

**Cameco Australia Pty. Ltd.**

**Gunbatgarri EL's 2857 and 4012 - Outcrop Sample Descriptions**

Station	EL Name	Geomorphology	Outcrop Description	Formation	Lithology	Sed structure	Gamma Cps (bkgd)	Gamma Cps (max)	Comments
GG040200	EL 2857	small linear E-W sandstone ridge on edge of timbered valley	fractured sandstone pavement with rotated tilted bedding to the SE	Gumarrimbang Sandstone	coarse grained sandstone	trough cross bedding	60	60	fracturing is perpendicular to interpreted. Fracturing is interpreted to have dextral strike slip shear sense
GG040201	EL 2857	linear E-W sandstone ridge with 5m wide recessive fault related topography along the top of the ridge	closely spaced fractured sandstone forming small vertical face at edge of recessed fault	Gumarrimbang Sandstone	medium grained sandstone		30	45	closely spaced fracturing perpendicular to interpreted fault
GG040202	EL 2857	large sandstone blocks on flat pebbly pavement	small vertical section of irregular trough cross bedded sandstone; trough cross bedding appears to be dipping opposite away from a point within the same horizon	Gumarrimbang Sandstone	medium grained sandstone	irregular trough cross bedding	20	20	
GG040205	EL 2857	small vertical face at edge of small timbered sandy valley	vertical section through very large 3m+ trough cross bedded sandstone	Gumarrimbang Sandstone	coarse grained pebbly sandstone	very large trough cross bedding	30	30	extremely large trough cross bedding (approximately 3.5m thick)
GG040206	EL 2857	linear flat area against small sandstone ridge	scattering of ferruginous pebbles and pisoliths, with larger broken fragments of volcanic rock	Giruth Member	fine grained sheared mafic volcanic		80	180	rock appears sheared with many slickensides; quartz/feldspar porphyroblasts/infilled vesicles
GG040207	EL 2857	rounded undulating sandstone area with small gully leading up to flat linear area at base of small sandstone ridge	small knob of rosey weathered and polygonal jointed sandstone	Gumarrimbang Sandstone	very coarse grained sandstone	trough cross bedding	40	40	friable rosey weathered appearance is empiracally related to some amount of heat or metasomatism
GG040208	EL 2857	rugged narrow gorge with castellated sandstone pillars and blocks	castellated outcrops amidst narrow sheer joint faces	Marlgowa Sandstone	coarse grained sandstone	trough cross bedding	50	50	
GG040209	EL 2857	small terraced scarp (~2m) below undulating pavement and leading down to sandy gully	vertical section through heavy mineral rich trough cross bedded sandstone along edge of scarp	Marlgowa Sandstone	very coarse grained sandstone	trough cross bedding	80	120	
GG040210	EL 2857	edge of extensive terrace near linear sandy gully	large sandstone blocks lying on undulating terrace	Marlgowa Sandstone	pebbly granule stone	thinly cross bedding	80	80	
GG040211	EL 2857	resistant spine of high steep-sided linear ridge with flat area on top	rubby sandstone and silicified sandstone breccia scree on top of ridge, with some resistive outcrops of fault breccia	Marlgowa Sandstone	sandstone fault breccia		50	50	fine grained sandstone brecciated clasts in siliceous gouge material; interpreted sinistral shear with oblique movement
GG040212	EL 2857	resistant steep-sided ridge top	silicified sandstone rubble scattered on linear flat area with isolated outcrops of fault breccia	Marlgowa Sandstone	sandstone fault breccia		50	50	sandstone brecciated clasts up to 25mm; interpreted sinistral movement
GG040213	EL 2857	flat area just above steep drop-off at top of steep-sided ridge	float material	Marlgowa Sandstone	lateritic ferricrete possibly volcanic	massive and layered	50	50	
GG040214	EL 2857	on edge of scrubby timbered area littered with large sandstone blocks	resistant low linear ridge of sandstone and rounded sandstone blocks	Gumarrimbang Sandstone	fine to medium grained sandstone		50	50	
