

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	YEL	VSS						Bleached pale straw yellow; weathered; volcanoclastic sandstone well broken core.							
	GRY-GRN	VSS			gra	ch		Pale grey green; weakly chlorite altered fine to medium grained volcanoclastic sandstone; increasing grain size downhole with common pumice breccia from 22.6m to 25.6; occasional visible bedding in sandstone.							
	GRY	FTZ		ftz				Light grey to dark grey; friable gouge.							
	GRY	SSH		bed				Grading from dark grey weakly deformed black slate; grey fine grained volcanoclastic sandstone to; grey medium grained planar bedded volcanoclastic sandstone to rhyolitic pumice breccia up to 10cm at downhole contact. Competant core; Minor disseminated euhedral pyrite >1mm visible within weathered veinlets.							
	GRN	IMK		mas	aph		py	Basaltic dyke which has incorporated several large 5-10cm pumice breccia clasts from adjacent units. Minor disseminated euhedral pyrite >1mm visible within weathered veinlets.							
	GRN	VBX			pum	ch		Pale green weakly chlorite altered; rhyolitic pumice breccia up to 10cm with sharp contacts.							
	GRY	VSS		brc	pum	si se	py po	Moderate grey; silica-sericite altered; massive to weakly bedded; poorly sorted; feldspar phyric pumiceous breccia with minor >2% lithic fragments; trace >1mm subhedral pyrite and lessor pyrrhotite; minor >0.5mm carbonate and lessor chlorite filled veinlets; competent core with sharp lower contact.							

Legend										Mineralisation			
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	■ Andesite Flow	■ Dolomite	■ Interbedded VSS/VSL/VSM &	■ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic	■ Elevated
▲ Basalt	■ Fault Zone	■ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	■ Intermediate Volcanoclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous
▲ Calcarenite	■ Feldspathic porphyry	■ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Slate	■ Volcanic Breccia	■ Sub-Grade	■ Chert	■ Felsic Flow	■ Lapilli Tuff	■ Quartz Porphyry	■ Siltstone	■ Volcanic Conglomerate	■ Low-Grade
■ Clay	■ Felsic tuff	■ Limestone	■ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone	■ High-Grade	■ Crystal Tuff	■ Felsic Volcanoclastic	■ Lithic Tuff	■ Rhyolite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	
■ Dacite	■ Greywacke	■ Mafic Dyke	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvioglacial Sediment		■ Dacite Breccia	■ Hyaloclastite Breccia	■ Mafic Volcanoclastic	■ Rhyolite Breccia	■ Undifferentiated Mafic Intrusive		
■ Dacite Flow	■ Interbedded sandstone/shale	■ Massive sulphide	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive			■ Dacite Lapilli Tuff	■ Mudstone	■ No Core Present	■ Sandstone			

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50	GRY	VSS		brc	pum	si se	py po	Moderate grey; silica-sericite altered; massive to weakly bedded; poorly sorted; feldspar phyruc pumiceous breccia with minor >2% lithic fragments; trace >1mm subhedral pyrite and lesser pyrrhotite; minor >0.5mm carbonate and lesser chlorite filled veinlets; competent core with sharp lower contact.							
	GRY-GRN	VSS			gra	si ch		Moderate grey to pale green; graded; moderately sorted; weakly silica to chlorite altered; medium to coarse grained volcanoclastic sandstone.							
	GRN-GRY	IMK		mas	aph	ch		Greenish grey; massive; unfoliated; fine grained; weakly chlorite altered basaltic dyke; crosscut by irregular quartz-carbonate veins; sharp lower contact with ~20cm brecciated zone at upper contact; competent core.							
	GRY	VDA		mas				Dark grey; massive; unfoliated; feldspar (1-3mm) phyruc Dacite with common 1-10mm planar quartz veins with rare pyrite; competent core; sharp upper and lower contacts which appear to have 3m of cooked Dacite bounded by basaltic dykes; rare >3cm litic clasts.							
	GRN	IMK		mas	aph	ch	py	Greenish grey; massive; unfoliated; moderately chlorite altered aphyric basaltic dyke; abundant 1-100mm planar quartz veins with minor chlorite bleeding; rare trace pyrite; competent core with sharp lower contact.							

Lithology Legend										Mineralisation		
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	■ Elevated	■ Anomalous	■ Strongly Anomalous	■ Sub-Grade	■ Low-Grade	■ High-Grade
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic	■ Basalt	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Vein quartz	■ Volcanic Breccia	■ Volcanic Conglomerate
▲ Breccia - Undifferentiated	■ Fault Zone	▨ Intermediate flow	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Calcarenite	■ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Sandstone	■ Volcanic Siltstone	■ Slate	■ Volcanic Conglomerate
■ Chert	■ Feldspathic (ash) tuff	▨ Intermediate Volcanoclastic	■ Quartz Porphyry	■ Tuff Siltstone	■ Undifferentiated Black Shale	■ Clay	■ Limestone	■ Tuff Siltstone	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvio-glacial Sediment	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff
■ Crystal Tuff	■ Felsic tuff	▨ Mafic Dyke	■ Rhyolite	■ Rhyolite Breccia	■ Rhyolite Tuff	■ Dacite	■ Lithic Tuff	■ Rhyolite	■ Sandstone			
■ Dacite Breccia	■ Felsic Volcanoclastic	▨ Mafic Volcaniclastic	■ Rhyolite Breccia	■ Rhyolite Tuff	■ Sandstone	■ Dacite Flow	■ Greywacke	■ Rhyolite Breccia				
■ Dacite Flow	■ Hyaloclastite Breccia	▨ Massive sulphide	■ Rhyolite Tuff	■ Sandstone		■ Dacite Lapilli Tuff	■ Hyaloclastite Breccia	■ Sandstone				
	■ Interbedded sandstone/shale	▨ Mudstone	■ Sandstone				■ Interbedded sandstone/shale	■ Sandstone				
	■ Interbedded siltstone/siltstone	▨ No Core Present					■ Interbedded siltstone/siltstone					

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	GRN	IMK		mas	aph	ch	py	Greenish grey; massive; unfoliated; moderately chlorite altered aphyric basaltic dyke; abundant 1-100mm planar quartz veins with minor chlorite bleeding; rare trace pyrite; competent core with sharp lower contact.							
	WHT GRN-GRY	QCV IMK		vq mas	aph	ch		Large quartz vein with minor chlorite. Greenish grey; massive; unfoliated; moderately chlorite altered aphanitic basaltic dyke; abundant 1-100mm planar quartz veins with minor chlorite bleeding; rare trace pyrite; competent core except 111.6-121.0 broken core; chlorite alteration diminishes from 150.0 to downhole contact; sharp weakly brecciated ~20cm lower contact.							

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcaniclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcaniclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcaniclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>▲ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhyodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Slate</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvioglacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcaniclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
GRN-GRY	IMK			mas	aph	ch		Greenish grey; massive; unfoliated; moderately chlorite altered aphanitic basaltic dyke; abundant 1-100mm planar quartz veins with minor chlorite bleeding; rare trace pyrite; competent core except 111.6-121.0 broken core; chlorite alteration diminishes from 150.0 to downhole contact; sharp weakly brecciated ~20cm lower contact.							
GRY	VSS			bed		si		Moderate grey; massive; unfoliated; weakly bedded; moderately silica altered volcaniclastic sandstone; sharp contacts; competent core.							
PNK-GRY	VBX			brc		si h m		Pinky red to grey; massive; feldspar-quartz phytic; unfoliated; silica-hematite altered medium to coarse grained pumiceous volcaniclastic breccia with three 30-40cm hematite-chlorite altered basaltic dykes interfingering the unit with possible internal flow banding; competent core with graded? contacts.							
GRY	VDA			mas		h m		Moderate to dark grey; massive; unfoliated; very weak hematite altered; Dacite with 1-3mm feldspar phenocrysts with 1-5mm planar quartz carbonate veins; uncommon trace pyrite >1mm; competent core with sharp lower contact.							

