

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						As for 411R							

▲ 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	■ Slate	■ Volcanic Breccia
▲ Chert	■ Felsic Flow	▨ Limestone	■ Quartz Porphyry	■ Siltstone	■ 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	

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						As for 411R							

▲ 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	

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						As for 411R							

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						As for 411R							

Legend																																																																									
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background	▲ Andesite Flow	○ Dolomite	▨ Interbedded VSS/VSL/VSM & Intermediate flow	▲ Pyroclastic Breccia	■ See comments for full descrip	■ Undifferentiated Volcaniclastic	■ Elevated	▲ Basalt	○ Fault Zone	■ Intermediate Volcaniclastic	■ Quartz	■ Semi-massive Sulphides	■ Vein Carbonate	■ Anomalous	▲ Breccia - Undifferentiated	▲ Feldspathic (ash) tuff	■ Lapilli Tuff	■ Quartz Carbonate Vein	■ Shale	■ Vein quartz	■ Strongly Anomalous	▲ Calcarenite	▲ Feldspathic porphyry	■ Quartz Feldspar Porphyry	■ Quartz Porphyry	■ Siltstone	■ Volcanic Breccia	■ Sub-Grade	▲ Chert	▲ Felsic Flow	■ 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	▲ 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-D4



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: 1819.0 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
MBV	GRY	VDA						As for 411R							
NC		CLS						No Core - wedging off.							
MBV	GRY	VCF						Grey, moderately Cl-Se altered and silicified, fine grained volcanoclastic breccia. Difficult rock - arguably a volcanoclastic or a phenocryst rich lava. "Clasts" are dominated by 1-3mm cream to pinky feldspar lithics.							
MBV	GRY	VCF						Grey, moderate to strongly Cl-Se altered and silicified, volcanoclastic breccia to coherent lava. Again difficult rock here, Parts of the rock appear to be a (pumice?) shard rich breccia - but then it diffusely turns into what is a more coherent lava looking rock. Contact at 389.4 quite subtle and possibly a fine top of a new bed - although contact is sharp it is irregular unlike most dyke contacts.							

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	■ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone	■ Strongly Anomalous	▲ Crystal Tuff	■ Felsic Volcanoclastic	■ Mafic Dyke	■ Rhodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	■ Sub-Grade	▲ Dacite	■ Greywacke	■ Mafic Volcaniclastic	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Low-Grade	▲ Dacite Breccia	■ Hyaloclastite Breccia	■ Massive sulphide	■ Rhyolite Breccia	■ Undifferentiated Fluvio-glacial Sediment	■ High-Grade	▲ Dacite Flow	■ Interbedded sandstone/shale	■ Mudstone	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	■ High-Grade	▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	■ No Core Present	■ Sandstone	■ Undifferentiated Tuff	■ High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
400	MBV	GRY	VCF					Grey, moderate to strongly Cl-Se altered and silicified, volcanoclastic breccia to coherent lava. Again difficult rock here, Parts of the rock appear to be a (pumice?) shard rich breccia - but then it diffusely turns into what is a more coherent lava looking rock. Contact at 389.4 quite subtle and possibly a fine top of a new bed - although contact is sharp it is irregular unlike most dyke contacts.							
	MBV	GRY	VCF					Grey, moderate to strongly Se-Cl-Cb altered and silicified, volcanoclastic breccia to lava. This rock has interesting creamy white - apparent clasts. These could either be clasts in a poorly sorted breccia or xenoliths in a lava. Really difficult to distinguish. The "clasts" have clear boundaries thus I don't believe this is an alteration effect casing a pseudo breccia. "Clasts" are likely Cb altered.							
410	MBV	GRY	VCF					Grey, moderately Cl-Se altered and silicified, fine grained volcanoclastic breccia or fine grained coherent lava. This zone has abundant 1-2mm white (feldspar?) lithics or phenocrysts depending on whether this is a volcanoclastic or lava. Appears to be occasional maybe thin beds of more silty material.							
	MBV	GRY	VSL					Grey, moderately to strong Se altered and strongly silicified, fine grained hornfelsed siltstone. Appears to be occasionally bedding or is this flow banding. This could arguably be an aphanitic lava. I am more confident this is a fine siltstone package except for its large extent (~15m) and the fact it does not appear to grade into a coarser volcanoclastic below. The upper contact and possible bedding are at low angles typically 20 to 30 degrees to LCA.							
420								Dark grey to pale grey, weakly Se-Cb altered and silicified, fine grained lava to fine sandstone. This interval appears to move in and out of the fine unit from description above (416 to 435m) and a darker lava/dyke. There are immediately obvious circular shaped 2-20mm Cb? Inclusions. Due to their roundness amydales are the only possible identification that this author can put forward. They appear to concentrate around the darker lava/dykes - possibly indicating contacts.							
430	MBV	GRY	VSL					Dark grey, weakly Cl-Cb altered, fine grained dyke with occasional white to pinky clacite filled amydales. This is arguably not the "typical" dyke as logged in the MBV - possibly just a lava similar to those already logged (however this appears more distinct such that it has been pulled out). Contacts are not as sharp or distinct as one would expect of a dyke.							
	DK	GRY	IMK					Grey to dark grey, moderately Se-Cb altered and silicified, fine grained lava or siltstone. Again, same problems as to whether this is clastic or coherent. Small zone of possible amydales present as well as the a large xenolith or clast.							
440	MBV	GRY	VDA					Dark grey, possible dyke or fine sandstone. Low angle (25 degrees to LCA) sharp but subtle contact.							
	DK	GRY	IMK					Grey to dark grey, moderate to strongly Se-Cl altered and silicified, volcanoclastic breccia (or coherent lava??). More confident this is a volcanoclastic - occasionally 5-20mm clasts at around 451m. Possibly slightly graded from 447 to 452m also. Small apparent dykes from 442.7 to 443.0m and 443.5 to 443.9m.							
450	MBV	GRY	VCF												

