

QUEENSLAND PROJECTS

EPC 1506 MARYVALE 1 AND EPC 1539 MARYVALE 2 - QLD INTRODUCTION

Kaili's Queensland coal tenements are situated 30km north of Warwick within the Darling Downs region of south Queensland. The tenements are adjacent to a railway line that connects Warwick to Toowoomba in the north and then to the capital city of Brisbane (190km) from where the coal is planned to be exported. The region has a large skilled workforce and excellent infrastructure for the development of coal resources.

LAND TENURE AND PHYSIOGRAPHY

Land tenure is dominated by freehold pastoral land of various block sizes and roadside council verges administered by the Southern Downs regional council. The pastoral properties are used for a mixture of intensive agriculture and cattle on basalt derived soils.

The tenement is adjacent to the junction of the New England and Cunningham Highways (**Figure 10**) with access through the tenements provided by a network of sealed and unsealed roads. The Main Range National Park to the east of the tenements forms part of the Great Dividing Range and is capped by Tertiary basalt lava flows. EPC 1539 is dominated by elevated topography of the Main Range National Park as are small portions within EPC 1506 which is dominated by flatter terrain comprising basalt derived soils.

STRATEGIC CROPPING LAND

The Strategic Cropping (SCL) Land Act 2011 ("SCL Act") was repealed by the Regional Planning Interests Act June 2014 ("RPI"). SCL is land that is, or is likely to be, highly suitable for cropping because of a combination of the land's soil, climate and landscape features. SCL trigger areas cover a substantial portion of both tenement blocks, and are aligned predominately along watercourses (**Figure 11**). The SCL Act is still in force and is now part of the RPI.

The RPI identifies and protects areas of regional interest from inappropriate resource or regulated activities. The strategic cropping area ("SCA") is an area of regional interest under the RPI and consists of the areas shown on the SCL Trigger Map as SCL. SCL is defined in the RPI as:

"land that is highly suitable for cropping, or likely to be highly suitable for cropping, based on a particular combination of soil, climate and landscape features."

Through the RPI the government is seeking to manage the impact of resource activities and regulated activities on SCL in the SCA.

The SCL criteria use definitive threshold levels for 8 criteria to determine compliance, which limits the scope for subjectivity or opinion in evaluating land and demonstrating whether land meets the SCL criteria.

The criteria are:

- slope
- rockiness
- gilgai
- soil depth
- soil wetness
- soil ph.
- salinity
- soil water storage

WATERCOURSES

Dalrymple and Glengallan Creeks traverse from west to east across the tenements with the headwaters in the Main Range National Park to the east of the tenements. These creeks flow into the Condamine River to the west of the tenement.

URBAN RESTRICTED AREAS (URA)

