8-848.6 Massive-bedded, fine to medium grained greywacke. Contact sharp, parallel to S1 at 55° to c.a.	847.8-848.6 Contact alteration zone (with underlying unit). Becomes weakly to moderately silicified toward contact; also hematized from 848.5-848.6.		
848.6-851.2 CARBONATED FOLIATED MARKER UNIT INTRUSIVE?	Drab grey/green-grey, strongly foliated, chlorite-carbonate marker unit. No evidence of chilled contacts. Local 2-4mm chloritic "chips". S1 folded into F2 folds, weak S2 development. Mild tectonic layering of chlorite/ carbonate. Lower contact cut by 10cm qav.	Strongly carbonated, chloritized.		
851.2-852.0 GREYWACKE/ ARGILLITE	Dark green-grey, thinly bedded fine grained greywacke and lesser argillite. Well developed S2 cleavage at 130 deg. to c.a. Core barrel stuck in hole at 854m. No core return from 852-854. Unable to retrieve barrel, blasted rods. Left in hole - 2 hexagonal core barrels, shell, bit one NQ rod. Broke 2 NQ rods.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
832.0-834.0 WEDGE	Steel wedge 135 deg? L (bypass broken rods). Original 83?-852m = 142C			
834.0-839.75 CARBONATED ULTRAMAFIC INTRUSIVE(?) MARKER UNIT	Dark green-grey to almost black, fine to medium grained, moderately to locally strongly foliated, chlorite-carbonate, hematite altered marker unit. Very similar to finer grained parts of the coarse biotite flow within the mafic stratigraphy in holes 140, 140W, 143. Possible dyke. Contact zone from 839.5-839.75 is characterized by purple hematite staining of fine grained, possibly sedimentary material, and irregular bands of dark green, coarser grained marker unit. Layering sub-parallel to S1 at 65-75 deg. to c.a.	Strongly ankeritized, chloritized, weakly hematized.		
839.75-848.2 GREYWACKE/ ARGILLITE	Grey-green, interbedded fine to medium grained greywacke with lesser argillite. Locally developed S2 cleavage and small-scale F2 folds. 838.9-839.2 Green, chloritic, carbonated marker unit. S1 moderately to strongly developed; lower 5cm is silicified, with minor pyrite. Contacts parallel to local S1 at 50 deg. to c.a. S0 at 70 deg. to c.a. at 240.0m.	Weak ankeritization.		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	844.0-844.3 Grey, carbonated marker unit. Contacts parallel to S0/S1, folded and crenulated by S2/F2. 847.5-848.2 Contact zone, sediments become massive, bedded, weakly to moderately silicified and hematized (at contact). Contact at 60 deg. to c.a.		Local medium grained pyrite in 1b adjacent to marker, also minor pyrite in marker.	
848.2-850.5 FOLIATED CARBONATED MARKER UNIT (INTRUSIVE?)	Dark to medium drab-grey, foliated, fine to medium grained marker unit. 1-5mm chloritized mafic fragments/ crystals, from 10-30% of rock. Moderate to strong S1, folded. Lower contact cut by qav.	Chloritized, strongly ankeritized.		849m geochem sample # 22898
850.5-851.6 QAV ZONE GREYWACKE	10-60% white qav's in fine grained grey-green greywacke. Veins generally parallel to S1, and folded.		1% to locally 2% fine to medium grained disseminated pyrite.	
851.6-872.5 GREYWACKE/ ARGILLITE	Dark to medium grey-green, interbedded fine to medium grained greywacke and lesser argillite. Generally thinly bedded. Small-scale folded. S0 at 75 deg. to c.a. at 860.5m. S0 at 45 deg. to c.a. at 872.3m. Bedded contact, folded.	Local sericitization associated with qav's.	851.6-852.5 1-3% medium to coarse grained disseminated pyrite, decreasing % downhole.	

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
872.5-876.8 CARBONACEOUS ARGILLITE	Dark grey to black, thinly bedded carbonaceous argillite with minor grey fine grained interbedded greywacke. Grades to fine grained greywacke from 876.7-876.8. Bedded contact at 35 deg. to c.a.		875.8-876.4 Local massive bedded pyrite.	
876.8-880.1 FOLIATED, MIXED VARIOLITE, HYALOCLASTITE AND FLOW BRECCIA	Pale grey to green, mixed variolitic, hyaloclastite and flow breccia. Varioles commonly coalesced to form >90% of the rock (variolite). Moderately developed S1 foliation throughout, varioles have X:Z aspect ratios of 3-4:1. Hyaloclastite more strongly foliated. Local coalesced spherulitic material may define pillows. S1 at 60 deg. to c.a. at 878.9m.	Chloritized, weakly to moderately ankeritized.		
880.1-881.8 MASSIVE BASALTIC FLOW, AMYGDALOIDAL TOP	Grey to grey, amygdaloidal fine grained massive grading to non-amygdaloidal massive flow. Weak to moderate S1 foliation, stronger below 881.7m. Foliated gradational contact.	Chloritized, moderately ankeritized.		
881.8-885.5 FOLIATED PILLOWED? BASALTIC FLOW	Grey-green, strongly foliated and locally veined, possibly pillowed mafic flow. Very fine grained, qav's are S1-parallel folded and boudinaged.	Chlorite, local sericite, moderately ankeritized.		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 at 50 deg. to c.a. at 887.8m. Foliated contact.			
885.5-887.15 MASSIVE BASALTIC FLOW (AMYGDALOIDAL) TOP	Grey-green, amygdaloidal, very fine grained massive flow grading to non-amygdaloidal massive flow. Moderately developed S1 foliation at 55 deg. to c.a. at 886m. Local S1-parallel qav's. Foliation stronger	Chloritized, moderately ankeritized. below 887m, foliated contact at 50 deg.		
887.15-889.5 FOLIATED CARBONATED MARKER UNIT INTRUSIVE?	Drab green-grey to weakly purple-grey, intensely foliated and locally ribbned, carbonated marker unit. Intrusive? Local qav's, S1 - parallel, adjacent to upper and lower contacts. S1 at 50 deg. to c.a. at 889.0m. Sharp contact parallel to S1 at 55 deg. to c.a.	Strongly ankeritized chloritic, locally hematized.		
889.5-890.8 SERICITIZED FOLIATED HYALOCLASTITE/FLOW BRECCIA	Cream to beige, locally with purple hematite alteration, moderately to strongly foliated hyaloclastite and flow breccia. Possibly variolitic at 890.7-890.8. Hyaloclastite perlitic textures at 889.6 are weakly hematized. Sharp lower contact parallel to S1 at 50 deg. to c.a.	Pervasively sericitized, weakly to moderately ankeritized.		

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
890.8-893.6 FOLIATED LEUCOXENITIC MASSIVE FLOW	Medium grey-green, finely to coarsely leucoxenitic, very strongly foliated, massive facies mafic flow. 890.8-891.2 10-20% boudinaged ankerite +/- quartz veins. 893.3-893.6 Becomes very fine grained to aphanitic. S1 at 50-60 deg. throughout. Contact zone strongly sheared.	Moderately to strongly ankeritized. Chloritized, locally sericitized.		892.0-935.0 Hexagonal plus standard core barrel in tande
893.6-913.2 LOCALLY ALTERED MASSIVE FLOW	Dark green to pale beige or cream, variably altered massive flow. Moderate to local strong S1 foliation. 893.6-893.7 Beige, foliated flow top hyaloclastite. 893.7-895.6 Aphanitic to very fine grained, locally amygdaloidal, possibly pillowed section. 856.6-913.1 Very fine grained to fine grained massive facies. Dark green, locally bleached and veined with boudinaged qav's. S1 at 125° at 896.7m. S1 at 55° at 901.1 913.1-913.2 Grades at 913.1 to cream-yellow section of coalesced 1-3cm varioles; deformed within S1. Contact at 60° to c.a.	Moderately to locally strongly ankeritized. Chlorite, weak local sericite. Chloritized, moderately ankeritized. Local bleached zones of sericiti-zation/ankeritization at 897.0-898.1, 901.1-901.5. Locally hematized.		

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
913.2-916.3 SERICITIZED LOCALLY VARIOLITIC HYALOCLASTITE	Dark to pale green, to bleached off-white, locally variolitic hyaloclastite, perlitic fractured flow and local massive flow. Moderately developed S1 foliation at 60-70° to c.a. throughout. Contact at 60° to c.a.	Moderately to strongly ankeritized. 913.2-914.5 Predominantly chloritic, locally sericitic. 914.5-914.9 Hematized 914.9-916.3 Predominantly sericitized, local chlorite.		
916.3-920.8 SILICIFIED HEMATIZED LOCALLY VARIOLITIC HYALOCLASTITE; FLOW BRECCIA (LIGHTNING ZONE)	Dark to pale purple-grey, locally variolitic hyaloclastite, perlitic fractured flow and flow breccia. Massive to weakly foliated.	Pervasive hematization and silicification- s1(100); hematite locally overprinted by fg pyrite associated sericitic fractures, with bleached halos locally ankeritized.	Local 1-5% vfg dissemination and and fracture-filling with a stockwork of	vfg pyrite

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DIAMOND DRILL CORE LOG

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Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
920.8-931.5 SILICIFIED, PYRITIC VARIOLITIC FLOW BRECCIATED (LIGHTNING ZONE)	Pale grey, aphanitic, variolitic, flow brecciated, mafic flow. Pale grey alteration overprints minor remnant purple grey, hematized alteration. S1 at 45 deg. to c.a. at 929.0m. S1 at 40 deg. to c.a. at 930.9m. Fracture marks the contact at 130 deg. to c.a. at 931.8m (possibly weakly sheared).	920.8-931.5 100% silicified, weakly to moderately ankeritic.	920.8-922.2 Pyrite trace to 1%. 922.2-923.3 Py 1-3% 923.3-924.6 Py 3-5% 924.6-925.8 Py 1-3% 925.8-926.8 Py 5-7% 926.8-929.6 Py 1-3% 929.6-931.5 Pyrite trace to 1%, as above, in very fine grained, fracture filling and minor disseminated form.	920.8-928.7 Overall <5% variolitic; autobrecciated/ perlitic fractured flow. 928.7-930.2 Variolite 70-10 varioles in flo brecciated matri 930.2-930.9 2-2 varioles in flo breccia matrix, local sericite. 930.9-934.0 Variolite-70-10 varioles in massi matrix.
931.5-934.0 SILICIFIED, MASSIVE MAFIC FLOW	Pale grey, aphanitic to very fine grained, massive mafic flow. Irregular, dark green, chlorite filled fractures are present. Note: Lost hole at 934m (steel wedge at 832m shifted, blocking hole). No cement 828-934 meters.	931.5-934.0 100% silicified, moderately to strongly ankeritic.	931.5-932.9 Pyrite trace to 1%. 932.9-934.0 Pyrite 1-3%.	Note: Lost hol at 934m due to wedge shifting 832m.

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Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
823.0-826.0 WEDGE	Steel wedge 85° L (bypass shifted wedge). Original 823.0-934.0m = 142D Note: Hole wedged off 142, after wedge moving at 832m. Steel plug at 828m.			826.0-917.0 Standard barrel. 917.0-1057.0 Double standard barrel.
826.0-839.6 CARBONATED LOCALLY TALCOSE ULTRAMAFIC (INTRUSIVE?) MARKER	Dark grey to black, locally with a purple tint, foliated, fine grained carbonated marker unit, possibly intrusive. Folded qav's have purplish colour due to hematite staining. S1 at 40 deg. to c.a. at 838.0m. Contact broken.	Locally weakly talcose, local weak hematite, strongly ankeritized.		
839.6-848.2 GREYWACKE, MINOR ARGILLITE	Grey-green, fine to medium grained greywacke, <0.5m beds interbedded with argillite. Moderately foliated, S1 broadly folded. 839.6-840.1 Altered contact zone, weakly to moderately hematized, silicified.			

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S0 at 70 deg. to c.a. at 841.0m. Contact zone from 847.6-848.2m is moderately to strongly ankeritized, hematized and weakly silicified from 848.1-848.2m.	847.6-848.2 Ankeritized.	847.6-848.2 Trace to locally 1-2% fine grained disseminated pyrite.	
848.2-850.5 CARBONATED ULTRAMAFIC (INTRUSIVE?) MARKER UNIT	Drab green-grey, strongly foliated to tectonically layered, carbonated marker unit. S1 locally crenulated by S2. Lower contact obscured by qav's.	Strongly ankeritized, chloritic.		
850.5-872.2 GREYWACKE, MINOR ARGILLITE	Grey-green, fine to medium grained, greywacke with thinly interbedded argillite. Local tight F2 folds with S2 cleavage. 850.5-851.0 Contact zone, locally silicified, with 10% qav's. S0 at 80 deg. to c.a. at 861.7m. S0 at 45 deg. to c.a. at 867.5m. Bedded contact at 45 deg. to c.a.	Moderately ankeritized.	850.5-851.0 Trace to locally 1% fine grained pyrite.	
872.2-875.7 CARBONACEOUS ARGILLITE	Dark grey to black, thinly bedded carbonaceous argillite, with minor interbedded fine grained greywacke. Local qav's. Contact marked by qav.		874.9-875.4 Local massive bedded and replacement pyrite.	

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
875.7-879.7 MIXED VARIOLITE, HYALOCLASTITE AND MASSIVE FLOW	Medium green to grey, moderately to strongly foliated, mixed variolite (local zones of coalesced varioles, possibly pillowed), hyaloclastite, minor flow breccia and massive flow. Locally amygdaloidal. S1 at 45 deg. to c.a. at 878.2m, varioles stretched 3-5:1 to define L1 lineation, roughly down-dip. Gradational contact.	Chloritized, locally sericitized. Moderately to strongly ankeritized.		
879.7-881.0 MASSIVE FLOW	Green-grey, fine grained, massive facies flow, amygdaloidal from 879.7-880.5. Moderately foliated, gradational contact.	Chloritized ankeritized.		
881.0-887.2 STRONGLY FOLIATED POSSIBLY PILLOWED FLOW, MASSIVE BASE	Grey-green, fine grained, strongly foliated flow, locally amygdaloidal and possibly pillowed to 885.9m, grading to finely leucoxenitic massive facies, only moderately foliated. 10% folded and boudinaged S1-parallel qav's. S1 at 50 deg. to c.a. at 884.6m. Strongly foliated from 886.0-886.2m, contact zone, possibly part of underlying unit. Contact parallel to S1 at 60 deg. to c.a.	Chloritized, local sericitized, strongly ankeritized.		

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
887.0-888.8 STRONGLY FOLIATED, CARBONATED ULTRAMAFIC INTRUSIVE? MARKER UNIT	Purple grey to green to yellow-green (change downhole). Strongly foliated, carbonated marker unit, probably ultramafic. Locally the foliation is a tectonic layering of chlorite/ankerite. 20% S1-parallel qav's from 888.4-888.8m. Contact parallel to S1 at 70 deg. to c.a.	Hematized to 888.2 chloritic, becoming sericitic below 888.4. Pervasively strongly ankeritized.		
888.8-889.8 SERICITIZED LOCALLY HEMATITIZED HYALOCLASTITE	Yellow-cream to purple-grey, strongly foliated hyaloclastite. Alteration contact at 889.2 parallel to S1 at 55 deg. to c.a. Gradational lower contact, strongly foliated.	888.8-889.2 Strongly sericitized, locally hematitized. 889.2-889.4 Strongly hematitized. 889.4-889.8 Strongly sericitized.		
889.8-914.1 FOLIATED LEUCOXENITIC MASSIVE FLOW	Green, moderately to strongly foliated, finely leucoxenitic, fine grained massive flow. Local boudinage of S1-parallel qav's. S1 at 60 deg. to c.a. at 892.5m. Local strongly foliated zones at 892.9-893, 896.5-896.7m. S1 at 50 deg. to c.a. at 896.6m.	Chloritized, moderate to strongly ankeritized. Locally sericitized in strongly foliated zones.		

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	908.0-910.8 1-5mm chloritic fracture subparallel to c.a., locally with associated small-scale vein brecciation of wall rock. Wall rock alteration is commonly asymmetrical and consists of sericitization/ankeritization (bleaching). The chloritic fracture if quartz rough (JRC >19) on a mm scale, ie not a smooth fault/slip plane. It tends to strike at a high angle (>50 deg.) to the S1 foliation, indicating a N-S orientation. Contact somewhat indistinct and gradational.			
914.1-915.7 SERICITIZED/ HEMATIZED HYALOCLASTITE	Yellow-green to cream to purple, mixed hyaloclastite and autobrecciated flow, minor massive flow. Moderately to locally strongly foliated. 915.0-915.5 Massive aphanitic flow. Contact at 55 deg., subparallel to local S1. 915.5-915.7 Hyaloclastite. Contact sharp, marked by qav with chloritic margin, parallel to S1 at 65 deg. to c.a.	914.1-914.3 Sericitized, local weakly hematized. 914.3-914.8 Moderately to strongly hematized. 914.8-915.7 Sericitized.		