<ul style="list-style-type: none"> ▲ Andesite ▲ Andesite Flow ▲ Basalt ▲ Breccia - Undifferentiated ▲ Calcarenite ▲ Chert ▲ Clay ▲ Crystal Tuff ▲ Dacite ▲ Dacite Breccia ▲ Dacite Flow ▲ Dacite Lapilli Tuff 	<ul style="list-style-type: none"> ■ Disseminated Sulphides ■ Dolomite ■ Fault Zone ■ Feldspathic (ash) tuff ■ Feldspathic porphyry ■ Felsic Flow ■ Felsic tuff ■ Felsic Volcanoclastic ○ Greywacke ○ Hyaloclastite Breccia ○ Interbedded sandstone/shale ○ Interbedded sandstone/siltsto 	<ul style="list-style-type: none"> ■ Interbedded siltstone/shale ■ Interbedded V5S/VSL/VSM & ■ Intermediate flow ■ Intermediate Volcanoclastic ■ Lapilli Tuff ■ Limestone ■ Lithic Tuff ■ Mafic Dyke ■ Mafic Volcanoclastic ■ Massive sulphide ■ Mudstone ■ No Core Present 	<ul style="list-style-type: none"> ■ Not logged ▲ Pyroclastic Breccia ▲ Quartz ▲ Quartz Carbonate Vein ▲ Quartz Feldspar Porphyry ▲ Quartz Porphyry ▲ Quartzite ▲ Rhyodacite ▲ Rhyolite ▲ Rhyolite Breccia ▲ Rhyolite Tuff ▲ Sandstone 	<ul style="list-style-type: none"> ■ Schist ■ See comments for full descrip ■ Semi-massive Sulphides ■ Shale ■ Siltstone ■ Tuff Siltstone ■ Undifferentiated Black Shale ■ Undifferentiated Felsic Volcanic ■ Undifferentiated Fluvio-glacial Sediment ■ Undifferentiated Mafic Intrusive ■ Undifferentiated Tuff 	<ul style="list-style-type: none"> ■ Undifferentiated Volcanic ■ Undifferentiated Volcanoclastic ■ Vein Carbonate ■ Vein quartz ■ Volcanic Breccia ■ Volcanic Conglomerate ■ Volcanic Sandstone ■ Volcanic Siltstone 	<p>Mineralisation</p> <ul style="list-style-type: none"> ■ Background ■ Elevated ■ Anomalous ■ Strongly Anomalous ■ Sub-Grade ■ Low-Grade ■ High-Grade
---	---	---	--	--	--	---

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VCF						Grey to dark grey, moderate to strongly Se-Cl altered and silicified, volcanoclastic breccia (or coherent lava??). More confident this is a volcanoclastic - occasionally 5-20mm clasts at around 451m. Possibly slightly graded from 447 to 452m also. Small apparent dykes from 442.7 to 443.0m and 443.5 to 443.9m.							
MBV	GRY	VDA						Moderate to strongly Cl-Se altered and silicified, coherent fine grained, generally aphanitic lava. Pretty happy this is at least a lava now, occasional brittle fracturing infilled by Cl. Irregular but distinct upper contact. Strongly silified.							
DK MBV	GRY-GRN GRY	IMK VDA						Dark grey to greenish, fine grained mafic dyke. Sharp contacts 30 to 40 degrees to LCA. Pale grey to dark grey, moderately Cl-Se altered and strongly silicified, fine grained and generally aphanitic dacite lava. Occasional thin, laminar flow bands. Occasional hydraulic brittle fracturing infilled by Cl.							