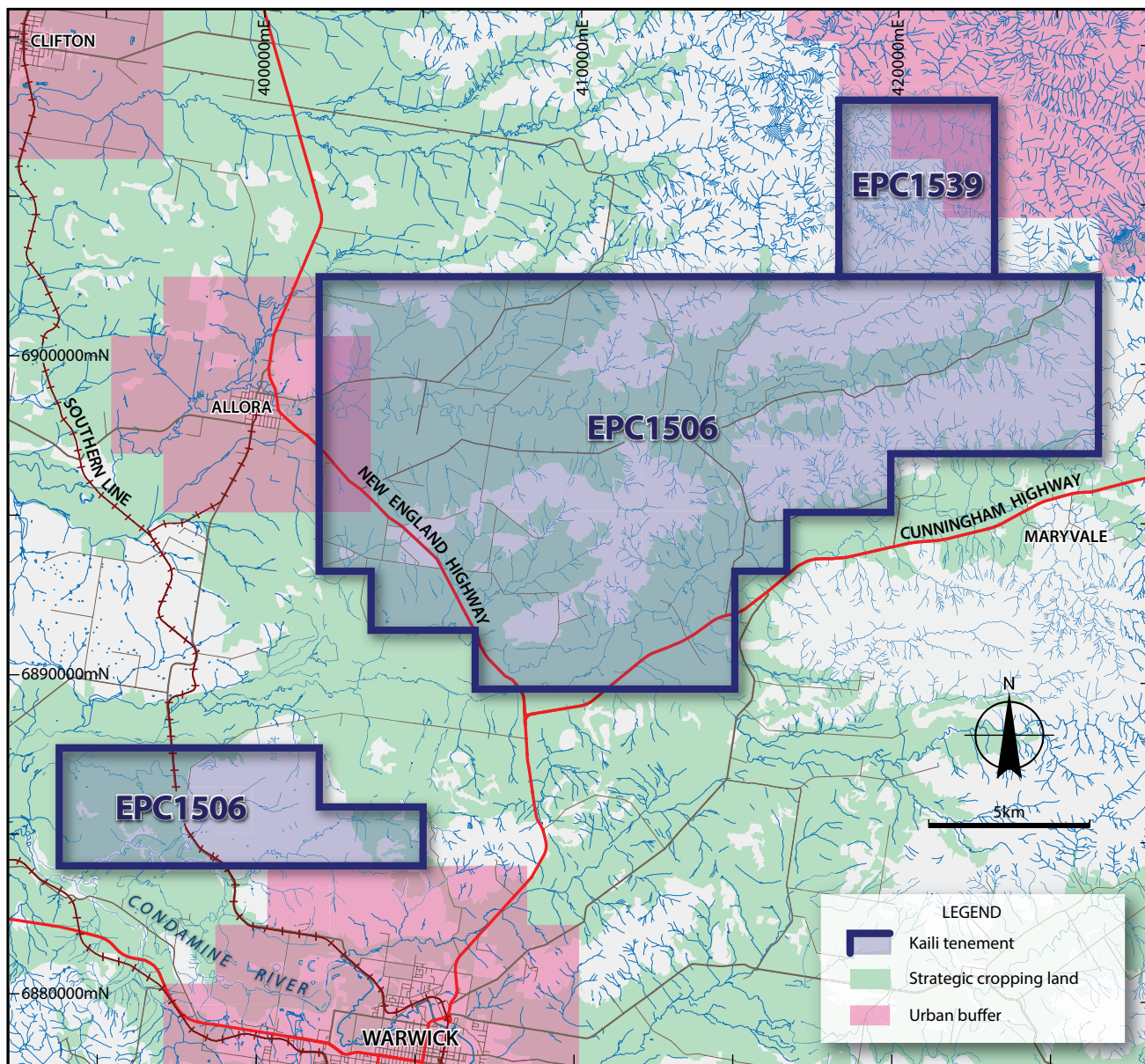
On 16 August 2011, the Queensland Government used the powers of the Mineral Resources Act 1989 ("MRA") to declare Restricted Area 384 ("RA 384"), effectively calling a temporary halt to the granting of new coal and mineral exploration permits (excluding industrial minerals) within RA 384. At the same time, the Minister announced that no new land would be released for petroleum and gas within RA 384 (**Figure 11** shown as Urban Buffer).

RA 384 covers the town area of regional towns that have a population of 1,000 or more, plus a buffer zone of about 2km from the boundary of these towns. The regional town of Allora is located to the north west of EPC 1506 with the 2km buffer slightly impinging on the north west margin of EPC 1506.

CULTURAL HERITAGE

The Githabul people traditional country spans the border of south east Queensland and north east New South Wales with the native title claim south of the border having been recently determined in favour of the Githabul people. There is currently no registered native title claim north of the border and EPC 1506 and EPC 1539 comprise predominantly freehold land where native title has been extinguished however cultural heritage still applies.

The *Aboriginal Cultural Heritage Act 2003* ("ACH") commenced on 16 April 2004. The ACH binds all persons, including the State, and is intended to provide effective recognition, protection and conservation of Aboriginal cultural heritage.



