EL 65/2007 Tunbridge

ANNUAL REPORT

Energy Investments Pty Ltd

18th September 2012 to 17th September 2013

Author: Ron Gregory and Karen Adams

Name & Address of Licensee: Energy Investments Pty Ltd
8 Broadlands Drive
Launceston
Tasmania 7250

1 Abstract

The drilling program reported on briefly last year commenced on the 7th September 2012 and was underway at the 17th September 2012 , but had to be abandoned due to wet ground conditions and the drill rig being bogged in farmers paddocks on the 27th September.

Geophysical logging of the 4 Open Holes completed was conducted in May 2013.

Although it was intended to return during summer, drilling was postponed until negotiations with South East Asia Resources (Aust.) Pty Ltd (SEARS) to enter into an option to acquire EL65/2007 and for them to fund further exploration were completed. Although agreement in principle was reached in February 2013, final agreement was not reached until the 30thMay. The agreement also included EL 25/2008 and 26/2008.

There was a body of opinion that sufficient drilling to define a JORC (2012) compliant resource had already been completed on EL 65/2007. Therefore rather than proceed with further drilling it was agreed that Golders Associates would be engaged to investigate and report as soon as possible. This report is expected around the end of October 2013.

Following a review of the report, it is anticipated discussions will be held with MRT to determine the best way forward for EL 65/2007

Table of Contents

Figures

2 Introduction

2.1.1 Exploration philosophy and geological setting

The aim of the current exploration programme on EL 65/2007 (Woodbury) is to quantify a JORC resource in the near surface Triassic coal measures. The coal measures are associated with a lithic sandstone sequence which has been preserved from erosion by the overlying Jurassic dolerite capped Black Tier Range immediately to the south of the Woodbury deposit.

Continuity of the coal seams has been established by past explorers through a combination of lithological, geophysical and analytical correlation. The Woodbury trough trends 112^0 and extends for a minimum of 9 kilometres (km) long and is 1 km wide. The Kuranda Graben forms a cross cutting structure trending 63^0 and is approximately 4 km long and 700 meters (m) wide. Coal seam distribution and lateral extent is not restricted to the graben structures.

Black coal was first discovered by Victor Petroleum and Resources Ltd, at Woodbury in 1981. Historically a number of companies have explored the region for coal, for relatively shallow open cut potential.

2.1.2 Licence details

Tenement number:	EL 65/2007
Tenement name:	Tunbridge
Tenement area:	237 sq km
Reporting period:	18/9/12 – 17/9/13
Tenement holder:	Energy Investments Pty Ltd

2.1.3 Location and Geology

The Woodbury project area consists predominantly of undulating pastoral lands which are currently being converted from sheep grazing to centre pivot irrigation. The resource area is located adjacent to the main north south railway line and Midlands Highway which connect the main population centres and ports of Hobart and Launceston (Bell Bay). The deposit is approximately half way between these two centres (85km). The townships of Oatlands, Ross and Campbell Town are located within 20 kilometres of the Woodbury Deposit. The location of the licence is shown in Figure 1 below.

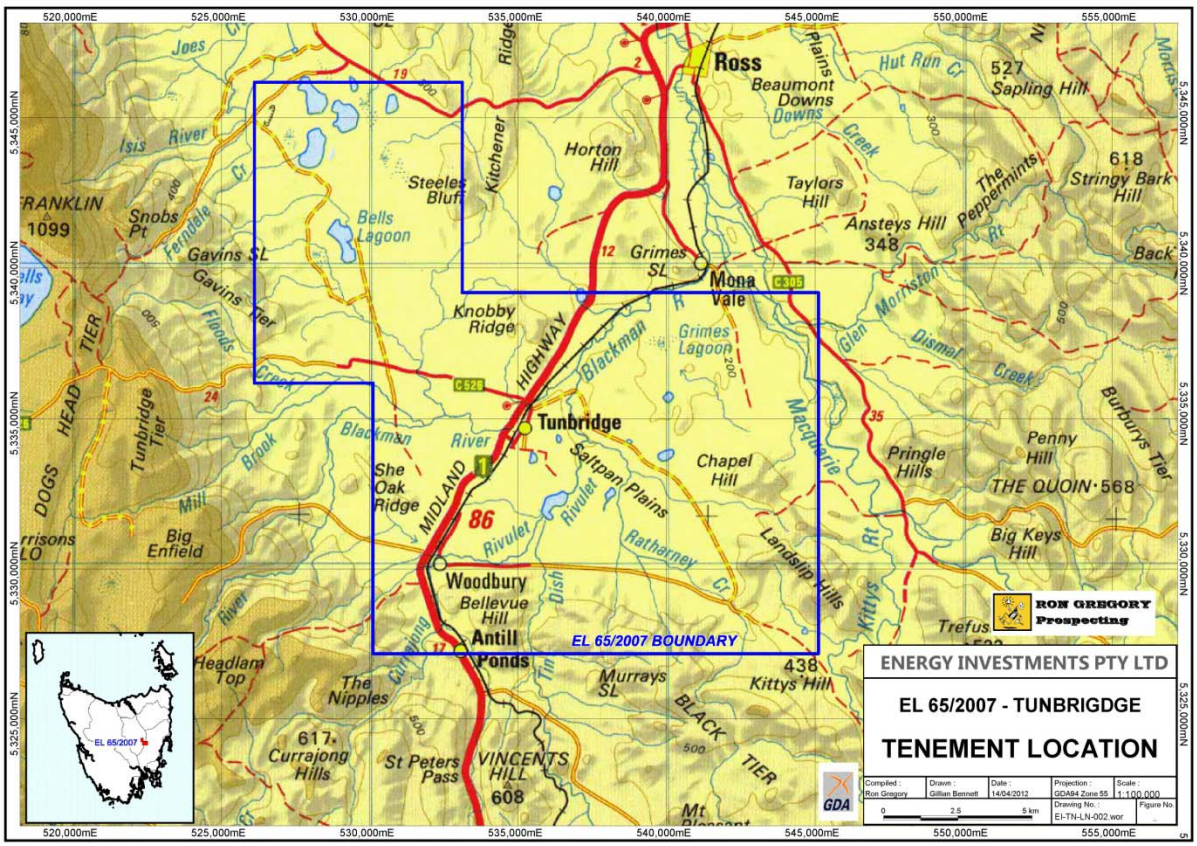


Figure 1 Location of EL65/2007 Tunbridge

The Triassic coal measures at Woodbury are found in a gently west plunging anticline with the seams dipping at 4^0 to the north and 8^0 to the south (see figure 2). The deposit is confined by the Tin Dish Fault in the west, the Sugarloaf Fault to the east and the Wood 2 Fault in the south.

