ANNUAL REPORT

for

EL1/2015

AVOCA WEST COAL PROJECT

for period ending

23rd April 2016

JUNCTION COAL PTY LTD

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Prepared for:

Junction Coal Pty Ltd

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Abstract

EL1/2015 is located 15km north-west of the township of Avoca in the northern midlands of Tasmania and covers an area of 82km^2. The tenure covers the western margin of the Fingal-Mt Nicholas Coalfield and contains the same Triassic coal-bearing sequences. Although no mining is currently taking place, the area has a ninety-three (93) year history of intermittent coal mining at small annual tonnages for a total just under 600,000t mined. Historical mining exploited three (3) of the eight (8) seam groups present within the tenure.

Junction Coal's objective, in the first year of ownership, was the creation of a database and generation of a geological model, to enable a maiden JORC 2012 Code Resource to be calculated and published. Due to several circumstances, work is not yet complete, but is progressing.

No field activity was undertaken during the reporting period however the following was completed:

- The re-logging and photography of the coal-bearing intervals missing from DOM Bonneys Plains No. 1 core data which is housed in the MRT Core Shed at Mornington, Hobart.
- Resolution of the stratigraphy of the study, seam nomenclature and seam correlations;
- Creation of the geological database "Avoca West";
- Compilation and encoding of historical borehole locations to the database;
- Compilation and encoding of historical lithological borehole data (in CoalLog format) to the database;
- Correlation of seam picks;
- Compilation and encoding of all available coal quality data;
- Digitising and registering to the current Geodatum GDA94 local map grid coordinate system "MGA zone 55" of all historical mine plans for the Old and New Stanhope Collieries, Fenhope Colliery, Undergrounds and the Stanhope Open-cut;
- Digitising and registering adits and shafts associated with the Mt Christie Mine and Bonney's Plains Prospect
- Digitising and registering all underground mine faults;

The last three activities have taken longer to complete than anticipated due to the ambiguity between the available historical maps and data. This has delayed the modelling and resource reporting until the next period. Seam nomenclature and seam correlations are also taking time to resolve. Despite the extensive mining history, the lack of modern downhole geophysical logging has hampered seam correlation and painstaking matching to available mine records has been required.

Future work will also include a modest large diameter core program to test float/sink washability and coking properties of the main target seams at the Mt Christie and Bonney's Plains localities.

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Introduction

EL1/2015 was granted to Junction Coal Pty Ltd on the 23rd April, 2015 for a period of five (5) years (**Table 1**). Junction Coal Pty Ltd is a privately owned company which holds 100% share of the tenement. EL1/2015, known as the Avoca West Coal Project, lies to the north-west of the township of Avoca (**Figure 1**) whilst the larger centre of Campbell Town straddles the south-western EL boundary. The tenure covers an area of 82km² (**Figure 2**).

Junction Coal Pty Ltd's objectives for EL1/2015 Avoca West are to post a maiden Indicated and Inferred Resources to the 2012 JORC Code and to obtain large diameter core information to allow detailed float/sink washability testing to be conducted. Historical drilling around the Avoca region has defined a known area of coal seams and has provided some basic data on coal quality. Previous exploration was sporadic with disparate databases created by explorers. The priority task is to combine all data into a standard coal mine planning database and produce a coherent regional structural model of the coal-bearing strata and the coal seams.

Table 1: Tenure Details

Tenure	Status	Principal Holder	Grant Date	Expiry Date	Size (km²)	Category
EL1/2015	Granted	Junction Coal Pty Ltd	23-APR-2015	22-APR-2020	82	2. Fuel Minerals

Location and Access

The township of Avoca (population of 123)[1] lies to the south-east of the tenement while the larger centre of Campbell Town (population of 772)[2] straddles the south-western EL boundary. A 1,067mm gauge railway used only for freight purposes links the licence area with Hobart and the north coast centres of Bell Bay, Devonport and Burnie.

A network of mainly unsealed roads and numerous logging and farm roads provide reasonable access to most of the licence area. Access for drilling equipment to specific sites generally requires the construction of new roads, the maintenance of which has been reported as difficult during periods of heavy rainfall.

Topography and Climate

The topography of the EL is dominated by an extensive plateau with an average elevation of 650m above sea level. River valleys, generally bounded by steep scarps, have been incised to elevations of 100- 200m above sea level. The basic topographic form of the area reflects the widespread occurrence of thick hard dolerite cover which has been removed only where there has been strong and persistent fluvial erosion. The coal-bearing sequence appears to have been eroded along the watercourses of Buffalo Brook and Hercules Creek. Buffalo Brook flows from the centre of the project area towards the south.

The temperature and rainfall are significantly influenced by the local topography. In the valleys rain falls on approximately 100 days per year, but on the plateau there are about twice as many

[1] ABS: 2011 Census
[2] ABS: 2011 Census

rainfall days. Almost all rainfalls during the months May to November, the highest rain fall being during July and August. Average winter temperatures range from -5°C to 5°C, and snow-falls are common above 600m from June to August.

Combined with rugged topography, the high rainfall increases the difficulty and cost of exploration operations during the winter months. Access can be maintained much more economically during summer and whenever practicable drilling is confined to the November to May period.