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DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
915.7-949.5 SILICIFIED LOCALLY VARIOLITIC HYALOCLASTITE/ AUTOBRECCIATED (LIGHTNING ZONE)	Medium to pale grey with a mauve tint, mixed hyaloclastite, autobrecciated flow with perlitic fracturing, possible minor massive flow. Locally variolitic-varioles up to 1cm in size, generally comprise less than 2% of the rock except for local zones of coalescence. Massive to weakly foliated, with dominant vein sets parallel to S1 and (later) orthogonal. 915.7-917.0 Vein density <5%, weak S1. 917.0-919.8 Vein density (and abundance of pyritic fractures/stringers) increases to 10 to locally 30%, massive to local weak S1. 918.4: S1 at 45 deg., with parallel qav's. 919.8-920.7 5-30% sub 1.5cm subspherical varioles, commonly zoned with hematite/ cherty grey albite. Local 10-20% qav's. Contact marked by 2cm sericitic pyritic band. Autobrecciated flow matrix.	S1 (100), local patches of dark purple hematite alteration; also overall mauve tint indicates a very weak disseminated hematization. 915.7-916.0 Weak sericite.	915.7-916.0 1-2% fine to medium grained pyrite, mostly disseminated. 916.0-917.0 2-4% fine to medium grained pyrite, disseminated and clotted. 917.0-918.3 3-5% locally 7% fine to medium grained pyrite, disseminated, clotted and in local stringers (7%). 918.3-919.5 5-7% locally 10% pyrite, higher concentrations in stringers and clots fine to medium grained, local coarse grained background disseminated and clotted pyrite, trace arsenopyrite. 919.5-920.75 5 to locally 7% pyrite, predominantly in clusters and disseminated, minor stringers. Fine to medium grained.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 32 OF 4

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	920.7-921.4 Autobrecciated flow/minor hyaloclastite, grades from non-variolitic to variolitic downhole. Varioles are hematized, <0.5 cm, increase to 20% of rock and increase in size downhole.		Trace to 1% medium to coarse grained arsenopyrite, coarser grained-associated with late qav's. 920.75-921.4 1-2% fine to medium grained, disseminated.	
	921.4-922.7 Pervasively hematized, cannot determine matrix type. Local (1%) pale grey 1cm varioles, matrix probably autobrecciated flow. Lower contact marks overprinting of LZ alteration.	921.4-922.7 Hematized.	921.4-922.7 Trace to 1% pyrite.	
	922.7-923.3 Pale grey to locally green (chloritized) autobrecciated flow, with 1-3% pale creamy grey 1cm varioles.		922.7-923.3 3% fine to medium grained pyrite, in clots and local hairline fractures, minor disseminated.	
	923.3-923.9 Variolitic autobrecciated flow. Varioles hematized to 923.6, from overall 5% of rock. Coalesced creamy grey varioles from 923.8-923.9m.	923.3-923.9 Local hematization.	923.3-923.9 Trace to 2% pyrite, occurs in sericite/chlorite fractures overprinting hematite alteration.	
	923.9-924.1 Green-grey, fine grained interflow sediments, with characteristic massive bedded and replacement pyrite lenses. Contacts rather indistinct. Bedding/foliation at 70-80 deg. to c.a.	923.9-924.1 Sl (100) sericite/chlorite.	923.9-924.1 5-8% very fine grained massive bedded/ replacement pyrite.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 33 OF 4(

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	924.1-924.9 Cream-grey varioles in sericitized hyaloclastite matrix, grades to massive variolite at 924.2. Varioles 1-6cm, subspherical. Varioles are largest in centre of section. 2% late chlorite veins.		924.1-925.65 1-3% very fine to medium grained pyrite, in groundmass to varioles ("stringers" along variole boundaries), and in disseminations and clots.	
	924.9-926.1 Locally variolitic auto-brecciated/perlitic fractured flow. Overall 1-5% varioles, sub 1cm, commonly hematized. 1-5% local late chlorite veins.		925.65-926.6 3-5% fine to medium grained pyrite overall; locally higher concentrations in medium to coarse grained stringers and clots.	
	926.6-927.5 Greenish/yellowish grey, non-foliated, autobrecciated/perlitic fractured variolitic flow. <5% varioles.	926.6-927.5 Weakly sericitized.	926.6-927.5 1-2% fine to medium grained pyrite disseminated and in clots.	
	927.5-928.9 Dark purple, hematized variolitic/variolitic flow, grades to >80% varioles below 927.8m, matrix of brecciated flow. Essentially undeformed.	927.5-928.9 Pervasively hematized varioles, matrix pale grey to locally sericitic yellow.	927.5-931.8 Trace to 2% fine to medium grained pyrite.	
	928.9-929.2 Sericitic variolitic flow, <20% varioles in sericitized weakly flow brecciated matrix.	928.9-929.2 Sericitized.		

P.A.P. - E.1958

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	929.2-929.6 Variolitic, 80-90% cream coloured, 1-3cm coalesced varioles. Weak S1 at 70 deg. Slip contact-chloritic slip at 10 deg. to c.a., and orthogonal in strike to S1. 929.6-930.4 100% varioles, pale to medium grey with a purple tint, grades to 70-90% varioles with sericitic matrix at 930.1m. 930.4-931.7 Locally variolitic pale grey autobrecciated/perlitic fractured flow. 931.7-934.3 Grey to green-grey variolite. Grades from 30% varioles in sericitic matrix to coalesced, 70-100% varioles below 931.8m. Varioles 1-6cm in size, subspherical to local very weakly deformed matrix of massive flow (?). Varioles cream grey, become weakly hematized below 934m. Locally are chloritized where cut by chloritic veinlets at 10-15 deg. to c.a. at 934.0-934.4m.	Matrix weakly to moderately sericitized.	931.8-932.1 2-3% fine to medium grained pyrite clotted in matrix. 932.1-938.3 Trace to 1% fine grained pyrite, disseminated.	

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	934.3-936.4 Same unit as above, but hematized. 70-100% varioles.	934.3-936.4 Hematized, margins of zone have hematized varioles, central portion (934.5-935.8) has local pervasive hematization of varioles and matrix.		
	936.4-944.0 Same unit as above, but with cream to pale grey varioles and pale grey to yellow matrix. Weakly foliated to massive.	936.4-944.0 Matrix generally sericitized.	938.3-939.1 1-2% medium to coarse grained pyrite associated with 10-20% qav's. 939.1-939.8 Trace to locally 1% pyrite. 939.8-940.7 Local 3-5% fine to coarse grained pyrite in clots and stringers; overall 1-2%.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	940.7-942.5 10-20% irregular off white qav's.		940.7-942.5 3 to locally 7% fine grained stringer pyrite, in matrix and locally associated with irregular qav's.	
	942.5-943.0 70-80% qav's, including 30cm wide vein with included mineralized wall rock fragments.		942.5-943.0 1-2% pyrite included wall rock fragments and stringers.	
	944.0-948.9 Same unit as above, but local dark purple to black, weakly to locally moderately foliated. S1 at 55 deg. to c.a. at 944.8m. Gradational contact.	944.0-947.7 Local hematization of varioles and/or matrix.	943.0-949.1 Trace to 1% pyrite.	
	948.9-949.4 Variole size and abundance decreases downhole, with a gradational change to autobrecciated flow and local hyaloclastite. 4cm grey silty (?) band at 949.1m. Contact at 65 deg. to c.a.		949.1-949.8 1-3% fine grained pyrite, predominantly in sediments.	
	949.4-949.5 Massive dark brown to almost black cherty sediment. Contact at 60 deg. to c.a.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. NW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
949.5-951.5 MIXED MASSIVE FLOW, HYALO-CLASTITE, SEDIMENTS	Grey to green-grey, massive to strongly foliated, mixed massive flow, hyaloclastite and possible fine grained sediments. S1 at 65 deg. to c.a. at 950.1m. Contact marked by qav.	Strongly ankeritized. 950.7-951.5 Local weak silicification, s1 (30).	950.7-951.5 1% fine grained pyrite in clots and S1-parallel stringers.	
951.5-959.2 FOLIATED LEUCOXENITIC FLOW	Green to locally purple or yellow-green, moderately to locally strongly foliated finely leucoxenitic massive facies flow. S1 at 70 deg. to c.a. at 957m. Contact sharp at 65 deg. to c.a.	Chloritized, local hematization, moderate to strong ankeritization. 958.4-959.0 Increasingly sericitized downhole. 959.0-959.2 S1 (100) weakly sericitized.	959.0-959.2 1-2% fine grained disseminated pyrite.	
959.2-1000.6 SERICITIC/ FUCHSITIC ULTRAMAFICS	Drab grey-green to weakly emerald green, moderately to strongly foliated ultra-mafic volcanics. 959.2-959.7 Strongly foliated, drab grey-green, similar to S1. Local S2 at 150 deg. to c.a. Sharp contact at 70 deg. to c.a., parallel to S1. 959.7-960.1 Pale grey, very fine grained, locally finely leucoxenitic massive basaltic flow. Contact at 120 deg. to c.a.	Strongly ankeritized. 959.2-959.7 Sericitized. 959.7-960.1 Weakly silicified, s1 (20).	959.7-960.1 1% fine to medium grained disseminated pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 38 OF 40

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	960.1-963.1 Drab green to emerald green ultramafic volcanics. 5-30% grey ankerite ± quartz vein stockwork.	960.1-963.1 Fuchsitic, locally sericitic.		
	963.1-969.2 Drab grey-brown to yellow-brown, sericitic ultramafics. Moderately to strongly foliated, folded.	Sericite-ankerite.		
	966.6-967.0: Massive mafic flow, silicified and mineralized. Contacts sharp but irregular. S1 at 50 deg. to c.a. at 969m.	966.6-967.0 S1 (100)	966.6-967.0 1% very fine grained, disseminated pyrite.	
	969.2-977.9 Pale to bright emerald or apple green, fuchsitic ultramafic flows. Local spinifex and flow top textures at 971.0, 973.4m. Local 10-20% grey ankeritic stockwork veins; rare later quartz-ankerite veins. Weakly to moderately foliated.	969.2-977.9 Fuchsite-ankerite.		
	977.9-1000.6 Drab grey; grey-green and grey-brown ultramafic flows. Local spinifex at 978.5m, 993.8m - flow tops tend to be more strongly altered (fuchsite vs sericite/chlorite). Massive to weakly foliated. Local 10-40% ankerite vein stockworks, rare later qav's.	977.9-1000.6 Sericite, minor chlorite. Local fuchsite, ankerite.		
	986.2-986.4: Quartz replacement vein centred on graphitic margin of narrow qav at 986.3m.	986.2-986.4 Local trace to 1% pyrite.		

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 39 OF 40

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	986.4-988.1: Quartz replacement veins/quartz flooding form 10-30% of rock. Gradational alteration contact.			
1000.6-1057.0 TALC-CHLORITE ULTRAMAFICS	Drab green-grey to dark grey, talc-chlorite ultramafic flows. Predominantly massive flow. Overall 10-20% grey ankerite stockwork veins, boudinaged within S1 foliation, where developed. Deformation is strongly heterogeneous; becomes more pervasively foliated below 1013m. S1 at 65 deg. to c.a. at 1009.8m. Local white quartz +/- ankerite veins. 1025.8-1040.0 Local fault gouge, locally schistose fault at 65 deg. to c.a. at 1025.8m. S1 at 50-70 deg. to c.a. throughout. S1 at 65 deg. to c.a. at 1044.5m. S1 at 50 deg. to c.a. at 1053.0m. S1 at 45 deg. to c.a. at 1055.0m. Spinifex at 1057.0m.	Talc-chlorite, minor serpentine, strongly ankeritized.		1025.8-1026.8 RQD = 0, 20cm gouge and broke rock at top, 2c gouge at 1026.4 1026.5-1034.5 RQD = 30, local minor gouge alo S1, qav margins. 1034.5-1040.0 RQD = 0-20 Local gouge and grit at 1034.5-1034.8, 1037.5-1037.8, also along S1 foliatic 1040.0-1044.4 RQD = 60-80 Breaks along S1

P.A.P. - E.1556

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 40 OF 40

Project No. 155 Hole No. HW-91-142

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
				1044.4-1055.0 RQD = 10-50 Local zones of 10-100cm broken core with minor gouge, separated by more competen rock. 1055.0-1055.5 RQD =0 Semi-consolidate fault gouge, min (<10cm) semi-consolidated qtz ankerite vein schist. 1055.5-1057.0 RQD = 80-90
1057.0	END OF HOLE			

PAP - E1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: holloway
HOLE NO: 142
GRID: holloway

DATE: June 19 1991
SURVEY BY: DB
INSTRUMENT: gyro to 792, ss

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-73.50	360.00	5950.000	4210.000	-13.000
30.50	-72.42	357.40	5949.797	4218.935	-42.161
61.00	-72.58	359.70	5949.565	4228.104	-71.249
91.40	-72.75	358.20	5949.399	4237.160	-100.269
121.90	-72.92	358.10	5949.109	4246.157	-129.410
152.40	-72.83	358.60	5948.850	4255.134	-158.558
182.90	-72.58	358.80	5948.644	4264.199	-187.679
213.40	-72.50	360.40	5948.580	4273.350	-216.774
274.30	-72.70	360.30	5948.692	4291.562	-274.887
304.80	-72.58	360.30	5948.739	4300.662	-303.997
335.30	-71.25	360.00	5948.764	4310.130	-332.991
365.70	-70.75	358.80	5948.660	4320.027	-361.734
396.20	-69.50	359.00	5948.461	4330.394	-390.418
426.70	-67.17	360.00	5948.363	4341.654	-418.763
457.18	-66.83	361.72	5948.542	4353.562	-446.820
487.66	-66.50	361.60	5948.892	4365.630	-474.807
518.10	-66.00	361.10	5949.180	4377.886	-502.669
548.60	-65.00	361.20	5949.434	4390.532	-530.423
579.10	-64.33	360.40	5949.617	4403.582	-557.989
609.60	-63.80	359.80	5949.640	4416.921	-585.418
640.00	-63.17	359.30	5949.533	4430.492	-612.620
670.50	-62.75	358.50	5949.267	4444.355	-639.786
701.00	-58.67	358.30	5948.850	4459.271	-666.387
731.50	-58.42	358.00	5948.337	4475.179	-692.405
762.00	-58.00	357.60	5947.720	4491.234	-718.329
792.40	-57.08	357.60	5947.037	4507.536	-743.980
823.00	-56.50	354.00	5945.809	4524.251	-769.582
872.00	-54.50	352.00	5942.427	4551.798	-809.964
902.00	-53.00	351.00	5939.805	4569.343	-834.158
927.00	-52.00	352.00	5937.555	4584.394	-853.991
971.00	-49.50	355.00	5934.404	4612.055	-888.065
1016.00	-47.75	355.00	5931.811	4641.686	-921.833
1057.00	-47.00	355.00	5929.391	4669.345	-952.000

FROM	TO	WIDTH	Au g/t	R1	R2
36.00	41.00	5.00	0.010	N.S.	N.S.
41.00	44.00	3.00	0.020	N.S.	N.S.
44.00	46.50	2.50	0.270	N.S.	N.S.
46.50	48.00	1.50	0.260	N.S.	N.S.
48.00	49.00	1.00	0.060	N.S.	N.S.
49.00	50.40	1.40	0.050	N.S.	N.S.
50.40	51.20	0.80	0.040	N.S.	N.S.
51.20	52.90	1.70	0.010	N.S.	N.S.
52.90	54.20	1.30	0.030	N.S.	N.S.
54.20	56.00	1.80	0.030	N.S.	N.S.
56.00	57.50	1.50	0.010	N.S.	N.S.
57.50	59.00	1.50	0.010	N.S.	N.S.
59.00	60.50	1.50	0.010	N.S.	N.S.
288.00	288.10	0.10	N.S.	N.S.	N.S.
378.90	379.75	0.85	6.100	N.S.	N.S.
379.75	380.10	0.35	2.610	N.S.	N.S.
380.10	381.10	1.00	2.400	N.S.	N.S.
381.10	381.90	0.80	0.620	N.S.	N.S.
381.90	383.40	1.50	0.840	N.S.	N.S.
383.40	385.20	1.80	2.260	N.S.	N.S.
385.20	385.70	0.50	0.140	N.S.	N.S.
849.50	850.50	1.00	0.010	N.S.	N.S.
850.50	851.60	1.10	0.010	N.S.	N.S.
851.60	852.50	0.90	0.010	N.S.	N.S.
852.50	854.00	1.50	0.010	N.S.	N.S.
867.00	867.01	0.01	N.S.	N.S.	N.S.
872.20	873.90	1.70	0.010	N.S.	N.S.
873.90	874.90	1.00	0.010	N.S.	N.S.
874.90	875.70	0.80	0.090	N.S.	N.S.
875.70	876.70	1.00	0.020	N.S.	N.S.
905.00	905.10	0.10	N.S.	N.S.	N.S.
914.10	914.80	0.70	0.020	0.020	0.030
914.80	915.70	0.90	0.050	0.030	0.070
915.70	916.00	0.30	0.380	0.340	0.410
916.00	917.00	1.00	0.200	0.170	0.240
917.00	918.30	1.30	8.800	8.740	8.850
918.30	919.50	1.20	6.360	6.790	5.930
919.50	920.75	1.25	3.180	3.330	3.020
920.75	921.40	0.65	0.820	0.790	0.860
921.40	922.70	1.30	0.260	0.270	0.240
922.70	923.30	0.60	2.720	2.570	2.880
923.30	923.90	0.60	0.880	0.820	0.930
923.90	924.10	0.20	1.080	1.100	1.060
924.10	925.65	1.55	1.540	1.440	1.650
925.65	926.60	0.95	2.570	2.670	2.470
926.60	927.50	0.90	0.670	0.720	0.620
927.50	928.90	1.40	0.140	0.140	0.140
928.90	929.60	0.70	0.030	0.030	0.030
929.60	930.40	0.80	0.140	0.140	0.140
930.40	931.80	1.40	0.430	0.310	0.550

FROM	TO	WIDTH	Au g/t	R1	R2
931.80	932.10	0.30	1.780	1.850	1.710
932.10	933.00	0.90	0.480	0.480	0.480
933.00	934.30	1.30	0.500	0.550	0.450
934.30	935.80	1.50	0.020	0.030	0.020
935.80	937.30	1.50	0.340	0.340	0.340
937.30	938.30	1.00	1.760	1.780	1.750
938.30	939.80	1.50	0.650	0.580	0.720
939.80	940.70	0.90	7.940	7.820	8.060
940.70	941.70	1.00	5.140	5.210	5.070
941.70	942.50	0.80	2.960	3.050	2.880
942.50	943.00	0.50	2.260	2.260	2.260
943.00	944.00	1.00	0.460	0.480	0.450
944.00	945.50	1.50	0.030	N.S.	N.S.
945.50	947.00	1.50	0.350	N.S.	N.S.
947.00	948.00	1.00	0.090	N.S.	N.S.
948.00	949.10	1.10	0.020	N.S.	N.S.
949.10	949.50	0.40	0.170	N.S.	N.S.
949.50	950.70	1.20	0.010	N.S.	N.S.
950.70	951.50	0.80	0.040	N.S.	N.S.
951.50	953.00	1.50	0.060	N.S.	N.S.
958.00	959.00	1.00	0.010	N.S.	N.S.
959.00	959.20	0.20	0.050	N.S.	N.S.
959.20	959.70	0.50	0.010	N.S.	N.S.
959.70	960.10	0.40	0.040	N.S.	N.S.
960.10	961.50	1.40	0.010	N.S.	N.S.
965.60	966.60	1.00	0.010	N.S.	N.S.
966.60	967.00	0.40	0.010	N.S.	N.S.
967.00	968.00	1.00	0.020	N.S.	N.S.
985.00	986.20	1.20	0.020	N.S.	N.S.
986.20	986.60	0.40	0.010	N.S.	N.S.
986.60	988.10	1.50	0.010	N.S.	N.S.
988.10	989.00	0.90	0.010	N.S.	N.S.
1010.00	1010.01	0.01	N.S.	N.S.	N.S.

ERAGED ASSAY INTERVALS
OPERTY: Holloway
HOLE No: 142

1. 1/3 CONTACT (1.00 d.t. Core Angle: 90 1.00 t.t.)

		EASTINGS:	5942.10
FROM:	875.70	NORTHINGS:	4553.96
		ELEVATION:	-812.95
	0.020 Au g/t (Cut to: 34.290)		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5942.02
TO:	876.70	NORTHINGS:	4554.55
		ELEVATION:	-813.75

2. 3/4 CONTACT (0.50 d.t. Core Angle: 90 0.50 t.t.)

