

Cameco Australia Pty Ltd
Cadell Project - ERL25896
Diamond Drilling - Major Lithology

Hole Number	Depth From	Depth To	Rock Code	Rock Type	Comments
CDD0117	0	8	SAND	sand	
CDD0117	8	38	SAP	saprolite	saprolite and clays, weathered dolerite
CDD0117	0	106.2	DOL	dolerite	<p>Diamond coring began at 38 m, intersecting maroon to dark green or pale limey green fine-grained porphyritic dolerite that has been variably affected by chlorite, hematite and lesser sericite and leucoxene alteration.</p> <p>Chlorite alteration is predominant from 69.5 m - 76.5 m along fracture planes. A 15 cm thick breccia was intersected from 76.5 m - 76.65 m. The interval 76.7 m - 84.2 m shows increase in red brown hematite, with some portions of the dolerite completely replaced by red brown hematite. Dolerite shows uniform radioactive counts from the top to 71.5 m, averaging 35 cps measured with SPP2 scintilometer. The interval 71.5 to 74.5 has elevated radioactive counts up to 85 Cps in quartz chlorite veins and broken zones. Some soft broken intervals with elevated radioactivity are typically associated with sericite and/or leucoxene alteration, probably marginal to narrow veins of quartz-chlorite-hematite.</p>
CDD0117	106.2	116.12	BX	breccia	Wide strongly hematite altered breccia with angular to sub rounded clasts in fine-grained hematite matrix. Hematite alteration is prominent on the top and bottom of the unit with the middle part being moderately chloritised. The contact of the breccia to the underlying granite is sharp and broken. The incorporated sub rounded to angular clats are intensely altered with sharp contrast to the matrix. Radioactive counts in this unit averages 40 Cps. Quartz carbonate veins are scattered throughout the unit. Shows grain size reduction towards the footwall contact with the underlying granite
CDD0117	116.12	173	GRAN	granite	<p>The intersected Nimbuwah granite is composed orthoclase, quartz, and biotite. Individual groundmass is greater than 2 mm diameter on average. Contain large crystals of Orthoclase of up to 30 mm diameter. The key diagnostic features are (1) Mineral assemblage dominated by quartz, orthoclase and biotite, (2) Variable alteration and shearing.</p> <p>The top 20 m is moderately chlorite-sericite-hematite altered. A weak horizontal 'burial' type foliation is developed and grain-size reduction has taken place proximal to the hanging wall contact with the breccia. Below this, weak to moderate alteration diminishes slowly downhole to 142 m. Orthoclase megacrysts take on a pink colour below 142 m. Fresh rock is grey with pink-brown orthoclase and biotite. Minor aplite/microgranite/pegmatite dykes are recognized throughout the unit. A weak but ubiquitous foliation, defined by aligned megacrysts, appears to vary in attitude, but is most commonly about 41 degrees to 080. This variability may provide evidence for a non-uniform magmatic origin or the rocks have been variously rotated through deformation.</p> <p>A few radioactive zones are recognized, including 137.9 - 139 (up to 40 cps; SPP2) and 157.5 - 157.6 m (40 cps). These zones are associated with narrow shallowly dipping qtz-chl-carbonate veins with general orientation ~15 degrees towards 088 degrees.</p>
CDD0118	0	8	SAND	sand	Sand cover
CDD0118	8	26.5	SAP	saprolite	PCD cuttings: Yellow-orange, green to red/brown clayey saprolite and saprock derived from medium grained altered dolerite.