Mineralisation														
	Andesite		Disseminated Sulphides		Interbedded siltstone/shale		Not logged		Schist		Undifferentiated Volcanic		Background	
	Andesite Flow		Dolomite		Interbedded VSS/VSL/VSM &		Pyroclastic Breccia		See comments for full descrip		Undifferentiated Volcaniclastic		Elevated	
	Basalt		Fault Zone		Intermediate flow		Quartz		Semi-massive Sulphides		Vein Carbonate		Anomalous	
	Breccia - Undifferentiated		Feldspathic (ash) tuff		Intermediate Volcaniclastic		Quartz Carbonate Vein		Shale		Vein quartz		Strongly Anomalous	
	Calcarenite		Feldspathic porphyry		Lapilli Tuff		Quartz Feldspar Porphyry		Siltstone		Volcanic Breccia		Sub-Grade	
	Chert		Felsic Flow		Limestone		Quartz Porphyry		Slate		Volcanic Conglomerate		Low-Grade	
	Clay		Felsic tuff		Lithic Tuff		Quartzite		Tuff Siltstone		Volcanic Sandstone		High-Grade	
	Crystal Tuff		Felsic Volcaniclastic		Mafic Dyke		Rhyodacite		Undifferentiated Black Shale		Volcanic Siltstone			
	Dacite		Greywacke		Mafic Volcaniclastic		Rhyolite		Undifferentiated Felsic Volcanic		Undifferentiated Fluvio-glacial Sediment			
	Dacite Breccia		Hyaloclastite Breccia		Massive sulphide		Rhyolite Breccia		Undifferentiated Mafic Intrusive		Undifferentiated Mafic Intrusive			
	Dacite Flow		Interbedded sandstone/shale		Mudstone		Rhyolite Tuff		Undifferentiated Tuff					
	Dacite Lapilli Tuff		Interbedded sandstone/siltsto		No Core Present		Sandstone							

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	GRN	IMK		mas	aph	ch		Dark green; chlorite altered aphanitic basaltic dyke with possible flow banding and sharp contacts.							
	GRY-RED	VDA		mas		h m si		Moderate grey to maroon grey; hematite-weakly silica altered; massive unfoliated; Dacite with 1-2mm feldspar phenocrysts with common 1-10mm planar quartz carbonate veins; a large prominent 12cm quartz vein at 242m; competent core with sharp lower contact.							

Mineralisation																																																																										
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	▲ Andesite Flow	○ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic	■ Elevated	▲ Andesite Flow	○ Fault Zone	▨ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Basalt	○ Feldspathic (ash) tuff	▨ Intermediate Volcaniclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous	▲ Breccia - Undifferentiated	○ Feldspar porphyry	▨ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia	■ Sub-Grade	▲ Calcarenite	○ Felsic Flow	▨ Limestone	■ Quartz Porphyry	■ Tuff Siltstone	■ Volcanic Conglomerate	■ Low-Grade	▲ Chert	○ Felsic tuff	▨ Lithic Tuff	■ Rhyolite	■ Undifferentiated Black Shale	■ Volcanic Sandstone	■ High-Grade	▲ Clay	○ Felsic Volcaniclastic	▨ Mafic Dyke	■ Rhyolite Breccia	■ Undifferentiated Felsic Volcanic	■ Volcanic Siltstone	■ Undifferentiated Fluvio-glacial Sediment	▲ Crystal Tuff	○ Greywacke	▨ Mafic Volcaniclastic	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff	▲ Dacite	○ Hyaloclastite Breccia	▨ Massive sulphide	■ Sandstone	■ Interbedded sandstone/shale	▨ Mudstone	■ No Core Present	■ Dacite Breccia	○ Interbedded sandstone/shale	▨ No Core Present	■ Dacite Flow	○ Interbedded sandstone/siltsto	■ Dacite Lapilli Tuff

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250	GRY-RED	VDA		mas		h m si		Moderate grey to maroon grey; hematite-weakly silica altered; massive unfoliated; Dacite with 1-2mm feldspar phenocrysts with common 1-10mm planar quartz carbonate veins; a large prominent 12cm quartz vein at 242m; competent core with sharp lower contact.							
260	GRY	VSS			gra	si		Light to moderate grey; weakly silica altered; weak-moderately graded; unfoliated; medium to coarse grained feldspathic volcanoclastic sandstone with foliated pumice breccia clasts; minor 1-5mm planar quartz-carbonate veins; competent core with sharp downhole contact.							
270	CRM-GRY	VSS		bed		si		Cream-grey; unfoliated; weakly bedded; weakly silica altered; medium to coarse grained felsic volcanoclastic sandstone with trace disseminated pyrite; rare 2mm quartz-carbonate veins; competent core; sharp downhole contact.							
280	CRM-GRN	VSM		bed		ch si		Cream grey to green grey; bedded; weakly foliated; weakly chlorite+/- weak silica altered; fine grained volcanoclastic mudstone grading to medium grained volcanoclastic sandstone with 1-5mm chlorite blotchy haloes surrounding fine grained pyrite; increasing content of pumice breccia clasts at basal contact with minor 1-7cm lithic clasts.							
280	CRM-GRY	VSS		bed	fgr	ch si		Creamy grey; weakly chlorite-silica altered; bedded; fine grained volcanoclastic sandstone with 1-2cm planar quartz carbonate +/- chlorite veins; brecciated upper hole contact; sharp lower contact with quartz-carbonate-chlorite veins; competent core.							
	WHT	QCV		bed	fgr	si									
	GRY	VSM													
290								Quartz-carbonate-chlorite vein (90% silica)							
300								Moderate grey; weakly silica altered; bedded; very fine grained felsic volcanoclastic mudstone grading to sandstone downhole with foliated pumice breccia in the last 3m of the interval; common pseudo clasts which appear cream coloured and possibly devitrification textures; uncommon 1-2mm planar quartz carbonate veinlets.							

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcanoclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcanoclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcanoclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>■ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcanoclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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	GRY-GRN	VSS		bed		ch si		Olive-grey; weakly chlorite-silica altered; bedded medium grained to coarse grained volcanoclastic sandstone with pumice breccia at bottom of the interval; common 1mm quartz carbonate veinlets; trace pyrite; sharp lower contact; competent core.							
	BRN-GRY	VSS		bed	fgr	si		Light brown-grey to green grey; silica altered; bedded; weakly foliated; fine grained to medium grained volcanoclastic sandstone grading to pumiceous volcanoclastic sandstone breccia at 333.6m with 1-8cm strongly silica altered lithic fragments; common 1-2mm planar quartz-carbonate-chlorite veinlets.							

Legend										Mineralisation			
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	■ Andesite Flow	■ Dolomite	■ Interbedded VSS/VSL/VSM &	■ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic	■ Elevated
▲ Basalt	■ Fault Zone	■ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	■ Intermediate Volcanoclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous
▲ Calcarenite	■ Feldspathic porphyry	■ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia	■ Sub-Grade	■ Chert	■ Felsic Flow	■ Limestone	■ Quartz Porphyry	■ Tuff Siltstone	■ Volcanic Conglomerate	■ Low-Grade
■ Clay	■ Felsic tuff	■ Lithic Tuff	■ Rhyolite	■ Undifferentiated Black Shale	■ Volcanic Sandstone	■ High-Grade	■ Crystal Tuff	■ Felsic Volcanoclastic	■ Mafic Dyke	■ Rhyolite Breccia	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvio-glacial Sediment	■ Low-Grade
■ Dacite	■ Greywacke	■ Mafic Volcanoclastic	■ Rhyolite	■ Rhyolite Breccia	■ Volcanic Siltstone	■ High-Grade	■ Dacite Breccia	■ Hyaloclastite Breccia	■ Massive sulphide	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff	■ High-Grade
■ Dacite Flow	■ Interbedded sandstone/shale	■ Mudstone	■ Sandstone	■ Sandstone	■ No Core Present		■ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto					

