

LONMIN

NIRE-XXXXXXXXXX

From (m): 0.00

To (m): 30.00

Direction: 000

Angle: 000

Core Size

From (m)

To (m)

PQ

6.20

18.06

HQ

NQ

NQ2

BQ

AQ

Project: Northern Ireland

Scale: 1:100

Sampled By: GM

Easting: 332255

Date Logged: 24/10/12

Date Sampled:

Northing: 414987

Logged By: JO'c

Input By: JO'c HD

Drilling Co: PRIORITY DRILLING

Lead Driller: NASHA & ONDREJ

Rig: ATLAS COPCO CS14

Coring RC

Depth(m)	Lithology	Recovery	G/S	Struct.	RQD	Mineralisation	PXRf	MAG	Sampled	Geological Description				
										Mineralogy	Texture	Colour	Alteration	Fabric
0						NONE				6.20m OF OVERBURDEN. NO CORE RECOVERY.				
6.20						Pos. BORNITE				6.20 DARK GREY PORPHYRITIC BASALT WITH HIGH FELDSPAR CONTENT (ALKALZ BASALT). FINING TOWARDS THE BASE OF THE UNIT AT ~14.50m, WITH SLIGHT REDDISH WEATHERING AT THE BASE. RARE AMYGDALLES (<1%) SPREAD THROUGHOUT THE CORE. ZEOLITE VEINS CROSSCUT THE ROCK AT 9.70 & 11.20m. BOTH HIGH ANGLE & BRECCIATE THE BASALT. COMPOSED OF NATROLITE. VERY FINE, DISSEMINATED ZEOLITE VEINLETS THROUGHOUT UNIT BETWEEN 7.0 & 12.30m. HORIZONTAL PIPE AMYGDALLES FROM 12.50m ONWARDS. SOME AMYGDALLES AT THE BASE OF THE UNIT CONTAIN CHABAZITE, ANACIZINE, NATROLITE & DEEP RED PHILIPSITE (EG. AT 15.95m). POSSIBLE VERY FINE SPECKS OF BORNITE IN THE COARSER AREA OF THE FLOW.				
26														
16.13						LATERITE NONE.				16.13 DEEPLY WEATHERED, RED (ALMOST LATERITIC) BASALT WITH REIZC AMYGDALLES TO 16.48m. FROM 16.48 TO 16.68m THE BASALT APPEARS BRECCIATED WITH CLASTS UP TO 4cm x 2cm. CEMENT APPEARS TO BE MAPIC/BASALT. POSSIBLE A'a? FROM 16.68 TO 18.00m RED BROWN WEATHERED AMYGDALOIAL BASALT WITH ~2-3% ROUNDED WHITE AMYGDALLES AND NUMEROUS THIN, DISSEMINATED VERTICAL, DARK PIPE AMYGDALLES, WHICH CEASE AT ~17.54m. ROUNDED AMYGDALLES PHASE OUT BY 19.00m. FROM 18.00 TO ~18.50m WEATHERING GRADUALLY PHASES OUT LEAVING DARK GREY FRESH 'TIGER' BASALT, WITH RARE ZEOLITE AMYGDALLES AT 4%. BASALT BRECCIATED AT AROUND 20m, BY WHITE ZEOLITE VEINLETS. 'TIGER' BASALT WELL DEVELOPED BETWEEN 21 & 23.0m. SOME RED DISCOLOURATION TOWARDS THE BASE OF THE UNIT, WITH A SLIGHT INCREASE IN AMYGDALLES ~2-3%. AMYGDALLES CONTAIN CHABAZITE & POSSIBLE PHILIPSITE.				
25														
23.48										23.48 WEATHERED RED-BROWN AMYGDALOIAL BASALT TO ~24.58m WHERE IT GRADUALLY PHASES INTO FRESH DARK GREY BASALT. SOME BRECCIATED & RECOMPACTED BASALT AT THE TOP OF THE UNIT COULD BE A'a' OR AN EROSIONAL CONTACT WITH THE OVERLYING UNIT. ZEOLITE AMYGDALLES INITIALLY AT ~25% PHASING OUT BUT INCREASING IN SIZE DOWN HOLE. ABSENT BY ~25.00m. FOLLOWED BY DARK GREY 'SPECKLED' BASALT, EQUI-GRANULAR, WITH HIGH ANGLE WHITE, DISCONTINUOUS, ZEOLITE VEINS CROSS CUTTING AT 30.50 & 31.30m NO SULPHIDES ETC OBSERVED.				
24														

Laterite

Laterite

A'a?