Figure 1: Location of EL1/2015

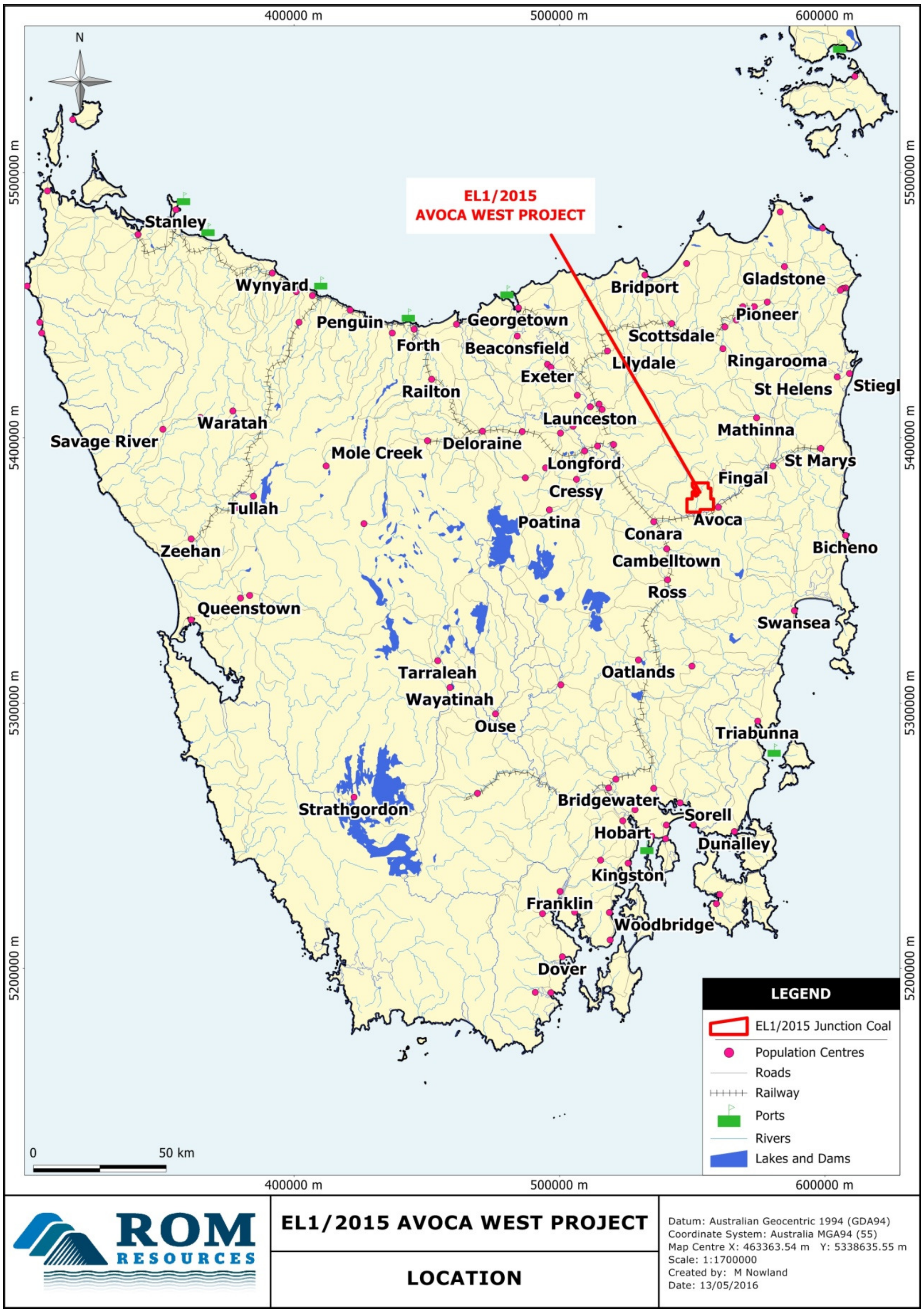
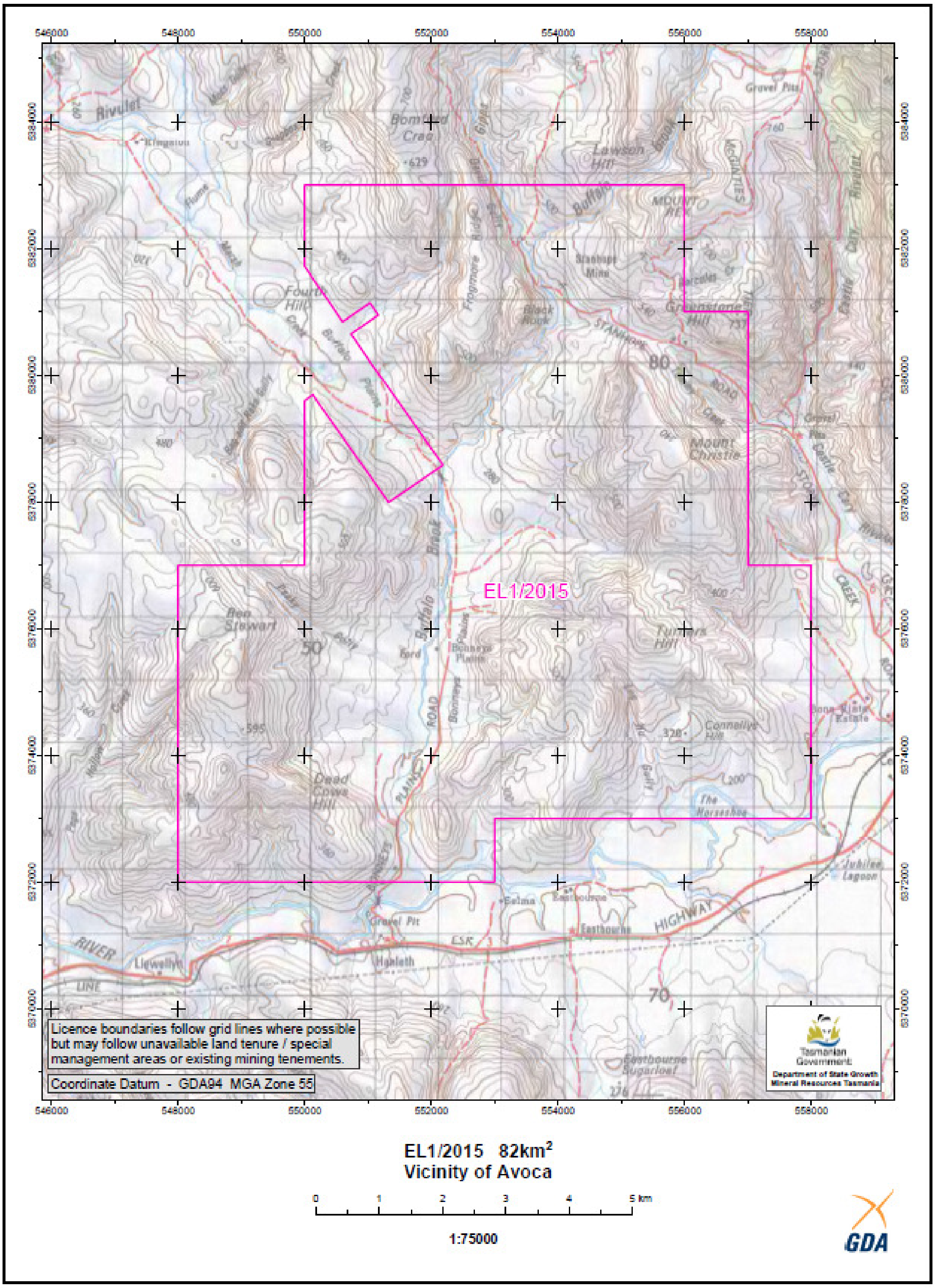


Figure 2: EL1/2015 Tenement



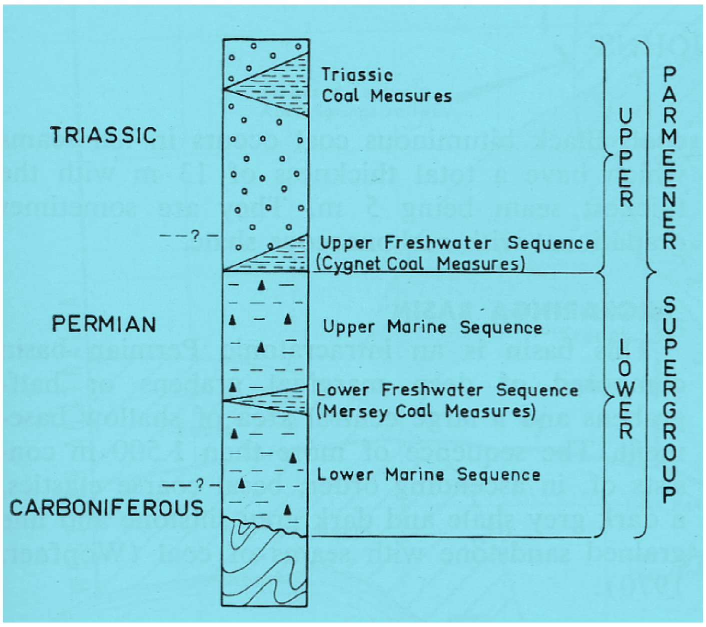
(Mineral Resources Tasmania, 2015)

Regional Geology

Regional Stratigraphy

The exploration licence is located on the north-eastern margin of the Permo-Triassic Tasmania Basin. The basin basement consists of the Lower Palaeozoic Mathinna Beds and the Devonian Age Ben Lomond Granite. A generalised stratigraphic column is shown in **Figure 3**.

Figure 3: Regional Stratigraphy of the Permo-Triassic Tasmanian Basin



Modified after (Noldart, 1975)

Parmeener Super Group

The Parmeener Super Group is divided into lower and upper sections of Permian and Triassic-age respectively. The two sections are disconformable. The Super Group contains three coal measure sequences, two occurring in the Permian section and the third within the Triassic. Within the tenure, coal seams of economic potential are restricted to the unnamed Triassic-age coal measure sequence (Water, 1978).

Lower Parmeener Super Group

The Lower Parmeener Super Group unconformably overlies the Silurian Mathinna Beds. No complete exposed section is present within the tenure.

The basal unit Cascades Group comprises a sequence of mudstone and siltstone overlain by limestone. The lower mudstone/siltstone unit is up to 40 metres thick and is often fossiliferous. The limestone is usually highly fossiliferous and ranges in thickness from 10-50 metres.

The Ferntree Group appears to conformably overlie the Cascades Group, although no contact was found outcropping within the tenure. The Ferntree Group comprises the Risdon Sandstone in the lower section and a dark grey silty mudstone-siltstone with occasional quartz grains and pebbles in the upper section. The Risdon Sandstone was not recognized in outcrop. The upper mudstone-siltstone unit ranges in thickness from 25-50 metres. No marine or plant fossils were found within this group (Water, 1978).

Upper Parmeener Super Group

Various sub-divisions of the Triassic sequence have been proposed since Hills et al, (1922) but are now considered obsolete (Bacon, 1991). Thus, the Triassic is now referred to as the Upper Parmeener Super Group with no further sub-division. Locally the coal measure sequence within the EL has been informally named the Avoca Coal Measures (Morrison, 1998), but no formal stratigraphic definition has been published.

Outcrop of the coal measures in the valley floors and upper valley slopes is generally poor, due to alluvium and dolerite scree. However, good exposures of the coal measures and coal seams commonly occur within the various creek beds.

The Triassic coal measure sequence consists of quartz sandstone with interbedded mudstone, siltstone and rare coal in the lower section, the feldspathic lithic sandstone with interbedded mudstone, siltstone, carbonaceous mudstone and coal in the upper section.

Surface mapping by previous explorers and logging information from Mines Department boreholes within the tenure area indicate that the thickest coal seams occur within the upper 200 metres of the coal measures, and that the lower 100 metre thick quartz sandstone (locally the Ross Sandstone) section is usually barren of coal. The quartz sandstone and interbeds in the lower section of the coal measures appear too thin to the east. In some parts of the area a thin pebble conglomerate/granular conglomerate occurs at the base of the Triassic.

Cainozoic

Tertiary

No Tertiary-age sedimentary rocks or basalt have been identified within the licence area (Bacon, 1986).

Quaternary

Quaternary sediments are common within the licence and comprise alluvium on the South Esk River Valley floor and dolerite scree on the valley slopes and plateaus.