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
350	BRN-GRY	VSS		bed	fgr	si		Light brown-grey to green grey; silica altered; bedded; weakly foliated; fine grained to medium grained volcaniclastic sandstone grading to pumiceous volcaniclastic sandstone breccia at 333.6m with 1-8cm strongly silica altered lithic fragments; common 1-2mm planar quartz-carbonate-chlorite veinlets.							
360															
370															
380	GRY-GRN	VSS			gra	si ch		Grey green; weakly silica-chlorite altered; weakly to moderately sorted fine grained to coarse grained foliated feldspart +/- quartz phryic volcaniclastic sandstone; trace pyrite with minor >1% 1-5cm lithic clasts; grades to pumiceous volcaniclastic sandstone in last 20cm of interval; common 1-5mm planar quartz-carbonate-chlorite veins increasing downhole.							
390															
400															

<ul style="list-style-type: none"> <li> Andesite</li> <li> Andesite Flow</li> <li> Basalt</li> <li> Breccia - Undifferentiated</li> <li> Calcarene</li> <li> Chert</li> <li> Clay</li> <li> Crystal Tuff</li> <li> Dacite</li> <li> Dacite Breccia</li> <li> Dacite Flow</li> <li> Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li> Disseminated Sulphides</li> <li> Dolomite</li> <li> Fault Zone</li> <li> Feldspathic (ash) tuff</li> <li> Feldspathic porphyry</li> <li> Felsic Flow</li> <li> Felsic tuff</li> <li> Felsic Volcaniclastic</li> <li> Greywacke</li> <li> Hyaloclastite Breccia</li> <li> Interbedded sandstone/shale</li> <li> Interbedded sandstone/siltstone</li> </ul>	<ul style="list-style-type: none"> <li> Interbedded siltstone/shale</li> <li> Interbedded VSS/VSL/VSM &amp; Intermediate flow</li> <li> Intermediate Volcaniclastic</li> <li> Lapilli Tuff</li> <li> Limestone</li> <li> Lithic Tuff</li> <li> Mafic Dyke</li> <li> Mafic Volcaniclastic</li> <li> Massive sulphide</li> <li> Mudstone</li> <li> No Core Present</li> </ul>	<ul style="list-style-type: none"> <li> Not logged</li> <li> Pyroclastic Breccia</li> <li> Quartz</li> <li> Quartz Carbonate Vein</li> <li> Quartz Feldspar Porphyry</li> <li> Quartz Porphyry</li> <li> Quartzite</li> <li> Rhyodacite</li> <li> Rhyolite</li> <li> Rhyolite Breccia</li> <li> Rhyolite Tuff</li> <li> Sandstone</li> </ul>	<ul style="list-style-type: none"> <li> Schist</li> <li> See comments for full description</li> <li> Semi-massive Sulphides</li> <li> Shale</li> <li> Siltstone</li> <li> Slate</li> <li> Tuff Siltstone</li> <li> Undifferentiated Black Shale</li> <li> Rhyolite</li> <li> Undifferentiated Felsic Volcanic</li> <li> Undifferentiated Fluvioglacial Sediment</li> <li> Undifferentiated Mafic Intrusive</li> <li> Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li> Undifferentiated Volcanic</li> <li> Undifferentiated Volcaniclastic</li> <li> Vein Carbonate</li> <li> Vein quartz</li> <li> Volcanic Breccia</li> <li> Volcanic Conglomerate</li> <li> Volcanic Sandstone</li> <li> Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li> Background</li> <li> Elevated</li> <li> Anomalous</li> <li> Strongly Anomalous</li> <li> Sub-Grade</li> <li> Low-Grade</li> <li> High-Grade</li> </ul>
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# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY-GRN	VSS				gra	si ch	Grey green; weakly silica-chlorite altered; weakly to moderately sorted fine grained to coarse grained foliated feldspart +/- quartz phyrlic volcanoclastic sandstone; trace pyrite with minor >1% 1-5cm lithic clasts; grades to pumiceous volcanoclastic sandstone in last 20cm of interval; common 1-5mm planar quartz-carbonate-chlorite veins increasing downhole.							
	GRY-GRN	VSL				gra	si ch	Moderate grey-green to dark green-grey; moderately foliated; graded; weakly silica-chlorite altered; fine grained to coarse grained feldspar phyrlic volcanoclastic siltstone to sandstone with weak to moderate carbonate spotting uphole grading to strongly chlorite altered downhole; minor 1-8mm framboidal pyrite downhole; minor 1-4mm planar quartz carbonate veins with minor pyrite.							

Lithology Legend										Mineralisation																			
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	▲ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	■ Andesite Flow	■ Dolomite	■ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic	■ Elevated	■ Breccia - Undifferentiated	■ Fault Zone	■ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous									
■ Calcarenite	■ Feldspathic (ash) tuff	■ Intermediate Volcanoclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous	■ Chert	■ Feldspathic porphyry	■ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia	■ Sub-Grade	■ Clay	■ Felsic Flow	■ Quartz Porphyry	■ Slate	■ Tuff Siltstone	■ Volcanic Conglomerate	■ Low-Grade									
■ Crystal Tuff	■ Felsic tuff	■ Mafic Dyke	■ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Sandstone	■ High-Grade	■ Dacite	■ Felsic Volcanoclastic	■ Lithic Tuff	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvioglacial Sediment	■ Dacite Breccia	■ Greywacke	■ Hyaloclastite Breccia	■ Massive sulphide	■ Rhyolite Breccia	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	■ Dacite Flow	■ Interbedded sandstone/shale	■ Mudstone	■ Sandstone	■ Undifferentiated Tuff	■ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	■ No Core Present	■ Sandstone	■ Undifferentiated Tuff

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

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Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY-GRN	VSL			gra	si ch		Moderate grey-green to dark green-grey; moderately foliated; graded; weakly silica-chlorite altered; fine grained to coarse grained feldspar phyric volcaniclastic siltstone to sandstone with weak to moderate carbonate spotting uphole grading to strongly chlorite altered downhole; minor 1-8mm framboidal pyrite downhole; minor 1-4mm planar quartz carbonate veins with minor pyrite.							
	GRY-GRN	VSL			gra	si ch		Moderate grey-green; moderately foliated; weakly silica-chlorite altered; fine grained to medium grained volcaniclastic siltstone to sandstone with commonly annealed fracture veins containing quartz carbonate; uncommon 2-8mm framboidal pyrite uphole; broken core 5-7bpm.							
	GRY-GRN	VSS		mas		si ch cb		Dark grey green to cream green; moderately foliated; silica-carbonate-chlorite altered with weak inconsistent hematite alteration; massive medium grained volcaniclastic sandstone with common spotting consisting of pyritic nuclei with carbonate and outer chlorite haloes up to 6mm in overall size uphole; common 1-4mm planar quartz carbonate veinlets; trace disseminated pyrite.							

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcaniclastic</li> <li>○ Greywacke</li> <li>○ Hyaloclastite Breccia</li> <li>○ Interbedded sandstone/shale</li> <li>○ Interbedded siltstone/siltstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp; Intermediate flow</li> <li>■ Intermediate Volcaniclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcaniclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>▲ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhyodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full description</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Slate</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvioglacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcaniclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>○ Volcanic Sandstone</li> <li>○ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY-GRN	VSS		mas		si ch cb		Dark grey green to cream green; moderately foliated; silica-carbonate-chlorite altered with weak inconsistent hematite alteration; massive medium grained volcanoclastic sandstone with common spotting consisting of pyritic nuclei with carbonate and outer chlorite haloes up to 6mm in overall size uphole; common 1-4mm planar quartz carbonate veinlets; trace disseminated pyrite.							
	GRY-GRN	IMK		mas	amy	ch		Dark grey green; chlorite altered massive aphanitic basaltic dyke with common 1-3mm carbonate filled amygdaloids; common 1-10mm planar quartz carbonate veins with associated disseminated pyrite.							
	GRY	VSS		mas		si cb		Grey; foliated; weakly silica altered; common carbonate spotting; medium grained volcanoclastic sandstone with common cream carbonate? Pseudo clasts? May be devitrification textures; common 1-5mm planar quartz carbonate veins; competent core.							