The high country around the Woodbury area is formed by large dolerite intrusions and within the resource there are two small dolerite intrusions forming low hills.

Four major seams have been delineated from the shallowest D (1.55m), C (1.15m), B (0.8m) to the deepest being A (0.95m).

2.1.4 Tenure

Application has been made to extend the Exploration Licence for a further term of 12 months form the 18th September 2013.

3 Review of previous work

3.1.1 Prior to current tenement

A number of past explorers have conducted significant exploration over the Woodbury tenement. A joint venture between Costain Australia Limited, Victor Petroleum & Resources Limited and North West Bay Company Pty. Limited completed a study into the economics of supplying a nearby coal fired power plant in 1983 proposed by the Hydro Electric Commission of Tasmania.

3.1.2 During current tenement

A thorough review was undertaken of all historical reports including an extensive review of maps and data retained by Mineral Resources Tasmania. A new computer data base was constructed comprising data from 96 historic drill hole records. Geophysical logs were available for only 33 of the historic holes and in many instances data was scaled from graphic seam profiles rather than borehole logs.

3.1.3 Drilling Programme

A drilling programme of 25 holes was completed in 2010 and fully reported on 2011. The drilling programme was managed by Marston International Pty Ltd. These notes summarise the results of the drilling programme which are reported in full in the report “Woodbury Coal Project Exploration and Resource Report”, by Marston International Pty Ltd, February 2011.

The holes were drilled on two near parallel lines. The drilling indicated the structure of the deposit was relatively simple although seam splitting and pinching was quite complex.

All holes were logged with wireline geophysical tools that included long-spaced density, short-spaced density, natural gamma, resistivity and caliper.

3.1.4 Coal Quality Testing

Coal quality testing was conducted on 108 samples collected from the 16 HQ core holes. All coal sections > 0.3m thick were sampled including stone bands > 0.1m thick. Samples were collected from coal plies and coal seam roof and floor. Samples were analysed at SGS Laboratories in Newcastle for total moisture, inherent moisture, ash, volatile matter, fixed carbon, total sulphur, calorific value and relative density.

A total of 50 composite and single seam samples from Seams A, B, C and D were submitted for float-sink testing. The samples were crushed to a top size of 12 mm and were tested at densities of 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0 and 2.2 in accordance with AS 4156.1. All float fractions were tested for ash content. The majority of the tested samples were from Seams A and B. The test results indicate a product with average ash content of 20% (adb) could theoretically be achieved through washing with an average apparent yield of 61%. The results indicate apparent yield is highly variable between the seams and across the deposit. The majority of samples with higher apparent yield are from Seams A and B and there appears to be a trend towards higher apparent yield to the north of the deposit.

The test results indicate a product with average ash content of 20% (adb) could theoretically be achieved through washing with an average apparent yield of 61%. The results indicate apparent yield is highly variable between the seams and across the deposit. The majority of samples with higher apparent yield are from Seams A and B and there appears to be a trend towards higher apparent yield to the north of the deposit.

3.1.5 Geological Modelling and Resource Estimate

The depth and thickness of all coal seam records in the geological logs was corrected to the geophysical log data as there are no marker beds recognised in the deposit. A geological model was constructed using Mincom Stratmodel® software. The model used the 25 new drill holes and 33 historic drill holes.

The model was used to estimate a non JORC compliant in-situ resource. A total of 78.5 million tonnes (Mt) was estimated with an average ash content of 47.4% (range 33.6 - 59.2%), volatile matter content average 11.8% (range 10.0 - 14.3%) and calorific value average 15.3 kcal/kg (range 10.2 - 20.7 kcal/kg). Average total sulphur content is 0.29% (range 0.22 - 0.40%). All values were reported on an air-dried basis.

Details of the correlations, modelling methodology and the resource estimate are included in the report “Woodbury Coal Project Exploration and Resource Report”, by Marston International Pty Ltd, February 2011.

3.1.6 Discussion of results

The results of the exploration programme and modelling indicated that a significant resource is present in the Woodbury area. The structure of the coal seams and the coal quality were shown to vary across the deposit and between seams, and a distinct trend was identified with coal quality improving towards the north of the deposit. The average coal quality data reported to date has been strongly influenced by the presence of some higher ash sections in the deposit. Despite the high average ash content there are sections of improved quality coal within Seams A and B that have lower ash, higher volatile matter content and higher calorific value. The low volatile matter content indicates that much of the deposit tested to date has been subject to heating probably in conjunction with the Jurassic dolerite intrusives.

There has been only limited testing of the two lower Seams A and B, and no confirmation testing of the lateral extent of the coal seams that are known to be present outside the main graben structure.

Additional exploration and coal quality testing of the deposit was required to confirm resources, state resources to JORC standard and confirm the extent of areas of improved coal quality. Additional infill drilling of the deposit was recommended particularly in the north of the deposit where coal quality appears to be improving. Exploration to determine the lateral extent of coal seams outside of the main graben structure was recommended. Testing of clean coal composites from the float-sink testing was also recommended.