The alluvium consists of silt and sand on the valley floors and swampy loam in the marshes on the plateaus. In the broader sections of the South Esk River Valleys the alluvium is believed to be up to 85m thick.

Dolerite scree is common along the edges of the tiers and valley slopes. The scree ranges in size, from particles, up to blocks in excess of 10m in diameter. The abundance of dolerite scree on the slopes and in creek beds masks the dolerite/sedimentary contacts and complicates mapping and location of coal seams. In some creek beds exposed weathered dolerite scree is similar in appearance to weathered lithic sandstone. Thickness of the dolerite scree appears to vary from a thin veneer up to an estimated thickness of 40m on the northern slopes of Mount Christie (Pemberton, 2013).

Igneous Rocks

Devonian Granite

The Upper Devonian age Ben Lomond granite intrudes the Mathinna Beds in the vicinity of Ben Lomond mineral field. The granite occurs in outcrop as low rounded hills and appears to have had some residual relief when the Permian age Lower Parmeener Super Group was being deposited. Tin mineralisation was associated with the intrusion of the granite and many tin, tungsten and uranium mines have operated near Mt Rex and Ben Lomond (Blissett, 1959).

Jurassic Dolerite

The dolerite is of Upper Jurassic age and intrudes the Parmeener Super Group as a complex of sills, transgressive sheets and dykes. Within the tenement the dolerite usually intrudes the Upper Parmeener Super Group. North of Fingal the dolerite has been reported by Threader (1968) to intrude the Lower Palaeozoic Mathinna Beds. Dolerite outcrops over approximately 70% of licence area as plateau areas, due to its widespread intrusion and general resistance to weathering and erosion.

The dolerite sills range in thickness from 2m in Buffalo Creek up to 307m intersected in Shell Historical hole AV13. The sills generally appear to have a thickness in excess of 200 m, especially the main 'upper sill' which forms the Mt. Foster-Fingal plateau. This 'upper sill' which has been exposed by erosion and caps the plateau appears to be a number of abutting sills formed from separate feeders.

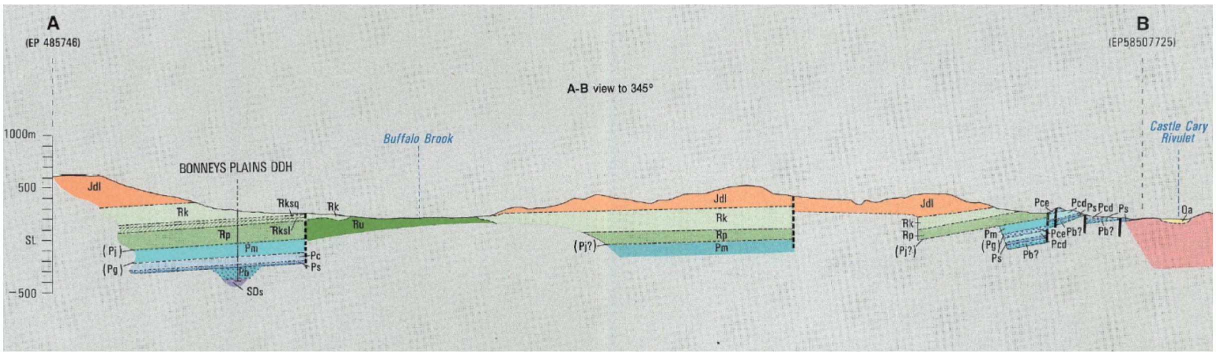
Structure

The dolerite sill capping the Ben Lomond Plateau, to the north of the Stanhope area, is at least 330m thick (Blissett 1959). The dolerite has intruded as a series of dykes and transgressive sheets, with minor faulting accompanying the intrusion.

Both minor and major faulting occurs within the area, though the full extent of faulting is masked by the extensive Jurassic-age dolerite sills and Quaternary dolerite scree (see regional cross-section in **Figure 4**). Faulting within the tenement appears to have been associated with the intrusion of the Jurassic dolerite and Early Tertiary block movements Major faults developed during the Tertiary with the largest fault being the NW-trending Castle Carey Fault, which may be traced for about sixteen (16) kilometres (Blissett, 1959). These faults have caused the formation of several horst and graben structures, which form the basis of the present-day topography (Blissett, 1959). To the south of the Stanhope-Mount Christie area the overall faulting pattern seems to consist of a series of step-faults to the south-east (Taylor, 1979).

The general dip and strike of the strata is variable 5-25° to the southwest, with strike to the north-northwest. Mine workings have reported some seam rolls but these don't appear to have developed into large-scale folding. The dominant structural feature of the tenure is the Tertiary-aged Castle Carey Fault, which is upthrown 600-800m to the east. Mine workings have intersected many smaller mostly normal faults with throws ranging between 1-25m but with a wide spread of trends. These faults are often calcite-infilled and slickensided and did disrupt mining on numerous occasions. Work is progressing on capturing all the regional and mine-scale faulting, as no single coherent plan showing fault patterns in the area has been previously produced.

Figure 4: Section A-B from Snowhill 1:50,000 sheet map

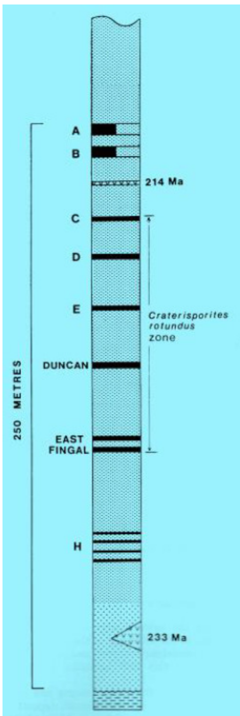


Modified after (Gulline, Forsyth, Everard, Calver, & Matthews, 1991)

Local Geology

In the Avoca-Fingal-Mt Nicholas coalfields, there are eight (8) major seams identified by previous explorers. Correlation of coal seams is difficult, as they have been interpreted as being discontinuous or lenticular in character, often with numerous stone bands and varying seam thickness over several hundred metres (Morrison and Bacon, 1986). **Figure 5** shows a generalised section of the coal intersections in the Fingal Tier area. An analysis of the potential of the coal deposit hosted in each of the seams has been tabulated along with historical nomenclature (**Table 2**), largely taken from Threader and Bacon (1983).

Figure 5: Generalised Stratigraphic Column - Fingal Tier Area



modified after (Morrison & Bacon, 1986)

Table 2: Classification of Seam Intervals

INTERVALS	HISTORICAL NAMES	DESCRIPTION
Seam A	Alpha	This seam is generally thin; 1-3m of interbedded dull coal and carbonaceous mudstone, non-carbonaceous mudstone, and claystone in bands ranging from a few centimetres to 0.5 - 1m thick. There are no working sections in any of the Seam 'A' intervals sampled by the Department of Mines. A working section at the time that the Mines Department exploration occurred was defined as an interval of coal greater than 1.5 m thick with an ash content of less than 40%.
Seam B	Beta/ Stanhope	This seam is an interbedded coal / non-coal sequence similar to but thicker than seam 'A'. It is typically a 1-5m thick coal seam variously banded. Examination of the graphic logs of the coal seam intersection clearly shows the interbedded nature of the seam. Whilst at Fingal there are very few working sections or possible working section in seam 'B', it has generally been reported (Bacon, 1991) that the Stanhope Seam is a correlative of the 'B' / Beta seam. This was the seam mined underground at Old and New Stanhope, Fenhope and Mt Christie Collieries.
Seam C	Gamma/ New Stanhope	This seam has many interbedded mudstone and claystone bands and is commonly 0.5-3m thick, with thicker sections common. Seam 'C' is particularly well-developed along the front of the Fingal Tier east of the Mitchell Fault. Unfortunately these coaly intervals of great thickness contain no working sections in seam 'C', although this seam was worked at Mt Christie and New Stanhope Collieries.
Seam D	Delta	Seam D is commonly 1-2m thick, with only a few mudstone and claystone bands. Generally the ash content ranges from 25 - 35%, but there is only a few working sections due to the thickness of the seam. This seam has been worked at Mt Christie and may have some limited coking potential.
Seam E	Eta	Seam E is most commonly one metre thick and many holes are represented by a mudstone horizon. There are no working sections in seam 'E' in the holes drilled by the Government.
Seam F	Duncan Seam/ Theta	This is the main target coal seam of the Fingal Mt Nicholson Coalfields, and has been extensively worked in the area. Typically the seam consists of 2 -3m of dull coal with minor clay and mudstone partings. The raw ash content is approximately 30% and the Specific Energy approximately 22-24 MJ/kg. It is poorly represented at Avoca West.
Seam G	The East Fingal Seam/ Iota	The East Fingal Seam is similar to the Duncan seam but in most of the borehole intersections was found to be split into two seams with a varying interburden. Both the upper and the lower split are 1-2m thick each. This seam is moderately developed at Avoca.
Seam H	Kappa	Seam H is commonly split into two thin seams, each usually less than one metre thick. The seam is only poorly-developed, being represented by a mudstone bed in at least half the holes drilled. Coal seams similar to this were logged in DOM Bonneys Plains 1

Coal Quality

Coal from all economic seams in the area could be regarded as a high volatile bituminous steaming coal with medium to high inherent ash and low sulphur (Bacon, 1983) and (Patterson & Ward, 1982).