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcanoclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp; Intermediate flow</li> <li>■ Intermediate Volcanoclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcanoclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>▲ Not logged</li> <li>▲ Pyroclastic Breccia</li> <li>▲ Quartz</li> <li>▲ Quartz Carbonate Vein</li> <li>▲ Quartz Feldspar Porphyry</li> <li>▲ Quartz Porphyry</li> <li>▲ Quartzite</li> <li>▲ Rhyodacite</li> <li>▲ Rhyolite</li> <li>▲ Rhyolite Breccia</li> <li>▲ Rhyolite Tuff</li> <li>▲ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full description</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Slate</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcanoclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
550	GRY	VSS		mas		si cb		Grey; foliated; weakly silica altered; common carbonate spotting; medium grained volcanoclastic sandstone with common cream carbonate? Pseudo clasts? May be devitrification textures; common 1 -5mm planar quartz carbonate veins; competent core.							
560															
570															
580															
590															
600															

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcanoclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcanoclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcanoclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>■ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Tuff</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Rhyolite</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcanoclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
600	GRY	VSS		mas		si cb		Grey; foliated; weakly silica altered; common carbonate spotting; medium grained volcanoclastic sandstone with common cream carbonate? Pseudo clasts? May be devitrification textures; common 1-5mm planar quartz carbonate veins; competent core.							
610															
620															
630															
640															
650															

Mineralisation																																																																															
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic	■ Elevated	▲ Basalt	■ Fault Zone	▨ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	▨ Intermediate Volcanoclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous	▲ Calcarenite	■ Feldspathic porphyry	▨ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia	■ Sub-Grade	▲ Chert	■ Felsic Flow	▨ Limestone	■ Quartz Porphyry	■ Slate	■ Volcanic Conglomerate	■ Low-Grade	▲ Clay	■ Felsic tuff	▨ Lithic Tuff	■ Rhyolite Breccia	■ Tuff Siltstone	■ Volcanic Sandstone	■ Undifferentiated Mafic Intrusive	▲ Crystal Tuff	■ Felsic Volcanoclastic	▨ Mafic Dyke	■ Rhyolite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	■ High-Grade	▲ Dacite	■ Greywacke	▨ Mafic Volcanoclastic	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvioglacial Sediment	▲ Dacite Breccia	■ Hyaloclastite Breccia	▨ Massive sulphide	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	▲ Dacite Flow	■ Interbedded sandstone/shale	▨ Mudstone	■ Sandstone	■ Undifferentiated Tuff	▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	▨ No Core Present					

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
650	GRY	VSS		mas		si cb		Grey; foliated; weakly silica altered; common carbonate spotting; medium grained volcanoclastic sandstone with common cream carbonate? Pseudo clasts? May be devitrification textures; common 1-5mm planar quartz carbonate veins; competent core.							
660	GRY	VSS		mas		ch		Moderate grey; weakly chlorite altered; moderately foliated; massive; fine grained to medium grained feldspar phyruc volcanoclastic sandstone downhole; common 1-5mm planar quartz carbonate veins with associated disseminated pyrite; competent core.							
670															
680															
690	GRY	VSS		mas		si		Broken core; clasts of 1-20m silica altered; medium grained volcanoclastic sandstone annealed in a matrix of chlorite infill with common 1-3mm irregular quartz carbonate veins.							
695	GRY	VSS		mas		si ch		Moderate grey weak silica-chlorite altered; foliated; massive; fine grained to medium grained volcanoclastic sandstone with common 1-6mm planar quartz carbonate veins.							
700															

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcanoclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcanoclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcanoclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>■ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhyodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Slate</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvioglacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcanoclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VSS		mas		si ch		Moderate grey weak silica-chlorite altered; foliated; massive; fine grained to medium grained volcanoclastic sandstone with common 1-6mm planar quartz carbonate veins.							
	GRY-GRN	IMK		mas	aph	ch		Dark grey green; chlorite altered; aphanitic basaltic dyke with common 1-10mm planar quartz carbonate veins; competent core.							
	GRY-GRN	VSL			gra	si ch		Light grey to moderate grey green; foliated; weakly silica-chlorite altered; fine grained to medium grained volcanoclastic siltstone to sandstone with rare trace pyrite; common 1-5mm planar and irregular quartz carbonate veins; sharp downhole contact; competent core.							

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcanoclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp; Intermediate flow</li> <li>■ Intermediate Volcanoclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcanoclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>▲ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhyodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full description</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcanoclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VSS		mas		si ch		Moderate grey to dark grey; weak foliated; weakly silica-chlorite altered; medium grained volcanoclastic sandstone with common carbonate spotting 1-4cm							
	GRN	IMK		mas	amy	ch		with increasing silica alteration downhole; common 1-4mm planar quartz carbonate veins with irregular quartz carbonate veins from 846m to downhole contact; competent core; sharp downhole contact.							
	GRY-GRN	VSS		mas		si ch		Dark green; chlorite altered; aphyric; massive; basaltic dyke with carbonate filled amygdaloids; common 1-4mm irregular quartz carbonate veins; sharp contact; competent core.							
	GRY-GRN	VSS		mas		si cb ch		Light grey green; intensely silica-moderate chlorite-weakly carbonate altered volcanoclastic sandstone? Original texture destroyed by silica flooding; common 1-3cm irregular quartz carbonate veins with rare blebs of honey brown sphalerite; minor trace pyrite in lessor altered uphole rocks; downhole contact is with broken core (fault); competent core.							
	CRM-GRN	VSL		mas		si cb ch		Fault; Broken core >5cm down to gouge; light grey green; silica-carbonate-weakly chlorite altered rock (volcanoclastic sandstone?).							
	GRY-GRN	VDR		brc	abx	si cb ab		Grey pale green-creamy green; foliated; silica-carbonate-weakly chlorite altered; fine grained volcanoclastic siltstone with minor 1-3mm planar quartz carbonate veins; gradational lower contact; competent core.							
								Grey green to moderate grey; moderately foliated; silica-carbonate alteration decreasing rapidly from uphole contact to weak silica-patchy albite altered Dacite autobreccia with 1-2mm subhedral feldspars; common 1-10mm planar quartz carbonate veins; minor trace pyrite which occasionally appears framboidal?; uncommon strongly altered basaltic dyke clasts up to 6cm; sharp contact; competent core.							

Mineralisation														
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	▲ Not logged	■ Schist	■ Undifferentiated Volcanic									
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic									
▲ Basalt	■ Fault Zone	▨ Intermediate flow	▲ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate									
▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	▨ Intermediate Volcanoclastic	▲ Quartz Carbonate Vein	■ Shale	■ Vein quartz									
▲ Calcarenite	■ Feldspathic porphyry	▨ Lapilli Tuff	▲ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia									
▲ Chert	■ Felsic Flow	▨ Limestone	▲ Quartz Porphyry	■ Slate	■ Volcanic Conglomerate									
▲ Clay	■ Felsic tuff	▨ Lithic Tuff	▲ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone									
▲ Crystal Tuff	■ Felsic Volcanoclastic	▨ Mafic Dyke	▲ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone									
▲ Dacite	■ Greywacke	▨ Mafic Volcanoclastic	▲ Rhyolite	■ Undifferentiated Felsic Volcanic										
▲ Dacite Breccia	■ Hyaloclastite Breccia	▨ Massive sulphide	▲ Rhyolite Breccia	■ Undifferentiated Fluvio-glacial Sediment										
▲ Dacite Flow	■ Interbedded sandstone/shale	▨ Mudstone	▲ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive										
▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	▨ No Core Present	▲ Sandstone	■ Undifferentiated Tuff										

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	GRY-GRN	VDR		brc	abx	si cb ab		Grey green to moderate grey; moderately foliated; silica-carbonate alteration decreasing rapidly from uphole contact to weak silica-patchy albite altered Dacite autobreccia with 1-2mm subhedral feldspars; common 1-10mm planar quartz carbonate veins; minor trace pyrite which occasionally appears framboidal?; uncommon strongly altered basaltic dyke clasts up to 6cm; sharp contact; competent core.							
	GRN	IMK		mas	aph	ch		Dark green; strongly chlorite altered; massive aphanitic basaltic dyke with minor 1-3mm carbonate filled amygdaloids; minor 1-5mm planar quartz +/-carbonate veins; sharp contacts; competent core.							
	GRY	VDR		brc	abx	cb ab si		Moderate grey; weak carbonate-weakly albite- silica domain altered; weak-moderately foliated; rhyolitic-dacite autobreccia with decreasing matrix downhole; jigsaw fit at 984.5m; common 1-5mm planar and irregular 1-8mm quartz veins; rare trace pyrite; sharp contacts; competent core.							