4 Exploration completed during the reporting period

A Work Program Application was submitted to Mineral Resources Tasmania and approval received to proceed with a drilling program, subject to landowner access agreements being negotiated. Land owner liaison and access agreements have been negotiated and KMR Drilling were contracted to undertake the work. A minimum of 20 holes (18 open and 2 cored) was planned with further work depending on the results from this drilling and rig availability. See Figure 2

The drill program was delayed by the availability of the drill rig and wet weather, but the program was commenced on the 7th September 2012. Open holes; W69, W70, W71 and W72 were completed, before boggy ground conditions prevented further work, at the time.

W69 (Planned hole ID: S, Figure 3) was drilled approximately 250m to the west-north-west of W40 using the open hole method, and ended at 102.6m. 4 prospective intervals were encountered: 8-9m composed of grey mudstone and black carbonaceous mudstone, 38-39m, composed of grey sandstone and black carbonaceous mudstone, 73-74m, composed of black carbonaceous mudstone and coal and some grey sandstone, and 95-97m, composed of black to dark grey carbonaceous mudstone and coal. Lithology log for W69 is included as Appendix 1.

W70 (Planned hole ID: T, Figure 3) was drilled approximately 250m to the west-north-west of Woodbury 4 using the open hole method, and ended at 85m after encountering dolerite at 77.5m. 2 prospective intervals were encountered from 10-11m (Black carbonaceous mudstone and grey mudstone) and from 17-18m (Coal and black carbonaceous mudstone). Silica-sericite alteration, which has often been observed as an indicator of dolerite proximity, is present from around 65m. Lithology log for W70 included as Appendix 2.

W71 (Planned hole ID: Q, Figure 3) was drilled approximately 250m to the north-west of W34 using the open hole method, and ended at 100m. 4 prospective intervals were encountered from 7-8m (Oxidised grey sandstone and black carbonaceous mudstone), 13-16m (Black to grey carbonaceous mudstone and coal with grey mudstone and minor sandstone), 38-39m (Grey sandstone and mudstone with minor coal) and 56-62m (Coal and carbonaceous mudstone). Lithology log for W71 included as Appendix 3.

W72 (Planned hole ID: N, Figure 3) was drilled approximately 250m to the east of W31A using the open hole method, and ended at 96m. No prospective intervals were encountered and a reasonable amount of difficulty was had drilling through the surficial tallus, which included some dolerite. Lithology log for W72 is included as Appendix 4.

Gamma Ray logging was carried out on W69 – W72 in May 2013, with results analysed by B.R. Senior & Associates.

> *"Drill holes W69, 70, 71 & 72 were gamma ray logged in the Woodbury area and all show good gamma ray signatures indicating variation of rock types with depth. Unfortunately these holes were not logged to total*

depths of 100m because the casing has collapsed at depths between 65 and 75m.

Good lateral continuity of gamma ray logs occurs between W70 & W71 that are separated by a horizontal distance of about 750m. Although the distinctive coal measure sequences can be seen, only Seam B appears to continue to W70 and the remaining seams (Seams A, C, & D) appear to have 'wedged out' due to lateral facies changes at some point between these two drill holes.

Drill holes W69 & W72 appear to be too widely separated to show any certain correlation characteristics. From the examples of drill holes W70 & W71 which also show quite rapid lateral changes, it seems likely that drill holes in this coal basin will need to be spaced at 1km centres to provide reliable correlation between individual coal seams."

5 Conclusions and future work

The exploration programme and coal quality testing has indicated the following:

- A currently non JORC compliant shallow resource is present in the area (78.5 Mt.)
- The geology is comparatively simple.
- Seam geology and coal quality is variable across the deposit.
- Areas of better quality are present within seams A and B that can theoretically produce a 20% ash product with a 61% apparent yield.
- Heat affects from dolerite intrusions is apparent.

6 Environment

The area explored to date is cleared agricultural land. The drilling programs are being conducted in a manner to minimise impact on the areas. All drill holes are sealed and surface disturbance rehabilitated to the standards set out in the 5th Edition of the Mineral Exploration Code of Practice.

7 Expenditure

Expenditure to September 2012 amounted to $1,242,065 and $17,711 during current period excluding September quarter).

Expenditure September quarter, so far:

Rent	$13,814
Renewal application fee	$$832
Geology (Golders Associates)	$50,140
Geology (Drilling data logging)	Unknown
Geophysics	Unknown
SUBTOTAL	$64,786

FIGURE 2

ENERGY INVESTMENTS PTY LTD

EL 65/2007 - TUNBRIDGE

WOODBURY AREA

DRILL HOLE LOCATIONS

Compiled :	Drawn :	Date :	Projection :	Scale :
Ron Gregory	Gillian Bennett	03/09/2012	GDA94 Zone 55	1:25,000 (A3)

0 250 500 1,000 m

Drawing No. : EI-TN-WB-DR-004

Figure No. 2

PROPERTY BOUNDARIES

Private Parcel

DRILLING

Proposed EI Holes (September 2012)