The variation in specific energies observed is largely due to ash and moisture content variation. A linear regression of all Mt. Nicholas-Fingal Coalfields specific energy and ash/moisture data gives the following air dried specific energy to air dried ash/moisture relationship:

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Specific Energy (MJ/kg) = 31. 49 – 0.33 (Ash + Moisture)
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The relationship appears to hold well for both washed and raw coals, with an overall correlation coefficient of 0.96. In general Triassic Tasmanian coals have a moderately-low specific energy relative to their rank and ash. This characteristic, results from the very high proportion of inertinite which the coals contain, inertinite having a lower specific energy than vitrinite or liptinite (Patterson & Ward, 1982). In the Avoca West area, coal has an inherent ash content of 15-25%, indicating a steady influx of clastic material into the peat swamps during formation. The high inertinite composition of Tasmanian coals can be explained by frequent drying and partial oxidation of peat deposits (Morrison and Bacon, 1986).

Dolerite intrusions can increase the rank in parts of the Tasmanian coal fields. In some cases, the mean maximum vitrinite reflectance has been increased from ~0.57% up to 3.6% (Morrison and Bacon, 1986).

Review of Previous Work

Previous Investigations

Mining History

Bacon (1983) summarises the early discovery of coal in the area to the north of Avoca as follows:

Coal was noted as early as 1882 north of Avoca, when Mr R. Stevenson drove a tunnel into a coal seam on Storys Creek four kilometres from the Storeys Creek tin mine. Montgomery (1892) wrote of coal discoveries in the Avoca district and Waller (1901) mentioned coal outcrops in Gipps Creek and on the south-eastern flank of Ben Lomond. James Stevenson found coal near Mount Christie in 1904 and Twelvetrees (1906) reported at length on the Mount Christie and Buena Vista seams. Twelvetrees found three tunnels (one partly collapsed) on the southern flank of Greenstone Hill. The uppermost tunnel had been driven in a north-west direction for 15m on a 1.8-2.1m thick seam of coal. A second (collapsed) tunnel was 33m lower in elevation than the first and had intersected 3.6m of coal. Twelvetrees (1906) and Hills et al. (1922) thought the exposed seam in both the upper and lower tunnels was the same, repositioned by faulting. These workings, together with many subsequent adits in the same area, became known as the Mt Christie mine.

Twelvetrees (1906) reports, that in 1905, one shaft had been sunk on the area of flat ground between Mount Christie and Greenstone Hill. By 1922, five shafts had been dug on the flat, and three exploratory adits had been dug into the slopes of Mount Christie and were called the 'Buena Vista' mine by Hills et al. (1922). These workings became the site of the Stanhope mine (Pemberton, 2013).

Stanhope (Excelsior) Mine

The Excelsior mine was small, producing 93 tonnes per annum by 1929. Bacon (1983) notes that the mine was renamed the Stanhope in 1931 and the workings moved eastwards. Seam conditions were difficult due to extensive faulting and some seam thinning.

The new workings at the (old) Stanhope were accessed in 1937 by a drive on the southern side of a fault. Coal was mainly mined by the bord and pillar method with a brief attempt at a short wall face (1943) and the long wall (1947) technique. Bacon (1983) notes that collapse of the long wall face resulted in a dramatic decrease in output and reversion back to the more suitable bord and pillar method of mining.

Mining was made difficult by numerous small faults. Threader (1968) attempted to compile a report on the diamond drilling by the mining company at the Stanhope colliery over the previous 19 years. Records of core logging were incomplete and locations of holes uncertain. The main drive of the New Stanhope was started in 1956 and operations finally ceased at the Stanhope in June 1957. Bacon (1983) reports that the total production from 1932 to 1957 was approximately 175 000 tonnes (Pemberton, 2013).

New Stanhope Mine

The New Stanhope Mine is 1.3km north-west of the Stanhope mine. A drilling program undertaken by the Department of Mines for the Mine Management provided some geological control for mine planning at the New Stanhope. Drill holes 13 through to 17 had good seam intersections. A detailed description of the New Stanhope geology can be found in Appendix 4 in (Bacon, 1983). Normal faulting with throws of 3m to 4m commonly crosses the workings and was one of the major setbacks which caused the mine to close (Pemberton, 2013).

Production began in 1957. Threader, (1972) concludes that on drilling evidence that the same seam (Stanhope) that had been mined at the Old Stanhope Colliery was mined, in contradiction to the commonly reported belief from Mine Management that they were different seams. The seam was 2.1 m thick and mined from two (2) adits. The No.1 adit was developed in 1957 and the No.2 adit in 1963. Development continued until 1969 when complex geological structure and poor roof conditions were encountered. Pillar extraction continued until 1973 when the mine was closed (Pemberton, 2013). Total production from 1957 to 1973 was approximately 220,000 tonnes (Bacon, 1983).

Average analysis for run of mine coal from the New Stanhope is documented in Table 3 below:

Table 3: Average Analysis for ROM Coal - New Stanhope Mine

Coal Quality Variable	Amount
Moisture (%)	7-9
Ash (run of mine) (%)	25
Ash (washed coal) (%)	14-18
Volatile carbonaceous matter (%)	33
Fixed carbon (%)	35
Specific Energy (MJ/kg)	25.28

Mount Christie Mine

The Mt Christie workings are seen on the southern flank of Greenstone Hill. Bacon (1983), reports that in 1927 a few tonnes of coal were produced from the old workings and again in 1940, producing sixty-five (65) tonnes in that year. In 1959 a new tunnel was worked until 1965 by N and D Fenton, who produced 1,700-1,800 tonnes of coal per year. The workings closed in 1965 with production estimated at 13,000 tonnes (Bacon, 1991) (Pemberton, 2013).

Fenhope Mine

In 1981 Mr D. Fenton opened the Fenhope (ML 1008 P/M) to the north of the old workings of the (old) Stanhope Mine. Bacon (1983) notes that the seam mined was the Stanhope seam which was 3.6m thick with a 0.45m dirt band in the middle. Estimated production from the Fenhope to 1983 was less than 1,000 tonnes (Pemberton, 2013).

Stanhope Open Cut

The Golder Report (2012) includes unreferenced information on the mining of the Stanhope Open Cut. In 1997 the Merrywood Coal Company was granted Mining Lease 1640P/M. A small open cut mine was developed over the Stanhope mine underground workings progressing downdip. The mine closed in December 1998. The estimated coal production was 175,524 tonnes and washed coal product was 121,917 tonnes at an average recovery of 69.5%. Bacon, 1983, and Pemberton, (2013) mentioned that the Stanhope seam was on fire. In total, the Stanhope Coalfield produced 584,524 tonnes from approximately 1905 to 1998 (Pemberton, 2013). **Table 4** below summarises the production from each mine.

Table 4: Total Production of Coal for Avoca Coalfield

Mine	Tonnes
Old (New) Stanhope	175,000
New Stanhope	220,000
Mt Christie	13,000
Fenhope	1,000
Stanhope Open Cut	175,524
Total	**584,524**

Recent Exploration

Western Mining Corporation (Tasmania) Pty Ltd (WMC)

EL 16/76 was granted to WMC in August 1976. The EL covered 826 sq km in the Stanhope – Bonneys Plain area. WMC were exploring for shallow open-cut coal. Regional exploration for Triassic sediments with coal measures identified the Bonneys Plains area as a prospective target. Nine (9) open holes were drilled to the west of the Stanhope area on Bonneys and Buffalo Plains. The holes were short (80m to 82m) and the total length drilled was 587.3m (**Table 5**). Four (4) holes (TAR 1, TAR 2, TAR 3, and TAR 8) intersected minor coal seams. The lithic sandstone facies was intersected in seven (7) of the holes. The thickest intersection of coal measures was in TAR 2 with 45cm comprising thin seams and carbonaceous shale (Pemberton, 2013). Results of the coal quality analyses from TAR 2 chips have been tabled below (**Table 6**):

Table 5: Western Mining Corporation Boreholes

Hole No.	Hole Type	Total Depth (m)	Comments
TAR 1	Open hole & core	82.00	Coal measures at approx 3.5m.
TAR 2	Open hole	84.90	Coal measures at approx 45m.
TAR 3	Open hole	63.50	Dolerite to 7m. Coal measures at approx 32.5m.
TAR 4	Open hole	60.00	No coal intersected.
TAR 5	Open hole	78.00	No coal intersected.
TAR 6	Open hole	3.80	Hole abandoned in dolerite.
TAR 7	Open hole	60.00	No coal intersected.
TAR 8	Open hole	80.00	Coal measures from approx. 5.2m.
TAR 9	Open hole	78.00	No coal intersected.