A'a?

LONMIN

NIRE-XXXXXXXXXX

From (m): 30.00

To (m): 60.00

Direction: 000

Angle: 000

Core Size	From (m)	To (m)
PQ		
HQ		
NQ		
NQ2	30.00	60.00
BQ		
AQ		

Project: Northern Ireland

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Drilling Co: PRIORITY DRILLING Lead Driller: NASHA & ONDREI

Rig: ATLAS COPCO CS14

Coring RC

Depth(m)	Lithology	Recovery	G/S	Struct.	RQD	Mineralisation	PXRf	MAG	Sampled	Geological Description				
										Mineralogy	Texture	Colour	Alteration	Fabric
30.0						NONE			✓	SEE NOTES ON PREVIOUS PAGE.				
24				VEINS										
31.80			Y	WT		BORNITE				31.80 RED-BROWN WEATHERED BASALT WITH ZEOLITE AMYGDALAS AT ~3%. GRADUALLY BECOMES FRESH DARK GREY BASALT BY 32.55m, WITH HIGH ANGLE ZEOLITE VEINLETS AT 32.30m. FRESHER BASALT CONTAINS OLIVINE PHENOCRYSTS AT ~10%. ZEOLITE AMYGDALAS AT ~5% (BAR AT 33.65-35.10m). THIN ZEOLITE VEINLETS CROSS CUT CORE AT 34.00m & 36.00m. AT 34.00m VEINLET HAS AN ~1cm RED ALTERATION CONTACT WITH COUNTRY ROCK. BASALT CONTAINS ~30-40% GREEN ZEOLITE AMYGDALAS BETWEEN 33.65m AND ~35.10m. BASALT FRAGMENTED AT 32.90m, POSSIBLE FAULT PLANE. RARE, VERY FINE SPECKS OF BORNITE THROUGHOUT UNIT.				
23				FAULT?										
				VEIN.										
				AMGH.										
37.38				WT.		BORNITE				37.38 BROWN GREY WEATHERED BASALT WITH ~5-10% ZEOLITE AMYGDALAS, PHASING OUT AT 40.20m. REMAIN AT 1%, RARE DISSEMINATED AMYGDALAS FOR THE REST OF THE UNIT. AT 39.32m FRESH, DARK GREY BASALT AND A SLIGHT INCREASE IN GRAIN SIZE, AND 'SPECKLED' APPEARANCE. PORPHYRITIC TEXTURE. CROSS CUT BY HIGH ANGLE WHITE CHABAZITE VEINLETS AT 39 & 40m. CROSS CUT BY HIGH ANGLE GREEN TALC VEINLETS AT 43 AND 43.50, 44.50 & 45m. SLIGHT INCREASE IN AMYGDALAS CONCENTRATION IN THE LAST 20cm OF THE UNIT. RARE BORNITE SPECKS IN THE WEATHERED BASALT.				
22				VEIN										
				VEIN										
45.25						BORNITE				45.25 WEATHERED, RED BROWN BASALT WITH ZEOLITE AMYGDALAS AT 5-10%. PHASING OUT AT 45.75m. RETURN AT 46.30m AT UNIT BASE WHICH IS MORE WEATHERED, TO A RED COLOUR. VERY THIN ZEOLITE VEINLETS AT HIGH ANGLES FROM 45.70 TO 46.43 & 46.82m. RARE BORNITE SPECKS				
21				WT		BORNITE				RED BROWN WEATHERED BASALT TO 46.80m, FOLLOWED BY SLIGHTLY WEATHERED GREY BASALT WHICH GRADUALLY GRADES OUT BY 49.00m, WHERE FRESH, DARK GREY EQUIGRANULAR BASALT STARTS. FROM 46.88 TO 48.32 ZEOLITE AMYGDALAS AT ~3-5%. AMYGDALAS ARE ABSENT FROM 48.32 TO 50.02m, RETURNING AT THE UNIT BASE. RARE SPECKS OF BORNITE IN THE FRESH BASALT. THIN BLACK HORIZON ~1cm AT THE TOP OF THE UNIT POSSIBLE ASH DEPOSIT.				