Historical Drilling

2010 Drill Hole

2012 Open Hole Drilling

EL 65/2007 BOUNDARY

Brent Street

Ballochmyle Road

Bark Rivulet

Tin Dish Rivulet

Ratharney Rivulet

Glen Morey Road

536,000mE

538,000mE

540,000mE

542,000mE

544,000mE

5,332,000mN

5,330,000mN

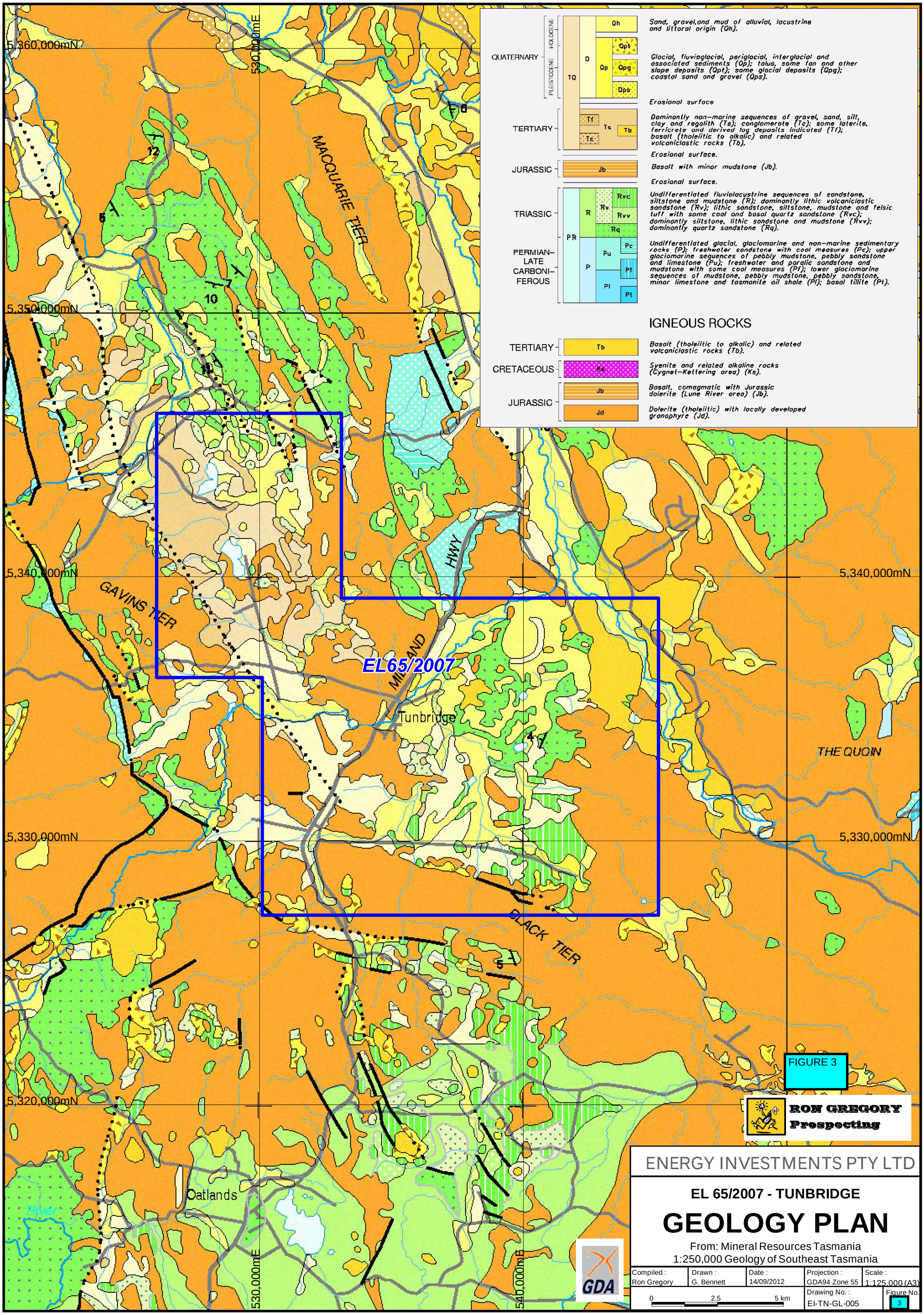
5,328,000mN

A B C D E F G H I J K L M O P

Woodbury11 W20 W27A W27 W26 W25 W36 W34 W71 W72 W69 W70 W67 W60 Woodbury 9 W30 W37 W68 W43A W50A W31 W31A W23 Woodbury 5 Woodbury 10 Woodbury 8 W38 Woodbury 7 W39 Woodbury 1 W40 W41 W61 W62 Woodbury 6 W65 W49 W64 W64A W63 Woodbury 4 W48 Woodbury 15 W66 Woodbury 16 W47 Woodbury 3 W53 Woodbury 13 W46 Woodbury 2 Woodbury 14 W32

RG_DDH015 RG_RDH009 RG_DDH014 RG_DDH013 RG_DDH012 RG-RDH008 RG_DDH011 RG_RDH007 RG_DDH010 RG_RDH006 RG_DDH009 RG_DDH008 RG_DDH007

RG_DDH001 RG_RDH001 RG_DDH002 RG_RDH002 RG_DDH003 RG_RDH003 RG_DDH004 RG_RDH004 RG_DDH005A RG_DDH005 RG_RDH005 RG_DDH006


5,360,000mN
530,000mE
MACQUARIE TIER
5,350,000mN
5,340,000mN
GAVINS TIER
HWY
MIDLAND
EL65/2007
Tunbridge
THE QUOIN
5,330,000mN
BLACK TIER
5,320,000mN
Oatlands
River
530,000mE
540,000mE
QUATERNARY
HOLOCENE
PLEISTOCENE
TQ
Q
Qh
Qp
Qpt
Qpg
Qps
Sand, gravel,and mud of alluvial, lacustrine and littoral origin (Qh).
Glacial, fluvioglacial, periglacial, interglacial and associated sediments (Qp); talus, some fan and other slope deposits (Qpt); some glacial deposits (Qpg); coastal sand and gravel (Qps).
Erosional surface
TERTIARY
Tf
Ts
Tb
Tc
Dominantly non-marine sequences of gravel, sand, silt, clay and regolith (Ts); conglomerate (Tc); some laterite, ferricrete and derived lag deposits indicated (Tf); basalt (tholeiitic to alkalic) and related volcaniclastic rocks (Tb).
Erosional surface.
JURASSIC
Jb
Basalt with minor mudstone (Jb).
Erosional surface.
TRIASSIC
PERMIAN–LATE CARBONI–FEROUS
PR
R
Rv
Rvc
Rvv
Rq
P
Pu
Pc
Pf
Pl
Pt
Undifferentiated fluviolacustrine sequences of sandstone, siltstone and mudstone (R); dominantly lithic volcaniclastic sandstone (Rv); lithic sandstone, siltstone, mudstone and felsic tuff with some coal and basal quartz sandstone (Rvc); dominantly siltstone, lithic sandstone and mudstone (Rvv); dominantly quartz sandstone (Rq).
Undifferentiated glacial, glaciomarine and non-marine sedimentary rocks (P); freshwater sandstone with coal measures (Pc); upper glaciomarine sequences of pebbly mudstone, pebbly sandstone and limestone (Pu); freshwater and paralic sandstone and mudstone with some coal measures (Pf); lower glaciomarine sequences of mudstone, pebbly mudstone, pebbly sandstone, minor limestone and tasmanite oil shale (Pl); basal tillite (Pt).
IGNEOUS ROCKS
TERTIARY
Tb
Basalt (tholeiitic to alkalic) and related volcaniclastic rocks (Tb).
CRETACEOUS
Ks
Syenite and related alkaline rocks (Cygnet–Kettering area) (Ks).
JURASSIC
Jb
Basalt, comagmatic with Jurassic dolerite (Lune River area) (Jb).
Jd
Dolerite (tholeiitic) with locally developed granophyre (Jd).
FIGURE 3
RON GREGORY
Prospecting
ENERGY INVESTMENTS PTY LTD
EL 65/2007 - TUNBRIDGE
GEOLOGY PLAN
From: Mineral Resources Tasmania
1:250,000 Geology of Southeast Tasmania
Compiled : Ron Gregory
Drawn : G. Bennett
Date : 14/09/2012
Projection : GDA94 Zone 55
Scale : 1:125,000 (A3)
0 2.5 5 km
Drawing No. : EI-TN-GL-005
Figure No. 3
GDA