Table 6: Coal Quality Results for TAR2

From Depth (m)	To Depth (m)	Thick (m)	Inherent Moisture (% adb)	Ash (% adb)	Volatile Matter (% adb)	Fixed Carbon (% adb)	Crucible Swell Number
10.0	10.4	0.4	2.5	36.9	19.9	40.7	0.5
11.0	11.4	0.4	2.5	29.1	25.6	43.8	0.5
14.1	14.5	0.4	2.5	52.1	19.1	26.3	0.5
38.8	39.0	0.2	2.5	29.5	32.6	35.4	0.5
47.6	48.0	0.4	2.5	71.1	11.9	14.5	-
48.0	49.0	1.0	2.5	80.3	10.3	6.9	-
49.0	49.5	0.5	2.5	86.0	8.2	3.3	-

In the area covered by the TAR drilling program WMC concluded that the dolerite had transgressed the Triassic sequence close to the base of the coal measures. It was suggested that it could be that the dolerite edges are faulted and that all boreholes were drilled in the uplifted block where the coal measures had been removed. This would mean that the coal measures could still be preserved beneath the dolerite. No further work was undertaken and the ground was not renewed in 1977 (Pemberton, 2013).

Shell Company of Australia Limited (Shell)

Shell was granted EL 18/77 covering 1,473 sq km in January 1978. Shell completed a regional review using aerial photographs, constructed a regional geology map, did a fracture study of the area and a follow up field mapping programme was conducted (Bornman, 1981) (Bornman & Murphy, 1981).

Shell drilled two holes west and south of Stanhope in 1980. Both holes were drilled through the dolerite. AV12 was drilled near Turners Hill and AV13, 2km west of Bonneys Plains.

Hole AV12 intersected 158.73m of dolerite, 324.61m of Upper Parmeener Super-group and 6.99m of Lower Parmeener Super-Group. Hole AV13 intersected 307.46m of dolerite, 52.24m of the lower section of the Upper Pameener Super-Group sequence. No significant coal seams were present in the holes. Shell relinquished the licence in July 1981 (Pemberton, 2013).

Avoca Transport Company Pty Ltd (Avoca)

Avoca conducted a review of the Stanhope Coalfield with the objective of identifying areas with potential for surface mining including pillars remaining in the abandoned underground workings.

Nine (9) cored holes were drilled in 1986 and 1987 in the vicinity of the Stanhope workings and one (1) hole (ATS 56) drilled immediately south of the New Stanhope workings.

It was noted that the geology of the area is complicated by the proximity to the Castle Carey fault with numerous associated faults seen in the mine workings. Dolerite has intruded the mine sequence and forms all the surrounding elevated areas.

Avoca concluded that open cut mining potential was restricted to an area bounded by boreholes ATS 52 and 57 with a fault to the west, dolerite to the south and Old Stanhope to the north. The New Stanhope was dismissed as having little open cut potential because the pillars had been extracted and the steep topography and seam dip would limit accessible reserves.

At the New Stanhope Colliery borehole ATS 56 intersected the seam at 20.43m. It has a competent sandstone roof and is comprised of two coal plies 2.61m and 1.06m thick (Pemberton, 2013).

Merrywood Coal Company

The Merrywood Coal Company evolved from the Avoca Transport Company and was granted EL 21/91 in 1993. Two (2) open holes (MS–1 and MS–2) were drilled in the Stanhope mine area to confirm resources and MS-3 was drilled and abandoned in dolerite talus south-east of the New Stanhope mine near Hercules Creek (Morrison, 1997 and Morrison, 1998).

A 1,500 tonne bulk sample was extracted in 1997 and was processed through the Merrywood wash plant and trial burns were successfully conducted with existing Merrywood customers. The product coal was reported to have calorific value 5,490 - 6,450 kcal/kg. A programme of forty (40) air track boreholes was conducted to define the depth to the top of the main seam and locate seam fault displacements accurately. Eighteen (18) of these air track boreholes were surveyed however records are sketchy. The program also identified that an upper and lower seam that had not been previously mined was present above and below the main seam (the Stanhope). Mining Lease 1640P/M covering 249ha within the licence was granted to Merrywood in 1997 (Pemberton, 2013).

Spitfire Resources

Marston International Pty Ltd conducted an exploration drilling program on EL 27/2008 for Spitfire Resources in April and May 2010 (Fraser, 2012). Sixteen (16) open holes and two (2) cored holes were drilled for a total of 1,119.2m. None were geophysically logged.

The holes were in the general vicinity of the Stanhope and New Stanhope mines. The objective of the drilling programme was to test for extensions of known coal occurrences around the historical mines, identify additional resource in previously unexplored areas and test extensions of the seams beneath the dolerite cover.

Seven (7) open holes collared in the dolerite were abandoned due to poor ground conditions. Six open holes successfully intersected coal measures beneath dolerite cover. Four (4) of the five (5) holes on the Triassic intersected coal measures with coal seams 0.5m - 3.0m thick. Rock chip samples were taken through the coal intervals but do not appear to have been analysed

Two (2) cored holes were designed to sample the best coal intercepts located by the open hole drilling. Hole DDH001 was drilled to the north of the New Stanhope mine and intersected 2.4m of good quality coal. Hole DDH002 was drilled on the slopes of Greenstone Hill to the west of the Stanhope open cut and intersected 1.9m and 2.9m of high ash stony coal (Pemberton, 2013).

Marston International concluded (Fraser, 2012):

- The coal measures have been confirmed as present for approximately 4km along the slopes of escarpments adjacent to Gipps Creek (in EL23/2010 to the north);
- An extension of the underground resource was identified to the north of the New Fenhope mine;
- The coal measures have been removed by erosion along the courses of the local streams;
- Coal measure outcrops and seam intercepts were confirmed beneath the base of the dolerite in the area explored;
- Access to drill sites designed to test coal measures beneath significant thicknesses of dolerite was extremely difficult due to the steep terrain. Only drill sites near the margin of the dolerite could be accessed;
- Drilling through the dolerite to test the underlying coal measures is difficult and regional continuation of the seams has not been conclusively demonstrated to date;
- Seam thickness is variable, coal quality appears to deteriorate rapidly in some areas, faulting is common and seam correlation is uncertain;
- The presence of the nearby regional Castle Carey fault may have had a significant impact on structural disruption of the seams in the area;
- The steep topography dictates there is no potential to identify open cut resource in the area explored;
- The observed, reported and interpreted faulting indicates limited potential to identify extensive mineable underground resource in the area explored;
- Additional exploration potential may exist further to the west where the influence of the Castle Carey fault is diminished, where dolerite cover appears thinner and topography is less rugged.

Fraser, (2012) concluded that:

- Further exploration of the lithic and feldspathic lithic sandstone facies in areas where the dolerite is not present, mainly along creeks and surrounding flat areas, is not justified as the unit appears to have been removed by erosion.
- Further exploration around the New Stanhope mine is also not warranted due to the presence of thick overlying dolerite, the close proximity to the Castle Carey Fault and deteriorated coal quality in nearby drill holes.
- The only area recognised that has not been fully explored is the Bonneys Plains area approximately 3.5km south of the New Stanhope Open-cut.

At Bonneys Plains, Hills et al, (1922) reported coal measures in the workings comprising thin coal and carbonaceous shale over 2m thick. The reported quality of samples collected and analysed by Hills indicated moderate to high ash (28.7%, adb). Western Mining Company intersected thin coal seams to the east of the workings in TAR 1.

Fraser, (2012) interpreted the drill hole intercept and seam exposures in the Bonneys Plains area to represent the basal section of the coal measures and that the upper part of the sequence remains untested. A drilling program of four (4) holes to test this interpretation was proposed but the program did not eventuate, with no holes drilled (Pemberton, 2013).

Exploration Completed during the Reporting Period

During this first year of the Exploration Licence, no onsite exploration or other field work was planned or conducted within the boundaries of EL1/2015.

During the reporting period, geological consultants ROM Resources on behalf of Junction Coal Pty Ltd began a desktop study of EL1/2015. This included downloading all open file historical company data available on the MRT (Mineral Resources Tasmania) website covering the area of the tenement and a 10km zone surrounding the exploration licence. A significant amount of data has been compiled. A geological database has been created for the Avoca West Project in the ABB mine planning software Minescape GDB. A definitive collar file has been collated from the historical company data and this has been loaded into the database. This task took considerable time as many boreholes had to be registered in the correct coordinate system from hard copy plans. Lithological logs have been encoded where available and these have also been loaded to the database, in CoalLog format (Larkin & Green, 2012).