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	▲ Feldspar 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	■ High-Grade	▲ Crystal Tuff	▲ Felsic Volcanoclastic	▨ Mafic Dyke	▲ Rhyolite	■ Undifferentiated Black Shale	○ Volcanic Siltstone	■ 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-D4



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: 1819.0 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	MBV	GRY	VCF					Dark grey, moderate to strongly Cl-Cb altered and silicified, volcanicalstic breccia. Minor intervals of the above aphanitic lava occur with this volcanicalstic. The margine or contacts display clear jigsaw fit textrues leading to the author identify this overall package as predominatnly volcanicalstic (disreagrding some of the ambiguous textures further down in the interval logged). Common apparent Cb spots/of patches are present as well as more easily identifiable feldspar lithics. There are also very strange creamy coloured, elongated rounded clasts or xenoliths up to >10cm in length. The rock has possibly moved back into a lava by the time they start to occur however they are certainly not an alteration texture.								
560																
570																
580																
590																
600																

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
650	MBV	GRY	VDA					Grey, moderate to strongly Cl-Se altered and strongly silicified, coherent dacite lava with common 2-3m planar Qz-Cb veining. Lava appears to be generally aphanitic, however it is more likely the phenocryst phase has been "washed out" by the alteration. As some phenocryst are just visible in parts (likely feldspars) and/or replaced by Cl.							
660															
670															
680															
690															
700															

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						Grey, moderate to strongly Cl-Se altered and strongly silicified, coherent dacite lava with common 2-3m planar Qz-Cb veining. Lava appears to be generally aphanitic, however it is more likely the phenocryst phase has been "washed out" by the alteration. As some phenocryst are just visible in parts (likely feldspars) and/or replaced by Cl.							
DK	GRY-GRN	IMK						Dark grey to green, Cl altered, massive fine grained and mafic dyke. Upper contact @ 35 degrees to LCA.							
MBV	GRY	VDA						Grey, moderately Se-Cl altered and silicified, fine grained massive dacite lava. As for above dyke.							

Legend														
▲ 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	■ Tuff Siltstone	■ Volcanic Conglomerate									
▲ Clay	■ Felsic tuff	▨ Lithic Tuff	■ Quartzite	■ Undifferentiated Black Shale	■ Volcanic Sandstone									
▲ Crystal Tuff	■ Felsic Volcaniclastic	▨ Mafic Dyke	■ Rhyodacite	■ Undifferentiated Felsic Volcanic	■ Volcanic Siltstone									
▲ Dacite	■ Greywacke	▨ Mafic Volcaniclastic	■ Rhyolite	■ Undifferentiated Fluvioglacial Sediment										
▲ Dacite Breccia	■ Hyaloclastite Breccia	▨ Massive sulphide	■ Rhyolite Breccia	■ Undifferentiated Mafic Intrusive										
▲ Dacite Flow	■ Interbedded sandstone/shale	▨ Mudstone	■ Rhyolite Tuff	■ Undifferentiated Tuff										
▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	▨ No Core Present	■ Sandstone											

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						Grey, moderately Se-Cl altered and silicified, fine grained massive dacite lava. As for above dyke.							
MBV	GRY	VDA						Broken zone of core - more likely driller error than a fault (see below interval). Looks like the drillers have cased off to BQ! However, the diameter slowly increases until it is NQ again - weird. Still dacite.							
MBV	GRY	VDA						Grey, silicified massive dacite lava. As for above intervals.							
DK	GRY-GRN	IMK						Grey to green, Cl altered, fine grained, massive mafic dyke.							
MBV	GRY	VDA						Grey, fine grained and massive dacite lava.							
DK	GRY-GRN	IMK						Grey to green, Cl altered, fine grained, massive mafic dyke.							
MBV	GRY	VDA						Grey, fine grained and massive dacite lava.							
DK	GRY-GRN	IMK						Grey to green, Cl altered, fine grained, massive mafic dyke.							
MBV	GRY	VDA						Grey, massive dacite lava with a small 15cm dyke at 796.1m							
DK	GRY-GRN	IMK						Grey to green, Cl altered, fine grained massive, mafic dyke.							
DK	GRY-GRN	IMK						Grey to dark grey, moderate to strongly Cl-Cb altered and silicified, volcanoclastic breccia to dacite. Appears to have become a volcanoclastic here. Could possibly be due to the significant dyking in the area - difficult to distinguish this rock.							
MBV	GRY	VCF													

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VCF						Grey to dark grey, moderate to strongly Cl-Cb altered and silicified, volcaniclastic breccia to dacite. Appears to have become a volcaniclastic here. Could possibly due to the significant dyking in the area - difficult to distinguish this rock.							
DK	GRY-GRN	IMK						Grey to green, Cl altered, fine grained and massive mafic dyke.							
MBV	GRY	VDA						Grey, massive dacite lava with occasional planar and irregular Qz-Cb veining.							
DK	GRY	IMK						Grey, very fine grained dyke. Lacks the green tinge of the dykes in the surrounding area and is finer grained. May actually be a finer grained part of the surrounding dacite.							
MBV	GRY	VDA						Grey, silicified, dacite lava to volcaniclastic with occasional calcite veining.							
DK	GRY	IMK						Grey, fine grained and massive dyke.							
MBV	GRY	VDA						Grey, moderately Cl altered and silicified, coherent dacite lava to volcaniclastic							
DK	GRN-GRY	IMK						Green to grey, Cl altered, fine grained and massive, mafic dyke.							
MBV	GRY	VDA						Grey, moderately Cl-Se latered and strongly silicified, coherent dacite lava with generally an aphanitic texture.							
DK	GRY-GRN	IMK						Grey to green, Cl altered, fine grained and massive, mafic dyke.							
MBV	GRY	VDA						Grey, moderately Cb-Cl altered and silicified, fine grained coherent dacite lava. Phenocrysts are barely visible in places due to "washing out" by alteration. Common planar and more irregular 2-4mm Qz-Cb veining. Cb alteration increases downhole with proximity to fault.							