Appendix 1

W69 - Chip Logging						
mFrom	**mTo**	**Rock Type**	**Colour**	**Alteration**	**Grain Size**	**Comments**
0	1	SS/MS	RDBR(WH)	OXI(HM)	MG/FG	(Cutting bit) Mostly clay. Small sample
1	2	SS(MS)	RD/BR/CM	OXI(HM)	MG(FG)	(Cutting bit)
2	3	SS	RD/BR	OXI(HM)	MG	(Cutting bit) 1 large 'rhyolitic rock'
3	4	MS/SS	CM/RD	OXI	FG/MG	(Cutting bit) Soft mudstone and pieces of petrified wood(?)
4	5	MS	PLBR	OXI	FG	(Cutting bit) Soft mudstone
5	6	MS	PLBR	OXI	FG	(Hammer bit, collar pipe installed and cyclone attached) Soft mudstone
6	7	MS	PLBR(WH)	OXI	FG	Soft mudstone and fine grained silica(?)
7	8	MS	PLBRGY	OXI	FG	Soft mudstone
8	9	MS/CMS	GY/BK	FR(WK)	FG	
9	10	MS	GY	FR(WK)	FG	
10	11	MS/SS	GY	FR	FG/MG	
11	12	SS	GY	FR	FMG	
12	13	SS	GY	FR	FMG	
13	14	SS	GY	FR	FMG	
14	15	SS	GY	FR	FMG	
15	16	SS	GY	FR	MG	
16	17	SS	GY	FR	MG	
17	18	SS	GY	FR	MG	
18	19	SS	GY	FR	MG	
19	20	SS	GY	FR	MG	
20	21	SS	GY	FR	MG	
21	22	SS	GY	FR	MG	
22	23	SS/CMS	GY/BK	FR	MG/FG	
23	24	SS	GY	FR	MG	
24	25	SS	GY	FR	MG	
25	26	SS	GY	FR	MG	
26	27	SS	GY	FR	MG	
27	28	SS	GY	FR	MG	
28	29	SS	GY	FR	MG	
29	30	SS	GY	FR	MG	
30	31	SS/MS	GY/DKGY	FR	MG/FG	
31	32	SS	GY	FR	MG	
32	33	SS(CMS)	GY(DKGY)	FR	MG(CMS)	
33	34	SS(CMS)	GY(DKGY)	FR	MG(CMS)	
34	35	SS	GY	FR	MCG	

35	36	SS/MS	GY	FR	MG/FG	
36	37	SS	GY	FR	MCG	
37	38	SS/MS	GY/DKGY	FR	MG/FG	
38	39	SS/CMS	GY/BK	FR	MG/FG	
39	40	SS/MS(CMS)	GY(BK)	FR	MG/FG	
40	41	MS	GY	FR	FG	
41	42	MS/SS	GY	FR	FG/MG	
42	43	MS(SS)	GY(OR)	FR	FG(MG)	Orange rocks present (possibly uphole contamination)
43	44	SS	GY	FR	MG	Small sample
44	45	SS	GY	FR	MG	Smaller sample
45	46	SS	GY	FR	MG	
46	47	SS(CMS)	GY	FR	MG(FG)	Smaller sample
47	48	SS	GY	FR	MG	Smaller sample
48	49	SS	GY	FR	MG	
49	50	SS/MS	GY	FR	MCG/FG	Small sample
50	51	SS	GY	FR	MG	Smaller sample
51	52	SS	PLGY/GY	FR	MG	
52	53	SS	GY	FR	MG	
53	54	SS/MS(CMS)	GY(DKGY)	FR	MG/FG	
54	55	MS/CMS(SS)	GY/DKGY(BK)	FR	FG(MG)	(Water at 55m. Foaming starts)
55	56	SS(CMS)	GY	FR	MG(FG)	
56	57	SS	GY	FR	MG	
57	58	SS	GY	FR	MG	
58	59	SS(CMS)	GY(BK)	FR	MG(FG)	
59	60	SS(CMS)	GY(BK)	FR	MG(FG)	
60	61	SS	GY	FR	MCG	
61	62	SS	GY	FR	MCG	
62	63	SS	GY	FR	MCG	
63	64	SS	GY	FR	MCG	
64	65	SS	GY	FR	MCG	
65	66	SS	GY	FR	MCG	
66	67	SS	GY	FR	MCG	
67	68	SS	GY	FR	MCG	
68	69	SS	GY	FR	MCG	
69	70	SS/MS	GY/DKGY	FR	MCG/FG	
70	71	SS(MS)	GY(DKGY)	FR	MCG/FG	
71	72	SS	GY	FR	MCG	
72	73	SS/CMS	GY/BK	FR	MCG/FG	
73	74	CMS/COAL(?)/SS	BK/GY	FR	FG/MCG	
74	75	SS	GY	FR	MCG	
75	76	SS/MS	GY	FR	MCG/FG	
76	77	SS	GY	FR	MG	
77	78	SS	GY	FR	MG	
78	79	SS	GY	FR	MG	
79	80	SS	GY	FR	MG	
80	81	SS	GY	FR	MG	