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcaniclastic</li> <li>○ Greywacke</li> <li>○ Hyaloclastite Breccia</li> <li>○ Interbedded sandstone/shale</li> <li>○ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcaniclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcaniclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>▲ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Rhyolite</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcaniclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VDR		brc	abx	cb ab si		Moderate grey; weak carbonate-weakly albite- silica domain altered; weak-moderately foliated; rhyolitic-dacite autobreccia with decreasing matrix downhole; jigsaw fit at 984.5m; common 1-5mm planar and irregular 1-8mm quartz veins; rare trace pyrite; sharp contacts; competent core.							
	GRY	VDA		mas		ab cb ch		Light grey to dark grey; weakly foliated; variably weak-moderately albite-carbonate-chlorite-silica altered coherent rhyolite-dacite lava with common 1-2mm subhedral feldspar phenocrysts; prominent massive 5cm pyrite vein at 1032.6m; abundant stockwork like planar 1-8mm quartz-carbonate veins throughout; rare trace pyrite; competent core; sharp downhole contact.							

Mineralisation														
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic									
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic									
▲ Basalt	■ Fault Zone	▨ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate									
▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	▨ Intermediate Volcaniclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz									
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	GRY-GRN	VDA		mas		ch si		Dark grey green; chlorite-weakly silica altered 1-30cm interfingering basaltic dyke with >2mm subhedral pyrite with fine grained rhyolite-dacite lava; sharp upper and lower contacts; common irregular 1-15mm quartz-carbonate veins; competent core.	D1395136	0.0	0.0	0.0	0.09		6.7
	GRY	VDA		mas		ab cb si		Moderate to dark grey; variably moderate albite-carbonate-silica-chlorite-sericite altered coherent rhyolite-dacite lava with abundant 1-2mm feldspar phenocrysts; abundant stockwork 1-3mm quartz-carbonate veins; from 1178.0m to downhole contact contains common 1-2cm to downhole contact common 1-2cm agglomeritic pyrite.							

Lithology Legend										Mineralisation			
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	■ Basalt	○ Dolomite	▨ Interbedded V/S/VSL/VSM &	■ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic	■ Elevated
▲ Breccia - Undifferentiated	○ Fault Zone	▨ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Breccia - Undifferentiated	▨ Feldspathic (ash) tuff	▨ Intermediate Volcaniclastic	■ Quartz Carbonate Vein	■ Vein Carbonate	■ Strongly Anomalous	■ Sub-Grade
▲ Calcarenite	▨ Feldspathic porphyry	▨ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Slate	■ Vein quartz	■ Low-Grade	▲ Chert	▨ Felsic Flow	▨ Limestone	■ Quartz Feldspar Porphyry	■ Volcanic Breccia	■ High-Grade	■ High-Grade
▲ Clay	▨ Felsic tuff	▨ Lithic Tuff	■ Quartz Porphyry	■ Tuff Siltstone	■ Volcanic Conglomerate	■ Strongly Anomalous	▲ Crystal Tuff	▨ Felsic Volcaniclastic	▨ Quartzite	■ Quartzite	■ Slate	■ Volcanic Conglomerate	■ Sub-Grade
▲ Dacite	○ Greywacke	▨ Mafic Dyke	■ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Sandstone	■ Low-Grade	▲ Dacite Breccia	▨ Mafic Volcaniclastic	▨ Rhyolite	■ Rhyodacite	■ Undifferentiated Felsic Volcanic	■ Volcanic Sandstone	■ Sub-Grade
▲ Dacite Breccia	○ Hyaloclastite Breccia	▨ Massive sulphide	■ Rhyolite Breccia	■ Undifferentiated Felsic Volcanic	■ Volcanic Siltstone	■ Low-Grade	▲ Dacite Flow	▨ Mudstone	▨ Rhyolite Breccia	■ Rhyolite Breccia	■ Undifferentiated Fluvioglacial Sediment	■ Volcanic Siltstone	■ Low-Grade
▲ Dacite Flow	○ Interbedded sandstone/shale	▨ No Core Present	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff	■ High-Grade	▲ Dacite Lapilli Tuff	▨ No Core Present	■ Sandstone	■ Sandstone	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff	■ High-Grade

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VDA		mas		ab cb si		Moderate to dark grey; variably moderate albite-carbonate-silica-chlorite-sericite altered coherent rhyolite-dacite lava with abundant 1-2mm feldspar phenocrysts; abundant stockwork 1-3mm quartz-carbonate veins; from 1178.0m to downhole contact contains common 1-2cm to downhole contact common 1-2cm agglomeritic pyrite.	D1395137	0.0	0.0	0.0	0.13		2.6
									D1395138	0.0	0.0	0.0	0.06		2.9
									D1395139	0.0	0.0	0.0	0.06		2.6
									D1395140	0.0	0.0	0.0	0.09		1.6
									D1395141	0.0	0.0	0.0	0.18		2.5

Mineralisation														
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic									
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic									
▲ Basalt	■ Fault Zone	▨ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate									
▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	▨ Intermediate Volcaniclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz									
▲ Calcarenite	■ Feldspathic porphyry	▨ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia									
▲ Chert	■ Felsic Flow	▨ Limestone	■ Quartz Porphyry	■ Slate	■ Volcanic Conglomerate									
▲ Clay	■ Felsic tuff	▨ Lithic Tuff	■ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone									
▲ Crystal Tuff	■ Felsic Volcaniclastic	▨ Mafic Dyke	■ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone									
▲ Dacite	■ Greywacke	▨ Mafic Volcaniclastic	■ Rhyolite	■ Undifferentiated Felsic Volcanic										
▲ Dacite Breccia	■ Hyaloclastite Breccia	▨ Massive sulphide	■ Rhyolite Breccia	■ Undifferentiated Fluvio-glacial Sediment										
▲ Dacite Flow	■ Interbedded sandstone/shale	▨ Mudstone	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive										
▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	▨ No Core Present	■ Sandstone	■ Undifferentiated Tuff										

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VDA		mas		ab cb si		Moderate to dark grey; variably moderate albite-carbonate-silica-chlorite-sericite altered coherent rhyolite-dacite lava with abundant 1-2mm feldspar phenocrysts; abundant stockwork 1-3mm quartz-carbonate veins; from 1178.0m to downhole contact contains common 1-2cm to downhole contact common 1-2cm agglomeritic pyrite.	D1395142	0.0	0.0	0.0	0.08		2.9
									D1395143	0.0	0.0	0.0	0.06		3.5
									D1395144	0.0	0.0	0.0	0.03		2.0
									D1395145	0.0	0.0	0.0	0.10		4.4
									D1395146	0.0	0.0	0.0	0.22		5.8