		EASTINGS:	5935.25
FROM:	959.20	NORTHINGS:	4604.64
		ELEVATION:	-878.93
	0.010 Au g/t (Cut to: 34.290)		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	5935.21
TO:	959.70	NORTHINGS:	4604.95
		ELEVATION:	-879.31

3. LZ2 (2.70 d.t. Core Angle: 15 0.70 t.t.)

		EASTINGS:	5936.64
FROM:	939.80	NORTHINGS:	4592.44
		ELEVATION:	-863.90
	5.427 Au g/t (Cut to: 34.290)		
	5.440 R1		
	5.418 R2		
		EASTINGS:	5936.45
TO:	942.50	NORTHINGS:	4594.14
		ELEVATION:	-865.99

4. LZ (3.75 d.t. Core Angle: 15 0.97 t.t.)

		EASTINGS:	5938.45
FROM:	917.00	NORTHINGS:	4578.37
		ELEVATION:	-846.06
	6.146 Au g/t (Cut to: 34.290)		
	6.313 R1		
	5.972 R2		
		EASTINGS:	5938.12
TO:	920.75	NORTHINGS:	4580.63
		ELEVATION:	-849.03

==========

5. FWZ (0.01 d.t. Core Angle: 90 0.01 t.t.)

	EASTINGS:	5932.16
FROM: 1010.00 ----------	NORTHINGS:	4637.73
	ELEVATION:	-917.33
-0.000 Au g/t (Cut to: 34.290)		
-0.000 R1		
-0.000 R2		
	EASTINGS:	5932.16
TO: 1010.01 ----------	NORTHINGS:	4637.74
	ELEVATION:	-917.34

6. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

	EASTINGS:	5939.53
FROM: 905.00 ----------	NORTHINGS:	4571.15
	ELEVATION:	-836.54
-0.000 Au g/t (Cut to: 34.290)		
-0.000 R1		
-0.000 R2		
	EASTINGS:	5939.53
TO: 905.10 ----------	NORTHINGS:	4571.21
	ELEVATION:	-836.62

7. SHZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

	EASTINGS:	5948.71
FROM: 288.00 ----------	NORTHINGS:	4295.65
	ELEVATION:	-287.96
-0.000 Au g/t (Cut to: 34.290)		
-0.000 R1		
-0.000 R2		
	EASTINGS:	5948.71
TO: 288.10 ----------	NORTHINGS:	4295.68
	ELEVATION:	-288.06

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 142a
GRID: holloway

DATE: June 9,1991
SURVEY BY:
INSTRUMENT: GYRO to 792.4

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-73.50	360.00	5950.000	4210.000	-13.000
30.50	-72.42	357.40	5949.797	4218.935	-42.161
61.00	-72.58	359.70	5949.565	4228.104	-71.249
91.40	-72.75	358.20	5949.399	4237.160	-100.269
121.90	-72.92	358.10	5949.109	4246.157	-129.410
152.40	-72.83	358.60	5948.850	4255.134	-158.558
182.90	-72.58	358.80	5948.644	4264.199	-187.679
213.40	-72.50	360.40	5948.580	4273.350	-216.774
274.30	-72.70	360.30	5948.692	4291.562	-274.887
304.80	-72.58	360.30	5948.739	4300.662	-303.997
335.30	-71.25	360.00	5948.764	4310.130	-332.991
365.70	-70.75	358.80	5948.660	4320.027	-361.734
396.20	-69.50	359.00	5948.461	4330.394	-390.418
425.00	-67.17	360.00	5948.369	4341.026	-417.183

REMARKS:

1. ABANDONED, WEDGE PROBLEMS
2.
3.
4.
5.

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: holloway
HOLE NO: 142b
GRID: holloway

DATE: June 9,1991
SURVEY BY:
INSTRUMENT: GYRO to 792.4

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-73.50	360.00	5950.000	4210.000	-13.000
30.50	-72.42	357.40	5949.797	4218.935	-42.161
61.00	-72.58	359.70	5949.565	4228.104	-71.249
91.40	-72.75	358.20	5949.399	4237.160	-100.269
121.90	-72.92	358.10	5949.109	4246.157	-129.410
152.40	-72.83	358.60	5948.850	4255.134	-158.558
182.90	-72.58	358.80	5948.644	4264.199	-187.679
213.40	-72.50	360.40	5948.580	4273.350	-216.774
274.30	-72.70	360.30	5948.692	4291.562	-274.887
304.80	-72.58	360.30	5948.739	4300.662	-303.997
335.30	-71.25	360.00	5948.764	4310.130	-332.991
365.70	-70.75	358.80	5948.660	4320.027	-361.734
396.20	-69.50	359.00	5948.461	4330.394	-390.418
426.70	-67.17	360.00	5948.363	4341.654	-418.763
457.18	-66.83	361.72	5948.542	4353.562	-446.820
487.66	-66.50	361.60	5948.892	4365.630	-474.807
518.10	-66.00	361.10	5949.180	4377.886	-502.669
548.60	-65.00	361.20	5949.434	4390.532	-530.423
579.10	-64.33	360.40	5949.617	4403.582	-557.989
609.60	-63.80	359.80	5949.640	4416.921	-585.418
640.00	-63.17	359.30	5949.533	4430.492	-612.620
670.50	-62.75	358.50	5949.267	4444.355	-639.786
701.00	-58.67	358.30	5948.850	4459.271	-666.387
723.00	-58.42	358.00	5948.480	4470.745	-685.154

REMARKS:

1. RODS STUCK 702-723
2.
3.
4.
5.

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 142
GRID: holloway

DATE: June 9,1991
SURVEY BY:
INSTRUMENT: GYRO to 792.4

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-73.50	360.00	5950.000	4210.000	-13.000
30.50	-72.42	357.40	5949.797	4218.935	-42.161
61.00	-72.58	359.70	5949.565	4228.104	-71.249
91.40	-72.75	358.20	5949.399	4237.160	-100.269
121.90	-72.92	358.10	5949.109	4246.157	-129.410
152.40	-72.83	358.60	5948.850	4255.134	-158.558
182.90	-72.58	358.80	5948.644	4264.199	-187.679
213.40	-72.50	360.40	5948.580	4273.350	-216.774
274.30	-72.70	360.30	5948.692	4291.562	-274.887
304.80	-72.58	360.30	5948.739	4300.662	-303.997
335.30	-71.25	360.00	5948.764	4310.130	-332.991
365.70	-70.75	358.80	5948.660	4320.027	-361.734
396.20	-69.50	359.00	5948.461	4330.394	-390.418
426.70	-67.17	360.00	5948.363	4341.654	-418.763
457.18	-66.83	361.72	5948.542	4353.562	-446.820
487.66	-66.50	361.60	5948.892	4365.630	-474.807
518.10	-66.00	361.10	5949.180	4377.886	-502.669
548.60	-65.00	361.20	5949.434	4390.532	-530.423
579.10	-64.33	360.40	5949.617	4403.582	-557.989
609.60	-63.80	359.80	5949.640	4416.921	-585.418
640.00	-63.17	359.30	5949.533	4430.492	-612.620
670.50	-62.75	358.50	5949.267	4444.355	-639.786
701.00	-58.67	358.30	5948.850	4459.271	-666.387
731.50	-58.42	358.00	5948.337	4475.179	-692.405
762.00	-58.00	357.60	5947.720	4491.234	-718.329
792.40	-57.08	357.60	5947.037	4507.536	-743.980
832.00	-56.50	354.00	5945.448	4529.167	-777.112
854.00	-56.25	353.00	5944.069	4541.272	-795.431

REMARKS:

1. RODS STUCK 840-854
2.
3.
4.
5.

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 142d
GRID: holloway

DATE: June 9,1991
SURVEY BY:
INSTRUMENT: GYRO to 792.4

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-73.50	360.00	5950.000	4210.000	-13.000
30.50	-72.42	357.40	5949.797	4218.935	-42.161
61.00	-72.58	359.70	5949.565	4228.104	-71.249
91.40	-72.75	358.20	5949.399	4237.160	-100.269
121.90	-72.92	358.10	5949.109	4246.157	-129.410
152.40	-72.83	358.60	5948.850	4255.134	-158.558
182.90	-72.58	358.80	5948.644	4264.199	-187.679
213.40	-72.50	360.40	5948.580	4273.350	-216.774
274.30	-72.70	360.30	5948.692	4291.562	-274.887
304.80	-72.58	360.30	5948.739	4300.662	-303.997
335.30	-71.25	360.00	5948.764	4310.130	-332.991
365.70	-70.75	358.80	5948.660	4320.027	-361.734
396.20	-69.50	359.00	5948.461	4330.394	-390.418
426.70	-67.17	360.00	5948.363	4341.654	-418.763
457.18	-66.83	361.72	5948.542	4353.562	-446.820
487.66	-66.50	361.60	5948.892	4365.630	-474.807
518.10	-66.00	361.10	5949.180	4377.886	-502.669
548.60	-65.00	361.20	5949.434	4390.532	-530.423
579.10	-64.33	360.40	5949.617	4403.582	-557.989
609.60	-63.80	359.80	5949.640	4416.921	-585.418
640.00	-63.17	359.30	5949.533	4430.492	-612.620
670.50	-62.75	358.50	5949.267	4444.355	-639.786
701.00	-58.67	358.30	5948.850	4459.271	-666.387
731.50	-58.42	358.00	5948.337	4475.179	-692.405
762.00	-58.00	357.60	5947.720	4491.234	-718.329
792.40	-57.08	357.60	5947.037	4507.536	-743.980
832.00	-56.50	354.00	5945.448	4529.167	-777.112
868.00	-56.00	353.00	5943.184	4549.039	-807.045
895.00	-54.25	353.00	5941.302	4564.362	-829.196
934.00	-54.00	353.00	5938.517	4587.047	-860.797

REMARKS:

1. HOLE BLOCKED 832m, WEDGE MOVED.
2.
3.
4.
5.

FROM	TO	WIDTH	Au g/t	R1	R2
874.80	875.80	1.00	0.010	N.S.	N.S.
875.80	876.80	1.00	0.080	N.S.	N.S.
876.80	878.00	1.20	0.010	N.S.	N.S.
913.20	914.30	1.10	0.030	0.030	0.030
914.30	915.30	1.00	0.010	0.010	0.010
915.30	916.30	1.00	0.190	0.210	0.160
916.30	917.60	1.30	0.160	0.150	0.160
917.60	918.50	0.90	0.040	0.030	0.040
918.50	919.80	1.30	0.080	0.080	0.080
919.80	920.80	1.00	0.110	0.110	0.100
920.80	922.20	1.40	0.150	0.150	0.150
922.20	923.30	1.10	1.460	1.450	1.470
923.30	924.60	1.30	1.540	1.540	1.540
924.60	925.80	1.20	0.300	0.320	0.280
925.80	926.80	1.00	3.770	3.840	3.700
926.80	928.00	1.20	0.950	0.960	0.930
928.00	929.60	1.60	0.210	0.200	0.220
929.60	930.60	1.00	0.150	0.150	0.140
930.60	931.50	0.90	0.110	0.110	0.100
931.50	932.90	1.40	0.550	0.510	0.580
932.90	934.00	1.10	1.970	1.950	1.990

LATITUDE 6209E

DEPARTURE 4320N

ELEVATION (N-12m.)

DIP AT COLLAR -70 BEARING 360 deg.

TOTAL DEPTH 858.0m. CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS Casing left in hole.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Note: See GYRO to 841 meters.			
858m.	-59		355

Project No. 155 Hole No. HW-91-143

Property Holloway (P. D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No.

Date started May 4, 1991 completed May 24, 1991

Contractor Bradley Bros.

Logged by RB Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-25.0	Casing			RQD ≥75% unless noted.
25.0-40.6 MASSIVE MAFIC FLOW	Medium grey green, medium to fine grained, massive, non-magnetic, mafic flow. 38.0-40.6 Decreasing grain size, possible chilled flow base. 39.2-40.5 Blocky, highly fractured core. Shear plane at 35 deg. to c.a. at 40.4m.			Note: Hexagonal core barrel used 25.0-173.0m.
40.6-45.7 PILLOWED MAFIC FLOW BRECCIA	Pale to medium grey green, aphanitic, pillowed flow top breccia. Locally vuggy carbonate filled fractures (irregular) are present.			
45.7-81.7 MASSIVE, MAFIC FLOW	Medium grey green, very fine grained to medium grained, massive mafic flow. A narrow, very fine grained, weakly chilled flow base is noted. Contact is 55 deg. to c.a. at 81.7m.			

P.A.P. - 14064

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
81.7-96.5 PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic, pillowed mafic flow. Selvages locally contain hyaloclastite.			
96.5-100.4 AMYGDALOIDAL MASSIVE, MAFIC FLOW	Pale to medium grey green, aphanitic, amygdaloidal massive mafic flow. S1 at 40 deg. to c.a. at 100.4m.			
100.4-107.3 PORPHYRO-BLASTIC MASSIVE, MAFIC FLOW	Pale to medium grey green, aphanitic to very fine grained, glomero-porphyroblastic, massive mafic flow. White, subhedral feldspar porphyroblasts (up to 0.5cm) are present in "clusters". The upper 0.7 meters contains a higher percentage of amygdules although they are present throughout.			
107.3-136.8 MASSIVE, MAFIC FLOW	Medium to locally pale grey green, very fine grained, massive mafic flow. Dark green, irregular, chlorite filled fractures are present locally. 121.0-122.3 Pale green, altered (bleached) and pyritic haloes around quartz-ankerite veining. Quartz ankerite vein at 25 deg. to c.a. at 121.1m.	121.0-122.3 Strongly sericitic and ankeritic.	121.0-122.3 Pyrite 1-2% in fine grained, disseminated form associated with qav.	

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
136.8-158.7 PILLOWED MAFIC FLOW	Medium to locally pale grey green, aphanitic, pillowed, mafic flow. Medium to dark green, chloritized selvages are present. Locally weakly chilled pillow margins are noted. 156.9-158.7 Basal pillow breccia unit. Lower contact is sharp, but marked by a quartz-carbonate vein with associated wall rock alteration. Contact at 30 deg. to c.a.	Calcite veining minor.		
158.7-175.4 MASSIVE MAFIC FLOW	Medium green, fine grained, massive leucoxenitic mafic flow. Black chlorite veinlets and space-fracture fillings occur throughout; 1-3% locally.	Weak calcite as veinlets. Minor brick red hematite along fractures.		Note: Standard core barrel used 173.0-302.0m with short shell.
175.4-189.9 PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic, pillowed mafic flow. Pale green, epidotized, well developed selvages are present. Upper contact (qav) at 15 deg. to c.a. at 175.4m.			
189.9-192.1 FLOW BRECCIATED PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic, weakly developed, flow brecciated, pillowed mafic flow. 189.8-189.9 Red brown, hematite staining on fractures. Contact (qav) at approximately 10 deg. to c.a. at 192.1m.			

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
192.1-194.7 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive, mafic flow. Lower contact marked by occurrence of pillow selvage.			
194.7-197.2 PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic, pillowed mafic flow.			
197.2-200.5 SERICITIC, ANKERITIC, PYRITIC, PILLOWED MAFIC FLOW AND 15% QAV	Pale green to locally pale grey, strongly altered, pyritic, pillowed mafic flow and 15-20% narrow quartz-ankerite veining (1-4cm). Qav (pyrite) at 50 deg. to c.a. at 199.3m. Qav (pyrite) at 40 deg. to c.a. at 199.8m.	197.2-200.5 30% silicified moderately to strongly ankeritic and sericitic.	197.2-200.5 Pyrite 1-3%, in very fine to medium grained, disseminated and fracture filling form.	
200.5-233.4 PILLOWED MAFIC FLOW	Medium grey green, aphanitic, pillowed mafic flow. Pale green, epidotized selvages are present. 232.9-233.4 S1 (pyrite) at 45-50 deg. to c.a. Contact at 45 deg. to c.a. at 233.4m.			
233.4-235.3 FLOW BRECCIATED PILLOWED FLOW	Medium to dark grey green, aphanitic, weakly flow brecciated, pillowed mafic flow. S1 at 50 deg. to c.a. at 235.3m.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
235.3-255.4 MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained to fine grained, massive mafic flow. Lower contact sharp and at 65 deg. to c.a.			
255.4-256.2 PILLOW BRECCIA	Medium green, coarse pillow breccia unit with sharp upper contact and gradational lower contact.			
256.2-262.0 PILLOWED AMYGDALOIDAL MAFIC FLOW	Medium green, fine to medium grained, weakly amygdaloidal and possibly weakly pillowed mafic flow. Calcite occurs as fracture fillings and filling amygdules. At 263.0, S1 = 40 deg. (weak).			
262.0-264.7 ALTERED MAFIC FLOW	Light grey-green coloured, moderately foliated ankeritic and locally silicified mafic flow with trace to 4% pyrite. 262.0-262.7 Massive, silicified and pyritized. 262.7-264.7 Moderately foliated, ankeritic. S1 = 50-60 deg. to c.a. Lower contact sharp and at 60 deg. to c.a.	262.0-262.9 95% silicified, moderate ankerite. 262.9-264.7 Moderate to strong ankerite.	262.0-263.5 2-4% disseminated and fracture filling pyrite. 263.5-264.7 Trace to 1% pyrite.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
264.7-323.5 **CONGLOMERATE/ ARKOSIC SANDSTONE**	Light grey-green, bleached, ankeritic and weakly silicified coarse polylithic conglomerate. At 267.0, S1 = 50 deg. <u>269.5-270.9</u> Light red, aphanitic, moderately fractured siliceous felsic (syenitic) dyke. Upper contact at 55 deg. to c.a. Lower contact at 40 deg. to c.a. S1 at 50 deg. to c.a. at 282.5m. S1 at 40 deg. to c.a. at 296.3m. <u>307.0-310.8</u> Grades to arkosic, coarse sandstone - same as matrix to overlying conglomerate. S1 at 35 deg. to c.a. at 309.3m. <u>310.8-311.6</u> Grey-green, strongly foliated, carbonated sediment - same as marker unit in other areas. Upper contact broken, but oblique to S1. Lower contact at 45 deg. to c.a., oblique to S1. <u>311.6-323.5</u> Coarse arkosic sandstone as above. S0 at 45 deg. to c.a. at 321.0m. Lower contact faulted, at 75 deg. to c.a.	Moderate to strong ankerite, weakly silicified, weak sericite in matrix. Locally hematized and silicified at 278.6 to 279.7m. **310.8-311.6** Strongly ankeritized. **316.0-323.5** Weakly to strongly silicified, increasing intensity downhole, S1 (100) weakly ankeritized.	**264.7-265.5** 1-2% fine disseminated pyrite. Trace pyrite.	<u>Note:</u> Double hexagonal core barrel used 302.0-858.0m. **304.5-305.4** 60cm lost core; broken core.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
323.5-339.0 FOLIATED SERICITIZED GREYWACKE/ ARGILLITE	Pale yellow-green, thinly bedded/strongly foliated, fine grained greywacke and lesser argillite. Strong S1 foliation is tightly folded; 2-3% folded qav's. S2 at 110 deg. to c.a. at 332.7m. Gradational alteration contact.	Strongly sericitized, moderately ankeritized. Alteration decreases downhole from 337.4m.		323.5-327.1 Fault zone, RQD = 0-10 10cm semi-consolidated grit-clay fault gouge at upper contact. Broken core and minor gouge along foliation at 324.7m. 326.6,326.8-326.9 327.1-333.6 RQD = 50-60% broken along S1 and S2. 333.6-336.9 RQD = 10-20% 5cm unconsolidated fault gouge at 335.5m. Minor fault gouge at 336.8m.
339.0-366.0 FOLIATED GREYWACKE/ ARGILLITE	Grey to weakly green-grey, thinly bedded/ strongly foliated fine to medium grained greywacke and lesser argillite. Tightly folded with well-developed S2. S2 at 105 deg. to c.a. at 349.6m.	Local weak sericite, moderately ankeritized.		
366.0-379.0 SERICITIZED FOLIATED GREYWACKE	Yellow-green, strongly foliated, fine to medium grained greywacke with minor argillite. Tightly folded, well developed S2 throughout. S2 at 115 deg. to c.a. at 372.1m. Contact at 60 deg. to c.a.	Strongly sericitized and moderately ankeritized.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
379.0-381.5 SILICIFIED SANDSTONE	Grey, massive arkosic sandstone/ greywacke. Moderately foliated- sericitic S1 at 30-50 deg. to c.a. Contact at 30 deg. to c.a.	S1 (100), weak sericite.		
381.5-455.5 SERICITIZED GREYWACKE, MINOR ARGILLITE, SANDSTONE	Buff grey, thickly bedded fine to medium grained greywacke, interbedded with sections of pale yellow-green, fine grained greywacke with lesser argillite. Local 10-20% 2-10cm qav's, generally S1-parallel and folded. Moderate to locally strong S1 foliation, local S2 in tightly folded, finer grained/ thinly bedded sections. *S1/S2 ± 10 deg. 381.5-382.5 Buff, strongly foliated, carbonated sediment with 1% sub 1cm angular clasts-cherty and sericitic fine grained sediment. Local fuchsite. Sharp upper contact at 30 deg. to c.a., gradational lower contact. S1 at 25 deg. to c.a. at 390.6m. 395.5-396.6 Grey-beige, silicified greywacke and sandstone, 20% qav's. S0 at 55 deg. to c.a. at 398.0m. S2 at 130 deg. to c.a. 416.7-418.0 Pale grey, silicified greywacke, 20% qav's. S1/S0 at 25 deg. to c.a. at 421.5m.	Weakly to strongly sericitized, moder- ately ankeritized. 381.5-394.0 Moderate to strong sericite. 394.0-433.4 Weak to moderate sericite.	Local trace to 1% fine grained pyrite associated with qav's.	396.0 Local broken core. 403.5 Minor mechanically broken core.