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	■ Limestone	▲ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone	■ High-Grade	▲ Crystal Tuff	▲ Felsic Volcaniclastic	■ Lithic Tuff	▲ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvio-glacial Sediment	■ Undifferentiated Mafic Intrusive	▲ Dacite	▲ Greywacke	■ Mafic Dyke	▲ Rhyolite	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff	▲ Dacite Breccia	▲ Hyaloclastite Breccia	■ Mafic Volcaniclastic	▲ Rhyolite Breccia	■ Massive sulphide	■ Sandstone	■ Interbedded sandstone/shale	■ Mudstone	■ No Core Present	■ Sandstone	■ Interbedded sandstone/siltsto	■ No Core Present	■ Sandstone

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VDA						Grey, moderately Cb-CI altered and silicified, fine grained coherent dacite lava. Phenocrysts are barely visible in places due to "washing out" by alteration. Common planar and more irregular 2-4mm Qz-Cb veining. Cb alteration increases downhole with proximity to fault.							
F	GRY	FTZ						Significant fault - pumice bearing below but absent above fault position. Main zone at 861.5 where there is 10cm of pug and gouge. The rest of the FZ is predominately broken core.							
MBV	GRY	VCF			pum	cb	ch	Dacite to rhyolite pumice bearing volcanoclastic breccia							

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 Fluvioglacial 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-D4



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: 1819.0 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
MBV	GRY-PNK	VCF			pum	cb ch		Dacitic to rhyolitic pumice bearing volcaniclastic breccias							

▲ 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	■ Slate	■ Volcanic Breccia
▲ Chert	■ Felsic Flow	▨ Limestone	■ Quartz Porphyry	■ Siltstone	■ 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	

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY-PNK	VCF			pum	cb ch		Dacitic to rhyolitic pumice bearing volcaniclastic breccias							
MBV	GRY-PNK	VDA			aph	cb ab		Coherent dacite to rhyolite lava							
MBV	GRY	VCF				cb ch		Dacite to Rhyolite volcaniclastic, autobreccia like appearance in parts.							

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	■ Clay	■ Felsic Flow	■ Limestone	■ Quartz Porphyry	■ Tuff Siltstone	■ Volcanic Conglomerate	■ Crystal Tuff	■ Felsic tuff	■ Lithic Tuff	■ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Sandstone	■ Sub-Grade	▲ Dacite	■ Greywacke	■ Mafic Volcaniclastic	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Dacite Breccia	■ Hyaloclastite Breccia	■ Massive sulphide	■ Rhyolite Breccia	■ Undifferentiated Fluvioglacial Sediment	■ Low-Grade	▲ Dacite Flow	■ Interbedded sandstone/shale	■ Mudstone	■ Rhyolite Tuff	■ Undifferentiated Mafic Intrusive	■ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	■ No Core Present	■ Sandstone	■ Undifferentiated Tuff	■ High-Grade

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY	VCF						Dacite to Rhyolite volcanoclastic, autobreccia like appearance in parts.							
MBV	GRY-PNK	VRD			fgr		cb ab	Predominantly coherent rhyolitic lava with occasional cross cutting mafic dykes. Lava contains occasional <1mm sized irregular shaped Qz phenocrysts.							

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	■ Undifferentiated Volcaniclastic	■ Anomalous	▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	■ Intermediate Volcanoclastic	■ Quartz Carbonate Vein	■ Vein Carbonate	■ Strongly Anomalous	▲ Calcarenite	■ Feldspathic porphyry	■ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Vein quartz	■ Sub-Grade	▲ Chert	■ Felsic Flow	■ Limestone	■ Quartz Porphyry	■ Volcanic Breccia	■ Slate	■ Volcanic Conglomerate	■ Low-Grade	▲ Clay	■ Felsic tuff	■ Lithic Tuff	■ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone	■ Undifferentiated Felsic Volcanic	■ High-Grade	▲ Crystal Tuff	■ Felsic Volcanoclastic	■ Mafic Dyke	■ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	■ Undifferentiated Mafic Intrusive	▲ Dacite	■ Greywacke	■ Mafic Volcanoclastic	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvio-glacial Sediment	▲ Dacite Breccia	■ Hyaloclastite Breccia	■ Massive sulphide	■ Rhyolite Breccia	■ Undifferentiated Mafic Intrusive	▲ Dacite Flow	■ Interbedded sandstone/shale	■ Mudstone	■ Rhyolite Tuff	■ Sandstone	■ Undifferentiated Tuff	▲ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	■ No Core Present	■ Sandstone			

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
MBV	GRY-PNK	VRD			fgr	cb ab		Predominantly coherent rhyolitic lava with occasional cross cutting mafic dykes. Lava contains occasional <1mm sized irregular shaped Qz phenocrysts.	D1395228	0.0	0.0	0.0	0.06		5.7
									D1395229	0.0	0.0	0.0	0.04		3.2
									D1395230	0.0	0.0	0.0	0.02		1.9
									D1395231	0.0	0.0	0.0	0.04		1.9
									D1395232	0.0	0.0	0.0	0.02		2.7