During June 2015, ROM Resources geologists attended the MRT core shed in Hobart and logged the top 100m of the historical stratigraphic borehole, DOM Bonney's Plains No. 1, as this detailed information was either missing or unavailable from any historical report or data. As a trial of the newly established core photography facility at the MRT core shed, photos of the top 100m were taken of the core trays of Bonney's Plains No. 1 (see **Figure 6** as an example). The lithological data logged was initially encoded to a csv ASCII file. This file was then loaded to the log plotting software, Strater and a graphical log of the first one hundred (100) metres was created (see **Figure 7**). An English Log (lithology type only, see **Appendix 1**) of the entire borehole was produced from the geological logging software, Logcheck after combining all the logged data available for Bonney Plains No. 1. This combined dataset was then loaded to the GDB geological database where it will be correlated with surrounding boreholes before modelling.

Correlation and modelling of the coal seams has commenced. As there is no geophysical logging available for Avoca West (only hardcopy analogy recordings of very poor quality (Western Mining Corporation, 1977) priority has been given to the encoding and validation of historical coal quality data, so that seam composites can be generated during the modelling process. High priority has also been given to the registering and digitizing of the old underground and open-cut mine plans, to determine the magnitude of potentially remaining insitu resources in these areas. Furthermore it is planned to digitize faults intersected during mining from these drawings. An initial perusal of the available historical data suggests that a very small indicated and a larger Inferred Resource Estimate is possible. Considerable additional documentation will be required to complete reporting that satisfies the 2012 JORC Code. Previous non-JORC resource estimates have ranged from <1 to 10.5Mt (Noldart, 1975); (Bacon, 1991).

Upon databasing all coal intervals greater than 20cm and all dolerite intervals, cumulative thickness, top of coal and dolerite thickness will be calculated as a preliminary modelling step. Following this, four (4) grids will be initially generated, using a suitable coal mine planning package:

- Top of First Coal (m)
- Cumulative Coal Thickness (m)
- Average Coal Thickness (m)
- Dolerite Thickness (m)

Grids will be generated to the extent of the tenement areas using minimum curvature gridding method and a 100 x 100m mesh size. This process is a precursor to the generation of cross-sections and structure contour and isopach plans to enable seam correlation(s) to take place. An example of a correlated cross section is shown in **Figure 8**.

Figure 6: Examples of Core Photography – DOM Bonney's Plains No. 1

Figure 7: Graphical Log of Bonney's Plains No. 1 (first 100m only)

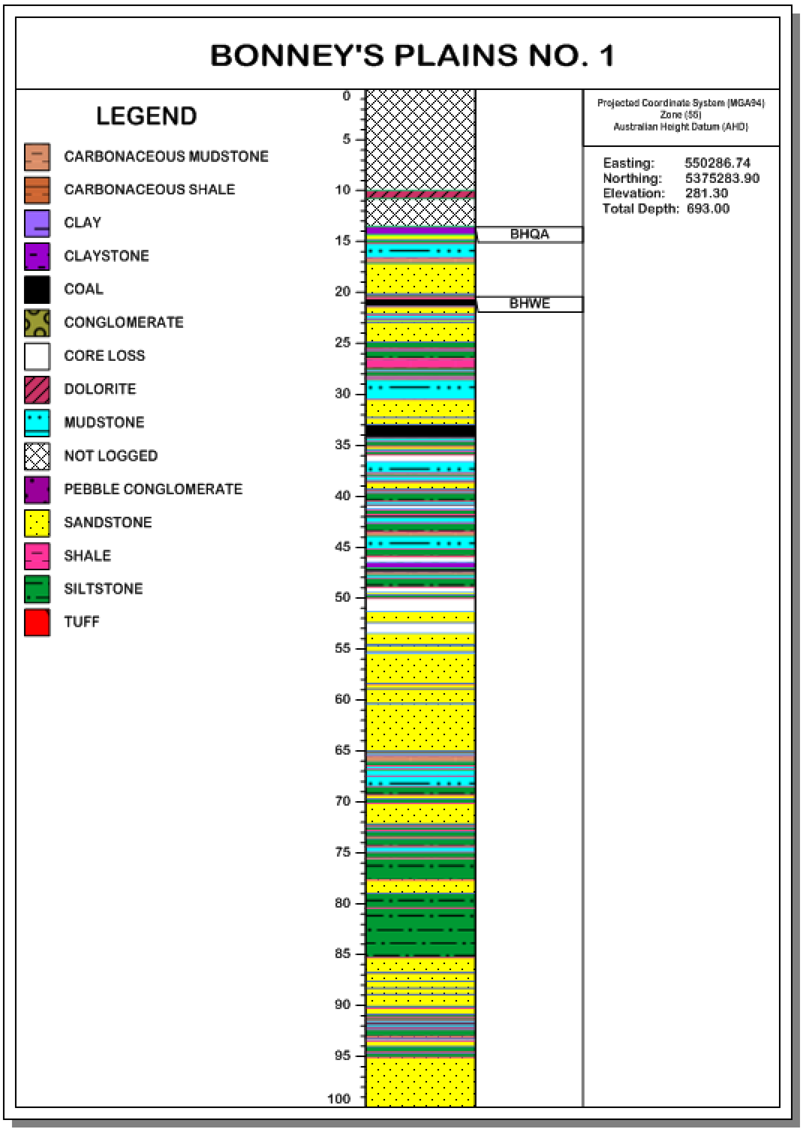
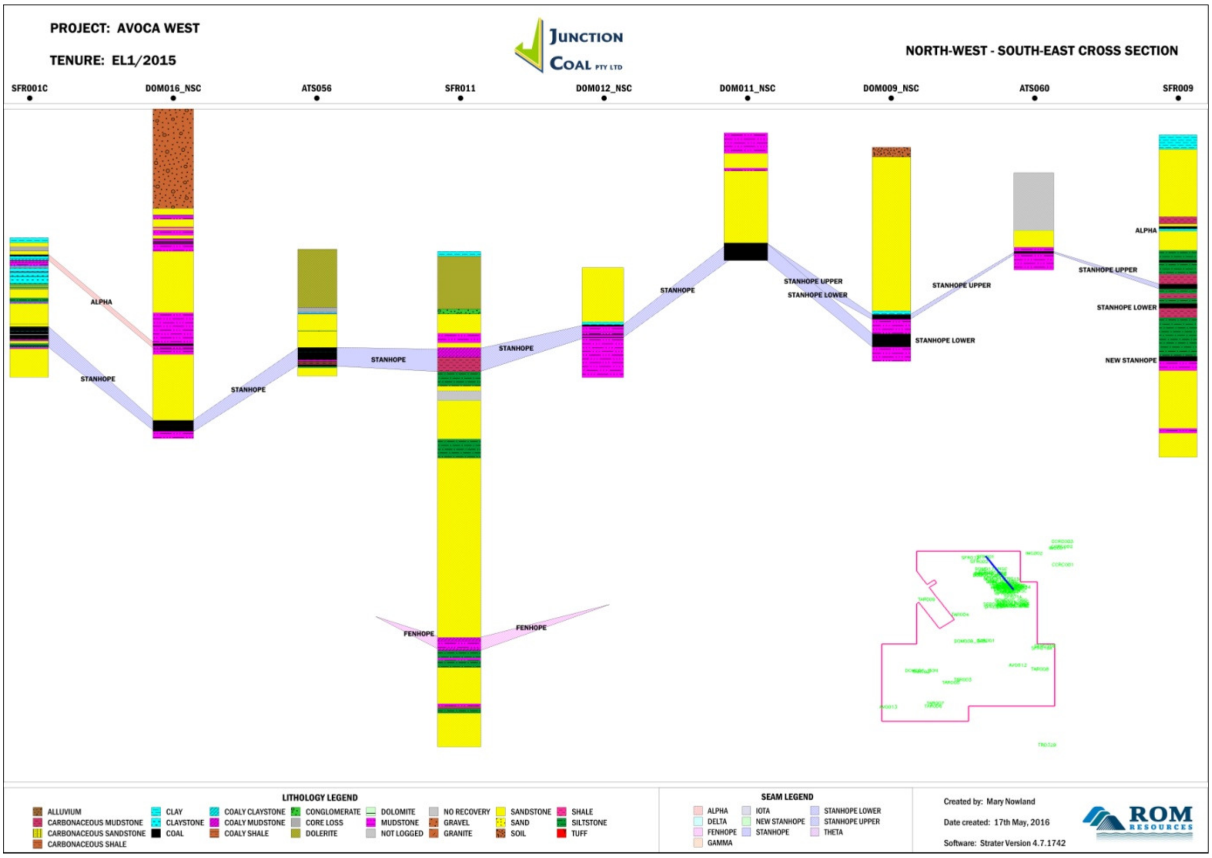


Figure 8: North-West to South-East Cross Section



Discussion of Results

Evaluation and validation of data is progressing toward the end of completing a geological model which will then enable resource masks to be generated. Work to create a strike and dip database and to digitise all mine faults is continuing. Sufficient closely-spaced drilling and mine working exist to generate masks for confidence classes Inferred and Indicated Resources (JORC, 2012). Regardless of the previous mining, masks generated from the points of observation will have to be at smaller spacing than normally used. A spacing of 300m for Indicated and 1,500m for Inferred is proposed. Progress is being hampered by the difficulty in correctly registering old mine plans to the current coordinate system (GDA 94 zone 55) with the plans not being to scale or no recognisable landmark in both old plans and current mapping.