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	433.4-444.8 10 to locally 30% qav's, local silicified greywacke/sandstone at 436.4-436.9, 439.1-439.5, 442.1-444.5. 446.2 Fanned S2, from 130.0-120.0 95 deg. to c.a. 454.0: Graded bedding - tops uphole. S0 at 55 deg. to c.a. Gradational contact.	433.4-444.8 S1 (25) moderate to strong sericite. 444.8-456.1 Moderate to strong sericite, decreasing downhole.	Local trace to 1% fine grained pyrite in silicified and veined zones.	
455.5-457.4 COARSE (LITHIC) GREYWACKE	Grey-green, strongly foliated, coarse grained greywacke. Polylithic. S1 at 30 deg. to c.a. at 456.4m. Graded bedding indicates conflicting top directions at 455.6, 456.1m. Gradational contact.	Weak local sericitization.		
457.4-462.9 GREYWACKE	Grey-green, fine to medium grained, thinly bedded greywacke.			
462.9-468.6 ARGILLITE/ GREYWACKE	Dark grey, thinly bedded argillite and fine grained greywacke. S0 subparallel to S2 at 130-140 deg. to c.a. below 463.0m. Contact at 165 deg. to c.a.	Weak ankerite. 467.8-468.6 Moderately to strongly sericitized.		

P.A.P. - E.1658

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
468.6-472.6 SERICITIZED GREYWACKE, CARBONATE SEDIMENT	Pale yellow-green; locally grey and locally mustard, strongly foliated fine to medium grained greywacke and carbonated sediment. Gradational contacts between the two lithologies- the carbonated sediment is characteristically grey, with greenish or mustard sericite forming an S1 or S2 foliation. It stains a pervasive deep blue, as opposed to the wacke which is ankeritic along and within fractures and foliation planes. Gradational contact.	Moderately to strongly sericitized, local fuchsite. Moderate to very strongly ankeritized.		
472.6-477.0 SERICITIZED GREYWACKE	Pale yellow-green/grey, fine to medium grained greywacke. Moderately foliated, S1 at 50 deg. to c.a.a t 474.5, local S2 at 130 deg. to c.a. at 476.0m. 476.2-477.0 Possible fine grained equivalent to underlying unit. Contact indistinct.	Moderately to strongly sericitized to 476.1m.		
477.0-478.0 CARBONATED SEDIMENT (MARKER)	Grey-green, medium grained, carbonated sediment(?) with 2-3% bleached, subangular to subrounded fine grained greywacke (? wall rock ?) 0.5-2cm fragments at upper and lower contacts. Central section contains <1% of these, also contains several dark grey-green, chloritic 2-5cm angular fragments. Overall mottled appearance due to patchy accumulations of grey-white ankerite grains, in central section. Contact indistinct.	Very strongly ankeritized locally sericitized around qav. 2-5% deformed S1-parallel ankerite-quartz veins.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
478.0-491.4 GREYWACKE, MINOR ARGILLITE	Thickly bedded, dark to medium grey, fine to medium grained greywacke with local thinly interbedded fine grained greywacke and argillite. S0 at 25 deg. to c.a. at 478.6m. Graded bedding-coarsens downhole to 481.1m, tops uphole. S2 at 481.6m at 95 deg. to c.a. S1 at 487.5m at 40 deg. to c.a. 490.1-491.4 Very fine to fine grained, strongly foliated. Contact irregular.	Moderately to strongly ankeritized, locally sericitized.		478.1-478.3 Grit seam, broken seam.
491.4-493.6 CARBONATED SEDIMENT (MARKER)	Same as from 477.0-478.0, possibly same unit, folded. Strongly foliated-spaced sericitic S1 at 130-140 deg. to c.a., folded. Stretched and flattened 1cm, bleached, subrounded to subangular fragments. Lower contact sharp at 165 deg., parallel to S1.	Very strongly anker-itized, brownish sericitic foliation planes. 2-5% folded S1-parallel ankerite-quartz veins.	Trace to locally 1% medium to coarse grained pyrite.	
493.6-499.7 GREYWACKE, LOCAL CARBONATED SEDIMENT	Medium grey to locally bleached buff/ yellow green, fine to medium grained, thickly to locally thinly bedded greywacke, local argillite. Folded S2 throughout. S2 at 135 deg. to c.a. at 493.9m. 494.8-495.0 Infolded carbonated sediment; sharp contacts.	Moderate to local strong ankerite. Local sericite-ankerite alteration adjacent to carbon-ated sediments.	Local trace to 1% fine to medium grained pyrite adjacent to carbonated sediments.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	498.8-499.4 Infolded carbonated sediment, sharp contacts. Alteration contacts.			
499.7-509.9 SERICITIZED GREYWACKE, MINOR ARGILLITE	Pale yellow-green, fine to medium grained greywacke and lesser, thinly interbedded argillite. S2 developed throughout, broad folds. Contact at 45 deg. to c.a., bleached 509.8-509.9m.	Weakly to strongly sericitized. Moderately ankeritized sericitized/ankeritized at lower contact.	509.8-509.9 1% fine grained pyrite.	
509.9-511.5 CARBONATED SEDIMENT	Pale to dark grey, strongly foliated, carbonated sediment as above. Strong S1 local S2. 5% folded S1-parallel ankerite-quartz veins. Bleaching due to increased carbonate content. Lower contact at 30 deg. to c.a., with fuchsite.	Olive sericite, very strong ankerite.	Trace medium grained pyrite.	Contacts parallel to S1/S0.
511.5-661.2 FOLIATED GREYWACKE, MINOR ARGILLITE	Grey, fine grained to locally coarse greywacke. Thickly bedded, with sections of thinly interbedded fine grained greywacke and argillite. Folded throughout. S0/S1 at 40 deg. to c.a. at 514.7m. 515.0-515.6 Coarse-grained, conglomeratic.	511.5-512.0 Moderately silicified, weakly sericitized.	511.5-512.3 Trace to 1% fine grained pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S2 at 110 deg. to c.a. at 517.6m. S0 at 50 deg. to c.a. at 528.3m. 541.0-568.8 Scattered qav's; overall 5-10%. S0 at 35 deg. to c.a. at 548.2m S0, S1 at 35 deg. to c.a. at 565.0m. S0 at 50 deg. to c.a. at 572.0m. S0 at 50 deg. to c.a. at 579.5m. S0/S1 at 30 deg. to c.a., S2 at 140 deg. to c.a. at 586.7m. S0 at 55 deg. to c.a. at 607.6m. S0/S1 at 20 deg. to c.a. at 617.8m. 613.8-614.6 Pinkish grey to locally red brown, altered greywacke and minor syenitic intrusive. 618.0-619.8 Grey green to locally red brown, altered greywacke and minor syenitic intrusive. S0 at 50 deg. to c.a. at 635.0m. S0 at 40 deg. to c.a. at 635.2m. S0 at 35 deg. to c.a. at 644.2m. Contact at 45 deg. to c.a. at 661.2m.	613.8-614.6 Locally weakly silicified, moderately ankeritic. 618.0-619.8 As above.		

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
661.2-663.5 SILICIFIED, PYRITIC VARIOLITIC, MASSIVE MAFIC FLOW	Pale grey, aphanitic, locally variolitic, silicified, pyritic, massive mafic flow. S1 at 30 deg. to c.a. at 663.5m.	661.2-663.5 100% silicified.	661.2-662.5 Pyrite 5-10% S1 fracture filling form. 662.5-663.0 Pyrite 15-20% in very fine grained form, penetrative along fractures. 663.0-663.5 Pyrite trace to 2%.	
663.5-671.9 VARIOLITIC, MAFIC FLOW BRECCIA	Pale to locally dark grey green, aphanitic, variolitic, flow brecciated mafic flow. Varioles range in size from 0.5-3cm. Lower contact is gradational.			
671.9-679.4 MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, massive mafic flow. S1 at 25 deg. to c.a. at 679.4m.			
679.4-689.0 VARIOLITIC MAFIC FLOW BRECCIA	Pale to locally dark grey green, aphanitic, variolitic flow brecciated, mafic flow. Lower contact at 45 deg. to c.a. at 689.0m.	Weakly to locally moderately ankeritic. 688.3-689.0 90% silicified, moderately ankeritic.	688.3-689.0 Pyrite 1-3% in very fine grained, disseminated pyrite.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 15 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
689.0-691.6 AMYGDALOIDAL MASSIVE MAFIC FLOW	Medium grey green, very fine grained, amygdaloidal, massive mafic flow. Weakly foliated. S1 (contact) at 35 deg. to c.a. at 691.6m.			
691.6-699.4 VARIOLITIC, MAFIC FLOW BRECCIA	Pale purple grey to grey green, aphanitic to very fine grained, variolitic (locally), flow brecciated, mafic flow. S1 at 25 deg. to c.a. at 699.4m.	691.6-694.1 90% silicified, moderately ankeritic.	691.6-694.1 Pyrite trace.	
699.4-720.0 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive, mafic flow. Moderate S1 foliation, at 35-55 deg. to c.a. 699.4-702.6 Carbonate filled amygdules are noted. S1 at 45 deg. to c.a. at 713.0m.	Chloritized, moderately to locally strongly ankeritized.		
720.0-747.8 LEUCOXENITIC MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive to moderately foliated, leucoxenitic mafic flow. Gradational upper contact. 731.3-732.9 30% quartz-ankerite veining parallel to S1. S1 (qav) at 30 deg. to c.a. at 731.3m. S1 (qav) at 25 deg. to c.a. at 732.9m. S1 at 40 deg. to c.a. at 747.8m.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
747.8-761.5 MAGNETIC MASSIVE MAFIC FLOW	Medium grey green to locally purple grey, very fine grained, massive mafic flow. 749.7-756.1 Increasing patchy purple grey alteration and associated silicification. 25% quartz-ankerite veining parallel to S1 is noted. S1 at 30 deg. to c.a. at 752.5m. S1 at 50 deg. to c.a. at 761.5m.	Locally hematized. 749.7-756.1 50% silicified, magnetic.	749.7-756.1 Pyrite trace to 1% in S1 fracture filling form.	
761.5-781.1 PORPHYRITIC MAFIC FLOW	Pale green to pale grey, medium to coarse grained, porphyritic mafic flow. Dark green, strongly chloritized, mafic (pyroxene or amphibole) phenocrysts (2mm) are present. Possible minor biotite flakes present. Irregular, dark green, chlorite filled fractures are noted.			Note: Porphyritic flow correlates with unit in HW-91-140 and 140W.
781.1-786.3 MAGNETIC MASSIVE MAFIC FLOW	Grey green, very fine grained to fine grained, magnetic, massive mafic flow. Contact is gradational at 786.3m with narrow qav at 40 deg. to c.a. parallel to S1.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 17 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
786.3-796.3 MAGNETIC, LEUCOXENITIC MASSIVE MAFIC FLOW	Grey, green, very fine to fine grained, magnetic, leucoxenitic, weakly foliated to massive mafic flow.			
796.3-803.8 FOLIATED, LEUCOXENITIC MASSIVE MAFIC FLOW	Grey green, very fine grained, moderately to strongly foliated, leucoxenitic, massive mafic flow. S1 shows small scale folding with narrow qav parallel to S1. S1 (qav) at 50 deg. to c.a. at 798.0m S1 (qav) at 45 deg. to c.a. at 803.7m.			
803.8-826.5 LEUCOXENITIC MASSIVE MAFIC FLOW	Grey green, very fine grained, leucoxenitic, massive mafic flow. 803.8-811.3 Locally weakly magnetic. 815.9-826.5 Moderately to strongly foliated with narrow qav parallel to S1. S1 at 60 deg. to c.a. at 815.9m. S1 at 45 deg. to c.a. at 823.4m. Contact parallel to S1 at 30 deg. to c.a. at 826.5m.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 18 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
826.5-829.8 **MAGNETIC, SILICIFIED, PYRITIC, VARIOLITIC MASSIVE MAFIC FLOW**	Pale to dark purple grey, aphanitic, variolitic, magnetic, massive mafic flow. Irregular fractures filled with magnetite are present locally. Contact is parallel to S1 at 35 deg. at 829.8m.	**826.5-829.8 100% silicified, magnetic and weakly hematized.**	**826.5-829.8 Pyrite 1-3% locally, in very fine grained disseminated form.**	Note: Lightning Zone 826.5-829.8m.
829.8-830.2 **FOLIATED, AMYGDALOIDAL MAFIC FLOW**	Grey green, aphanitic, moderately foliated, amygdaloidal mafic flow. Contact is parallel to S1 at 25 deg. to c.a. at 830.2m.			
830.2-831.6 **PYRITIC ARGILLITE/ GREYWACKE**	Medium grey, fine grained, greywacke with thin interbeds of grey green, very fine grained argillite. S1 (contact) at 40 deg. to c.a. at 830.9m. 830.9-831.4 Dark green, talc-chlorite ultramafic. S1 (contact) at 20 deg. to c.a. at 831.4m. S0/S1 (contact) at 40 deg. to c.a. at 831.6m.		**830.2-830.9 Pyrite 1-2% in very fine grained, disseminated form.** **831.4-831.6 Pyrite 5-10% in primary replacement form.**	
831.6-858.0 **TALC-CHLORITE ULTRAMAFIC FLOW**	Dark green, very fine grained, massive to locally weakly foliated talc-chlorite ultramafic flow. S1 at 30 deg. to c.a. at 836.7m.			

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 19 OF 19

Project No. 155 Hole No. HW-91-143

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	831.6-845.4 Locally weakly magnetic. 854.5-858.0 Blocky ground, ground core from 855.0-857.8 meters.			
858.0	END OF HOLE			

P.A.P. - E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 143
GRID: Holloway

DATE: May 24,1991
SURVEY BY: RDA
INSTRUMENT: Gyro to 841/SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-68.75	364.25	6209.750	4319.400	-10.220
30.48	-68.33	363.79	6210.532	4330.524	-38.587
60.96	-68.08	365.71	6211.469	4341.802	-66.888
91.44	-68.08	364.87	6212.518	4353.132	-95.165
121.91	-68.42	365.97	6213.584	4364.372	-123.465
152.39	-68.00	365.14	6214.680	4375.633	-151.768
182.87	-67.83	365.25	6215.717	4387.046	-180.011
213.35	-67.83	365.66	6216.811	4398.496	-208.238
243.83	-67.92	365.58	6217.935	4409.920	-236.473
274.31	-67.50	365.75	6219.076	4421.425	-264.676
304.79	-66.08	365.02	6220.203	4433.384	-292.689
335.26	-65.50	363.63	6221.146	4445.844	-320.479
365.74	-65.50	362.66	6221.839	4458.464	-348.215
396.22	-65.50	362.19	6222.374	4471.093	-375.950
426.70	-65.50	361.76	6222.810	4483.725	-403.686
457.18	-65.00	361.44	6223.166	4496.481	-431.366
487.66	-64.83	360.45	6223.379	4509.402	-458.971
518.14	-64.33	360.25	6223.459	4522.485	-486.500
548.61	-63.50	359.52	6223.432	4535.883	-513.867
579.09	-63.17	359.24	6223.284	4549.561	-541.105
609.57	-62.75	358.45	6223.005	4563.414	-568.253
640.05	-61.25	356.03	6222.316	4577.707	-595.166
670.53	-61.00	355.56	6221.237	4592.387	-621.856
701.01	-60.92	355.26	6220.053	4607.135	-648.504
731.48	-60.50	354.79	6218.760	4621.985	-675.079
761.96	-60.33	355.30	6217.460	4636.978	-701.585
792.44	-60.00	354.87	6216.161	4652.086	-728.025
822.92	-59.33	354.18	6214.692	4667.410	-754.332
841.21	-59.50	354.55	6213.778	4676.671	-770.077
858.00	-59.00	355.00	6212.996	4685.220	-784.507

PROPERTY: Holloway
HOLE No.: 143

FROM	TO	WIDTH	Au g/t	R1	R2
194.70	196.00	1.30	0.040	N.S.	N.S.
196.00	197.20	1.20	0.010	0.010	0.010
197.20	198.50	1.30	3.000	2.910	3.020
198.50	199.50	1.00	1.440	1.440	1.440
199.50	200.50	1.00	1.710	1.680	1.750
200.50	202.00	1.50	0.030	0.030	0.030
202.00	203.50	1.50	0.020	N.S.	N.S.
261.00	262.00	1.00	0.020	N.S.	N.S.
262.00	262.90	0.90	2.400	N.S.	N.S.
262.90	263.50	0.60	0.380	N.S.	N.S.
263.50	264.70	1.20	0.060	N.S.	N.S.
264.70	265.50	0.80	0.280	N.S.	N.S.
265.50	266.60	1.10	0.220	N.S.	N.S.
658.50	660.00	1.50	0.030	0.030	0.030
660.00	661.20	1.20	0.060	0.070	0.050
661.20	662.50	1.30	0.160	0.140	0.170
662.50	663.00	0.50	0.090	0.100	0.090
663.00	663.50	0.50	0.160	0.170	0.140
663.50	665.00	1.50	0.050	0.030	0.070
665.00	666.50	1.50	0.020	0.020	0.020
755.00	755.10	0.10	N.S.	N.S.	N.S.
823.50	825.00	1.50	0.150	N.S.	N.S.
825.00	826.50	1.50	0.100	0.100	0.100
826.50	827.50	1.00	0.020	0.020	0.020
827.50	828.50	1.00	0.020	0.020	0.020
828.50	829.80	1.30	0.050	0.050	0.040
829.80	830.20	0.40	0.010	0.010	0.010
830.20	830.90	0.70	0.010	N.S.	N.S.
830.90	831.40	0.50	0.020	N.S.	N.S.
831.40	831.60	0.20	0.140	N.S.	N.S.
831.60	833.00	1.40	0.010	N.S.	N.S.
833.00	834.50	1.50	0.010	N.S.	N.S.