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-D4



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: 1819.0 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
MBV	GRY-PNK	VRD				fgr	cb ab	Predominantly coherent rhyolitic lava with occasional cross cutting mafic dykes. Lava contains occasional <1mm sized irregular shaped Qz phenocrysts.	D1395233	0.0	0.0	0.0	0.03		3.6
									D1395234	0.0	0.0	0.0	0.02		2.2
									D1395235	0.0	0.0	0.0	0.02		2.8
									D1395236	0.0	0.0	0.0	-0.01		1.8
									D1395237	0.0	0.0	0.0	0.31		3.5

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-D4



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: 1819.0 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
MBV	GRY-PNK	VRD			fgr	cb	ab	Predominantly coherent rhyolitic lava with occasional cross cutting mafic dykes. Lava contains occasional <1mm sized irregular shaped Qz phenocrysts. Mt Black Fault position. No obvious broken or puggy zones however the non-descript rock has a strong foliation or shearing through it. Increase in Cb alteration. Quart crystal rich volcanoclastic breccia. Common 'fat' Qz crytals are present which are sub-angular to sub-rounded in shape.	D1395238	0.0	0.0	0.0	-0.01		2.6
F	GRY-BUF	FTZ			fol	cb	se		D1395239	0.0	0.0	0.0	0.14		1.7
HW	GRY-BUF	VBX			pol	cb	se		D1395240	0.0	0.0	0.0	0.11		2.2
HW	BUF-GRY	VBX			pol	cb	se	Volcanic sandstone which grades into a Qz crystals rich polymict volcanoclastic breccia. Large 5 - 10mm Qz crytals.	D1395241	0.0	0.0	0.0	0.19		2.2
HW	GRN-GRY	VBX			pol	ch	se	Coarse grained volcanoclastic sandstone to breccia. Predominantly a modertely well sorted coarse sandstone that is a borderlkinne breccia. Distinct greenish tinge.	D1395242	0.0	0.0	0.0	0.45		2.0
HW	BUF-GRY	SIS			pum	cb	se	Fine grained and interbedded volcanoclastic siltstone/sandstone with pumice floats.							
HW	GRY-GRN	VBX			pol	ch	se	Polymict volcanoclastic breccia with common feldspar and Qz crystals. Rock has a 'gritty' like texture, with abundant 2 - 5mm sub-angular Fd crystals and 1-5mm sub-rounded Qz crystals. Rare 3-5mm silstone lithics. Overall moderately this is a moderately sorted volcanoclastic.							

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
▲ Basalt	■ Fault Zone	■ Intermediate flow	■ Quartz	■ Semi-massive Sulphides	■ Undifferentiated Volcanoclastic	■ Anomalous	▲ Breccia - Undifferentiated	■ Feldspathic (ash) tuff	■ Intermediate Volcanoclastic	■ Quartz Carbonate Vein	■ Shale	■ Vein Carbonate	■ Strongly Anomalous
▲ Calcarenite	■ Feldspathic porphyry	■ Lapilli Tuff	■ Quartz Feldspar Porphyry	■ Siltstone	■ Vein quartz	■ Sub-Grade	■ Chert	■ Limestone	■ Quartz Porphyry	■ Slate	■ Volcanic Breccia	■ Volcanic Conglomerate	■ Low-Grade
■ Clay	■ Felsic Flow	■ Lithic Tuff	■ Quartzite	■ Tuff Siltstone	■ Volcanic Sandstone	■ High-Grade	■ Crystal Tuff	■ Felsic Tuff	■ Rhyodacite	■ Undifferentiated Black Shale	■ Volcanic Siltstone	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Fluvio-glacial Sediment
■ Dacite	■ Felsic Volcanoclastic	■ Mafic Dyke	■ Rhyolite	■ Undifferentiated Felsic Volcanic	■ Undifferentiated Mafic Intrusive	■ Dacite Breccia	■ Greywacke	■ Mafic Volcanoclastic	■ Rhyolite Breccia	■ Undifferentiated Mafic Intrusive	■ Undifferentiated Tuff	■ Dacite Flow	■ Dacite Lapilli Tuff
■ Dacite Flow	■ Hyaloclastite Breccia	■ Massive sulphide	■ Rhyolite Tuff	■ Rhyolite Breccia	■ Sandstone	■ Dacite Breccia	■ Interbedded sandstone/shale	■ Mudstone	■ Rhyolite Tuff	■ Sandstone	■ Sandstone	■ Dacite Lapilli Tuff	■ Dacite Lapilli Tuff
■ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	■ No Core Present	■ No Core Present	■ Sandstone	■ Sandstone	■ Dacite Lapilli Tuff	■ Interbedded sandstone/siltsto	■ No Core Present	■ Sandstone	■ Sandstone	■ Sandstone	■ Dacite Lapilli Tuff	■ Dacite Lapilli Tuff