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CDD0118	26.5	108.95	DOL	dolerite	Potassic alteration is predominant from start of the hole to 70 m. The interval 91.6 m - 100 m shows increase in brown hematite, with most portions of the dolerite completely replaced by hematite. The interval 49.5 m - 55.5 shows increase in radioactive counts up to 85. Radioactivity increase is associated with quartz-feldspar-chlorite-hematite veins and fractures. Chlorite forms dark green alteration halos around the radioactive fractures and veins. Orientation(s) of 69 towards 295 degrees and 23 towards 019 degrees have been recorded from some of the veins. Some soft broken intervals with elevated radioactivity are typically associated with sericite and/or leucoxene alteration, probably marginal to narrow veins of quartz-chlorite-hematite.
CDD0118	108.95	112.6	SDST	sandstone	A narrow variably altered sandstone wedge was intersected from 108.95 - 112.6 m. The Mamadawerre sandstone has been partially affected by chlorite and hematite alteration. Sinuous wavy fabric and some fractures with signs of incipient dissolution and precipitation chlorite and hematite occur in some places. Typical of this level of Phe, where there has been significant digestion of quartz, culminating in the development of the chl-hem interval. Radioactive counts in sandstone averages 15 cps.
CDD0118	112.6	120.6	BX	breccia	A wide hematite and chlorite altered breccia was intersected from 12.6 m - 120.6 m. Polymict to monomict clast-supported breccia; all components replaced by massive brown to red brown hematite and lesser chlorite; clasts of ex-dolerite and ex-sandstone based on relict textures, but interval cannot be assigned to either formation. Clasts range from angular to sub-rounded, indicating some milling. They are poorly sorted. Some parts have jigsaw-fit. The breccia marks the faulted contact between Pdo and Phe. Radioactive counts shows slight increase from 25 to 35 in the lower half of the breccia, coinciding with increase in hematite alteration.
CDD0118	120.6	150.6	GRAN	granite	Nimbuwah Complex granite with 1-2% aplite/microgranite was encountered from 120.6 m to the end of hole at 150.6 m. The granite ranges from medium-grained equigranular to coarse megacrystic, and from leucocratic to more mafic in appearance. It is difficult to distinguish if this reflects differentiation or metamorphosed sedimentary protolith. Regardless, the granite is overall finer and with less megacrysts than in CDD0117. The interval 120.6 m -147.7 m has been affected by hematite and sericite alteration while the remaining portion to the end of hole at 150.6 m has been affected by chlorite alteration. Radioactive counts in the granite averages 30 cps, measured with Spp2 scintilometer. A weak but ubiquitous foliation, defined by aligned altered primary minerals, appears to vary in attitude, but is most commonly about 41 towards 080 degrees. This variability may provide evidence for a non-uniform magmatic origin or the rocks have been variously rotated through deformation.
CDD0119	0	4	SAND	sand	
CDD0119	4	23.7	SAP	saprolite	Granitic saprolite
CDD0119	23.7	37.5	GRAN	granite	Granoblastic, coarse-grained, Nimbuwa Granite. On average, it consists of pink orthoclase feldspar (55-60%), white to green plagioclase feldspar (35-30%) and cloudy white quartz (15-20%). From 23.7-27.5, orthoclase feldspar is most abundant. This unit is strongly altered by limonite/geothite and plagioclase feldspar has been replaced by sericite. Between 27.5-28 m orthoclase, still dominate, has been altered to chlorite and plagioclase replaced by sericite, limonite alteration is not as strong. From 28.0-36.4 m consists predominantly of orthoclase, lesser plagioclase and lesser quartz. This unit is strongly altered by limonite and moderate dark-red hematite alteration replacing orthoclase (?). The base of the granite, 36.4-37.5 m, consists predominantly of plagioclase feldspar and lesser orthoclase. Alteration consists of sericite replacing plagioclase and chlorite replacing the matrix. The base of the granite is absent of limonite/geothite alteration.

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CDD0119	37.5	145.8	DOL	dolerite	Variably altered dolerite was encountered from 37.5 to 145.8 m. Chlorite alteration is predominant from 37.5 m - 99 m and from 135 - 145.8 m. Ophitic dolerite is sandwiched between two strongly chloritised dolerite units and is associated with high magnetic susceptibility. The interval 140 m -144 m shows increase in radioactive counts up to 750. Radioactivity increase is associated with quartz-carbonate -chlorite-hematite veins and fractures. Chlorite forms dark green alteration halos around the radioactive fractures and veins. Minor disseminated chalcopyrite and specular hematite occur in the radioactive veins. Orientation(s) of 78 towards 314 degrees and 82 towards 158 degrees have been recorded from some of the veins. Some soft broken intervals with elevated radioactivity are typically associated with sericite and/or leucoxene alteration, probably marginal to narrow veins of quartz-chlorite-hematite.
CDD0119	145.8	201.9	GRAN	granite	Nimbuwah Complex granite with 1-2% aplite/microgranite was encountered from 145.8 m to the end of hole at 198.9 m. The granite ranges from medium-grained to coarse megacrystic, and from leucocratic to more mafic in appearance. It is difficult to distinguish if this reflects differentiation or metamorphosed sedimentary protolith. Regardless, the footwall granite has less orthoclase than the granite encountered from surface to 37.5 m. Radioactive counts averages 25, with minor increases in zones with more chlorite alteration. A weak but ubiquitous foliation, defined by aligned altered primary minerals, appears to vary in attitude, but is most commonly about 44 towards 063 degrees. This variability may provide evidence for a non-uniform magmatic origin or the rocks have been variously rotated through deformation.