Lithology Legend										Mineralisation			
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	■ Andesite Flow	○ Dolomite	▨ Interbedded VSS/VSL/VSM &	■ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic	■ Elevated
▲ Basalt	○ Fault Zone	▨ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Breccia - Undifferentiated	▨ Feldspathic (ash) tuff	▨ Intermediate Volcaniclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous
▲ Calcarenite	▨ Feldspathic porphyry	▨ Lapilli Tuff	▨ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia	■ Sub-Grade	▲ Chert	▨ Felsic Flow	▨ Limestone	▨ Quartz Porphyry	■ Slate	■ Volcanic Conglomerate	■ Low-Grade
▲ Clay	▨ Felsic tuff	▨ Lithic Tuff	▨ Rhyodacite	■ Tuff Siltstone	■ Volcanic Sandstone	■ High-Grade	▲ Crystal Tuff	▨ Felsic Volcaniclastic	▨ Quartzite	▨ Rhyolite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	
▲ Dacite	○ Greywacke	▨ Mafic Dyke	▨ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvioglacial Sediment		▲ Dacite Breccia	▨ Hyaloclastite Breccia	▨ Rhyolite Breccia	▨ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive		
▲ Dacite Flow	○ Interbedded sandstone/shale	▨ Massive sulphide	▨ Sandstone	■ Undifferentiated Tuff			▲ Dacite Lapilli Tuff	▨ Interbedded sandstone/siltsto	▨ No Core Present				

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct	
	GRY	VDA		mas	aph	ab		Moderate to dark grey; variably moderate albite-carbonate-silica-chlorite-sericite altered coherent rhyolite-dacite lava with abundant 1-2mm feldspar phenocrysts; abundant stockwork 1-3mm quartz-carbonate veins; from 1178.0m to downhole contact contains common 1-2cm to downhole contact common 1-2cm agglomeritic pyrite.	D1395147	0.0	0.0	0.0	0.06		4.1	
	GRN	IMK		mas		cb			Dark green; strongly chlorite altered aphanitic basaltic dyke with abundant irregular 1-10mm quartz chlorite veining; sharp contacts competent core.							
	GRY	VDA		mas		si				Moderate to dark grey; variable moderately albite-silica-chlorite-carbonate altered; weakly foliated; coherent rhyolite-dacite lava with common 2mm subhedral feldspar +/- quartz phyrlic; common planar and stockwork 1-8mm quartz-carbonate veins; from 1255m to 1260m common trace to disseminated >2mm subhedral pyrite; gradational downhole contact; competent core.						
						ch			D1395148		0.0	0.0	0.0	0.04		1.9
						ab										
						si										
						ch										
									D1395149	0.0	0.0	0.0	0.06		3.1	
									D1395151	0.0	0.0	0.0	0.09		5.0	
									D1395152	0.0	0.0	0.0	0.15		3.8	

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>○ Dolomite</li> <li>○ Fault Zone</li> <li>○ Feldspathic (ash) tuff</li> <li>○ Feldspathic porphyry</li> <li>○ Felsic Flow</li> <li>○ Felsic tuff</li> <li>○ Felsic Volcaniclastic</li> <li>○ Greywacke</li> <li>○ Hyaloclastite Breccia</li> <li>○ Interbedded sandstone/shale</li> <li>○ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcaniclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcaniclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>▲ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhyodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Slate</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcaniclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



**Northing:** 5378392.8 mN  
**Easting:** 379741.8 mE  
**RL:** 386.5 mRL  
**CoordSys:** MGA55 (GDA94)

**Dip:** -86.00  
**MAG\_Azim:** 66.00  
**Total Depth:** 1514.4 m  
**DrillCompany:** BLY

**Project:** ROS  
**Rosebery**  
**Prospect:** NRL  
**North Lake Rosebery**

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VDA		mas		ab si ch		Moderate to dark grey; variable moderately albite-silica-chlorite-carbonate altered; weakly foliated; coherent rhyolite-dacite lava with common ?1mm subhedral feldspar +/- quartz phyrlic ; common planar and stockwork 1-8mm quartz-carbonate veins; from 1255m to 1260m common trace to disseminated >2mm subhedral pyrite; gradational downhole contact; competent core.	D1395153	0.0	0.0	0.0	0.17		2.1
								MT BLACK FAULT. Moderate grey green to dark grey; strongly foliated; massive; strongly chlorite-moderately silica-weakly carbonate altered; schistose volcanoclastic? rock with alteration being domainal and repetitive every 2-10mm; trace pyrite and pyrrhotite bands; 1281.2m is the possible Mt Black fault which is strongly deformed with the schistose like banding of layers being sub perpendicular contact with other layers; strongly folded 1-3mm quartz-carbonate veins that are present do not appear in situ as deformation has caused abrupt truncation with other layers; incompetent core with gradational upper and lower contacts.	D1395154	0.0	0.0	0.0	0.07		2.0
								Moderate grey to cream grey; foliated; weakly silica-moderately carbonate-weakly chlorite altered; >2mm QUARTZ VOLCANICLASTIC SANDSTONE with minor wispy mudstone which are preferentially carbonate or chlorite altered; carbonate alteration prominent from 1290m to downhole contact; common 2-7mm planar quartz-carbonate veins with a large 4cm quartz vein running down the core between 1283.6m to 1284.2m; trace subhedral >1mm pyrite with carbonate alteration zones that are >2mm and blebby; rare >1mm chalcopyrite blebs at 1291.2m; 8mm of white fault gouge at 1292.4m contact is 46 degrees to core axis; sharp downhole contact; competent core.	D1395155	0.0	0.0	0.0	0.06		2.2
	GRY-GRN	FTZ		mas		ch si cb	py po		D1395156	0.0	0.0	0.0	0.99		3.1
	GRY-CRM	VSS		mas		si cb ch	py cp								
								Light to moderate grey; moderately foliated; moderately silica-moderately chlorite altered >1mm QUARTZ FELDSPAR LITHIC VOLCANICLASTIC SANDSTONE; lithics are 5-15cm dark grey volcanoclastic ashy rip up clasts occurring at almost evenly spaced out intervals throughout the intersection; common >3mm planar and deformed quartz carbonate veinlets with minor associated >1mm subhedral trace pyrite; prominent 80cm quartz carbonate (95:5) vein at 1301.4m to 1302.2m with no associated sulfides; common 5-100mm irregular quartz-carbonate veins which have been deformed and offset up to 1-5cm with associated >2mm subangular pyrite +/- minor galena? abundant swarms of irregular >2mm crackle chlorite veinlets throughout the interval; top of the unit is a dark grey volcanoclastic ashy unit which has a sharp contact with the overlying unit; with competent core.	D1395157	0.0	0.0	0.0	0.08		1.7
	GRY	VSS			gra	si ch									

**Mineralisation**

Background
Elevated
Anomalous
Strongly Anomalous
Sub-Grade
Low-Grade
High-Grade

Andesite	Disseminated Sulphides	Interbedded siltstone/shale	Not logged	Schist	Undifferentiated Volcanic
Andesite Flow	Dolomite	Interbedded VSS/VSL/VSM &	Pyroclastic Breccia	See comments for full descrip	Undifferentiated Volcanoclastic
Basalt	Fault Zone	Intermediate flow	Quartz	Semi-massive Sulphides	Vein Carbonate
Breccia - Undifferentiated	Feldspathic (ash) tuff	Intermediate Volcanoclastic	Quartz Carbonate Vein	Shale	Vein quartz
Calcarenite	Feldspathic porphyry	Lapilli Tuff	Quartz Feldspar Porphyry	Siltstone	Volcanic Breccia
Chert	Felsic Flow	Limestone	Quartz Porphyry	Slate	Volcanic Conglomerate
Clay	Felsic tuff	Lithic Tuff	Quartzite	Tuff Siltstone	Volcanic Sandstone
Crystal Tuff	Felsic Volcanoclastic	Mafic Dyke	Rhyodacite	Undifferentiated Black Shale	Volcanic Siltstone
Dacite	Greywacke	Mafic Volcanoclastic	Rhyolite	Undifferentiated Felsic Volcanic	
Dacite Breccia	Hyaloclastite Breccia	Massive sulphide	Rhyolite Breccia	Undifferentiated Fluvio-glacial Sediment	
Dacite Flow	Interbedded sandstone/shale	Mudstone	Rhyolite Tuff	Undifferentiated Mafic Intrusive	
Dacite Lapilli Tuff	Interbedded sandstone/siltsto	No Core Present	Sandstone	Undifferentiated Tuff	