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
HW	GRY-GRN	VBX			pol	ch se		Polymict volcanoclastic breccia with common feldspar and Qz crystals. Rock has a 'gritty' like texture, with abundant 2 - 5mm sub-angular Fd crystals and 1-5mm sub-rounded Qz crystals. Rare 3-5mm silstone lithics. Overall moderately this is a moderately sorted volcanoclastic.	D1395243	0.0	0.0	0.0	0.04		1.8
									D1395244	0.0	0.0	0.0	0.02		1.6
HW	GRY	SIH			slt	cb se		Interbedded volcanoclastic siltstone/shale with a small interbed of more lithic rich material. Common Cb veing. Bedding at 70 to 80 degrees to LCA							
HW	GRY-GRN	VBX			pol	ch cb		Moderately sorted volcanoclastic breccia with common Qz 1-2mm Qz crytals and occasional 2-3mm silstone clasts. Increased Ch alteration. Matrix supported.	D1395245	0.0	0.0	0.0	0.05		1.4
									D1395246	0.0	0.0	0.0	0.01		1.6
HW	GRN-GRY	VBX			pol	ch si		Fine grained and well sorted volcanoclastic sandstone which grades into a coarse grained polymict mass flow. The unit begins to coarsen up from ~1360m however, it is all one mass flow unit. The coarse part of the flow is composed of large white Qz-Fd phyric (rhyolitic) clasts, black shale rip ups, silstone clasts and abundant 2-10mm Qz and Feldspar lithics.	D1395247	0.0	0.0	0.0	0.02		1.9

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
HW	GRN-GRY	VBX			pol	ch	si	Fine grained and well sorted volcaniclastic sandstone which grades into a coarse grained polymict mass flow. The unit begins to coarsen up from ~1360m however, it is all one mass flow unit. The coarse part of the flow is composed of large white Qz-Fd phyric (rhyolitic) clasts, black shale rip ups, siltstone clasts and abundant 2-10mm Qz and Feldspar lithics.	D1395248	0.0	0.1	0.0	0.39		2.2
									D1395249	0.0	0.0	0.0	0.04		2.2
									D1395250	0.0	0.0	0.0	0.03		1.6
									D1395251	0.0	0.0	0.0	0.10		1.6
HW	GRY-BUF	VBX			pol	se	ch	Similar unit to above however, there is an overall decrease in clast size and notably absence of the large rhyolite clasts. No fine top to this flow however, it appears to be separate to the above unit.	D1395252	0.0	0.0	0.0	0.02		1.4
BS	BLK-BLK	SPH			sla	cb	py	Black shale with some minor silty interbeds. Abundant 1-2mm planar Cb and Py veinlets	D1393101						
HW	BUF	VSS			gra	se	cb	Fine grained volcaniclastic siltstone to sandstone.							

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-D4



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: 1819.0 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	HW	BUF	VSS		gra	se cb		Fine grained volcanoclastic silstone to sandstone.	D1395253	0.0	0.1	0.0	1.54		2.7
	BS	GRY-BLK	VSL		slt	cb py		Black shale - more of a silstone element to this interval than the previous shale unit. Common irregular shaped 1-3mm Cb veining.							
	HO	BUF	VSL		slt	si se		Fine grained volcanoclastic silstone with dark Se bands. Rock is strongly silicified - to the point where some small zones are almost Quartz. Trace Py veinlets +/- reddy Sp which occurs closer to the black shales. Not overly convinced this is typical host rock however, it occurs in the right position.	D1393102						
1410	FW	BUF	VBX		fph	cb se		Fine grained volcanoclastic breccia with feldspar lithics and dark fiamme. Possibly a small interval of footwall rock - however the fiamme are arguably the same as the dark Se banding in the previous HO interval.	D1395254	0.0	0.0	0.0	0.18		1.1
	HO	BUF	VSS		aug san	cb se		Fine to medium grained volcanoclastic sandstone. Possibly host like rock. Has a distinct augen texture with occasional larger Qz crystals but overall a fine to medium sandstone unit. Occasional trace Py blebs.	D1393103						
1420	HW	BUF	VBX		aug fol	se si		Volcanoclastic sandstone to breccia containing occasional to common Qz crystals. This unit conformably transitions from the previous interval. Does not appear to be footwall, however not exactly sure what to call this. The alteration has washed out some of the lithic textures but it is definitely a breccia unit.	D1395255	0.0	0.0	0.0	0.02		1.1
1430	HO	BUF-GRY	VSS		fol qph	se cb		Fine to medium grained Qz crystal rich volcanoclastic sandstone. This unit is more host like looking with abundant typically <1mm sub-rounded Qz crystals. Possibly grading down hole slightly towards lower contact. No sulphides.	D1395256	0.0	0.0	0.0	0.03		1.6
1440	HW	GRY-BUF	VBX		qfp fia	se cb		Quartz crystal rich volcanoclastic breccia containing fiamme (or pseudo-fiamme?). Abundant 'fat' Qz crystals 1-10mm in size, occasional Qz-Fd phyric Rhyolite clasts presumably from below lava. Quite a distinct unit - becomes possibly an autobreccia towards the lower contact.	D1395257	0.0	0.0	0.0	0.09		1.8
								Quartz Feldspar phyric rhyolitic porphyry. Abundant 1-10mm white, angular feldspar and 1-8mm sub-rounded Qz phenocrysts. The darker Se banding is also present indicating it may just be a pseudo-fiamme texture. The uniformity of the crystals suggests this is a porphyritic lava. Rock becomes broken and increasingly altered towards the fault however, is likely still a lava upon intersection of the fault.							
1450	HW	GRY-BUF	VRV		qfp	se si									