1. 1/3 CONTACT (1.30 d.t. Core Angle: 90 1.30 t.t.)

	EASTINGS:	6221.57
FROM: 661.20	NORTHINGS:	4587.89
	ELEVATION:	-613.69
0.160 Au g/t		
0.140 R1		
0.170 R2		
	EASTINGS:	6221.52
TO: 662.50	NORTHINGS:	4588.52
	ELEVATION:	-614.82

2. 3/4 CONTACT (0.70 d.t. Core Angle: 90 0.70 t.t.)

	EASTINGS:	6214.33
FROM: 830.20	NORTHINGS:	4671.10
	ELEVATION:	-760.60
0.010 Au g/t		
-0.000 R1		
-0.000 R2		
	EASTINGS:	6214.29
TO: 830.90	NORTHINGS:	4671.45
	ELEVATION:	-761.20

3. LZ (0.40 d.t. Core Angle: 90 0.40 t.t.)

	EASTINGS:	6214.35
FROM: 829.80	NORTHINGS:	4670.89
	ELEVATION:	-760.25
0.010 Au g/t		
0.010 R1		
0.010 R2		
	EASTINGS:	6214.33
TO: 830.20	NORTHINGS:	4671.10
	ELEVATION:	-760.60

4. SHZ (3.30 d.t. Core Angle: 90 3.30 t.t.)

	EASTINGS:	6216.23
FROM: 197.20	NORTHINGS:	4392.43
	ELEVATION:	-193.28
2.136 Au g/t		
2.092 R1		
2.156 R2		
	EASTINGS:	6216.35
TO: 200.50	NORTHINGS:	4393.67
	ELEVATION:	-196.34

PROPERTY: Holloway
HOLE No: 143

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5. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6217.76
FROM:	755.00	NORTHINGS:	4633.55
		ELEVATION:	-695.53
	-0.000 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6217.75
TO:	755.10	NORTHINGS:	4633.60
		ELEVATION:	-695.62

LATITUDE 6300E

DEPARTURE 4360N

ELEVATION -12m

DIP AT COLLAR 70° BEARING 360°

TOTAL DEPTH 897.0 CORE SIZE NQ

CORE STORAGE Canamax East Zone

REMARKS

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
gyro to 771.0m			

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

NTS. 32D/12 TWP. Holloway Claim No.

Date started May 26, 1991 completed June 15, 1991

Contractor Bradley Bros.

Logged by R.B. Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-34.0	Casing Reamed 32-34 meters.			Note Rod > 80%, unless otherwise noted.
33.0-66.6	Dark grey green, very fine grain to fine grain, massive, non-magnetic mafic flow.			Note: Seager Hill Mafic Volcanics.
MASSIVE MAFIC FLOW	32.0-36.0 Blocky, highly fractured cone. 47.8-62.5 White feldspathic porphyroblasts are present, up to 2.5 cm. in size.			Note: 32.0-36.0m: RQD = 10%
66.6-167.0	Medium to dark grey green, aph, non-magnetic pillowed basalt. Pale green, epidotized, weakly to moderately developed selvages are present. Selvages become better developed below 73.9m.	weak calcite filling fractures and pervasive		Note: Hexagonal 33-233m
PILLOWED MAFIC FLOW	97.4-104.3 Medium to dark grey green, very fine grain, massive mafic flow, Epidote - chlorite - carbonate filling fractures. Probably part of pillowed flow !! Both contacts are gradational.			Dbl Hex 233-269m Std 270-290m Dbl Hex 305-897 Sgl Hex 291-304 Std 304-305
	138.0-138.2 Zone of brecciated pillow fragments in chloritic matrix, cut by one quartz-Ankerite vein.	136.0-139.5 Light green, bleached ankerite-sericite halos around quartz veins/ fractures (1-5mm wide).		

P.A.P. - 14084

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	139.5-142.4 Alteration zone, strong sericite-ankerite, weakly silicified, bleached pale green colour with disseminated pyrite.	139.5-142.4 Bleached pale green strong sericite-Ankerite and weak silicification. 5% milky white to translucent quartz-carbonate veins at 45° and 80° to core axis. 149.2-150.2 weak to moderately bleached light green ankerite-sericite. 150.2-151.0 strong sericite-Ankerite, 10 to 15% quartz-carbonate veining parallel to pillow selvages. 151.0-153.1 As for 149.2-150.2	139.5-141.9 3-7% disseminated 150.2-151.0 2 to 5% disseminated pyrite. (Also pyritic halos around quartz-carbonate vein margins. 151.0-153.1 Trace pyrite	< 1mm size pyrite
167.0-168.1 PILLOW BRECCIA	Dark green, weakly bedded pillow breccia. Pillow fragments 2-4cm sized. Lower contact sharp and at 75° to core axis. Bedding 60-65° to core axis, upper contact is sharp.		Trace pyrite.	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
168.1-172.4 AMYGDALOIDAL FLOW TOP (MASSIVE)	Fine-grained, dark green, weakly magnetic massive amygdaloidal mafic flow top. Calcite fills amygdules that comprise up to 57% rock locally. Gradual decrease in number of amygdules down section; lower contact is gradational Amygdaloidal flow top.	calcite filling fractures		
172.4-183.6 MASSIVE MAFIC FLOW	Fine to medium grained, dark green, massive mafic flow. Weakly foliated locally at 45° to core axis. Lower contact sharp and at 35° to core axis.	calcite filling fractures.		
183.6-185.2 PILLOW BRECCIA/ HYALOCLAS-TITE	Light to medium green mixed flow top unit. Upper 60cm of well developed hyaloclastite, underlain by 80cm of pillow breccia with minor hyaloclastite, underlain by lower section of massive amygdaloidal flow with calcite and chlorite filled amygdules. Lower contact is gradational with pillowed flow below. Here, this sequence must be overturned because flow top has gradational lower contact and sharp upper contact.	calcite in fractures, and filling amygdules.		
185.2-204.2 PILLOWED MAFIC FLOW	Medium green, locally weakly magnetic pillowed mafic flow. Pillow selvages are locally vesicular with 1cm to 15cm wide sections of hyaloclastite - weakly foliated.	188.5-190.5 light green to bleached grey, moderate Ankerite - weak sericite.	188.5-190.5 2-5% larger than 1mm sized disseminated pyrite cubes.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	189.0-190.0 bleached pale grey-green, foliated and pyritic vesicular, poorly developed hyaloclastite. 25cm wide quartz vein parallel to S1. S_1= 10-25° to core axis at 197.0, S_1= 45° at 203.0, S_1= 55° Lower contact sharp and at 55° to core axis.			
204.2-219.2 MASSIVE MAFIC FLOW	Dark green, fine to medium grained massive mafic flow. Unit is locally weakly magnetic. 213.8-219.2 weakly magnetic, local weakly leucoxenitic.	218.8-219.2 patchy bands of light grey silicifi fication.	218.8-219.2 1-3% fine disseminated and fracture filling pyrite.	
219.2-220.5 CHLORITIC INTERFLOW SEDIMENT	Dark green, weakly foliated, chloritic interflow sediments. S_1= 45-60° to core axis. 219.65-219.95 medium grey-green diabase dyke with thin, chilled margins. Contacts at 20° to core axis.	220.1-220.5 as for 218.8-219.2		
220.5-231.1 MASSIVE MAFIC FLOW	Dark green, fine grained, homogeneous massive mafic flow.	220.5-221.35 As for 218.8-219.2 -calcite fills fracture and is pervasive. -silicified from 230.8-231.1	230.8-231.1 1% disseminated	

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
231.1-235.2 MIXED FLOW BRECCIA HYALOCLASTITE AND MASSIVE FLOW	Dark green, mixed flow breccia/hyaloclastite and massive flow. Massive to weakly foliated 5% translucent quartz, ± ankerite veins. Sharp contact at 45° to core axis.	chloritized		Note: Double hexagonal core barrel 233-269
235.12-236.7 SILICIFIED FELSIC DYKE	Orange-red to grey-red, aphanitic to fine grained porphyritic, albitite dyke. Sharp lower contact at 35° to core axis.	sl (100)	t-1% disseminated	
236.7-245.0 MASSIVE FLOW	Dark green, massive flow with minor intermixed fine grain flow breccia 5% irregular quartz and try to 239.8 Leucoxenitic from 242.3-242.7, gradational, foliated contact to possibly tuffaceous unit - 5% chloritic 1-3mm darts shards. Moderately foliated. Contact at 45° to core axis.	chloritized		
245.0-263.0 CONGLOMERATE ARKOSIC SANDSTONE	Grey-green to brick-red, poorly sorted polylithic conglomerate (with jasper clasts, arkosic medium grain sandy matrix, grading to thickly bedded arkosic sandstone, with local conglomeratic clasts, below 246m. Massive to locally moderately foliated. S_1 at 35° to core axis at 264.5m, bedded contact at 40° to to core axis.	sl(70) local		253.7-254.2 mechanically broken core

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
263.0-269 GREYWACKE	Green-grey, fine grain, generally thickly bedded greywacke with minor argillite. S_1 at 35° to core axis, 264.5m.			minor clay gouge along S_1 at 266.3m.
269-270 WEDGE	retrievable wedge, set 80° (down).			Note: Standard core barrel 270-290m.
270-271.4 GREYWACKE	Green-grey fine grain greywacke as above. Gradational contact.			
271.4-290 ARKOSIC SANDSTONE/ GREYWACKE	Beige to greenish/yellow, thickly bedded medium grain arkosic sandstone and greywacke. Massive to locally weakly foliated. 20% quartz-calcite veins at 279.1-280.4m.	sl(90) local sericite along quartz ank vein margins and S_1 planes.		287.2-287.6 mechanically broken core
290-291 WEDGE	retrievable wedge			Note: Standard core barrel 291-294m.
291-293.0 SILICIFIED ARKOSIC SANDSTONE	Beige, massive bedded arkosic sandstone as above.	sl(100)		Note: Hexagonal core 294-305m. 293.0 5cm fault gouge 293.0-294 RQD=0 gravel-sized rubbly core to 293.4, broken

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
293.0-309.1 SERICITIZED FOLIATED GREYWACKE	Yellow-green to yellow-grey, fine grain to medium grain greywacke and minor Argillite. Strongly S_1 foliated and F_2 folded. 2-5% folded quartz veins. S_0/S_1 at 30° to core axis at 296.1m. S_2 at 110° to core axis at 301.5m.	293-295.7 strongly sericitized, and ankeritized.		294-308.3 RQD= 70-100. Local gouge along S_1 foliation planes. Note: Dbl.Hex. 305m. 308.3-309.0 RQD=30. rubbly gravel sized core to 308.6 local minor gouge along S_1 to 309.0
309.1-319.0 FOLIATED GREYWACKE	Grey to local yellow-grey, strongly foliated (S_1 and S_2) and folded fine grain greywacke. S_2 at 90-110° to core axis throughout Alteration contact along S_1.	weak local sericitization (defines foliations)		local grit and gouge along S_1 foliations at 309.2, 312.5m.
319.0-326.7 SERICITIZED FOLIATED GREYWACKE	As from, 293-309.1 S_2 at 120° to core axis at 323.6m. gradational alteration contact , coarsening of grain size.	strongly sericitized and ankeritized		319.9-321.9 RQD= 0-10 broken along S_1, S_2 local sericitic gouge and grit.
326.7-329.1 COARSE GREYWACKE	Green-grey, medium grain greywacke with 1-5mm. rounded quartz grains, coarsening downhole. Moderately foliated. Gradational contact.	local hematite staining of quartz grains.		

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DIAMOND DRILL CORE LOG

Sheet No. 8 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
329.1-331.0 **SCHIST-CHLORITE CARBONATE SEDIMENT**	Dark grey-green, strongly foliated, soft, chlorite-ankerite schist/marker "carbonate" unit. Tectonic layering of chlorite and carbonate ± quartz, at 30-40 deg. to c.a. Gradational, foliated contact.	Strongly ankeritized, chloritized.		
331.0-392.3 **GREYWACKE/ ARGILLITE**	Green-grey, fine to medium grained, locally coarse grained, thickly bedded greywacke with local thinly interbedded argillite. Moderately developed S1 foliation throughout, local S2. Local qav's at 343.3-343.8m. S1 at 20 deg., S2 at 145 deg. to c.a. at 350.4m. S0 at 45 deg. to c.a. at 367.5m. 379.3-379.6 70% qav. S0/S1 at 40 deg. to c.a. at 385.1m. 388.1-392.3 Predominantly greywacke.	Local sericitization associated with qav's. **388.1-392.3** **95% silicified.**	Local arsenopyrite.	
342.3-398.8 **FOLIATED CARBONATE CHLORITE INTRUSIVE OR SEDIMENT**	Moderately foliated to schistose, carbonate, chlorite "marker unit" or sill. Tectonic layering of chlorite/ carbonate. S0/S1 at 60 deg. to c.a. at 398.8m.			

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NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 9 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
398.8-621.0 GREYWACKE/ ARGILLITE	Green grey, very fine grained, thinly bedded, greywacke and argillite. S0/S1 at 25 deg. to c.a., S2 (sericite) at 110 deg. to c.a. at 403.6m. S0/S1 at 25 deg. to c.a. at 419.7m S0/S1 at 25 deg. to c.a. at 427.0m. S0/S1 at 25 deg. to c.a. at 438.5m. S0/S1 at 30 deg. to c.a. at 456.4m. S0/S1 at 60 deg. to c.a. at 465.2m. 471.0-483.0 Folding noted, bedding between 0 and 50 deg. to c.a. S0/S1 at 50 deg. to c.a. at 483.1m. S0/S1 at 15 deg. to c.a. at 488.9m. S0/S1 at 15 deg. to c.a. at 500.4m. S0/S1 at 55 deg. to c.a. at 508.8m. S0/S1 at 55 deg. to c.a. at 520.3m. 523.4-526.4 Folding in predominantly argillitic composition is noted. S2 (sericite) locally developed at 130 deg. to c.a. S0/S1 at 60 deg. to c.a. at 528.4m. S0/S1 at 50 deg. to c.a. at 537.4m. 540.7-543.4 Increased fracturing at 10-40 deg. to c.a. S0 at 10-165 deg. to c.a. at 542.7m, subparallel to the core axis. S0/S1 at 55 deg. to c.a. at 547.2m. S0/S1 at 65 deg. to c.a. at 549.0m.	398.8-399.4 95% silicified. 416.3-438.5 Moderately to strongly sericitized.	Local pyrite 1%	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	549.0-557.8 Folding in predominantly argillitic composition is noted. S0/S1 at 60 deg. to c.a. at 557.8m. S0/S1 at 50 deg. to c.a. at 568.6m. S0/S1 at 45 deg. to c.a. at 577.0m. S0/S1 at 35 deg. to c.a. at 595.0m. S0/S1 at 35 deg. to c.a. at 604.5m. S0/S1 at 50 deg. to c.a. at 615.6m. Contact at 70 deg. to c.a. at 621.0m.			
621.0-632.2 MASSIVE, LEUCOXENITIC MAFIC FLOW	Medium grey green, very fine grained, leucoxenitic, weakly foliated, massive mafic flow. S1 at 40 deg. to c.a. at 625.6m. Contact parallel to S1 at 25 deg. to c.a. at 632.2m.			
632.2-637.2 FOLIATED, PILLOWED FLOW BRECCIATED MAFIC FLOW	Medium to pale grey green, aphanitic, moderately to strongly foliated, flow brecciated, weakly pillowed mafic flow. S1 (pyrite) at 35 deg. to c.a. at 634.9m. S1 at 50 deg. to c.a. at 637.2m.		632.2-637.2 Pyrite 1-2% in very fine to fine grained, S1 fracture filling form.	
637.2-639.8 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. 637.2-637.9 Amygdaloidal, weakly magnetic flow top. Contact parallel to S1 at 30 deg. to c.a. at 639.8m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
639.8-641.8 FOLIATED, MAGNETIC, PILLOWED FLOW BRECCIATED MAFIC FLOW	Pale grey green, subrounded remnant pillows (up to 15cm), elongated parallel to S1, in a dark grey green, aphanitic matrix. Locally weakly developed hyaloclastite is noted. The interval is locally magnetic. S1 contains pyrite and magnetite.		639.8-641.8 Pyrite and magnetite in S1 fracture filling form.	
641.8-671.9 MAGNETIC, MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. 641.8-642.8 Amygdaloidal flow top. The flow is locally magnetic and locally leucoxenitic.			
671.9-676.9 FOLIATED, ANKERITIC MAFIC FLOW	Dark to pale grey green, very fine grained, strongly foliated, altered mafic flow (?). Narrow, white, quartz-ankerite veinlets (1-3mm) define S1 foliation. S1 at 33 deg. to c.a. at 671.9m. S1 at 15 deg. to c.a. at 676.9m.	Moderately ankeritic.		
676.9-680.6 MASSIVE, MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. 679.5-680.6 Interval contains brecciated altered contact zone. Buff to orangy brown, altered fragments in a dark green altered basalt. Irregular dark green chloritic fractures are present.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 12 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
680.6-730.6 COARSE GRAINED ULTRAMAFIC FLOW/SILL	Medium to pale grey green, fine to coarse grained, porphyritic, massive, magnesium rich mafic to ultramafic flow or possibly a sill. Upper margin is fine grained, medium grey green and chilled. Central portion is pale grey green, medium to coarse grained with dark green, anhedral chloritized grains (phenocrysts), up to 4mm. Lower margin, below 728m, becomes fine grained, weakly foliated and weakly talcose. 730.3-730.6 Quartz veining obscures the contact.			Note: Equivalent to coarse grained flow/sill in 140W.
730.6-748.5 LEUCOXENITIC MASSIVE FLOW	Medium grey green, very fine grained, weakly foliated, leucoxenitic, mafic flow. S1 at 50 deg. to c.a. at 732.0m. S1 at 60 deg. to c.a. at 740.0m. Contact (parallel S1) at 40 deg. to c.a. at 748.5m.			
748.5-779.2 PILLOWED MAFIC FLOW	Medium to locally dark grey green, aphanitic to very fine grained, weakly to moderately foliated, pillowed mafic flow. Narrow, dark green, chloritized, weakly to moderately developed selvages are present. Amygdaloidal pillow margins are noted locally.			