Prepared: January 2015 by Mark Derriman

Figure 11 EPC 1506 and EPC 1539 - Surface Constraints

Principles underlying the ACH are outlined below:

- the recognition, protection and conservation of Aboriginal cultural heritage should be based on respect for Aboriginal cultural and traditional practices;
- Aboriginal people should be recognised as the primary guardians, keepers and knowledge holders of Aboriginal cultural heritage;
- it is important to respect, preserve and maintain knowledge, innovations and practices of Aboriginal communities and to promote understanding of Aboriginal cultural heritage;
- activities involved in recognition, protection and conservation of Aboriginal cultural heritage are important because they allow Aboriginal people to reaffirm their obligations to “law and country”; and

- there is a need to establish timely and efficient processes for the management of activities that may harm Aboriginal cultural heritage.

Prior to the commencement of drilling operations, traditional owners of the Githabul people will inspect all proposed drill sites to ensure that all areas of cultural significance are protected.

GEOLOGY

The tenements are situated in the Triassic to Cretaceous Clarence-Moreton Basin, which formed in conditions of predominately fluvial sedimentation. The development of the Clarence-Morton Basin was contemporaneous with the Surat Basin and broad stratigraphic units can be correlated between the basins. However, the underlying tectonics and sources of

sediment were different, resulting in a differentiation of specific sedimentary sequences. Much of the basin is dominated by the late Triassic to Jurassic Bundamba Group comprising the older Woogaroo Sub Group, a sequence of predominantly conglomerates and sandstones deposited in a fluvial to lacustrine environment. The overlying Marburg Sub Group comprises predominately quartz sandstones interbedded with grey shales and mudstones.

The Walloon sub group (**Figure 12**) sits conformably on the Marburg Sub Group and represents widespread fluvial and lacustrine to paludal deposition over the entire basin. The sub group consist of siltstone, banded coal horizons or packages and fine to medium grained lithic sandstone, and has been subdivided into the Taroom and Juandah Coal Measures, which are separated by the Tangalooma Sandstone (**Photos 5 and 6**) while the Durabilla Formation underlies the Taroom Coal Measures. Coal-bearing “packages”, rather than distinct seams, are common, and this is a result of seam splitting, resulting in several seams with variable thicknesses.

It is noted that within the area of EPC 1506 and EPC 1539, the Walloon Coal Measure seams occur typically 40m–50m above the Marburg Formation and as such is likely to represent the Taroom Coal Measures. The individual seams are generally thin (less than 1m) and are high in inherent ash content due to their highly stone-banded nature. Many of the thicker sequences containing individual seams are overlain by thick water-bearing gravels. The Walloon Sub Group outcrops in the southern portion of EPC 1506 as pale grey quartz sandstone likely of the Tangalooma Sandstone.

Deposition occurred within fluvial channels which were relatively stable for extended periods of time, allowing peat deposition with minor interruption by overbank deposits; this geometry is similar to pod shaped lenses. Channel migration has restricted these deposits over large areas.

The high topographic areas are dominated by Tertiary Main Range Volcanics which regionally comprise alkali-olivine basalt, minor tuff, sandstone, and mudstone. Within EPC 1506 and EPC 1539 the dominant lithology of the Main Range Volcanics (**Photo 7**) is dark grey vesicular basalt. Quaternary/Cainozoic alluvium and colluvium dominates the current Dalrymple and Glengallan creeks and adjacent flood plains with input from both the current creeks and adjacent basalt covered hills. The resultant soil from the eroding basalt hills has resulted in a fertile growing medium adjacent to the creeks.

HISTORICAL EXPLORATION

A search of the Queensland Government’s website shows several historic tenements overlapping EPC 1506 and EPC 1539 as listed below:

- EPC 104C (Killarney) held by Global Minerals Pty Ltd between 1971-1972;
- EPC 144C (Killarney) and EPC 145 (Clifton), held by Millmerran Coal Pty Ltd between 1974-1975;
- EPC 203C (Felton West), held by Millmerran-Amex-Mitsui JV between 1976-1989;
- EPC 293C (North Warwick), held by Andrew Wright Holdings Pty Ltd between 1980-1984; and
- EPC 1506 and EPC 1539 (current tenure of Kaili) held by Clean Global Energy between 2009-2011.