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	▲ 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-D4



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: 1819.0 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
HW	GRY-YEL	VBX			qph pum	se si		Quartz crystal rich and pumice bearing volcaniclastic breccia. This unit appears to be clastic with common <1-1mm sub-rounded Qz crystals and abundant lime-yellow coloured and selectively Se altered rafts which appear to be pumice. The breccia appears to be predominatly matrix supported which itself is strongly silicified. Rare lithics of silstone/mudstone origin are visible. Overall this is a very altered rock however, the Se only selectively alters what is being called pumice.	D1395263	0.0	0.0	0.0	0.08		1.3
HW	GRY-YEL	VSL			slt sil	si se		Gray to pale yellow/green very fine grained silstone. The silstone is very hard and silicified; to the point where it is more accurately called a quartzite. It varies in colour from a pale grey to a presumably more Se altered lime/yellow colour. Again there are occasional 2-5cm bands or interbeds of intensely Se altered material, which is presumably pumice as in the previously discussed interval. Towards the lower contact the rock becomes darker and has more of a borderline shale appearance. Bedding is ~30 degrees to LCA and is becoming steeper down hole.	D1395264	0.0	0.0	0.0	0.10		0.7
									D1395265	0.0	0.0	0.0	0.03		0.9
									D1395266	0.0	0.0	0.0	0.13		2.1
HW	GRY	VBX			ppl san	se py		Grey, volcaniclastic sandstone which grades into a polymict volcaniclastic breccia from ~1542.0m. This is arguably one large graded sequence starting from the silstone unit at ~1507m. There is a marked increase in Py alteration, which predominantly occurs in patches and blebs. The coarser breccia part of this interval is quite clearly polymict - and there is a strong fabric through the rock, hence most clasts have been elongated. Lithics are composed of ~1mm Qz crystals, common Se altered pumice rafts, rare thinly elongate mudstone rafts, silstone clasts and possibly a felsic rhyolitic clast.	D1393107						
									D1395267	0.0	0.0	0.0	0.10		1.1

Lithology Legend										Mineralisation	
▲ Andesite	■ Disseminated Sulphides	▨ Interbedded siltstone/shale	■ Not logged	■ Schist	■ Undifferentiated Volcanic	■ Background					
▲ Andesite Flow	■ Dolomite	▨ Interbedded VSL/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							
▲ 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-D4



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: 1819.0 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
1550	HW	GRY	VBX			pol san	se py	Grey, volcanoclastic sandstone which grades into a polymict volcanoclastic breccia from ~1542.0m. This is arguably one large graded sequence starting from the silstone unit at ~1507m. There is a marked increase in Py alteration, which predominantly occurs in patches and blebs. The coarser breccia part of this interval is quite clearly polymict - and there is a strong fabric through the rock, hence most clasts have been elongated. Lithics are composed of ~1mm Qz crystals, common Se altered pumice rafts, rare thinly elongate mudstone rafts, silstone clasts and possibly a felsic rhyolitic clast.	D1395268	0.0	0.0	0.0	0.08		2.3
									D1395269	0.0	0.0	0.0	0.13		1.2
1570	HW	GRY	VBX			san	py se	Grey, volcanoclastic sandstone which grades into a mudstone clast bearing volcanoclastic breccia. The breccia is matrix supported with the mudstone clasts bearing the main breccia component. They are thin and elongated yet often erratically shaped. The breccia in this interval would be 90% matrix supported. Py alteration is increasing in intensity and more disseminated now, often occurring within the thin laminar bedding.	D1395270	0.0	0.0	0.0	0.19		1.4
1580									D1395271	0.0	0.0	0.0	0.12		1.0
	HO	GRY-BUF	VSS			san fol	py se	Strongly Py-Se-Cb altered volcanoclastic sandstone which is analogous to the Rosebery Host rocks in appearance. Bedding is ~40 degrees to LCA.	D242315	0.0	0.0	0.0	0.70	-0.01	1.8
									D242316	0.0	0.0	0.0	-1.00	-0.01	2.4
									D242317	0.0	0.0	0.0	-1.00	-0.01	2.4
									D242318	0.2	1.0	0.0	8.20	-0.01	1.1
									D242319	0.0	0.1	0.0	1.00	-0.01	2.1
									D242320	0.0	0.0	0.0	1.00	-0.01	3.2
								Semi-massive sulphides. Pale honey brown Sp with minor Ga.	D242321	0.0	0.0	0.0	2.00	0.02	1.9
								Small interval of unmineralised host-rock with strong Py alteration.	D242322	0.0	0.0	0.0	1.00	0.02	1.9
	HO	GRY-BUF	VSS			san	se sp	Disseminated sulphides, still honey brown Sp.	D242323	0.1	0.1	0.0	2.00	0.05	2.9
	HO	BUF-GRY	VSL			fol	py ga		D242324	1.0	1.0	0.3	100.10	0.64	4.2
	HODS	GRY-BUF	DSS			san	py se	Strongly Py altered volcanic sandstone, only a few trace specks of Sp otherwise unmineralised.	D242325	0.3	0.3	0.0	4.70	0.04	2.5
	HOTS	GRY	VSS			san	py se		D242327	1.0	1.0	0.2	43.50	0.29	5.1
						san	py se		D242328	0.2	0.4	0.0	5.70	0.02	1.7
						san	py se		D242329	0.0	0.0	0.0	-1.00	0.02	2.1
						san	py se		D242330	0.0	0.0	0.0	-1.00	-0.01	1.1
	HODS	GRY	VSS			san	py se	Intensely Py altered volcanic sandstone. Interestingly the bedding has changed to almost ~80 degrees to LCA through the mineralised zone.	D242331	0.0	0.1	0.0	3.80	0.01	3.9
						san	py se		D242332	0.0	0.0	0.0	3.30	-0.01	3.0
									D242333	0.0	0.0	0.0	3.00	-0.01	8.8
								Laminar and thinly bedded volcanoclastic silstone. Abundant Py which often occurs as thin interbeds or as 1-2mm veinlets. Trace patchy Sp in parts which has a more red colour to it. Some of the darker silstone is probably borderline shale, however, these silstones are arguably analogous to the Rosebery host rocks.	D242334	0.0	0.0	0.0	4.00	-0.01	12.3
									D242335	0.0	0.1	0.0	6.40	-0.01	11.8
									D242336	0.0	0.0	0.0	4.70	-0.01	5.0
	HOTS	GRY-BUF	VSL			sil fol	py se		D242337	0.0	0.0	0.0	2.00	-0.01	2.7
									D242338	0.0	0.0	0.0	5.00	-0.01	2.8
									D242339	0.0	0.0	0.0	4.00	-0.01	2.3