46.43				WT		BORNITE								
20														
50.09			Y	WT.		NONE.				50.09 INITIALLY RED BROWN THEN BROWN WEATHERED BASALT TO ~50.67m WHERE IT GRADES INTO FRESHER DARK GREY BASALT. AMYGDALAS AT ~5% ABSENT BETWEEN 51.45 & 51.60m. SLIGHT INCREASE IN CONCENTRATION TO 10-15% AT UNIT BASE. HIGH ANGLE ZEOLITE VEINLETS CROSS CUT ROCK BETWEEN 50.95 & 51.25m. NO SULPHIDES OBSERVED.				
19				VEIN										
52.20			Y			NONE.				52.20 DARK GREY BASALT WITH SMALL (CIRCUM 1-2mm) AMYGDALAS AT ~2%. ABSENT BETWEEN 52.37 & 52.55m. CROSS CUT 52.95 BY FINE ZEOLITE VEINLETS FROM 52.33 & 52.50m.				
18				AMGH										
52.95				FAULTS		NONE				52.95 FAULTED & FRACTURED BASALT. TWO SEPARATE CLAST SUPPORTED FAULT BRECCIAS AT 53.00m & ~58.80m. HYDROTHERMAL WHITE VEINS OF ZEOLITE ALSO BRECCIA THE ROCK AT 53 TO 53.35m. APPEAR TO PREDATE FAULTING, ALTHOUGH SECONDARY, VERY FINE VEINLETS INTRUDE INTO THE BRECCIA. 54.40 is two phase VEIN HYDROTHERMAL ACTIVITY?				
17														
54.40				VEINS		NONE.				54.40 DARK GREY BASALT CROSS CUT BY DISSEMINATED HIGH ANGLE VEINLETS TO 54.65m. COARSENS AT ~54.80m. AMYGDALAS AT ~1%. CLUSTER BETWEEN 55.80 TO 55.90m. FRACTURE PLANES AND ADJACENT BASALT HAVE IRON OXIDE STAINING. @ AT 56.00m.				
16				AMGH										
56.17			Y	VEIN		BORNITE				56.17 DARK GREY BASALT. INITIALLY SMALL (~2x3mm) AMYGDALAS ~2% PHASING OUT AT 56.27m. BASALT CROSS CUT BY HIGH ANGLE ZEOLITE VEINLETS AT 56.80m, AND 57.55m. VERY FINE SPECKS OF BORNITE & POSSIBLE NATIVE COPPER ASSOCIATED WITH HYDROTHERMAL VEINLETS AND EROSIONAL CONTACT /ALTERED BRECCIA AT THE BASE.				
15				VEIN		POS. COPPER.								
57.86			Y	WT		BORNITE.				57.86 RED GREY WEATHERED BASALT TO ~58.60m. CROSS CUT BY WHITE ZEOLITE VEINLETS. AT 58.60m GRADUALLY GRADES INTO FRESH DARK GREY BASALT CROSS CUT BY TALC ZEOLITE VEINLETS (GREEN) AND CHABAZITE VEINLETS (WHITE) THROUGHOUT UNIT. ALTERED RED OLIVINE PHENOCRYSTS ASSOCIATED WITH CHABAZITE HYDROTHERMAL VEINLETS. NO AMYGDALAS UNTILL 69.19m. PRESENT AT UNIT BASE AT ~10-15%. BASE OF UNIT ALSO WEATHERED TO A RED GREY COLOUR. VERY RARE SPECKS OF BORNITE. APPEAR ASSOCIATED TO HYDROTHERMAL VEINS. FOUND IN COUNTRY ROCK				
14				VEINS										