Historical drillhole locations within EPC 1506 and EPC 1539 are shown in (**Figure 12**) and comprise water bores which were drilled to shallow depths of usually less than 50m and company coal exploration chip and diamond core holes drilled to depths of several hundred metres. Several of the coal exploration drill holes were geophysically surveyed to look for lithological and coal signatures and to be submitted for coal quality analyses in Brisbane. A single petroleum well was drilled to the south of EPC 1506 and has provided broad lithostructural information.

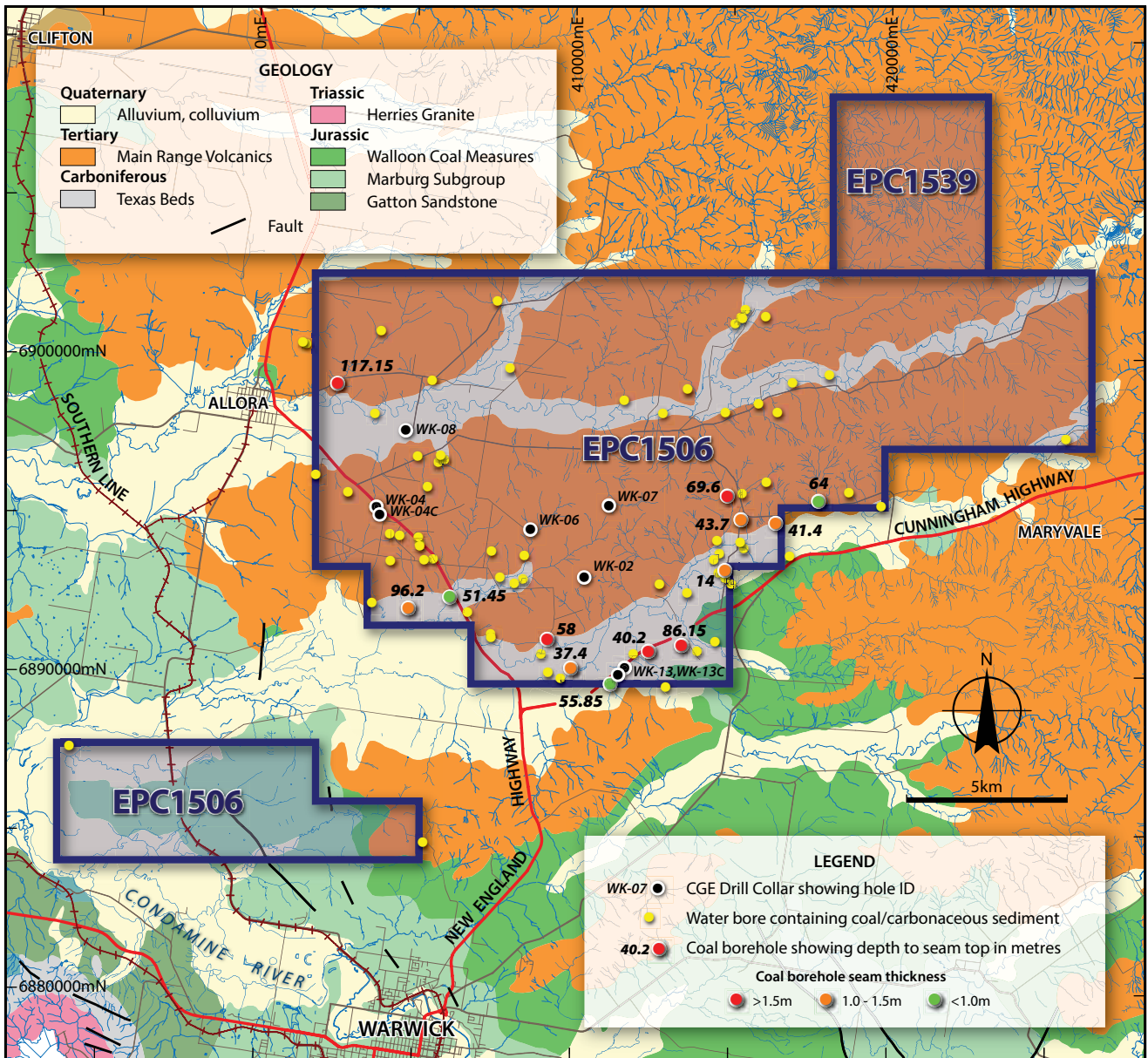
PETROLEUM

In 1965, Swan Creek No.1 petroleum well was drilled to around 500m depth by Phillips Petroleum Company, southeast of EPC 1506 and about 20km east of Warwick township. The well site was interpreted to lie on a northwest trending structural anticline. The Hutton Sandstone was shown to sub crop here with the overlying Walloon Sub Group not being present at the drill collar.