P.A.P. - E1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 at 35 deg. to c.a. at 756.1m. S1 at 45 deg. to c.a. at 765.0m. S1 at 50 deg. to c.a. at 768.2m. S1 (parallel contact) at 50 deg. to c.a. at 779.2m.			
779.2-787.5 FOLIATED, LOCALLY VARIOLITIC, MAFIC FLOW BRECCIA	Pale to locally dark grey green, aphanitic, strongly foliated flow brecciated, locally variolitic mafic flow. S1 (pyrite) at 40 deg. to c.a. at 780.9m. 784.7-785.1 30% quartz-ankerite veining parallel to S1 foliation at 45 deg. to c.a. S1 at 45 deg. to c.a. at 787.5m.	780.7-781.0 100% silicified. 781.2-781.5 100% silicified. 784.7-785.1 50% silicified.	780.7-781.0 Pyrite 1-2%, in S1 fracture filling form. 781.2-781.5 Pyrite 3-5%, as above. 784.7-785.1 Pyrite 2-4% as above, associated with qav.	
787.5-791.1 MASSIVE, MAFIC FLOW	Medium grey green, very fine grained, weakly foliated, massive, mafic flow. S1 at 30 deg. to c.a. at 791.1m.			
791.1-796.9 PILLOWED MAFIC FLOW	Medium to dark grey green, aphanitic to very fine grained, pillowed, mafic flow. Dark green, chloritized selvages are weakly developed at top of flow. S1 foliation is moderately developed. Basal portion appears more massive than pillowed. Contact (parallel S1) at 40 deg. to c.a. at 796.9m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
796.9-798.2 ARGILLITE	Dark green grey, very fine grained, thinly bedded argillite. Contact at 30 deg. to c.a. at 798.2m.			
798.2-835.6 TALC-CHLORITE ULTRAMAFIC FLOW	Dark grey green, very fine grained, massive talc-chlorite ultramafic flow. 821.5-823.5 30% quartz-ankerite filled veinlets and stockwork microfracturing. Contact at 10 deg. to c.a. at 821.5m. Contact at 50 deg. to c.a. at 823.5m. 830.5-835.6 40% quartz-carbonate veining.			
835.6-848.7 FOLIATED, FLOW BRECCIATED TALC-SERPENTINE ULTRAMAFIC FLOW	Olive green to dark grey green, very fine grained, moderately foliated, flow brecciated, talc-serpentine ultramafic flow. S1 at 25 deg. to c.a. at 837.0m. S1 at 50 deg. to c.a. at 846.1m.			

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DIAMOND DRILL CORE LOG

Sheet No. 15 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
848.7-854.7 MASSIVE TALC SERPENTINE ULTRAMAFIC FLOW	Dark grey green to olive green, very fine grained, massive talc-serpentine ultramafic flow. Remnant spinifex texture is noted at 853.6m.			
854.7-861.4 FOLIATED, TALC, SERPENTINE, ANKERITIC ULTRAMAFIC FLOW	Pale grey to olive green to dark grey green, very fine grained, strongly foliated, locally sheared, talc-serpentine ultramafic flow. Shear plane at 50 deg. to c.a. at 854.7m. Fault zone between 856.2 and 856.7m at 50 deg. to c.a. Strongly foliated to 861.2, becoming less foliated downhole. Contact gradational.	Moderately to strongly ankeritic.		856.2-856.7 Fault Zone 50° tca.
861.4-866.0 FOLIATED LEUCOXENITIC MASSIVE MAFIC FLOW	Grey or green, fine grained, finely leucoxenitic, massive facies basaltic flow. Moderately to locally strongly foliated, S1 folded. 861.4-862.1 Green, finely leucoxenitic. Sharp contact at 70 deg. to c.a. 862.1-864.5 Green-grey, locally finely leucoxenitic, strongly altered and foliated. Qav at lower contact. 864.5-864.7 Talcose green ultramafics, qav's.	Chloritized, moderately to strongly ankeritized.		

P.A.P. - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	864.7-866.0 Green to grey where strongly altered, locally leucoxenitic massive basalt. Strongly foliated, S1 folded. Contact somewhat indistinct.		864.7-866.0 Local coarse grained pyrite.	
866.0-875.6 FOLIATED TALC-CHLORITE ULTRAMAFIC VOLCANICS	Green-grey, strongly foliated to tectonically brecciated and laminated ultramafic volcanics. 5% foliation-parallel qav's. Locally well developed S2 at 110-130 deg. to c.a. Gradational contact.	Talc, chlorite, strongly ankeritized.		866.0-872.4 RQD = 40-50% breaks along S1 and S2, at qav margins.
875.6-883.0 CHLORITIC FOLIATED ULTRAMAFIC	Drab grey-green, moderately to strongly foliated, fine grained, massive textured ultramafic. Similar to carbonated S1 units, particularly in greywacke sequence. S1 folded; at 30 deg. to c.a. at 877.3m. Contact foliated at 60 deg. to c.a., somewhat gradational.	Chloritized, strongly ankeritized.		Altered sediment?
883.0-886.3 CARBONACEOUS ARGILLITE, GREYWACKE	883.0-883.3 Black, thinly bedded, carbonaceous argillite. Locally graphitic. 883.3-886.3 Dark green, thickly bedded fine grained greywacke. Strongly foliated 20% S1-parallel qav's at 883.7-884.2m.	Moderately ankeritized.	883.0-883.3 Local 1-3% fine grained bedded pyrite. 883.7-884.3 1-2% medium grained pyrite in strongly foliated and veined zone.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 17 OF 17

Project No. 155 Hole No. HW-91-144

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
886.3-891.4 FOLIATED LITHIC (COARSE) GREYWACKE OR CONGLOMERATE	Grey-green, strongly foliated, coarse lithic greywacke/conglomerate. Clasts strongly deformed, range up to 5cm in length. S1 at 40 deg. to c.a. at 887m. Local qav's both parallel and orthogonal to S1. Lower contact parallel to S1 at 55 deg. to c.a.	Moderately ankeritized.		
891.4-897.0 FOLIATED GREYWACKE	Dark grey, locally thinly bedded, strongly foliated, fine grained greywacke and minor argillite. S0/S1 undulate between ± 20 deg. to c.a., local weak S2 is developed. Local graphitic argillite at 896.5-896.7m.	Moderate to strongly ankeritized.		
897.0	END OF HOLE			

P.A.P. - E-1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 144
GRID: Holloway

DATE: June 16 1991
SURVEY BY: RBA
INSTRUMENT: Gyro to 771/SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-69.25	366.30	6328.600	4363.200	-6.500
30.48	-67.92	365.50	6329.744	4374.270	-34.876
60.96	-67.58	365.80	6330.880	4385.755	-63.086
91.44	-67.50	365.80	6332.057	4397.340	-91.254
121.92	-67.42	370.70	6333.733	4408.903	-119.406
152.40	-66.83	369.70	6335.832	4420.564	-147.489
182.88	-66.53	369.90	6337.885	4432.454	-175.479
213.36	-66.08	370.00	6340.002	4444.519	-203.389
243.84	-65.50	369.70	6342.140	4456.834	-231.188
274.32	-65.25	369.10	6344.214	4469.363	-258.896
304.80	-65.67	368.90	6346.195	4481.867	-286.623
335.28	-65.50	368.10	6348.057	4494.327	-314.378
365.76	-65.42	367.90	6349.819	4506.863	-342.104
396.24	-65.50	367.80	6351.548	4519.404	-369.831
426.72	-64.83	366.10	6353.097	4532.111	-397.492
457.20	-64.53	366.10	6354.482	4545.073	-425.044
487.68	-64.08	362.50	6355.473	4558.251	-452.510
518.26	-63.75	362.80	6356.095	4571.683	-479.975
548.64	-63.42	363.20	6356.802	4585.180	-507.184
579.12	-61.83	359.30	6357.108	4599.192	-534.250
609.60	-61.00	357.10	6356.650	4613.768	-561.015
640.08	-60.58	354.80	6355.599	4628.605	-587.619
670.56	-60.00	354.60	6354.204	4643.647	-614.092
701.00	-60.08	354.40	6352.747	4658.779	-640.465
731.52	-59.83	354.80	6351.309	4673.992	-666.884
771.14	-58.83	352.80	6349.126	4694.083	-700.962
837.00	-58.00	353.00	6344.862	4728.314	-757.066
858.00	-57.00	352.00	6343.389	4739.501	-774.777
897.00	-55.75	352.00	6340.384	4760.887	-807.251

** BORSURV **

SAY LOG

JPERTY: Holloway
HOLE No.: 144

FROM	TO	WIDTH	Au g/t	R1	R2
138.00	139.50	1.50	0.040	N.S.	N.S.
139.50	141.00	1.50	3.290	N.S.	N.S.
141.00	142.40	1.40	1.250	N.S.	N.S.
142.40	143.90	1.50	0.020	N.S.	N.S.
149.20	150.20	1.00	0.030	N.S.	N.S.
150.20	151.00	0.80	0.810	N.S.	N.S.
151.00	152.00	1.00	0.170	N.S.	N.S.
187.50	188.50	1.00	0.020	N.S.	N.S.
188.50	189.60	1.10	2.220	N.S.	N.S.
189.60	190.50	0.90	3.720	3.700	3.750
190.50	191.30	0.80	0.040	N.S.	N.S.
621.00	621.05	0.05	N.S.	N.S.	N.S.
631.00	632.20	1.20	0.020	N.S.	N.S.
632.20	633.50	1.30	0.020	N.S.	N.S.
633.50	635.00	1.50	0.010	N.S.	N.S.
635.00	636.00	1.00	0.010	N.S.	N.S.
636.00	637.20	1.20	0.010	N.S.	N.S.
637.20	638.50	1.30	0.010	N.S.	N.S.
682.00	682.10	0.10	N.S.	N.S.	N.S.
779.20	780.70	1.50	0.010	N.S.	N.S.
780.70	781.50	0.80	0.010	N.S.	N.S.
781.50	783.10	1.60	0.010	N.S.	N.S.
783.10	784.70	1.60	0.110	N.S.	N.S.
784.70	785.10	0.40	2.640	N.S.	N.S.
785.10	786.20	1.10	0.050	N.S.	N.S.
786.20	787.50	1.30	0.010	N.S.	N.S.
796.60	796.61	0.01	N.S.	N.S.	N.S.
830.50	832.00	1.50	0.010	N.S.	N.S.
832.00	833.50	1.50	0.010	N.S.	N.S.
833.50	834.50	1.00	0.010	N.S.	N.S.
834.50	835.60	1.10	0.010	N.S.	N.S.
867.00	867.01	0.01	N.S.	N.S.	N.S.
882.00	883.00	1.00	0.010	N.S.	N.S.
883.00	883.70	0.70	0.030	N.S.	N.S.
883.70	884.20	0.50	0.050	N.S.	N.S.
884.20	885.70	1.50	0.010	N.S.	N.S.

** BORSURV **

AVERAGED ASSAY INTERVALS
PROPERTY: Holloway
HOLE No: 144

==========

1. LZ (0.40 d.t. Core Angle: 90 0.40 t.t.)

		EASTINGS:	6348.25
FROM:	784.70	NORTHINGS:	4701.13
		ELEVATION:	-712.51
	2.640 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6348.22
TO:	785.10	NORTHINGS:	4701.34
		ELEVATION:	-712.85

2. 1/3 CONTACT (0.05 d.t. Core Angle: 90 0.05 t.t.)

		EASTINGS:	6356.26
FROM:	621.00	NORTHINGS:	4619.32
		ELEVATION:	-570.97
	-0.000 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6356.25
TO:	621.05	NORTHINGS:	4619.34
		ELEVATION:	-571.01

3. 3/4 CONTACT (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	6347.48
FROM:	796.60	NORTHINGS:	4707.32
		ELEVATION:	-722.65
	-0.000 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6347.48
TO:	796.61	NORTHINGS:	4707.32
		ELEVATION:	-722.66

4. SHZ (2.90 d.t. Core Angle: 90 2.90 t.t.)

		EASTINGS:	6334.94
FROM:	139.50	NORTHINGS:	4415.63
		ELEVATION:	-135.60
	2.305 Au g/t		
	-0.000 R1		
	-0.000 R2		
		EASTINGS:	6335.14
TO:	142.40	NORTHINGS:	4416.74
		ELEVATION:	-138.28

5. SHZ2 (2.00 d.t. Core Angle: 90 2.00 t.t.)

		EASTINGS:	6338.28
FROM:	188.50	NORTHINGS:	4434.68
		ELEVATION:	-180.62

2.895 Au g/t
1.665 R1
1.687 R2

		EASTINGS:	6338.41
TO:	190.50	NORTHINGS:	4435.47
		ELEVATION:	-182.46

6. FWZ (0.01 d.t. Core Angle: 90 0.01 t.t.)

		EASTINGS:	6342.70
FROM:	867.00	NORTHINGS:	4744.44
		ELEVATION:	-782.27

-0.000 Au g/t
-0.000 R1
-0.000 R2

		EASTINGS:	6342.70
TO:	867.01	NORTHINGS:	4744.44
		ELEVATION:	-782.28

7. MZ (0.10 d.t. Core Angle: 90 0.10 t.t.)

		EASTINGS:	6353.66
FROM:	682.00	NORTHINGS:	4649.33
		ELEVATION:	-624.00

-0.000 Au g/t
-0.000 R1
-0.000 R2

		EASTINGS:	6353.65
TO:	682.10	NORTHINGS:	4649.38
		ELEVATION:	-624.09

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

LATITUDE 6060.02E
DEPARTURE 4125.1N
ELEVATION 286.39
DIP AT COLLAR -70° BEARING 361°
TOTAL DEPTH 410.0m CORE SIZE NQ
CORE STORAGE Canamax East Zone Site
REMARKS Casing left in hole.

Test Depth	Dip	Magnetic Bearing	Corrected Bearing
Note: Single shot data only.			

Sheet No. 1 OF 13
Project No. 155 Hole No. HW-91-145
Property Holloway
NTS. 32D/12 TWP. Holloway Claim No.
Date started June 16, 1991 completed June 22, 1991
Contractor Bradley Bros.
Logged by RB Alexander, D. Broughton

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
0.0-28.0	Casing			
27.25-155.0 GREYWACKE/ ARGILLITE	Medium grey green, very fine grained argillite (minor) thin to medium bedded with fine grained to medium grained, greywacke. S0 at 40 deg. to c.a. at 35.5m S0 at 35 deg. to c.a. at 47.5m S0 at 32 deg. to c.a. at 58.9m Note: Graded beds show younging to the south. S0 at 35 deg. to c.a. at 94.7m S0 at 35 deg. to c.a. at 111.5m Becomes thickly bedded, medium grained to locally coarse grained greywacke below 112.0m. Weak S1 foliation, no small-scale folding. So is subparallel to S1. S1 at 50 deg. to c.a., qav with pyrite at 135 deg. at 130m. S0 at 40 deg. to c.a. at 150.5m. Fine grained from 153.0-155.0m. Bedded contact at 40 deg. to c.a.	Weakly to moderately calcitic.	Local 1-2% fine to medium grained pyrite in 1-3cm sericitic haloes around 0.5-1cm qav's, orthogonal to S1 foliation. 153.0-155.0 Trace to 1% fine to medium grained disseminated and S1 parallel fracture filling pyrite.	Note: Hexagonal core barrel 28-41m and double hex. 41-410m.

P.A.P. 14084

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 2 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
155.0-158.0 GRAPHITIC ARGILLITE	Black, graphitic argillite, locally with interbedded fine grained greywacke. Quartz-calcite vein, breccia veins at 155.3-155.5, 156.5-156.9m. Strongly foliated, S1 at 40 deg. to c.a. at 157.3m Gradational contact-pillow breccia fragments occur within graphitic matrix from 157.8-158.0.	Moderately calcitic.	157.0-158.0 Local 5% replacement pyrite.	
158.0-159.3 PILLOW BRECCIA	Pale green pillow fragments occur in a matrix of dark grey-green hyaloclastite, with minor graphite to 158.2m. Downhole change from matrix-supported to fragment supported to amygdaloidal pillow indicates tops uphole. Weakly foliated. Gradational contact.	Moderately calcitic.	158.0-160.1 Trace to local 1% fine to medium grained pyrite disseminated in hyaloclastite matrix.	158.0-160.1 Seager's Hill mafic volcanics.
159.3-162.0 SILICIFIED PILLOWED FLOW	Green/grey, very fine grained to aphanitic, pillow to locally flow brecciated basaltic flow. Altered to a grey colour below 160.2m. Local vuggy quartz-calcite veins. Contact along chlorite slip at 15 deg. to c.a.- possible chloritic selvage?	160.2-162.0 Strongly calcitic, weakly to moderately silicified S1 (50).	160.4-162.0 2-5% fine to medium grained disseminated pyrite, minor fracture filling pyrite, trace cpy.	
162.0-177.9 MASSIVE BASALTIC FLOW	Medium green, massive basaltic flow. Aphanitic to 163m, very fine grained to fine grained to 168m, medium to coarse grained from 168m to 177m, fine grained to 177.9m. Local zones of S1 foliation, otherwise massive. Contact broken, marked by qav.	Weakly calcitic, chloritized.		

P.A.P. - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 3 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
177.9-184.6 PILLOW BRECCIA, HYALOCLASTITE	Pale green pillowed fragments set in darker green hyaloclastite matrix. Weak S1 in hyaloclastite at 45 deg. to c.a. at 178.6m. Irregular contact to underlying flow base.	Weakly calcitic chloritized.		
184.6-218.1 MASSIVE BASALTIC FLOW	Medium green, fine grained to aphanitic, massive facies basaltic flow. 202.4-202.8 30% a quartz-calcite veining at 40 deg. to c.a. Fault plane with clay grit seam at 40 deg. to c.a. at 202.6m. 204.0-204.5; 206.0-206.6 Minor pyritic quartz calcite veins. 202.8-216.4 Grey green, medium to coarse grained, massive flow. S1 at 55 deg. to c.a. at 216.4m.	Chloritized. 202.4-202.8 Epidotized.	202.4-202.8 Pyrite 1-3%, in S1 fracture filling form.	204.0-204.5; 206.0-206.6 Minor blocky, broken core due to vuggy veining.
218.1-224.0 MAFIC FLOW BRECCIA	Medium grey green, aphanitic to very fine grained, weakly developed mafic flow breccia. Locally calcite filled amygdules are noted. Angular flow breccia fragments are locally up to 2cm in size. 223.3-224.0 Vuggy quartz-calcite veining.		223.3-224.0 Pyrite 1-3% in very fine grained, disseminated form.	223.3-224.0 Minor blocky, broken core due to vuggy vein.