GG040215	EL 2857	castellated sandstone blocks within narrow sand covered linear gully	castellated sandstone blocks within narrow sand covered linear gully	Gumarrimbang Sandstone	coarse grained sandstone with possibly halite cast	large trough cross bedding	60	60	infilling of voids or voids created by growth or subsequent shrinkage of greyish white aphanitic clay mineral
GG040216	EL 2857	Heavily incised rugged but low rocky outcrops. Castellated.	Clay altered grey granule sandstone with mostly scattered to isolated pebbles. Thin pebbly bands but not conglomeratic.	Gumarrimbang Sandstone	sandstone	Cross bedded	55	70	Sample point at intersection of two linears
GG040217	EL 2857	Flat lying outcrop. Open country. Poor relief	Interbedded finely layered (centimetric) and thicker (decimetric) beds. Coarse to granule with very few pebbles.	Marlgowa Sandstone	sandstone	Cross bedding	65	75	Sample point adjacent to west-northwest fracture
GG040218	EL 2857	Flat lying to slightly incised plateau	Laminated to thinly bedded coarse grained to granule sandstone. Silicified layers	Gumarrimbang Sandstone	sandstone	Ripple marks	50	60	
GG040219	EL 2857	Flat open country with scrub-filled fractures	Flat lying granule with pebble bands and scattered pebbles to 3cm. Shallow southwest dip	Marlgowa Sandstone	sandstone	Cross bedding	85	100	Sample point at intersection of conjugate fractures
GG040220	EL 2857	Flat lying fractured outcrop leading upslope to small cliffs. Some large joints forming ravines	Thinly laminated-bedded. Ripple marked and cross bedded. Granule to pebbly with thin centimetric pebble conglomerate layers.	Marlgowa Sandstone	sandstone - pebbly	Cross beds and ripple marks	90	120	Sample collected from silicified layer in pebbly granule
GG040221	EL 2857	Low rocky hills bordering flat, timbered sand covered plain	Grey, mauve and white, clay altered granule / pebbly sandstone. Low to flat lying rounded outcrops. Shallow northwest dip.	Gumarrimbang Sandstone	sandstone	Cross bedded	40	50	Outcrop controlled by northeast trending linear.
GG040222	EL 2857	Low rise flanking open sand-filled valley leading out into open country	Well bedded with rare ripple marks and cross bedding. Clay altered and variably coloured. Heavily fractured. Moderate dip to west-northwest. Limited small area with silicification and veining.	Gumarrimbang Sandstone	sandstone	Cross bedded and ripple marked	40	55	Nungbalgarri volcanics clast in sandstone observed. Localised area of intense white silicification. Minor breccia.
GG040223	EL 2857	Dissected plateau with only little relief	Flat lying outcrop with moderate southerly dip. East-west and north-south jointing or fracturing. Granule with scattered to isolated pebbles.	Gumarrimbang Sandstone	sandstone	Cross bedding	70	90	
GG040224	EL 2857	Dissected plateau with only little relief. Regional north-south fracture adjacent to sample point	Flat lying outcrop with shallow southerly dip. Very thin bedded with alternate friable ferruginous and hard silicified bands. Scattered to isolated pebbles. East-west and north-south fracturing and jointing	Gumarrimbang Sandstone	sandstone	Cross bedding	60	90	Up to 100cps under sandstone overhangs.
GG040225	EL 2857	Cliff outcrops to 10 metres height flanking regional northeast trending fracture	Coarse grained to granule sandstone. Pebbly, to 5cm, isolated to scattered. Grey, pink to reddish colouration. Clay altered. Shallow southwest dip	Gumarrimbang Sandstone	sandstone	Some cross bedding	60	70	Sample point on edge or regional linear.
GG040226	EL 2857	Low profile sandstone outcrop with small cliffs. Wide to narrow sand and scrub-filled valleys bounded by small cliffs.	Massive to bedded grey-white-mauve outcrop. Gritty to granule with only very scattered pebbles. Very shallow southeast dip. Some cross bedding in more bedded outcrop.	Gumarrimbang Sandstone	sandstone	Cross bedded	70	90	Sample point west side of main northeast trending linear
GG040227	EL 2857	Low ridge with sparse flat-lying outcrop adjacent to swampy creeks.	Laminated to finely bedded/banded pale coloured clay-altered sandstone. Shallow southeast dip	Gumarrimbang Sandstone	sandstone	Ripple marks	30	40	Linear ridge trending 060 degrees with swampy creeks either side