COAL

Global Minerals: Of the 48 holes drilled in the area by previous operators, 22 intersected coal. The sub-horizontally dipping Walloon Coal Sub Group was reported to have been intersected beneath Tertiary flow basalt and/or Quaternary alluvium cover. Sample results for five banded coaly intervals returned very high ash contents ranging from 43% to 69% (presumably air dried basis).

Millmerran Coal: No drilling was conducted, with only a literature review of previous drillhole data, water bore data and data from Clifton Colliery located nearby, and that mined coal from the Walloon Sub Group prior to 1900. The reasons for the tenements being later relinquished were not stated, although Millmerran Coal was later involved in a joint venture (“JV”) covering the general area.



Prepared: January 2015 by Mark Derriman

Figure 12 EPC 1506 and EPC 1539 - project geology and historical drilling

Millmerran JV: Within the Clifton and Warwick areas of the tenement, a total of 164 open holes and 30 cored holes were drilled by previous operators averaging around 100m in depth. A number of the holes drilled by AMAX (Millmerran JV) intersected the near surface Tertiary Basalt and then the underlying strata. However, some holes (such as WRO0006, WRO0065, WRO0066, WRO0112 and WRO0113) did not penetrate through the basalt and were terminated early.

Drilling results suggested that the coal intersected was in the lower Walloon Sub Group associated with the Taroom Coal Measures. A total of 53 laboratory samples were analysed by previous operators. In general, the coal was found to contain high raw ash (typically ranging from 40%-55% adb (air dried basis): the coal is air dried to remove moisture), high volatile matter,

low sulphur, and specific energy ranging from 12-18 MJ/kg (adb). Although coal intersections were occasionally several metres thick (i.e. WRD0001: 4.1m, WRD0031: 3.8m, WRD0070: 3.1m and WRD0073: 5.5m), there was a lack of continuity between holes for these intersections.

Andrew Wright Holdings: While this tenement overlapped both EPC 1506 and EPC 1539, the drilling was to the north of both tenements and was reported to have intersected “Walloon-type coal”. Most drillholes intersected heavily banded coaly intervals containing numerous claystone lenses and inclusions that were considered to possibly be tuffaceous in origin, although occasional holes intersected seams reported to be several meters thick.



Photo 5 Outcropping Tangalooma Sandstone in a road cut within the southern portion of EPC 1506



Photo 6 View looking south from outcropping Tangalooma Sandstone towards dark brown basalt derived soils from the basalt hills adjacent to Dalrymple Creek



Photo 7 Basalt covered hills of the Main Range Volcanics within EPC 1506

Clean Global Energy: In 2010, Clean Global Energy (“CGE”) commissioned GeoConsult to undertake a drilling program comprising 8 drillholes (**Table 4**), 6 open holes and 2 twinned partially cored holes within EPC 1506 (**Figure 12**). These holes specifically targeted the Taroombul Coal Measures of the lower Walloon Sub Group in the depth range 192m-318m. Two primary coal seam targets were identified, the Bulwer Seam and the Condamine Seam, with thicknesses typically ranging from 2m-3.5m. Other coal intervals were intersected above the Bulwer Seam.

Correlations of the Bulwer Seam Package was carried out across the drillholes prior to the completion of a resource model. GeoConsult carried out correlations across the deposit, based on the well-established units of the Walloon Coal Measures and based on four stratigraphic units: the Tangalooma Sandstone (**Photos 5 and 6**), Auburn Package, Bulwer Package and Condamine Package. Coal seam units were correlated using geophysical logs.