PAP - E-1588

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
224.0-236.8 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow. Locally dark green, chloritized irregular fractures are present.			
236.8-238.5 MAFIC DYKE	Medium grey green to pale grey, very fine grained to fine grained, massive mafic dyke/sill. Sharp, irregular upper and lower contacts.		236.8-238.5 Pyrite trace to 1%, in very fine to fine grained, disseminated form.	
238.5-245.0 MASSIVE, LOCALLY LEUCOXENITIC MAFIC FLOW	Medium grey green, very fine grained, massive, locally leucoxenitic, massive mafic flow. 242.9-243.4 Mafic dyke as above. Upper and lower contacts (sharp) at 40-50 deg. 244.9-245.0 Dark grey, thinly laminated, argillitic interflow sediment. Upper and lower contacts at 45 deg. to c.a.		242.9-243.4 Pyrite 2-4% in very fine grained to fine grained, disseminated form. 244.9-245.0 Pyrite 2-4% in S1 fracture filling form.	
245.0-252.7 MASSIVE, LOCALLY LEUCOXENITIC MAFIC FLOW	Medium grey green, very fine grained, massive, locally leucoxenitic, mafic flow. Calcite filled amygdaloidal flow top is noted. S1 at 35 deg. to c.a. at 249.7m. S1 (pyrite) at 30 deg. to c.a., crosscut by narrow quartz-calcite veinlets (3-5mm) at 130 deg. to c.a.f at 250.3m.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 5 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	250.3-252.7 5% quartz-calcite veinlets with pale grey alteration haloes. Narrow qcv (1-4cm) between 251.7 and 252.3m, at 0-10 deg. to c.a.	250.3-252.7 30% silicified and ankeritic.	250.3-252.7 Pyrite 1-3% in S1 fracture filling and disseminated form (very fine to fine grained).	
252.7-285.4 PILLOWED MAFIC FLOW	Medium to locally dark grey green, aphanitic to very fine grained, pillowed mafic flow. Dark green, chloritic, narrow, poorly developed selvages are present locally. Hyaloclastite is noted in some selvages.			
	252.7-259.3 Pale grey to buff alteration. Upper contact (defined by alteration) at 15 deg. to c.a. parallel to S1 quartz-calcite vein (2cm) between 252.9 and 253.4m.	252.7-256.0 60% silicified and ankeritic.	252.7-256.0 Pyrite 1-3% in S1 fracture filling and disseminated form.	
	S1 (pyrite) at 40 deg. to c.a. at 254.9m. S1 (pyrite) at 15 deg. to c.a. at 255.5m, crosscut by narrow quartz-calcite veinlets at 140 deg. to c.a. (with alteration haloes).	256.0-257.4 30% silicified, ankeritic.	256.0-257.4 Pyrite trace to 2%.	
	S1 (pyrite) at 40 deg. to c.a. at 259.3m.	257.4-259.3 100% silicified and ankeritic.	257.4-259.3 Pyrite 1-3% in very fine grained, disseminated form, minor S1 fracture filling.	
	266.3-275.2 Pale grey green to buff alteration associated with 10% narrow (2-10mm) quartz-calcite veinlets.	266.3-271.5 80% silicified and ankeritic.	266.3-267.6 Pyrite 1-3%	

P.A.P. - E 1956

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 6 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
	S1 (pyrite) at 10 deg. to c.a., crosscut by quartz-calcite veinlet at 50 deg. to c.a. at 267.2m. Narrow qcv (1cm) at 10 deg. to c.a. between 268.7 and 269.0 meters.		267.6-268.5 Pyrite trace to 2%. 268.5-269.8 Pyrite 3-5%. 269.8-271.5 Pyrite 1-3%.	
	Note: 271.5-275.2m: Interval contains 2-3% qcv and alteration style becomes penetrative along fractures.	271.5-275.2 25% silicified and ankeritic.	271.5-275.2 Pyrite trace to locally 3%, in very fine grained, S1 fracture filling form.	
	279.3-281.2 Patchy pale purple grey alteration associated with minor irregular quartz veinlets (1-6mm). Gradational lower contact at 285.4m.	279.3-281.2 25% silicified.	279.3-281.2 Pyrite trace to 2%.	
285.4-291.4 MASSIVE MAFIC FLOW	Grey green, very fine to fine grained, massive mafic flow.			
291.4-292.3 MAFIC DYKE	Grey green, very fine grained, mafic dyke. Dark green, chloritized grains (1-2m) are noted. Upper and lower contacts are sharp and irregular.	Moderately carbonatized.		

PAP - E1958

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 7 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
292.3-296.0 MASSIVE MAFIC	Grey green, very fine grained to fine grained, massive mafic flow. Locally developed S1 at 15 deg. to c.a. at 296.0m.			
296.0-302.6 PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic to very fine grained, pillow mafic flow. 301.4-302.6 20% irregular quartz-ankerite veinlets with associated alteration and pyrite.	301.4-302.6 20% silicified, ankeritic, locally sericitic. disseminated form.	301.4-302.6 Pyrite 1-3% in blebs and medium grained,	
302.6-303.3 QUARTZ VEIN	White quartz vein. Irregular sharp contacts.		302.6-303.3 Pyrite trace to 1% in fracture filling form.	
303.3-304.7 LEUCOXENITIC MASSIVE MAFIC FLOW	Medium to dark grey green, very fine grained, weakly foliated, leucoxenitic, massive mafic flow. Note: 303.3-303.5m Interval contains quartz veining and emerald green fuchsite. Narrow quartz vein at 130 deg. to c.a. at 304.7m marks the lower contact.			

PAP - E-1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
304.7-305.6 MAFIC FLOW TOP BRECCIA	Medium grey green, aphanitic, weakly developed flow top breccia. Minor hyaloclastite is present. Lower contact is gradational.			
305.6-310.2 MASSIVE MAFIC FLOW	Medium grey green, very fine grained, massive mafic flow.			
310.2-312.1 MAFIC DYKE	Same as interval between 291.4 and 292.3m. Sharp, upper contact at 15 deg. to c.a. at 310.2m. Sharp, lower contact at 20 deg. to c.a. at 312.1m.			
312.1-314.3 PILLOWED MAFIC FLOW	Medium grey green, aphanitic to very fine grained, pillowed, mafic flow. Narrow, dark green, chloritic, weakly developed selvages are noted.			
314.3-317.7 MAFIC DYKE	Same as interval between 291.4 and 292.3m. Sharp, irregular upper and lower contacts.	Pervasively carbonatized.		
317.7-319.5 PILLOWED MAFIC FLOW	Medium grey green, aphanitic to very fine grained, pillowed mafic flow. Gradational lower contact.	318.3-318.8 Grey silica/quartz and pyrite veining. Sharp, irregular contacts.	318.3-318.8 Pyrite 5-10%, in irregular fracture filling form associated with veining.	

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
319.5-322.7 MASSIVE, AMYGDALOIDAL MAFIC FLOW	Medium grey green, very fine grained, amygdaloidal mafic flow. Dark green, chlorite filled amygdules are present. White carbonate filled amygdules or possibly an "ovoid" carbonate alteration are also present.			
322.7-323.3 MAFIC DYKE	Same as above interval between 291.4 and 292.3m. Upper contact is sharp and irregular. Lower contact is weakly sheared and hematized at 30 deg. to c.a. at 323.3m.	Pervasively carbonatized.		
323.3-328.3 MASSIVE, AMYGDALOIDAL MAFIC FLOW	Medium grey green, very fine grained, amygdaloidal, massive, mafic flow. Dark green, chlorite filled amygdules are present. S1 (contact) at 55 deg. to c.a. at 328.3m.	Pervasively carbonatized.		
328.3-331.2 MASSIVE, AMYGDALOIDAL MAFIC FLOW	Medium grey green, very fine grained, amygdaloidal, massive, mafic flow. Dark green, chlorite filled amygdules are present. Minor hyaloclastite marks the upper contact.	Pervasively carbonatized.		
331.2-333.5 MASSIVE, LEUCOXENITIC MAFIC FLOW	Medium grey green, very fine to fine grained, massive, mafic flow. Upper contact marked by narrow quartz vein (2-3cm) with narrow pyritic halo. Buff coloured, leucoxenitic overprinting noted.			

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 10 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
333.5-334.0 MAFIC DYKE	Same as above interval (291.4-292.3m). Sharp, irregular contacts.	Pervasively carbonatized.		
334.0-340.4 MASSIVE, LEUCOXENITIC MAFIC FLOW	Medium grey green, very fine to fine grained, leucoxenitic, massive, mafic flow. 337.4-337.5 Narrow quartz vein with alteration halo associated. 338.0-338.3 Narrow quartz vein with alteration halo.	337.4-338.3 Sericitized, ankeritic.	337.4-338.3 Pyrite 2-5% in very fine grained blebs and coarse grain disseminated form.	
340.4-344.3 10% QCV, HEMATIZED, MAGNETIC MASSIVE, MAFIC FLOW	Grey green to patchy orangy brown, very fine to fine grained, weakly magnetic, massive mafic flow. Narrow, quartz-carbonate veinlets are present, with vuggy texture noted locally. Specular hematite is present, as well as pyrite in fracture filling form. Note: approximately 10% qav. S1 (contact) at 35 deg. to c.a. at 340.4m. Note: Set 1 (qav) at 30 deg. to c.a., set 2 at 100 deg. to c.a., set 3 at 160 deg. to c.a. at 344.3m. Quartz-ankerite veinlets are 1-3mm wide.	340.4-344.3 Locally hematized.		Note: 341.2-343.4 Blocky, broken core, minor ground core due to vuggy veins.

PAP - E155B

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
344.3-355.9 MAGNETIC, PILLOWED MAFIC FLOW	Pale to locally dark grey green, aphanitic to very fine grained, locally weakly magnetic, pillowed mafic flow. Narrow, chloritized selvages are present. Contact at 40 deg. to c.a. at 355.9m.			
355.9-357.8 MAGNETIC MAFIC PILLOW BRECCIA	Medium to dark grey green, aphanitic to very fine grained, magnetic, mafic pillow breccia. Upper contact is very strongly magnetic.		355.9-357.8 Pyrite 1-3% in very fine to fine grained, fracture filling blebs.	
357.8-363.7 MAGNETIC, MASSIVE MAFIC FLOW BASE	Medium grey green, very fine grained to fine grained, magnetic massive mafic flow base. Contact at 60 deg. to c.a. at 363.7m.			
363.7-365.5 LEUCOXENITIC MASSIVE MAFIC FLOW	Medium grey green, aphanitic to very fine grained, massive, leucoxenitic, mafic flow base. 363.7-364.4 Weakly developed flow top breccia, with white "ovoid" carbonate alteration or possibly calcite filled amygdules. Contact at 55 deg. to c.a. at 365.5m.		363.7-364.4 Pyrite 1-2% in very fine grained, fracture filling blebs.	

PAP - E.1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
365.5-369.1 MAGNETIC, PILLOWED MAFIC FLOW	Pale to medium grey green, aphanitic to very fine grained, weakly developed pillowed mafic flow. Locally small weakly developed variolites are present near pillow margins. The interval is locally magnetic. Lower contact at 369.1m is indistinct.			
369.1-375.0 MAGNETIC, MAFIC PILLOW BRECCIA	Medium to dark grey green, aphanitic to very fine grained, strongly magnetic pillow breccia. S1 at 55 deg. to c.a. at 375.0m.			
375.0-376.6 MASSIVE, LEUCOXENITIC MAFIC FLOW	Medium grey green, very fine to fine grained, massive leucoxenitic, mafic flow base. Contact at 55 deg. to c.a. at 376.6m.			
376.6-385.0 MAGNETIC, AMYGDALOIDAL MAFIC FLOW	Medium grey green, aphanitic to very fine grained, magnetic, weakly foliated, amygdaloidal, mafic flow. Upper 3 meters contains a weakly developed pillowed flow top. Dark green, chlorite filled amygdules are present.			
385.0-388.7 MAGNETIC, MASSIVE, MAFIC FLOW	Medium grey green, very fine to fine grained, magnetic, massive mafic flow. Sharp contact at 70 deg. to c.a. at 388.7m.			

PAP - E 1558

NORANDA EXPLORATION COMPANY LIMITED

DIAMOND DRILL CORE LOG

Sheet No. 13 OF 13

Project No. 155 Hole No. HW-91-145

Property Holloway (P.D.) Lightning Zone

Depth & Lithology	Description (colour, grain size, texture, structure, etc.)	Alteration	Mineralization	Remarks
388.7-410.0 POLYLITHIC CONGLOMERATE	Grey green to reddish brown, arkosic sandstone matrix with 5-25% lithic clasts. Clast composition includes red jasper, green magnetic basalt, white quartz, grey to green sandstone and argillite and lithic greywacke. S1 at 60 deg. to c.a. at 393.4m. S1 at 45 deg. to c.a. at 404.3m.			
410.0	END OF HOLE			

P.A.P. - E.1558

** BORSURV **

SURVEY DATA AND CALCULATED CO-ORDINATES (metres)

PROPERTY: Holloway
HOLE NO: 145
GRID: Holloway

DATE: June 22,1991
SURVEY BY: RBA
INSTRUMENT: SS

DEPTH	INCLINATION	BEARING	EASTINGS	NORTHINGS	ELEVATION
0.00	-70.00	361.00	6060.000	4125.000	-13.500
40.00	-66.00	362.00	6060.392	4139.979	-50.587
70.00	-66.00	363.00	6060.925	4152.170	-77.994
118.00	-65.50	361.00	6061.613	4171.872	-121.758
155.00	-64.00	360.00	6061.750	4187.655	-155.223
190.00	-64.00	360.00	6061.750	4202.998	-186.681
217.00	-63.50	361.00	6061.855	4214.939	-210.896
262.00	-60.50	361.00	6062.223	4236.062	-250.629
292.00	-60.50	360.00	6062.352	4250.834	-276.740
322.00	-60.50	360.00	6062.352	4265.607	-302.850
361.00	-60.00	360.00	6062.352	4284.959	-336.710
409.00	-59.50	358.00	6061.930	4309.137	-378.174
410.00	-59.50	358.00	6061.912	4309.644	-379.036

** BORSURV **

SAY LOG

PROPERTY: Holloway
HOLE No.: 145

FROM	TO	WIDTH	Au g/t	R1	R2
153.70	155.00	1.30	0.010	N.S.	N.S.
155.00	155.90	0.90	0.050	N.S.	N.S.
155.90	157.10	1.20	0.080	N.S.	N.S.
157.10	157.70	0.60	0.240	0.200	0.280
157.70	158.00	0.30	0.020	N.S.	N.S.
158.00	159.00	1.00	0.010	N.S.	N.S.
159.00	160.10	1.10	0.010	N.S.	N.S.
160.10	160.50	0.40	0.010	N.S.	N.S.
160.50	162.00	1.50	0.010	N.S.	N.S.
162.00	163.00	1.00	0.020	N.S.	N.S.
201.00	202.40	1.40	0.010	N.S.	N.S.
202.40	202.80	0.40	0.020	N.S.	N.S.
202.80	204.00	1.20	0.030	N.S.	N.S.
222.00	223.30	1.30	0.010	N.S.	N.S.
223.30	224.00	0.70	0.170	N.S.	N.S.
224.00	225.50	1.50	0.010	N.S.	N.S.
241.50	242.90	1.40	0.210	N.S.	N.S.
242.90	243.40	0.50	0.250	N.S.	N.S.
243.40	245.00	1.60	0.700	N.S.	N.S.
245.00	246.00	1.00	0.810	N.S.	N.S.
246.00	247.50	1.50	2.380	2.420	2.330
247.50	249.00	1.50	0.020	N.S.	N.S.
249.00	250.30	1.30	0.150	N.S.	N.S.
250.30	251.50	1.20	1.500	1.630	1.370
251.50	252.70	1.20	1.110	1.230	0.990
252.70	254.00	1.30	1.280	1.440	1.130
254.00	255.00	1.00	1.940	2.060	1.820
255.00	256.00	1.00	1.720	1.970	1.460
256.00	257.20	1.20	2.330	2.400	2.260
257.20	258.40	1.20	1.700	1.820	1.580
258.40	259.30	0.90	0.910	0.960	0.860
259.30	260.50	1.20	0.180	0.210	0.140
260.50	262.00	1.50	0.010	N.S.	N.S.
262.00	263.50	1.50	0.080	N.S.	N.S.
263.50	265.00	1.50	0.010	N.S.	N.S.
265.00	266.30	1.30	0.050	0.030	0.070
266.30	267.60	1.30	1.040	1.030	1.060
267.60	268.50	0.90	0.640	0.620	0.650
268.50	269.80	1.30	1.920	1.710	2.130
269.80	271.50	1.70	0.760	0.790	0.720
271.50	272.80	1.30	0.100	0.100	0.100
272.80	274.00	1.20	0.240	N.S.	N.S.
274.00	275.20	1.20	0.060	N.S.	N.S.
275.20	276.50	1.30	0.050	N.S.	N.S.
276.50	278.00	1.50	0.010	N.S.	N.S.
278.00	279.30	1.30	0.010	N.S.	N.S.
279.30	280.30	1.00	0.010	N.S.	N.S.
280.30	281.20	0.90	0.010	N.S.	N.S.
281.20	282.50	1.30	0.010	N.S.	N.S.
300.00	301.40	1.40	0.040	N.S.	N.S.

FROM	TO	WIDTH	Au g/t	R1	R2
301.40	302.60	1.20	0.880	0.890	0.870
302.60	303.30	0.70	0.170	N.S.	N.S.
303.30	303.50	0.20	0.070	N.S.	N.S.
303.50	304.70	1.20	0.090	N.S.	N.S.
316.20	317.70	1.50	0.010	N.S.	N.S.
317.70	318.30	0.60	0.030	N.S.	N.S.
318.30	318.80	0.50	0.200	N.S.	N.S.
318.80	320.30	1.50	0.010	N.S.	N.S.
336.00	337.30	1.30	0.010	N.S.	N.S.
337.30	338.30	1.00	0.540	0.440	0.630
338.30	339.50	1.20	0.010	N.S.	N.S.
339.50	340.40	0.90	0.020	N.S.	N.S.
340.40	341.20	0.80	0.010	N.S.	N.S.
341.20	343.40	2.20	0.010	N.S.	N.S.
343.40	344.30	0.90	0.010	N.S.	N.S.
344.30	345.80	1.50	0.010	N.S.	N.S.

PROPERTY: Holloway

HOLE No: 145

1. SHZ (12.40 d.t. Core Angle: 90 12.40 t.t.)

	EASTINGS:	6062.09
FROM: 246.00	NORTHINGS:	4228.55
	ELEVATION:	-236.50

1.378 Au g/t
1.454 R1
1.265 R2

	EASTINGS:	6062.19
TO: 258.40	NORTHINGS:	4234.37
	ELEVATION:	-247.45

2. SHZ2 (3.50 d.t. Core Angle: 90 3.50 t.t.)

	EASTINGS:	6062.24
FROM: 266.30	NORTHINGS:	4238.18
	ELEVATION:	-254.37

1.264 Au g/t
1.177 R1
1.352 R2

	EASTINGS:	6062.26
TO: 269.80	NORTHINGS:	4239.90
	ELEVATION:	-257.42

SUMMARY REPORT ON DIAMOND DRILLING

February 1 - August 30, 1991

HEMLO GOLD - FREEWEST J.V.
HOLLOWAY AND TEDDY BEAR PROPERTIES

VOLUME III - CROSS SECTIONS

4500E 5000E 5500E 6000E 6500E

5000N 4500N 4000N 3500N

L9862 L9863 L9864 L8247

L10478 L10084 L10083 L10476 L10477

L10085 L10080 L10082 L10534

L10735 L10696 L10081 L10697 L10698

L11671 L11168 L11169 L11170 L11171

TB Shaft

HWY 101

HOLLOWAY PROJECT
Drill Plan

Scale: 1/2500

HEMLO GOLD–FREEWEST J.V.