Conclusions

Proposed Work Program

Junction Coals' strategy of becoming involved in the Australian coal mining industry requires significant resource tonnages to be defined close to infrastructure. The Avoca area has the potential to significantly boost Junction Coal's overall resource tonnage, as presently there are currently no defined or reportable resources within this historically-mined area. The target being sought is an insitu resource of 5-25Mt.

A modest, realistic exploration program was originally proposed over two (2) years totalling $431,000 that involves a small expenditure in Year 1 where the work is mainly based around desktop studies and reappraisal of historical data (refer to **Table 7**). A drilling program in Year 2 (2016-2017) is planned that will be designed to test the Avoca tenement for coal seam continuity, which was the issue faced by previous explorers.

Table 7: EL1/2015 Commitment Expenditure

Exploration Year	Year No.	Expenditure A$	Main Tasks
2015	1	$55,000.00	Construct database, field mapping, Modelling, determine drilling sites
2016	2	$376,000.00	Conduct exploration drilling program, Coal quality testing, modelling, resource reporting to the 2012 JORC Code
Total Expenditure:		**$431,000.00**	

Proposed Exploration for Year 2

The first objective for the 2016-2017 Exploration Program is to complete the geological and coal quality models, resource estimation, and associated reporting.

The second objective is to complete a 2 or 3 large diameter (100mm) partially cored holes to provide core for detailed float/sink testing.

Two (2) areas have been selected and eight (8) boreholes have been planned totalling at 1,150m. The data collected would be combined with existing exploration data (Cull, 2009) to establish suitable Points of Observation for later resource definition. Currently the exploration sites picked by Spitfire Resources (Peterson, 2010), which were not drilled would be used as a first-pass for locations.

Environment

No surface disturbance activities took place in the current reporting period (Year 1).

Expenditure

Junction Coal has met the $55,000 expenditure commitment for Year 1. The Expenditure Statement below (**Table 8**) shows the actual monies expended on exploration activities for the year.

Table 8: Year 1 Expenditure Statement for EL1/2015

No.	Costs	Type	Annual Expenditure
1	Geoscientific	Geology	$51,469.44
		Geochemistry	-
		Geophysics	-
		Remote Sensing	-
2	Drilling and Gridding	Gridding	-
		Drilling	-
3	Land Access		-
4	Rehabilitation	4. Rehabilitation	-
5	Feasibility Study		-
6	Other	Rental Fees	-
		Vehicular Track Construction	-
		Surveying	-
		Capital Equipment	-
7	Administration Costs		$5,392.15
	TOTAL EXPENDITURE		**$56,861.59**

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Appendix 1: English Log of Bonney's Plains No. 1

Drill Hole - **BONNEY'S PLAINS NO. 1**

Project: **AVOCA WEST** Hole ID: **DOM001_BON**

Base Depth	Thick.	Sample Number	Lithology
10.00	10.00		NO RECOVERY: HQ3 - 0 TO 36M.
10.80	0.80		DOLERITE: DOLORITE SCREE.
13.50	2.70		NO RECOVERY.
13.60	0.10		CLAY.
			———— BASE OF QUARTENARY ————
14.38	0.78		CLAYSTONE.
14.83	0.45		SANDSTONE, fine grained: BQ3 - 36-37M.
14.90	0.07		CLAYSTONE: NQ3 - 37M TO END OF HOLE.
15.21	0.31		SILTSTONE.
16.60	1.39		MUDSTONE.
17.17	0.57		CARBONACEOUS MUDSTONE.
17.20	0.03		SANDSTONE, medium grained.
17.74	0.54		SANDSTONE, fine grained.
19.70	1.96		SANDSTONE, medium grained.
19.98	0.28		SANDSTONE, fine grained.
20.12	0.14		SANDSTONE, fine grained.
20.21	0.09		MUDSTONE.
20.42	0.21		SILTSTONE.
			———— BASE OF WEATHERING ————
20.61	0.19		SILTSTONE.
20.99	0.38		COAL.
21.34	0.35		COAL.
21.43	0.09		MUDSTONE.
21.98	0.55		SANDSTONE.
22.13	0.15		SANDSTONE.
22.24	0.11		SILTSTONE.
22.60	0.36		MUDSTONE.
22.67	0.07		SANDSTONE, fine to medium grained.
22.69	0.02		CLAYSTONE.
22.91	0.22		SANDSTONE, fine grained: coaly wisps.
22.94	0.03		COAL.
23.01	0.07		SANDSTONE: carbonate, coaly.
23.35	0.34		SANDSTONE: carbonate, coaly.
24.86	1.51		SANDSTONE, fine to medium grained.
25.49	0.63		SILTSTONE.
25.52	0.03		SANDSTONE, medium grained.
25.60	0.08		MUDSTONE.
25.64	0.04		COAL.
25.70	0.06		MUDSTONE.
26.50	0.80		SILTSTONE.
26.55	0.05		MUDSTONE.
27.45	0.90		SHALE: coaly bands.
27.50	0.05		CARBONACEOUS MUDSTONE.
27.74	0.24		MUDSTONE.
28.07	0.33		SILTSTONE.
28.23	0.16		SILTSTONE.
28.40	0.17		MUDSTONE.
28.42	0.02		TUFF.

Drill Hole - **BONNEY'S PLAINS NO. 1**

Project: **AVOCA WEST** Hole ID: **DOM001_BON**

Base Depth	Thick.	Sample Number	Lithology
28.47	0.05		MUDSTONE.
28.60	0.13		CARBONACEOUS MUDSTONE.
29.72	1.12		MUDSTONE.
30.49	0.77		MUDSTONE.
30.70	0.21		SANDSTONE, fine to medium grained.
31.60	0.90		SANDSTONE, fine grained: quartzose, feldspathic.
32.26	0.66		SANDSTONE, medium grained.
32.28	0.02		TUFF.
32.97	0.69		SANDSTONE, medium grained.
34.23	1.26		COAL.
34.32	0.09		CARBONACEOUS MUDSTONE.
34.60	0.28		MUDSTONE.
35.09	0.49		SILTSTONE.
35.43	0.34		SANDSTONE, fine to medium grained.
35.60	0.17		MUDSTONE.
35.95	0.35		SILTSTONE.
36.00	0.05		CORE LOSS.
36.60	0.60		CORE LOSS.
37.40	0.80		MUDSTONE.
37.70	0.30		MUDSTONE.
37.90	0.20		CARBONACEOUS MUDSTONE.
38.01	0.11		SILTSTONE.
38.39	0.38		MUDSTONE.
38.46	0.07		MUDSTONE.
38.61	0.15		SILTSTONE.
39.29	0.68		SANDSTONE, fine to medium grained: coaly wisps.
39.46	0.17		SILTSTONE.
39.66	0.20		MUDSTONE.
40.50	0.84		SILTSTONE.
40.81	0.31		MUDSTONE.
40.87	0.06		CARBONACEOUS MUDSTONE.
40.90	0.03		COAL.
41.20	0.30		CORE LOSS.
41.34	0.14		MUDSTONE.
41.76	0.42		SILTSTONE.
42.00	0.24		COAL.
42.07	0.07		CARBONACEOUS MUDSTONE.
42.59	0.52		MUDSTONE.
42.67	0.08		SANDSTONE, fine to medium grained.
43.45	0.78		SILTSTONE.
43.62	0.17		CARBONACEOUS MUDSTONE.
43.89	0.27		CARBONACEOUS MUDSTONE.
44.79	0.90		MUDSTONE.
45.17	0.38		MUDSTONE.
45.87	0.70		SILTSTONE.
45.97	0.10		TUFF.
46.45	0.48		CORE LOSS.
47.09	0.64		CLAYSTONE.
47.17	0.08		COAL.
47.42	0.25		COAL.
47.76	0.34		CARBONACEOUS MUDSTONE.