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	▲ Rhodochrosite	■ 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-D4



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: 1819.0 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
FW	GRY-YEL	VCF			pum qph	se si		Quartz crystal and pumice rich rhyolitic volcanoclastic breccia. Very distinct change from the above host-like siltstones. The 5cm vein could be a rehealed fault, however even if this is so - the extent of it would mean it is a relatively small fault. This unit contains abundant 1-2mm sub-rounded Qz crystals which appear to be matrix supported. The other major component are the preferentially Se altered pumice clasts which are variable in size >10cm and irregular in shape. There also appears to be occasionally dacitic to rhyolitic clasts which occur up to 15-20cm in size towards the end of hole. There is possibly some grading at the very beginning of the interval however, it is difficult to distinguish any other discreet flows within this large unit.	D1395275	0.0	0.0	0.0	0.07		0.9
									D1395276	0.0	0.0	0.0	0.19		0.7
									D1395277	0.0	0.0	0.0	0.07		0.9
									D1395278	0.0	0.0	0.0	0.16		2.3
									D1395279	0.0	0.0	0.0	0.02		0.9

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
FW	GRY-YEL	VCF			pum qph	se si		Quartz crystal and pumice rich rhyolitic volcanoclastic breccia. Very distinct change from the above host-like silstones. The 5cm vein could be a rehealed fault, however even if this is so - the extent of it would mean it is a relatively small fault. This unit contains abundant 1-2mm sub-rounded Qz crystals which appear to be matrix supported. The other major component are the preferentially Se altered pumice clasts which are variable in size >10cm and irregular in shape. There also appears to be occasionally dacitic to rhyolitic clasts which occur up to 15-20cm in size towards the end of hole. There is possibly some grading at the very beginning of the interval however, it is difficult to distinguish any other discreet flows within this large unit.	D1395285	0.0	0.0	0.0	-0.01		0.9
									D1395286	0.0	0.0	0.0	0.36		1.7
									D1395287	0.0	0.0	0.0	0.08		1.4
									D1395288	0.0	0.0	0.0	0.03		0.7
									D1393110						
									D1395289	0.0	0.0	0.0	-0.01		0.7

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

ROSEBERY LITHOLOGY_VMS LOG

Hole ID: 411R-D4



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: 1819.0 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
FW	GRY-YEL	VCF			pum qph	se si		Quartz crystal and pumice rich rhyolitic volcanoclastic breccia. Very distinct change from the above host-like siltstones. The 5cm vein could be a rehealed fault, however even if this is so - the extent of it would mean it is a relatively small fault. This unit contains abundant 1-2mm sub-rounded Qz crystals which appear to be matrix supported. The other major component are the preferentially Se altered pumice clasts which are variable in size >10cm and irregular in shape. There also appears to be occasionally dacitic to rhyolitic clasts which occur up to 15-20cm in size towards the end of hole. There is possibly some grading at the very beginning of the interval however, it is difficult to distinguish any other discreet flows within this large unit.	D1395290	0.0	0.0	0.0	0.03		2.9
									D1395291	0.0	0.0	0.0	0.10		1.4

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