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VSS			gra	si ch		Light to moderate grey; moderately foliated; moderately silica-moderately chlorite altered >1mm QUARTZ FELDSPAR LITHIC VOLCANICLASTIC SANDSTONE; lithics are 5-15cm dark grey volcanoclastic ashy rip up clasts occurring at almost evenly spaced out intervals throughout the intersection; common >3mm planar and deformed quartz carbonate veinlets with minor associated >1mm subhedral trace pyrite; prominent 80cm quartz carbonate (95:5) vein at 1301.4m to 1302.2m with no associated sulfides; common 5-100mm irregular quartz-carbonate veins which have been deformed and offset up to 1-5cm with associated >2mm subangular pyrite +/- minor galena? abundant swarms of irregular >2mm crackle chlorite veinlets throughout the interval; top of the unit is a dark grey volcanoclastic ashy unit which has a sharp contact with the overlying unit; with competent core.	D1395158	0.0	0.1	0.0	0.44		1.8
	GRY-GRN	VSS			xlt	si ch	py	Moderate-light grey green; foliated; sorted; weakly silica-moderately to weakly chlorite altered medium to coarse grained 0.5 to 2mm QUARTZ FELDSPAR CRYSTAL RICH LITHIC VOLCANICLASTIC SANDSTONE with common >1% lithic cherty grey clasts 2-20mm; subrounded spherical quartz crystals; trace >1mm subhedral pyrite; minor 3-8mm planar quartz carbonate veins with minor associated subhedral pyrite; abundant 1-6mm irregular crackle chlorite veinlets; quartz-carbonate veins post date the chlorite veinlets; sharp upper and lower contacts; competent core.	D1395159	0.0	0.0	0.0	0.12		1.8
	GRY	VSS			gra	si ch cb	sp ga	Moderate grey; well sorted; graded; weakly silica-weakly chlorite altered +/- carbonate alteration in four discrete zones >50cm; moderately foliated; well sorted 1-2mm QUARTZ FELDSPAR LITHIC (1%) VOLCANICLASTIC SANDSTONE with abundant >2mm planar and lessor irregular >2mm chlorite veinlets; lessor 1-10mm planar quartz-carbonate (90:10) veins; lithic clasts increase in size and abundance at 1345m up to 6cm downhole; majority are ~1-2cm; from 1345.0m; quartz-carbonate veins contain coarse grained brown sphalerite; galena and lessor pyrite; common trace to disseminated >1mm pyrite and visible vergence deformation seen in 2cm bedding zones; sharp contacts; competent core.	D1395160	0.0	0.0	0.0	0.04		1.5
									D1395161	0.0	0.0	0.0	0.05		1.5
									D1395162	0.0	0.0	0.0	0.03		1.8

Mineralisation									
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	▲ Not logged	■ Schist	■ Undifferentiated Volcanic				
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcanoclastic				
▲ Basalt	■ Fault Zone	▨ Intermediate flow	▲ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate				
▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	▨ Intermediate Volcanoclastic	▲ Quartz Carbonate Vein	■ Shale	■ Vein quartz				
▲ Calcarenite	■ Feldspathic porphyry	▨ Lapilli Tuff	▲ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia				
▲ Chert	■ Felsic Flow	▨ Limestone	▲ Quartz Porphyry	■ Slate	■ Volcanic Conglomerate				
▲ Clay	■ Felsic tuff	▨ Lithic Tuff	▲ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone				
▲ Crystal Tuff	■ Felsic Volcanoclastic	▨ Mafic Dyke	▲ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone				
▲ Dacite	■ Greywacke	▨ Mafic Volcanoclastic	▲ Rhyolite	■ Undifferentiated Felsic Volcanic					
▲ Dacite Breccia	■ Hyaloclastite Breccia	▨ Massive sulphide	▲ Rhyolite Breccia	■ Undifferentiated Fluvio-glacial Sediment					
▲ Dacite Flow	■ Interbedded sandstone/shale	▨ Mudstone	▲ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive					
▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	▨ No Core Present	▲ Sandstone	■ Undifferentiated Tuff					



# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
1400	CRM-BRN	VSS			gra	si cb ch	py sp	Light cream brown to light-moderate grey green; silica-carbonate-chlorite altered; foliated; medium grained QUARTZ CRYSTAL RICH FELDSPAR LITHIC VOLCANICLASTIC SANDSTONE MASS FLOW; lithics dominated by up to 13cm fine grained volcaniclastic ashy clasts; also cherty cclasts; uncommon trace pyrite and sphalerite; common 1-5mm planar quartz carbonate veins; sharp contacts; competent core.	D1395168	0.0	0.0	0.0	2.31		3.8
	GRY-GRN	VSS			gra	si ch ch		Light grey green; foliated; moderately silica-chlorite-weakly carbonate altered; medium to coarse grained >3mm QUARTZ CRYSTAL RICH FELDSPAR POLYMICT LITHIC VOLCANICLASTIC SANDSTONE MASS FLOW; lithic clasts up to 5cm coarse grained quartz rich sandstone clasts (50% quartz); common >8mm volcaniclastic ashy/chert clasts; upper contact marked by 15cm volcaniclastic ash rich carbonate rich laminae; deformed minor 1-5mm planar quartz carbonate veins with minor chlorite at contacts with country rock; trace pyrite; basal 5m contains common 1-10mm rip up clasts of volcaniclastic dark grey-black ash clasts from unit below; sharp contacts; competent core.	D1395169	0.0	0.0	0.0	0.04		1.8
1420	GRY-BLK	VSM		brc	fgr	si	py sp	Dark grey-black; weakly silica altered; foliated and strongly deformed (vergence in bedding observed)/brecciated very fine grained VOLCANICLASTIC ASH which has abundant infilling up to 60cm zones of quartz carbonate (90:10) veins with abundant associated very coarse grained pyrite and lessor pyrrhotite; common up to 7cm green grey pumice breccia interpreted as rafts filling up with water and sinking; infilled with white feldspars; unit may actually extend to 1422.4 (pumice rafts) sharp contacts; incompetent core >20bpm.	D1395170	0.0	0.3	0.0	0.33		2.7
	GRY	VSS			gra	si ch cb	py sp	Light grey; silica-moderately chlorite altered-weakly carbonate altered; foliated; fine grained to medium grained QUARTZ FELDSPAR VOLCANICLASTIC SANDSTONE with MINOR MUDSTONE LAMINAE; trace pyrite; common 1-5mm planar quartz-carbonate veins with associated pyrite; pyrrhotite and lessor sphalerite?; mostly competent core with sharp contacts.	D1395171	0.0	0.0	0.0	1.78		1.4
1430	GRY-GRN	VSL		mas	fgr	si ch se	py sp	Light grey green; strongly silica-chlorite-moderately sericite altered; foliated; massive to weakly graded fine to medium grained VOLCANICLASTIC ASH SILTSTONE with common trace fine grained pyrite; abundant >1mm quartz carbonate with associated abundant brown sphalerite (>1% Zn) with lessor pyrrhotite; arsenopyrite; lessor 1-3cm wavy planar quartz veins predominately in centre of unit with associated coarse grained sphalerite; pyrite; pyrrhotite; discrete 5mm fault gouge at 1439.9m FT ~45 degrees to core access; sharp contacts; competent core.	D1395172	0.0	0.0	0.0	0.15		1.4
1440	GRY	VSS		mas		si ch cb	py	Moderate grey; moderately silica-moderately chlorite-weakly carbonate altered; foliated massive; medium grained >1mm QUARTZ CRYSTAL RICH FELDSPAR LITHIC SANDSTONE with minor >40mm rip up lithic clasts (very fine grained dark ashy siltstone clasts) common >6mm planar quartz veins; abundant >3mm irregular/crackley chlorite veinlets; trace pyrite; sharp contacts; competent core.							