81	82	SS	GY	FR	MG	
82	83	SS	GY	FR	MG	
83	84	SS(CMS)	GY(BK)	FR	MG(FG)	
84	85	SS	GY	FR	MG	
85	86	SS	GY	FR	MG	
86	87	SS	GY	FR	MG	
87	88	SS	GY	FR	MG	
88	89	SS	GY	FR	MG	
89	90	SS	GY/DKGY	FR	MG	
90	91	MS/SS/CMS	BK/DKGY	FR	FG/MG	
91	92	MS/CMS	BK/DKGY	FR	FG	
92	93	MS	GY	FR	FG	
93	94	MS(CMS)	GY/DKGY	FR	FG	
94	95	MS(CMS)	GY(BK)	FR	FG	
95	96	CMS/COAL(?)	BK/DKGY	FR	FG	
96	97	CMS/MS(COAL?)	DKGY/BK	FR	FG	
97	98	CMS/MS	DKGY/BK	FR	FG	
98	99	MS/CMS	GY/BK	FR	FG	
99	100	MS	GY	FR	FG	
100	101	MS	GY	FR	FG	
101	102	MS	GY	FR	FG	
102	102.6	MS	GY	FR	FG	

Appendix 2

W70 - Chip Logging						
mFrom	**mTo**	**Rock Type**	**Colour**	**Alteration**	**Grain Size**	**Comments**
0	1	SS	PLOR	OXI	MG	Cutting bit only used to about 30cm. Cyclone not used.
1	2	SS	PLOR	OXI	MG	
2	3	SS	PLOR	OXI	CMG	
3	4	SS	PLOR	OXI	MG	
4	5	SS	BR/PLOR	OXI	MG	
5	6	SS	PLOR	OXI	MG	
6	7	SS	PLOR/BR	OXI	MG	
7	8	SS	PLOR	OXI	MG	
8	9	SS/MS	PLOR/BR	OXI	MG/FG	
9	10	MS	PLBR/OR	OXI	FG	
10	11	CMS/MS	BK/GY	FR	FG	
11	12	MS/CMS	GY/BK	FR	FG	
12	13	MS	GY	FR	FG	
13	14	MS	GY	FR	FG	
14	15	MS	GY(DKGY)	FR	FG	
15	16	MS	GY(DKGY)	FR	FG	
16	17	MS	DKGY	FR	FG	
17	18	COAL/CMS(MS)	BK	FR	FG	
18	19	MS(SS)	GY(BK)	FR	FG	
19	20	MS	GY/DKGY	FR	FG	
20	21	MS	GY(DKGY)	FR	FG	Soft mudstone
21	22	MS	DKGY	FR	FG	
22	23	MS/CMS	GY/BK	FR	FG	
23	24	MS(CMS)	GY(DKGY)	FR	FG	
24	25	MS(CMS)	GY(DKGY)	FR	FG	
25	26	SS	GY	FR	FMG	
26	27	SS	GY	FR	FMG	
27	28	SS	GY	FR	FMG	
28	29	SS	GY	FR	FMG	
29	30	SS	GY	FR	FMG	

30	31	SS/MS	GY(DKGY)	FR	MG/FG	
31	32	SS	GY	FR	MG	
32	33	SS	GY	FR	MG	
33	34	SS	GY	FR	MCG	
34	35	SS/MS	GY/DKGY	FR	MG/FG	
35	36	SS	GY	FR	MG	
36	37	SS	GY	FR	FMG	
37	38	SS(CMS)	GY(BK)	FR	FMG/FG	
38	39	MS/SS(CMS)	DKGY(BK)	FR	FG/MG	
39	40	SS(CMS)	DKGY(BK)	FR	MG(FG)	
40	41	SS	GY	FR	MG	
41	42	SS	GY	FR	MG	
42	43	SS	GY	FR	MG	
43	44	SS	GY	FR	MG	
44	45	SS	GY	FR	MG	
45	46	SS	GY	FR	MG	
46	47	SS	GY	FR	MG	
47	48	SS	GY	FR	MG	
48	49	SS	DKGY	FR	MG	
49	50	SS/MS(CMS)	DKGY(BK)	FR	FMG/FG	
50	51	SS(CMS)	DKGY/BK	FR	MG(FG)	
51	52	MS/CMS	DKGY	FR	FG	
52	53	MS/CMS	DKGY	FR	FG	
53	54	MS/CMS	DKGY	FR	FG	
54	55	MS	GY/DKGY	FR	FG	
55	56	MS	GY/DKGY	FR	FG	
56	57	MS/SS	GY/DKGY	FR	FG/MG	
57	58	SS(MS)	DKGY	FR	MG(FG)	
58	59	SS	GY/PLGY	FR	FMG	
59	60	SS/CMS	DKGY/BK	FR	MG/FG	
60	61	SS	GY	FR	MG	Small sample
61	62	CMS/MS	DKGY(BK)	FR	FG	Small sample
62	63	SS	GY	FR	MG	
63	64	SS	GY	FR	MG	
64	65	SS(CMS)	DKGY(BK)	FR	MG(FG)	
65	66	MS	PLGY/GY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
66	67	MS	PLGY/G	SE/SI	FG	Pervasive silica-sericite