1HW-PN1
12-03-91

200

4400N

4600N

4800N

5000N

5700E

123a
123

107wa
107w
107

90

73w
73

6

3

11

2

1

5700E

T.B

H

0

0

-200

-200

-400

-400

-600

-600

-800

-800

TEDDY BEAR HOLLOWAY

14.0/3.7

9.53/26.8

6.26/5.7

4.41/1.9

7.76/1.0

4.27/5.6

12.26/1.51

6.5/1.7

20.8/6.73

14.6/3.6

25.39/0.8

LITHOLOGICAL LEGEND

1 Sediments
- a) (cg) jasper-bearing conglomerate
  (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent
  var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding

S_1 Cleavage

S_2 Crenulation Cleavage

Main Unit Contact

Sub-Unit Contact/Flow Facies

Mineralized Zone

Albite-Quartz Facies Alteration

Sericite Facies Alteration

ABBREVIATIONS

alb	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gouge
gr	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
phx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/sr	sericite/sericitic
sh	sheared
si/sil	silicified
si(x)	% silicified
spfx/sp	spinifex
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

HOLLOWAY PROJECT

SECTION 5700E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

32D12SE0083 OM91-091 HOLLOWAY

4400N

4600N

4800N

5000N

TEDDY BEAR
HOLLOWAY-CADDEN

5900E

TB H

CADDEN (MINING CORP.)

0

-200

-400

-600

-800

HOLLOWAY (CADDEN)
HOLLOWAY (MINING CORP.)

4.70/5.6

7.50/17.7

7.80/2.8

9.97/23.7

6.29/18.5

4.75/18.9

(6.13/7.1)

5.35/2.0

3.30/2.3

(3.22/51.4)

4.91/7.9

4.83/4.7

8.21/2.1

5.41/3.3

2.5

LITHOLOGICAL LEGEND

1 Sediments
- a) (cgl) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent
- var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- c) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding
S_1 Cleavage
S_2 Crenulation Cleavage
Main Unit Contact
Sub-Unit Contact/Flow Facies
Mineralized Zone
Albite-Quartz Facies Alteration
Sericite Facies Alteration

ABBREVIATIONS

alb	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
ab	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gauge
gf	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(y)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/sr	sericite/sericitic
sh	sheared
si/sil	silicified
si(s)	% silicified
sph/sp	sphalerite
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

HOLLOWAY PROJECT

SECTION 5900E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

4400N 4600N 4800N 5000N

5950E 5950E

136y 138w 130x 134 139 (CADDEN) (MINING CORP.)

0 0

-200 -200

-400 -400

-600 -600

-800 -800

HOLLOWAY (CADDEN)
HOLLOWAY (MINING CORP.)

6.15/3.8

5.42/2.7

39.39/2.9

LITHOLOGICAL LEGEND

1 Sediments
- a) (cgl) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent

var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding

S_1 Cleavage

S_2 Crenulation Cleavage

Main Unit Contact

Sub-Unit Contact/Flow Facies

Mineralized Zone

Albite-Quartz Facies Alteration

Sericite Facies Alteration

ABBREVIATIONS

ab	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gouge
gr	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/er	sericite/sericitic
sh	sheared
si/sil	silicified
sl(x)	x silicified
sph/sp	sphalerite
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

HOLLOWAY PROJECT

SECTION 5950E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

4400N

4600N

4800N

5000N

6000E

139

137

51

50

(CADDEN) (MINING CORP.)

0

-200

-400

-600

-800

HOLLOWAY (CADDEN)
HOLLOWAY (MINING CORP.)

5.46/4.9

LITHOLOGICAL LEGEND

1 Sediments
- a) (cg) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent

var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding

S_1 Cleavage

S_2 Crenulation Cleavage

Main Unit Contact

Sub-Unit Contact/Flow Facies

Mineralized Zone

Albite-Quartz Facies Alteration

Sericite Facies Alteration

ABBREVIATIONS

alb	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
foi	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gauge
gr	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	lenticular
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qcv	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/sr	sericite/sericitic
sh	sheared
si/sil	silicified
si(x)	% silicified
sp/fx/sp	spinifex
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

HOLLOWAY PROJECT

SECTION 6000E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

32D12SE0083 OM91-091 HOLLOWAY

4200N 4400N 4600N 4800N

6050E 6050E

145 141 133

(CADDEN) (MINING CORP.)

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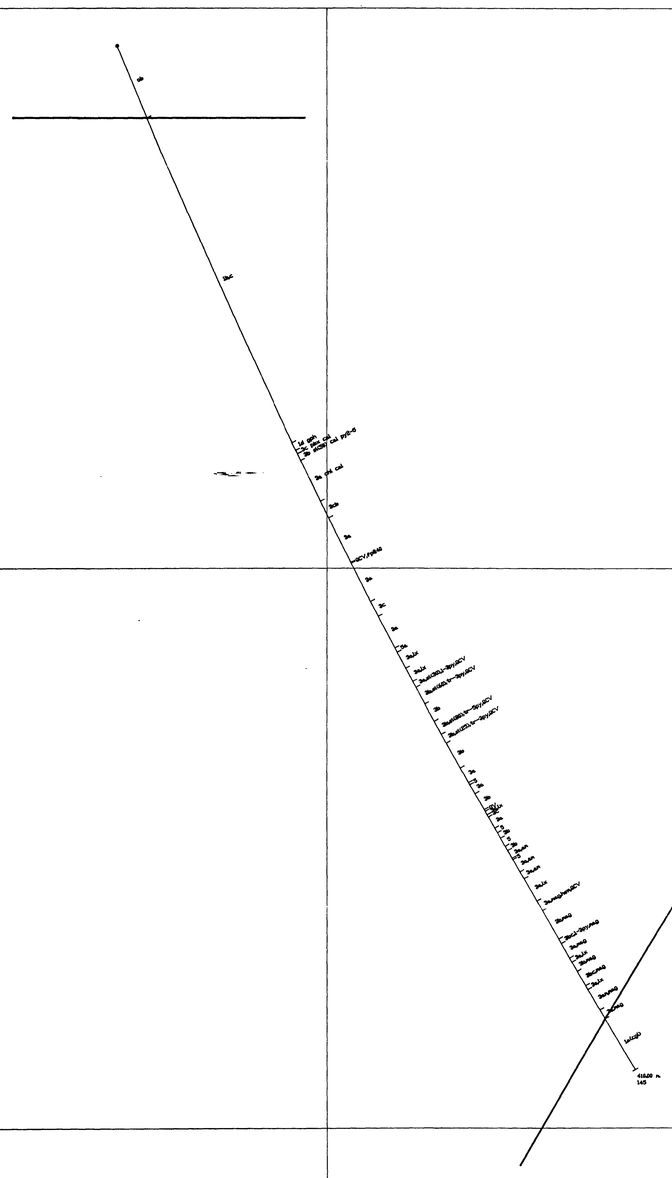
-200 -200

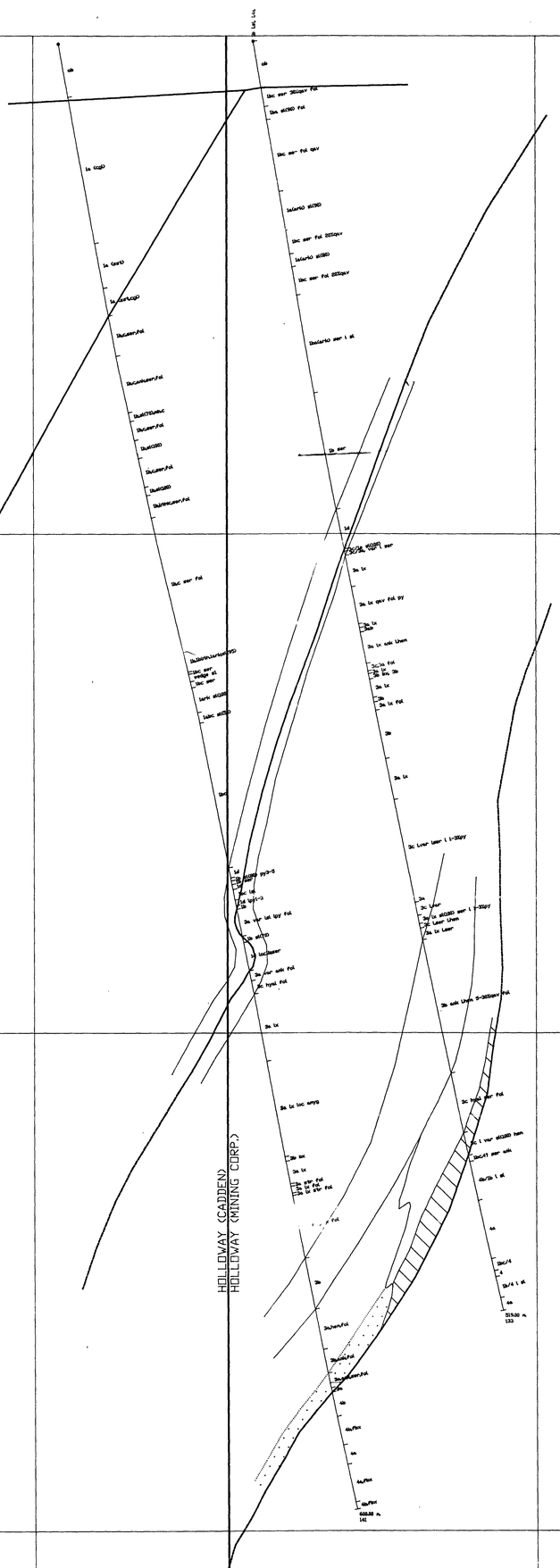
-400 -400

-600 -600

-800 -800

HOLLOWAY (CADDEN)
HOLLOWAY (MINING CORP.)





LITHOLOGICAL LEGEND

1 Sediments
- a) (cgl) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent
- var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basalt komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding

S_1 Cleavage

S_2 Crenulation Cleavage

Main Unit Contact

Sub-Unit Contact/Flow Facies

Mineralized Zone

Albite-Quartz Facies Alteration

Sericite Facies Alteration

ABBREVIATIONS

alb	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gouge
gf	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/er	sericite/sericitic
sh	sheared
si/sil	silicified
si(x)	% silicified
sph/sp	spinifex
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

4200N 4400N 4600N 4800N

HOLLOWAY PROJECT

SECTION 6050E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

4400N

4600N

4800N

5000N

6100E

140w
140

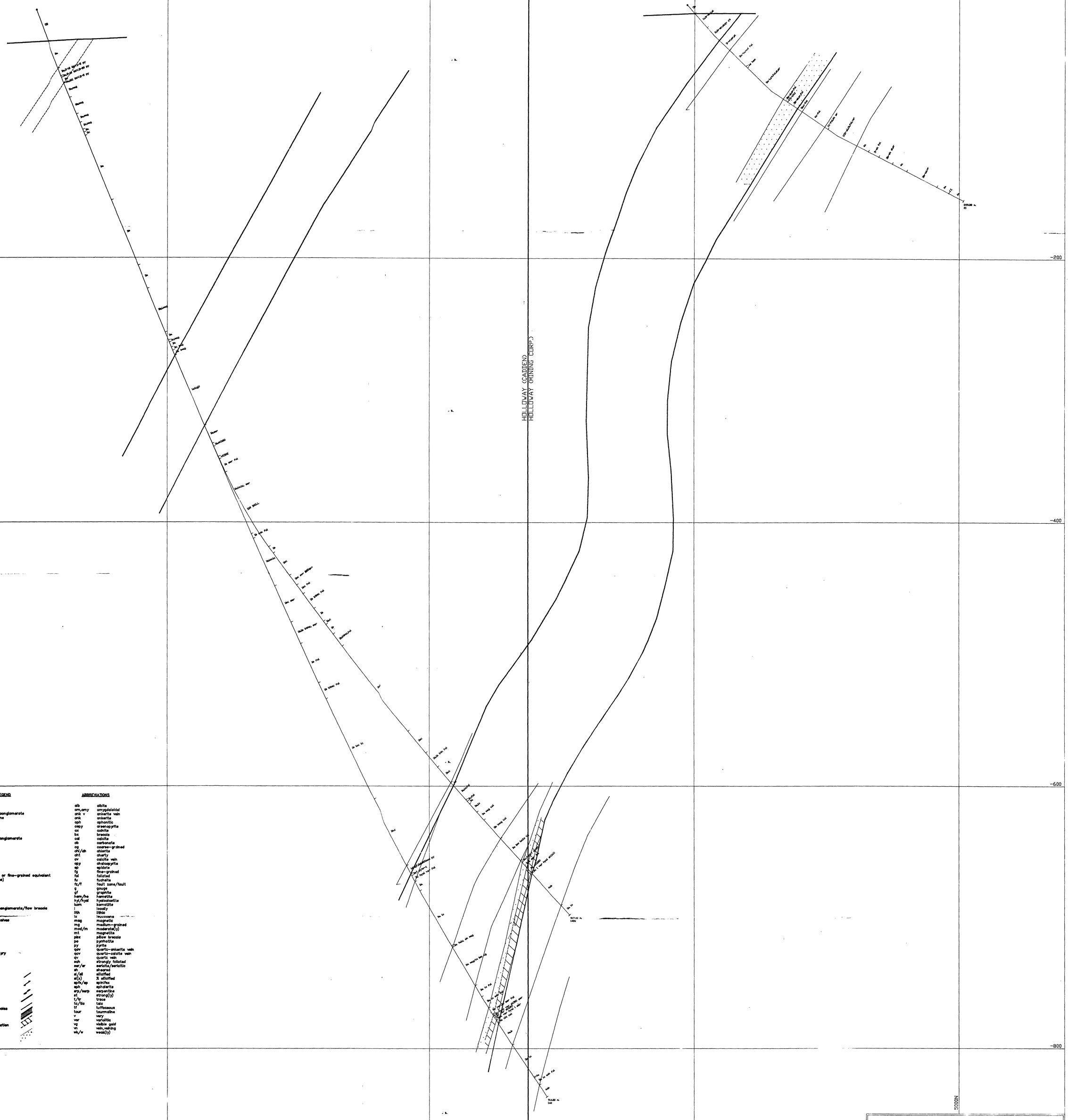
21

6100E

(CADDEN) (MINING CORP.)

0

0



LITHOLOGICAL LEGEND

1 Sediments
- a) (cgl) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent
- var) variolite (>50% variolas)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

- Bedding
- S_1 Cleavage
- S_2 Crenulation Cleavage
- Main Unit Contact
- Sub-Unit Contact/Flow Facies
- Mineralized Zone
- Albite-Quartz Facies Alteration
- Sericite Facies Alteration

ABBREVIATIONS

alb	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
cpy	chalcopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
f/g	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gouge
gf	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/sr	sericite/sericitic
sh	sheared
sl/sli	silicified
si(x)	% silicified
spfx/sp	spinifex
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

HOLLOWAY PROJECT

SECTION 6100E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

4400N

4600N

4800N

5000N

6200E

143

24

(CADDEN) (MINING CORP.)

0

-200

-400

-600

-800

HOLLOWAY (CADDEN)
HOLLOWAY (MINING CORP.)

LITHOLOGICAL LEGEND

1 Sediments
- a) (cgl) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent
- var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding

S_1 Cleavage

S_2 Crenulation Cleavage

Main Unit Contact

Sub-Unit Contact/Flow Facies

Mineralized Zone

Albite-Quartz Facies Alteration

Sericite Facies Alteration

ABBREVIATIONS

ab	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
ch/ah	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gouge
gr	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sah	strongly foliated
ser/sr	sericite/sericitic
sh	sheared
si/sil	silicified
si(x)	% silicified
splt/sp	spinifex
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

HOLLOWAY PROJECT

SECTION 6200E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION

4400N 4600N 4800N 5000N

144

6350E 6350E

(CADDEN) (MINING CORP.)

0 0

-200 -200

-400 -400

HOLLOWAY (CADDEN)
HOLLOWAY (MINING CORP.)

-600 -600

-800 -800

4400N 4600N 4800N 5000N

LITHOLOGICAL LEGEND

1 Sediments
- a) (cgl) jasper-bearing conglomerate
- (ark) arkosic sandstone
- b) greywacke
- c) argillite
- d) carbonaceous argillite
- e) siltstone/sandstone
- f) non jasper-bearing conglomerate

2 Intermediate Volcanics

3 Mafic Volcanics
- a) massive
- b) pillowed
- c) flow top/hyaloclastite
- d) polylithic flow breccia or fine-grained equivalent
- var) variolite (>50% varioles)

4 Ultramafic Volcanics
- a) talc-chlorite
- b) talc-serpentine
- c) fuchsite-sericite
- d) agglomerate/pebble conglomerate/flow breccia
- e) basaltic komatiite

5 Mafic and Ultramafic Intrusives
- a) lamprophyre
- b) gabbro-peridotite

6 Felsic Intrusives
- a) feldspar porphyry
- b) quartz-feldspar porphyry

SYMBOLS

Bedding
S_1 Cleavage
S_2 Crenulation Cleavage
Main Unit Contact
Sub-Unit Contact/Flow Facies
Mineralized Zone
Albite-Quartz Facies Alteration
Sericite Facies Alteration

ABBREVIATIONS

alb	albite
am,amy	amygdaloidal
ank v	ankerite vein
ank	ankerite
aph	aphanitic
aspy	arsenopyrite
ax	axinite
bx	breccia
cal	calcite
cb	carbonate
cg	coarse-grained
chl/ch	chlorite
cht	cherty
cv	calcite vein
cpy	chalcopyrite
ep	epidote
fg	fine-grained
fol	foliated
fu	fuchsite
fz/f	fault zone/fault
g	gouge
gf	graphite
hem/he	hematite
hyl/hyal	hyaloclastite
kom	komatiite
l	locally
lith	lithic
lx	leucoxene
mag	magnetic
mg	medium-grained
mod/m	moderate(ly)
mt	magnetite
pbx	pillow breccia
po	pyrrhotite
py	pyrite
qav	quartz-ankerite vein
qcv	quartz-calcite vein
qv	quartz vein
sch	strongly foliated
ser/sr	sericite/sericitic
sh	sheared
si/sil	silicified
si(x)	x silicified
sph/sp	spinifex
sph	sphalerite
srp/serp	serpentine
st	strong(ly)
t/tr	trace
tc/tlc	talc
tf	tuffaceous
tour	tourmaline
v	very
var	variolitic
vg	visible gold
vn	vein,veining
wk/w	weak(ly)

32D12SE0083 OM91-091 HOLLOWAY

280

HOLLOWAY PROJECT

SECTION 6350E

SCALE: 1/1000

NOV. 29, 1991

HEMLO GOLD-FREEWEST J.V.

NORANDA EXPLORATION