WATER

Up to 85 waterbores have been completed by previous operators within EPC 1506 and EPC 1539, however, the waterbores do not contain wireline density logs and drilling depths were generally less than 70m. Water bore information will be used when siting of further drill hole positions.

FUTURE EXPLORATION

The future exploration focus for the Maryvale project will be to increase the size and confidence level of the current resource/exploration target areas by a combination of diamond and open hole drilling.

The Year 1 exploration program will focus on the definition of resource in EPC 1506 and involve the use of a multi-purpose rig capable of chip drilling and coring, due to varying ground conditions in the area (including the presence of in excess of 40m of basalt at the surface). Pre-collar and overburden material would be drilled using hammer running on air prior to coring. Coring would commence a few metres above the expected coal depth and terminate at 0.5m-1.0m below the coal seam floor. Chip hammer drilling would resume until the next coal seam depth is due to be intersected.

The drilling method may switch to mud rotary or water injection if large volumes of water are intersected, in order to stabilise the hole whilst drilling. A non-hazardous polymer mud system may be applied to the drilling process to stabilise the holes for geophysical logging immediately upon completion of drilling. All drillholes would be fully grouted with cement to reduce any environmental risk.

A comprehensive risk assessment of the possible intersection of gas will be conducted prior to commencement of the program, and the outcomes will determine whether or not a blow-out preventer (BOP) is required.

The aim of the Year 1 drilling is to define coal resource to JORC 2012 status and obtain further coal quality data. A single hole will be drilled in EPC 1539 to determine the depth to the coal mineralisation, thickness.

If E04/1433,1436 and EPC 1539 are not renewed the funds will be used on an expanded exploration program for EPC1506. The program will involve further mud rotary chip hole and diamond core holes. If E04/1433,1436 and EPC1539 are renewed the exploration and budgets outlined at the start of the Expert Geologists report will remain in place.

Table 5: Queensland Project - Historical Drilling

Hole ID	Easting (m)	Northing (m)	*RL (m)	Azimuth (degrees)	Dip (degrees)	Depth to Coal (m)	Coal Interval/Package (m)	Total Depth (m)
CGE holes								
WK-02	410347	6893074	566.771	0	-90	187	3.67	270
WK-04	403796	6895279	515.931	0	-90	160	2.41	270
WK-04C	403796	6895279	521.161	0	-90	160	2.41	192
WK-06	409000	6893254	542.309	0	-90	140	3.38	306
WK-07	411272	6895000	590.945	0	-90	154	3.05	318
WK-08	404800	6897691	480.673	0	-90	126	3.25	270
WK-13	411272	6889922	475.477	0	-90	150	2.40	302
WK-13C	411272	6889922	475.283	0	-90	150	2.40	244
Historic AMAX and Millmerran drill holes (Unknown Seams)								
WRO005	402500	6899100	485.056	0	-90	117.15	0-1	141
WRO006	405600	6899200	486.665	0	-90	-	-	44
WRO007	407650	6896800	522.723	0	-90	-	-	22
WRO008	404800	6892050	461.562	0	-90	96.2	1-2	116
WRD009	407000	6890200	464.254	0	-90	-	1-2	26.05
WRO010	409950	6890200	466.093	0	-90	37.4	1-2	106
WRO011	413500	6890900	483.226	0	-90	86.15	1-2	131
WRO012	417750	6895500	497.618	0	-90	64	1-2	116
WRO061	416400	6894800	481.126	0	-90	41.4	1-2	76
WRO062	414900	6895600	506.928	0	-90	69.6	2-3	81
WRO063	415300	6894900	489.121	0	-90	43.7	1-2	71
WRO064	414800	6893300	477.753	0	-90	-	-	26
WRO066	407100	6892400	481.618	0	-90	-	-	17
WRO067	406100	6892400	468.658	0	-90	51.45	1-2	76
WRO075	411200	6889700	477.242	0	-90	55.85	0-1	71
WRO098	412400	6890700	479.335	0	-90	40.2	0-1	61
WRO100	409200	6891100	470.366	0	-90	58	1-2	71
WRO112	412300	6897400	537.877	0	-90	-	-	6

*RL taken from 50m topographic data