			Y			alteration. Dolerite hornfels
67	68	MS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
68	69	MS/SS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
69	70	MS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
70	71	MS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
71	72	MS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
72	73	MS/SS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
73	74	MS/SS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
74	75	MS/SS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
75	76	SS/MS	PLGY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
76	77	MS	PLGY/GY	SE/SI	FG	Pervasive silica-sericite alteration. Dolerite hornfels
77	78	MS/DOL	GY/DKGY	FR	FG	
78	79	DOL	DKGY	FR	FG	
79	80	DOL	DKGY	FR	FG	
80	81	DOL	DKGY	FR	FG	
81	82	DOL	DKGY	FR	FG	
82	83	DOL	DKGY	FR	FMG	
83	84	DOL	DKGY	FR	FMG	
84	85	DOL	DKGY	FR	FMG	

Appendix 3

W71 - Chip Logging						
mFrom	**mTo**	**Rock Type**	**Colour**	**Alteration**	**Grain Size**	**Comments**
0	1	SS	CM/OR	OXI	MCG	
1	2	SS/MS	OR(CM/GY)	OXI	MCG/FG	
2	3	MS/SS	OR/BR	OXI	FG/MG	
3	4	MS/SS	BR/OR	OXI	FG/MG	
4	5	SS(MS)	GY/OR	OXI	MG(FG)	
5	6	SS	GY(OR)	FR(OXI)	MG	
6	7	SS	GY(OR)	FR(OXI)	MG	
7	8	SS/COAL	GY/BK(OR)	FR(OXI)	MG(VFG)	
8	9	SS	GY(OR)	FR(OXI)	MCG	
9	10	SS	GY(BK)	FR	CG	
10	11	SS	GY	FR	MCG	
11	12	SS	GY	FR	MCG	
12	13	SS	GY	FR	MCG	
13	14	COAL (SS)	BK(GY)	FR	VFG(MG)	
14	15	CMS/COAL/MS	BK/GY	FR	VFG	
15	16	CMS/COAL/MS	BK/GY	FR	VFG	
16	17	MS	GY	FR	FG	
17	18	MS	GY	FR	FG	
18	19	MS	GY	FR	FG	
19	20	MS	GY	FR	FG	
20	21	MS(SS)	GY	FR	FG	
21	22	MS(SS)	GY	FR	FG	
22	23	MS(SS)	GY	FR	FG	
23	24	MS	GY	FR	FG	
24	25	MS	GY(DKGY)	FR	FG	
25	26	MS	GY	FR	FG	
26	27	MS(SS)	GY	FR	FG	
27	28	MS(SS)	GY	FR	FG	
28	29	MS	GY	FR	FG	
29	30	SS	GY	FR	MG	
30	31	SS	GY	FR	MG	
31	32	SS	GY	FR	MG	
32	33	SS	GY	FR	MG	
33	34	SS	GY	FR	MG	
34	35	SS	GY	FR	MG	
35	36	SS	GY	FR	MG	
36	37	SS	GY	FR	MG	
37	38	SS	GY	FR	MG	
38	39	SS/MS(COAL)	GY(BK)	FR	MG/FG	

39	40	SS/MS	GY/DKGY	FR	MG/FG	
40	41	SS/MS	GY	FR	MG/FG	
41	42	SS	GY(DKGY)	FR	MG	
42	43	SS/CMS	DKGY/GY	FR	MG/FG	
43	44	SS	GY	FR	MG	
44	45	SS	GY	FR	MG	
45	46	SS	GY	FR	MG	
46	47	SS(CMS)	GY(DKGY)	FR	MG(FG)	
47	48	SS	GY(DKGY)	FR	CMG(FG)	
48	49	SS(MS)	GY	FR	MG(FG)	
49	50	SS	GY	FR	CMG	
50	51	SS	GY	FR	MG	
51	52	SS	GY	FR	MG	
52	53	SS	GY	FR	MG	
53	54	SS	GY	FR	MG	
54	55	SS(MS)	GY(DKGY)	FR	MG(FG)	
55	56	SS(CMS)	GY	FR	MG(FG)	
56	57	CMS/COAL/SS	BK(GY)	FR	VFG/MG	
57	58	CMS/COAL	BK	FR	FG/VFG	
58	59	COAL/CMS	BK	FR	VFG	
59	60	CMS(COAL)	DKGY	FR	VFG	
60	61	CMS(COAL)	DKGY/BK	FR	FG	
61	62	CMS(COAL)	BK/DKGY	FR	FG	
62	63	CMS/MS	DKGY/BK	FR	FG	
63	64	CMS/MS	DKGY	FR	FG	
64	65	MS	GY/DKGY(BK)	FR	FG	
65	66	MS/SS	GY	FR	FG	
66	67	MS/CMS/SS	DKGY	FR	FG	
67	68	SS/MS	DKGY	FR	MG	
68	69	SS	DKGY	FR	MG	
69	70	SS	DKGY	FR	MG	
70	71	SS	GY(YE)	FR	MG	
71	72	SS	GY/YE	FR	MG	
72	73	SS	GY(YE)	FR	MG	
73	74	SS	GY	FR	MG	
74	75	SS	GY	FR	MG	
75	76	MS(SS)	GY	FR	FG(MG)	
76	77	MS	GY	FR	FG	
77	78	SS/MS	GY	FR	FG	
78	79	SS	GY	FR	FMG	
79	80	SS	GY	FR	MG	
80	81	SS	GY	FR	FMG	
81	82	SS	GY	FR	MG	
82	83	SS	GY	FR	MG	
83	84	SS	GY	FR	MG	

84	85	SS	GY	FR	MG	
85	86	SS	GY	FR	MG	
86	87	SS	GY	FR	MG	
87	88	SS/CMS	GY/BK	FR	MG(FG)	
88	89	SS	GY	FR	MG	
89	90	SS	GY	FR	MG	
90	91	SS(MS)	GY	FR	MG(FG)	
91	92	SS	GY	FR	MG	
92	93	SS	GY	FR	MG	
93	94	SS	GY	FR	MG	
94	95	SS	GY	FR	MG	
95	96	SS	GY	FR	MG	
96	97	SS	GY	FR	MG	
97	98	SS	GY	FR	MG	
98	99	SS	GY	FR	MG	
99	100	SS/MS	GY	FR	MG/FG	