Drill Hole - **BONNEY'S PLAINS NO. 1**

Project: **AVOCA WEST** Hole ID: **DOM001_BON**

Base Depth	Thick.	Sample Number	Lithology
48.05	0.29		MUDSTONE.
48.63	0.58		SILTSTONE.
48.95	0.32		SILTSTONE.
49.45	0.50		CORE LOSS.
49.71	0.26		SANDSTONE, coarse grained: calcite veins
50.04	0.33		SILTSTONE.
51.32	1.28		CORE LOSS.
52.45	1.13		SANDSTONE, coarse grained.
53.45	1.00		CORE LOSS.
54.58	1.13		SANDSTONE, coarse grained.
54.69	0.11		CONGLOMERATE, pebbly.
55.25	0.56		SANDSTONE, medium grained.
55.45	0.20		CORE LOSS.
55.96	0.51		SANDSTONE, medium grained.
57.01	1.05		SANDSTONE, coarse grained.
57.30	0.29		SANDSTONE, fine grained.
57.48	0.18		SANDSTONE, coarse grained.
57.62	0.14	HSF30	SANDSTONE, coarse grained.
58.38	0.76		SANDSTONE, coarse grained.
58.46	0.08		SILTSTONE.
58.51	0.05		SANDSTONE, coarse grained.
58.89	0.38		SANDSTONE, coarse grained.
58.91	0.02		COAL, bright with dull bands (60-90%).
59.19	0.28		SANDSTONE, medium grained: with coaly bands.
60.32	1.13		SANDSTONE, medium grained.
60.40	0.08		CORE LOSS.
60.84	0.44		SANDSTONE, coarse grained.
61.46	0.62		SANDSTONE, medium grained.
61.89	0.43		SANDSTONE, medium grained.
63.79	1.90		SANDSTONE, coarse grained.
63.95	0.16		SANDSTONE, fine to medium grained: coaly wisps.
64.46	0.51		SANDSTONE, fine to medium grained: coaly wisps.
64.70	0.24		SANDSTONE, fine to medium grained: coaly wisps.
65.00	0.30		SANDSTONE, fine grained.
65.21	0.21		SILTSTONE.
65.48	0.27		MUDSTONE.
66.10	0.62		CARBONACEOUS MUDSTONE.
66.48	0.38		SILTSTONE.
66.76	0.28		MUDSTONE.
66.82	0.06		CLAYSTONE.
66.88	0.06		COAL.
66.92	0.04		CORE LOSS.
67.45	0.53		MUDSTONE.
67.48	0.03		COAL: stony.
68.48	1.00		MUDSTONE.
69.33	0.85		SILTSTONE.
69.70	0.37		SANDSTONE, fine grained.
69.95	0.25		SILTSTONE.
70.06	0.11	HSF31	SILTSTONE.
70.15	0.09		SILTSTONE.
70.45	0.30		SANDSTONE, medium grained.

Drill Hole - **BONNEY'S PLAINS NO. 1**

Project: **AVOCA WEST** Hole ID: **DOM001_BON**

Base Depth	Thick.	Sample Number	Lithology
71.86	1.41		SANDSTONE, medium grained.
72.16	0.30		SANDSTONE, medium grained.
72.39	0.23		SILTSTONE.
72.42	0.03		CORE LOSS.
72.80	0.38		SILTSTONE.
72.91	0.11		SANDSTONE, fine grained.
73.45	0.54		SILTSTONE.
73.61	0.16		SANDSTONE, fine grained.
74.35	0.74		SILTSTONE.
74.44	0.09		SANDSTONE, fine grained.
74.92	0.48		MUDSTONE.
75.52	0.60		SILTSTONE.
75.55	0.03		TUFF.
76.45	0.90		SILTSTONE.
77.66	1.21		SILTSTONE.
78.81	1.15		SANDSTONE, fine grained.
78.95	0.14		SANDSTONE, coarse grained.
79.55	0.60		SILTSTONE.
79.76	0.21		SILTSTONE.
80.41	0.65		SILTSTONE.
80.44	0.03		COAL.
82.59	2.15		SILTSTONE.
85.31	2.72		SILTSTONE.
85.38	0.07		SANDSTONE, fine grained.
86.76	1.38		SANDSTONE, fine grained.
86.83	0.07		COAL.
87.61	0.78		SANDSTONE, fine grained.
87.63	0.02		SANDSTONE, fine grained.
87.65	0.02		COAL.
88.28	0.63		SANDSTONE, fine grained.
88.30	0.02		COAL.
88.40	0.10		SANDSTONE, fine grained.
88.94	0.54		SANDSTONE, fine grained.
88.97	0.03		COAL.
89.79	0.82		SANDSTONE, fine grained.
89.91	0.12	HSF32	SANDSTONE, fine grained.
90.09	0.18		SANDSTONE, fine to medium grained.
90.28	0.19		SILTSTONE.
90.88	0.60		SANDSTONE, fine to medium grained.
91.12	0.24		SILTSTONE.
91.14	0.02		CARBONACEOUS MUDSTONE.
91.39	0.25		SILTSTONE.
91.44	0.05		CARBONACEOUS MUDSTONE.
91.66	0.22		MUDSTONE.
91.92	0.26		COAL.
92.15	0.23		MUDSTONE.
92.27	0.12		COAL.
92.39	0.12		MUDSTONE.
93.05	0.66		SILTSTONE.
93.19	0.14		SANDSTONE, fine grained.
93.22	0.03		SILTSTONE.

Drill Hole - **BONNEY'S PLAINS NO. 1**

Project: **AVOCA WEST** Hole ID: **DOM001_BON**

Base Depth	Thick.	Sample Number	Lithology
93.30	0.08		CORE LOSS.
93.40	0.10		TUFF.
93.51	0.11		SILTSTONE.
94.03	0.52		SANDSTONE, fine grained.
94.39	0.36		SILTSTONE.
94.57	0.18		SILTSTONE.
94.70	0.13		SANDSTONE, fine grained.
95.10	0.40		SILTSTONE.
95.65	0.55		SANDSTONE, fine to medium grained.
96.36	0.71		SANDSTONE, fine grained.
96.48	0.12		SANDSTONE, medium grained.
96.91	0.43		SANDSTONE, fine to medium grained.
97.45	0.54		SANDSTONE, medium grained.
99.43	1.98		SANDSTONE, coarse grained.
100.45	1.02		SANDSTONE, fine grained.
100.54	0.09		SANDSTONE, fine to medium grained.
102.24	1.70		SILTSTONE.
102.55	0.31		SANDSTONE, fine grained.
103.42	0.87		MUDSTONE.
139.49	36.07		NOT LOGGED.
140.89	1.40		SANDSTONE, fine grained.
140.92	0.03		COAL.
143.49	2.57		SANDSTONE.
143.61	0.12		SANDSTONE.
163.59	19.98		SANDSTONE.
163.67	0.08		SANDSTONE.
193.93	30.26		SANDSTONE.
194.02	0.09		SANDSTONE.
235.08	41.06		SANDSTONE.
235.20	0.12		MUDSTONE.
255.47	20.27		SANDSTONE.
255.58	0.11		SANDSTONE.
278.14	22.56		SANDSTONE.
278.25	0.11		SANDSTONE.
303.42	25.17		SANDSTONE.
303.52	0.10		SANDSTONE.
311.00	7.48		SANDSTONE.
311.14	0.14		MUDSTONE.
372.00	60.86		MUDSTONE.
375.00	3.00		SANDSTONE: Pebbly.
429.00	54.00		MUDSTONE:
440.00	11.00		SANDSTONE:
445.00	5.00		SILTSTONE.
454.46	9.46		MUDSTONE.
462.82	8.36		SANDSTONE.
470.73	7.91		SILTSTONE.
510.49	39.76		SANDSTONE.
517.57	7.08		MUDSTONE:
520.89	3.32		SILTSTONE.
532.81	11.92		SANDSTONE.
534.40	1.59		MUDSTONE.

Drill Hole - **BONNEY'S PLAINS NO. 1**

Project: **AVOCA WEST** Hole ID: **DOM001_BON**

Base Depth	Thick.	Sample Number	Lithology
536.65	2.25		SANDSTONE.
537.48	0.83		CARBONACEOUS SHALE:
560.60	23.12		MUDSTONE.
583.32	22.72		MUDSTONE.
591.31	7.99		SANDSTONE.
599.39	8.08		MUDSTONE.
602.03	2.64		SANDSTONE:
603.40	1.37		SANDSTONE.
607.41	4.01		CONGLOMERATE.
615.44	8.03		SANDSTONE.
623.44	8.00		SANDSTONE.
633.14	9.70		SANDSTONE.
636.58	3.44		SANDSTONE.
641.11	4.53		MUDSTONE.
649.15	8.04		MUDSTONE.
651.15	2.00		CONGLOMERATE.
679.96	28.81		CONGLOMERATE
693.00	13.04		SANDSTONE.

Total Depth: 693.00 metres