60.0

29/10/12

Project: Northern Ireland

Scale: 1:100

Sampled By: GM

Easting: 332255

Date Logged: 25/10/12

Date Sampled: -

Northing: 414987

Logged By: JO'Z

Input By: JO'Z KP

Drilling Co: PRIORITY DRILLING

Lead Driller: NASHA & ONDREI

Rig: ATLAS COPCO CS14

Coring RC

Depth(m)	Lithology	Recovery	G/S	Struct.	RQD	Mineralisation	PXRF	MAG	Sampled	Geological Description				
										Mineralogy	Texture	Colour	Alteration	Fabric
60.0	V V V					BORNITE				SEE NOTES ON PREVIOUS PAGE. THIN 2CM BRECCIA AT THE TOP OF THE FLOW (57.86m) COULD BE AN EROSIONAL CONTACT BETWEEN THE TWO LAVAS.				
69.60	V V V					AMGH				69.60 DARK RED GREY WEATHERED AMYGDALOZDAL BASALT TO 70.78m WHERE IT GRADES INTO LESS WEATHERED GREY BASALT. ZEOLITE AMYGDALAS AT ~5%, PHASING OUT AT ~71.67m. ENTIRE UNIT HAS BEEN ALTERED, VERY FINE GRAINED, WITH ALTERED OILVINE PHENOCRYSTS, LENSES OF OILVINE RICH MATERIAL (eg AT 70.90m). POSSIBLE VERY FINE SPECKS OF BORNITE / NATIVE COPPER IN WEATHERED 71.80 BASALT.				
70.78	V V V					WT				Pos. COPPER BORNITE				
71.80	V V V					AMGH				71.80 FAULTED AND FRAGMENTED BASALT WITH IRON OXIDE CLAY GOUGE & GRANULAR BRECCIA.				
72.30	V V V					FAULT				NONE.				
72.30	V V V					BORNITE				72.30 DARK GREY FINE GRAINED BASALT. TOP OF THE FLOW CONTAINS ZEOLITE VEINLETS AND ZEOLITE AMYGDALAS AT ~10% TO 71.50m. AMYGDALAS CLUSTER AT 73.76m. AMYGDALAS WHITE CHABAZITE & GREEN TALC. VERY RARE, FINE SPECKS OF BORNITE DISSEMINATED THROUGHOUT THE UNIT.				
75.31	V V V					AMGH				75.31 DARK GREY AMYGDALOZDAL BASALT. AMYGDALAS COMPOSED OF CHABAZITE & GREEN TALC ZEOLITE. ~5-10% FROM 75.31 TO 78.60m PHASING OUT, THEN RETURNING AT 5-10% AT ~79.00m. RARE HIGH ANGLE WHITE ZEOLITE VEINS CROSS CUT THE CORE AT 77.00m, 77.50, 78.15 & 79.30m. SPECKS OF BORNITE & RARE NATIVE COPPER IN ALTERED ZONES ADJACENT TO HYDROTHERMAL VEIN AT 78.15m.				
79.57	V V V					AMGH				BORNITE Pos. COPPER.				
79.57	V V V					AMGH				79.57 DARK GREY BASALT WITH ALTERED RED OILVINES. ZEOLITE AMYGDALAS AT THE TOP OF THE UNIT FOR ~10cm AND AT THE BASE OF THE UNIT FOR ~20cm. BASALT CROSS CUT BY HIGH ANGLE, WHITE ZEOLITE VEINS CONTAINING CHABAZITE, ANALCZIME, NATROLITE & POSSIBLE PHALLOPSITE (eg AT 80.10m). BORNITE SPECKS AND FINE SPECKS OF NATIVE COPPER IN THE VEIN & ADJACENT BASALT.				
84.00	V V V					WT				NONE.				
84.00	V V V					AMGH				84.00 RED BROWN WEATHERED AMYGDALOZDAL BASALT TO 85.82m WHERE IT GRADUALLY GRADES INTO LESS WEATHERED GREY BROWN AMYGDALOZDAL BASALT. AMYGDALAS ARE COMPOSED OF WHITE ZEOLITES & GREEN TALC. AT ~10% IN THE WEATHERED BASALT, FALLING TO ~2-4% IN THE FRESHER BASALT. RARE HIGH ANGLE CHABAZITE VEINLETS CROSSCUT THE ROCK AT 84.05 & 84.70m.				
85.82	V V V					WT				NONE.				
87.37	V V V					AMGH				NONE				
87.37	V V V					WT				DARK GREY BASALT. NO AMYGDALAS. IRON OXIDE STAINING AND ALTERATION AT UNIT BASE ASSOCIATED WITH POSSIBLE FAULT AT 88.75m.				
88.70	V V V					WT				BORNITE NATIVE COPPER				
88.70	V V V					FAULT				88.70 FRAGMENTED CORE WITH POSSIBLE FAULT MATERIAL AT 88.75 & 89.30. RED GREY WEATHERED AMYGDALOZDAL BASALT TO ~89.85m, FOLLOWED BY BROWN GREY AMYGDALOZDAL BASALT. AMYGDALAS AT ~5-10%. CORE CROSSCUT BY HIGH ANGLE ZEOLITE VEIN FROM 89.90 TO 90.30m. RARE NATIVE COPPER & BORNITE SPECKS ASSOCIATED WITH ADJACENT VEIN.				