Appendix 4

W72 - Chip Logging						
mFrom	**mTo**	**Rock Type**	**Colour**	**Alteration**	**Grain Size**	**Comments**
0	1	DOL/MS	DKGY/OR	OXI	MG/FG	Tallus
1	2	DOL/MS	GY/BR/OR	OXI	MG/FG	Tallus
2	3	DOL/MS	GY/OR	OXI	MG/FG	Tallus
3	4	DOL/SS	GY/WH/OR	OXI	MG	Tallus
4	5	SS	OR/GY	OXI	MG	Tallus
5	6	SS	OR	OXI	MG	Smaller sample
6	7	SS/MS	GY/BK(OR)	FR/OXI	MG/FG	Very small sample
7	8	SS(CMS)	GY/BK(OR)	FR/OXI	MG(FG)	
8	9	SS	GY(BK/CM)	FR/OXI	MG	
9	10	SS	GY	FR	MG	
10	11	SS	GY	FR	MG	
11	12	SS	GY(BR)	FR	MG	
12	13	SS(MS)	GY(BR/CM)	FR	MG(FG)	
13	14	SS	GY	FR	MG	
14	15	SS	GY	FR	MG	
15	16	SS	GY	FR	MG	
16	17	SS	GY	FR	MGMG	
17	18	SS	GY	FR	MG	
18	19	SS	GY	FR	MG	
19	20	SS(MS)	GY	FR	MG(FG)	
20	21	SS	GY	FR	MCG	
21	22	SS	GY	FR	MG	
22	23	SS	GY	FR	MG	
23	24	SS	GY	FR	MG	
24	25	SS	GY	FR	MG	
25	26	SS(CMS)	GY(BK)	FR	MG(FG)	
26	27	SS(CMS)	GY(BK)	FR	MG(FG)	
27	28	SS(CMS)	GY(BK)	FR	MG(FG)	
28	29	SS(CMS)	GY(BK)	FR	MG(FG)	
29	30	SS	GY	FR	MG	
30	31	SS(CMS)	GY(BK)	FR	MG(FG)	
31	32	SS	GY	FR	MG	
32	33	SS	GY	FR	MG	
33	34	SS	GY	FR	MG	
34	35	SS(CMS)	GY(DKGY)	FR	MG(FG)	
35	36	SS	GY	FR	MG	
36	37	SS	GY	FR	MG	

37	38	SS	GY	FR	MG	
38	39	SS	GY	FR	MG	
39	40	SS	GY	FR	MG	
40	41	SS	GY	FR	MG	
41	42	SS	GY	FR	MG	
42	43	SS	GY	FR	MG	
43	44	MS/CMS	DKGY/BK	FR	FG	
44	45	CMS/MS	BK/DKGY	FR	FG	
45	46	MS/CMS	GY/DKGY	FR	FG	
46	47	MS/SS	GY	FR	FG/MG	
47	48	SS	GY	FR	MG	
48	49	SS	GY	FR	MG	
49	50	SS	GY	FR	MG	
50	51	SS	GY	FR	MG	
51	52	SS	GY	FR	MG	
52	53	SS	GY	FR	MG	
53	54	MS	GY	FR	FG	
54	55	MS	GY	FR	FG	
55	56	SS(CMS/MS)	GY	FR	MG(FG)	
56	57	SS	GY	FR	FMG	
57	58	SS	GY	FR	FMG	
58	59	SS	GY	FR	FMG	
59	60	SS	GY	FR	FMG	
60	61	SS	GY	FR	MG	
61	62	SS	GY	FR	MG	
62	63	SS	GY	FR	MG	
63	64	SS	GY	FR	MG	
64	65	SS	GY	FR	MG	
65	66	SS	GY	FR	MG	
66	67	SS	GY	FR	MG	
67	68	SS	GY	FR	MG	
68	69	SS	GY	FR	MG	
69	70	MS/SS	GY	FR	FG/MG	
70	71	MS	GY	FR	FG	
71	72	MS	GY	FR	FG	
72	73	MS/SS	GY	FR	FG/MG	
73	74	SS	GY	FR	FMG	
74	75	SS	GY(WH)	FR	FMG	
75	76	SS	GY(WH/DKGY)	FR	MG/FG	
76	77	SS/MS	GY	FR	FG	
77	78	SS/MS	GY	FR	FG	
78	79	MS(SS)	GY	FR	FG/MG	
79	80	MS	GY	FR	FG	
80	81	MS/SS	GY	FR	FG	
81	82	MS/SS	GY	FR	FG	
82	83	SS/MS	GY	FR	FG	

83	84	SS/MS	GY(WH)	FR	FG	
84	85	MS	GY(WH)	FR	FG	
85	86	SS/MS	GY(WH)	FR	FG	
86	87	MS/SS	GY(DKGY)	FR	FG	
87	88	SS/MS	GY	FR	FG	
88	89	MS/SS	GY	FR	FG	
89	90	MS(SS)	GY	FR	FG(MG)	
90	91	MS	GY	FR	FG	
91	92	MS(SS)	GY	FR	FG	
92	93	SS	GY	FR	FG/MG	
93	94	SS	GY	FR	MG	
94	95	SS(MS)	GY	FR	MG(FG)	
95	96	SS/MS	GY	FR	MG(FG)	

Appendix 5

Chip Logging Codes

Rock Type

Code	Description
SS	Sandstone
MS	Mudstone
CMS	Carbonaceous Mudstone
COAL	Coal
DOL	Dolerite
CY	Clay

Alteration

Code	Description
OXI	Oxidised
FR	Fresh
SE	Sericite
SI	Silica
CA	Calcite
CY	Clay

Colour

Code	Description
OR	Orange
BR	Brown
GY	Grey
DKGY	Dark Grey
PLGY	Pale Grey
BK	Black
YE	Yellow
WH	White
GE	Green
CM	Cream

Grain Size

Code	Description
VFG	Very Fine Grained
FG	Fine Grained
MG	Medium Grained
CG	Coarse Grained
VCG	Very Coarse Grained