Mineralisation									
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	▲ Not logged	■ Schist	■ Undifferentiated Volcanic				
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSS/VSL/VSM &	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic				
▲ Basalt	■ Fault Zone	▨ Intermediate flow	▲ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate				
▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	▨ Intermediate Volcaniclastic	▲ Quartz Carbonate Vein	■ Shale	■ Vein quartz				
▲ Calcarenite	■ Feldspathic porphyry	▨ Lapilli Tuff	▲ Quartz Feldspar Porphyry	■ Siltstone	■ Volcanic Breccia				
▲ Chert	■ Felsic Flow	▨ Limestone	▲ Quartz Porphyry	■ Slate	■ Volcanic Conglomerate				
▲ Clay	■ Felsic tuff	▨ Lithic Tuff	▲ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone				
▲ Crystal Tuff	■ Felsic Volcaniclastic	▨ Mafic Dyke	▲ Rhodactite	■ Undifferentiated Black Shale	■ Volcanic Siltstone				
▲ Dacite	■ Greywacke	▨ Mafic Volcaniclastic	▲ Rhyolite	■ Undifferentiated Felsic Volcanic					
▲ Dacite Breccia	■ Hyaloclastite Breccia	▨ Massive sulphide	▲ Rhyolite Breccia	■ Undifferentiated Fluvio-glacial Sediment					
▲ Dacite Flow	■ Interbedded sandstone/shale	▨ Mudstone	▲ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive					
▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	▨ No Core Present	▲ Sandstone	■ Undifferentiated Tuff					

# ROSEBERY LITHOLOGY\_VMS LOG

Hole ID: 411R



Project: ROS

Rosebery

Prospect: NRL

North Lake Rosebery

Northing: 5378392.8 mN

Dip: -86.00

Easting: 379741.8 mE

MAG\_Azim: 66.00

RL: 386.5 mRL

Total Depth: 1514.4 m

CoordSys: MGA55 (GDA94)

DrillCompany: BLY

Strat	Colour	Lithology	Genetic Text	Litho Facies	Texture	Alt	Min	Summary	Sample_ID	Pb pct	Zn pct	Cu pct	Ag ppm	Au ppm	Fe pct
	GRY	VSS		mas		si ch cb	py	Moderate grey; moderately silica-moderately chlorite-weakly carbonate altered; foliated massive; medium grained >1mm QUARTZ CRYSTAL RICH FELDSPAR	D1395173	0.0	0.0	0.0	0.03		1.4
	GRY-GRN	VSS		mas	cgr	si ch	sp py	LITHIC SANDSTONE with minor >40mm rip up lithic clasts (very fine grained dark ashy siltstone clasts) common >6mm planar quartz veins; abundant >3mm irregular/crackley chlorite veinlets; trace pyrite; sharp contacts; competent core.							
								Light to moderate grey green; silica-moderately chlorite altered; moderately foliated; massive coarse grained 1-3mm QUARTZ FELDSPAR VOLCANICLASTIC SANDSTONE with (pseudo quartz	D1395174	0.0	0.0	0.0	0.08		1.5
								eyes/augen schistose texture) common 1-5mm planar quartz veins; abundant 1-2mm irregular/crackle chlorite veinlets; competent core; sharp lower contact.							
	GRY	VSS			xlt	si ch cb	py sp	Light to moderate grey; foliated; top of interval has 50cm of 5-25cm black volcaniclastic laminated ash clasts? Which appear out of place; unit above may actually grade into this unit as the top of this unit the ash clasts may be erratics? Silica-chlorite-localised carbonate altered; fine to coarse grained CRYSTAL RICH LITHIC SANDSTONE which grades to a POLYMICT LITHIC (SHALE and RHYOLITE) BRECCIA; the rhyolite clasts are up to 25cm with large white subhedral 6mm feldspars; cherty shale up to 5cm; uncommon pumice breccia? which appear green; quartz up to 8mm; moderate >1mm chlorite veinlets uphole to 1476m where silica alteration becomes dominant; common quartz veins up to 5cm planar; 1477.9m-1478.5m vein with abundant red brown sphalerite; minor pyrite; may assay ~2% Zn visually but the vein does not appear to fully penetrate the core; sharp lower contact; competent core.	D1395175	0.0	0.0	0.0	0.03		1.6
									D1395176	0.0	0.0	0.0	0.03		1.7
									D1395177	0.0	0.0	0.0	0.06		2.9

<ul style="list-style-type: none"> <li>▲ Andesite</li> <li>▲ Andesite Flow</li> <li>▲ Basalt</li> <li>▲ Breccia - Undifferentiated</li> <li>▲ Calcarenite</li> <li>▲ Chert</li> <li>▲ Clay</li> <li>▲ Crystal Tuff</li> <li>▲ Dacite</li> <li>▲ Dacite Breccia</li> <li>▲ Dacite Flow</li> <li>▲ Dacite Lapilli Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Disseminated Sulphides</li> <li>■ Dolomite</li> <li>■ Fault Zone</li> <li>■ Feldspathic (ash) tuff</li> <li>■ Feldspathic porphyry</li> <li>■ Felsic Flow</li> <li>■ Felsic tuff</li> <li>■ Felsic Volcaniclastic</li> <li>■ Greywacke</li> <li>■ Hyaloclastite Breccia</li> <li>■ Interbedded sandstone/shale</li> <li>■ Interbedded sandstone/siltsto</li> </ul>	<ul style="list-style-type: none"> <li>■ Interbedded siltstone/shale</li> <li>■ Interbedded VSS/VSL/VSM &amp;</li> <li>■ Intermediate flow</li> <li>■ Intermediate Volcaniclastic</li> <li>■ Lapilli Tuff</li> <li>■ Limestone</li> <li>■ Lithic Tuff</li> <li>■ Mafic Dyke</li> <li>■ Mafic Volcaniclastic</li> <li>■ Massive sulphide</li> <li>■ Mudstone</li> <li>■ No Core Present</li> </ul>	<ul style="list-style-type: none"> <li>■ Not logged</li> <li>■ Pyroclastic Breccia</li> <li>■ Quartz</li> <li>■ Quartz Carbonate Vein</li> <li>■ Quartz Feldspar Porphyry</li> <li>■ Quartz Porphyry</li> <li>■ Quartzite</li> <li>■ Rhyodacite</li> <li>■ Rhyolite</li> <li>■ Rhyolite Breccia</li> <li>■ Rhyolite Tuff</li> <li>■ Sandstone</li> </ul>	<ul style="list-style-type: none"> <li>■ Schist</li> <li>■ See comments for full descrip</li> <li>■ Semi-massive Sulphides</li> <li>■ Shale</li> <li>■ Siltstone</li> <li>■ Slate</li> <li>■ Tuff Siltstone</li> <li>■ Undifferentiated Black Shale</li> <li>■ Undifferentiated Felsic Volcanic</li> <li>■ Undifferentiated Fluvio-glacial Sediment</li> <li>■ Undifferentiated Mafic Intrusive</li> <li>■ Undifferentiated Tuff</li> </ul>	<ul style="list-style-type: none"> <li>■ Undifferentiated Volcanic</li> <li>■ Undifferentiated Volcaniclastic</li> <li>■ Vein Carbonate</li> <li>■ Vein quartz</li> <li>■ Volcanic Breccia</li> <li>■ Volcanic Conglomerate</li> <li>■ Volcanic Sandstone</li> <li>■ Volcanic Siltstone</li> </ul>	<p><b>Mineralisation</b></p> <ul style="list-style-type: none"> <li>■ Background</li> <li>■ Elevated</li> <li>■ Anomalous</li> <li>■ Strongly Anomalous</li> <li>■ Sub-Grade</li> <li>■ Low-Grade</li> <li>■ High-Grade</li> </ul>
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