Depth (m)	Lithology	Recovery	G/S	Struct.	RQD	Mineralisation	PXRf	MAG	Sampled	Geological Description					
										Mineralogy	Texture	Colour	Alteration	Fabric	Jointing
90.0						BORNITE COPPER				90.20	SEE NOTES ON PREVIOUS PAGE				
90.20						NONE				90.20 - 93.34	RED GREY, MEDIUM GRAINED DOLERITE. CROSS CUT BY NATROCLITE, RARE ANALCZIME & PHILIPSITE VEINLETS, DISSEMINATED THROUGHOUT UPPER UNIT. VERY RARE ZEOCLITE AMYGDALAS (<1%) PHASE OUT AT 93.30m. VEIN AT 93.30m BRECCIATE THE DOLERITE.				
93.34						NONE				93.34 - 96.60	PURPLE GREY COARSE GRAINED, OLIVINE RICH DOLERITE FLOW CENTRE. CROSS CUT BY THIN TALC VEINLETS. POSSIBLE FAULT AT 95.40 - 95.60, FRAGMENTED MATERIAL. GREY AMYGDALOIDAL BASALT ENCLAVE / XENOLITH AT 94.14 TO 94.26m. CALCITE VEIN AT 94.70m.				
96.60						NONE				96.60 - 99.95	DARK GREY DOLERITE INTRUSION. LOWER OLIVINE CONTENT THAN 93.34 - 96.60, BUT HIGHER THAN 90.20 TO 93.34m. CROSS CUT BY TALC VEINLETS.				
99.95						NONE				99.95	THEORY - SHALLOW INTRUSION 				
100.28						NONE				100.28	RED GREY WEATHERED BASALT GRADING INTO FRESH DARK GREY BASALT AT ~ 100.80m. AMYGDALAS CONTAINING NATROCLITE, CHABAZITE AND PHILIPSITE, AT ~ 2% FROM 100.28 TO ~ 101.30m, FALLING TO LESS THAN 1% TO 104m. ABSENT FROM 104 TO 106.28m. THIN DISCONTINUOUS ZEOCLITE VEINLETS CROSS CUT THE CORE BETWEEN 100.28 & ~ 103m. UNIT RELATIVELY RICH IN PHILIPSITE VEINLETS.				
106.28						NONE				106.28	FRAGMENTED BASALT WITH IRON OXIDE STAINING, DARK GREY WITH ALTERED OLIVINES AND RARE AMYGDALAS AT ~ 106.30m. POSSIBLE CHLORITIC FAULT GOUGE AT 106.50				
107.00						NONE				107.00	RED-BLACK WEATHERED BASALT WITH ~ 2-5% VESICLES AND ALTERED OLIVINES. CROSS CUT BY FAULTS, WITH BRECCIAS (CLAST SUPPORTED) AT 107.60 AND 107.90m. AT ~ 108.30m GRADUALLY GRADES INTO FRESH DARK GREY SPECKLED BASALT, WITH NO VESICLES. WHITE, CIRCUM 1-2mm ZEOCLITE AMYGDALAS APPEAR TOWARDS FLOW BASE AT 109.75m.				
109.95						NONE				109.95	DARK GREY BASALT. TOP OF THE UNIT FRACTURED AND FRAGMENTED. EVIDENCE OF SICKENLINES / POLISHED SURFACES POSSIBLE FAULT? FRESHER BASALT FROM 110.15m. NO AMYGDALAS. VERY FINE ZEOCLITE VEINLETS AT HIGH ANGLE.				
110.85						NONE				110.85	SHARP CONTACT WITH OVERLYING UNIT. NO WEATHERED TOP. RELATIVELY COARSE GRAINED				
112.50						NONE				112.50	CLAY WITH FLINTS. FORMATION. BROWN IRON OXIDE CLAYS / PALEO SOILS AND ERODE CHALK AND FLINT CLASTS / BRECCIAS. CLAY FOLLOWED BY CHALK BRECCIA SEQUENCES. REMAINS OF A CALCITE VEIN WITH PRISMATIC CALCITE 'DOGTETH' CRYSTALS AT 115.40m				
115.42						NONE				115.42	BRECCIATED CHALK WITH FAULT GOUGE / BRECCIA AT 117.40, 117.60, 118.20, 118.50, 119.20, 119.60m. BRECCIAS CONTAIN CHALK, FRAGMENTED FLINT & CHALK CLAY. INCREASINGLY BRECCIA CLAST SUPPORTED TOWARDS UNIT BASE. UNIT ALSO CONTAINS STYLOLITES AND HIGH ANGLE, THIN CALCITE VEINLETS.				

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SILL

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6

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8

9

100

100.8

108.3

110.15

FAULTED ZONE

