Roxby Geothermal Pty Ltd

Annual Report

Licence Year 1

18th May 2011 to 17th May 2012

Geothermal Exploration Licences 563, 564 & 565

CONTENTS Page No.

1 Introduction

Geothermal Exploration Licences (GEL's) 563, 564 and 565 were granted to Roxby Geothermal Pty Ltd on 18th May 2011. These contiguous licences are located south and west of Lake Torrens in central South Australia, and have a combined total area of approximately 8,905 km^2.

This report details the work conducted during Licence Year 1 of licences GEL 563, 565 and 565 (18th May 2011 – 17th May 2012 inclusive), in accordance with Regulation 33 of the *Petroleum and Geothermal Energy Act 2000*.

2 Permit Summary

For the duration of the licence year, the sole licensee for Geothermal Exploration Licences (GEL's) 563, 564 & 565 was Roxby Geothermal Pty Ltd.

The current work commitments (including all variations) associated with GEL's 563, 564 & 565 can be seen in Table 1.

Table 1 Current work commitments by licence year

Licence Year	Licence Dates	Minimum Work Program
Year 1	18th May 2011 – 17th May 2012	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 2	18th May 2012 – 17th May 2013	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 3	18th May 2013 – 17th May 2014	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 4	18th May 2014 – 17th May 2015	▪ Drill 5 shallow wells, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 5	18th May 2015 – 17th May 2016	▪ 100 km 2D seismic, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)

Licence Year 1 concluded on 18th May 2012. The following table displays the minimum work program (after all variations) and the actual work completed up until the end of the current licence period.

Table 2 Final work program and work completed (as of end of current reporting period) by licence year

Licence Year	Minimum Work Program	Actual Work
Year 1	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	*Geological and Geophysical Review of Geothermal Exploration Licences 563, 564 and 565, South Australia* – Report conducted by Hot Dry Rocks Pty Ltd
Year 2	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable
Year 3	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable
Year 4	▪ Drill 5 shallow wells, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable
Year 5	▪ 100 km 2D seismic, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable

3 Regulated Activities

Pursuant to Regulation 33(2)(a) under the Act, an annual report must include:

"a summary of the regulated activities conducted under the licence during the [current reporting] year."

This information is detailed below in designated sections.

Drilling and Related Activities
No regulated activities undertaken in the licence reporting period

Seismic Data Acquisition
No regulated activities undertaken in the licence reporting period

Seismic Data Processing and Reprocessing
No regulated activities undertaken in the licence reporting period

Geochemical, Gravity, Magnetic and other surveys
No regulated activities undertaken in the licence reporting period

Production and Processing
No regulated activities undertaken in the licence reporting period

Pipeline Construction and Operation
No regulated activities undertaken in the licence reporting period

Preliminary Survey Activities
No regulated activities undertaken in the licence reporting period

4 Compliance Issues

Licence and Regulatory Compliance

Pursuant to Regulations 33(2) (b) & (c), an annual report must include:

"a report for the year on compliance with the Act, these regulations, the licence and any relevant statement of environmental objectives;" and

"a statement concerning any action to rectify non compliance with obligations imposed by the Act, these regulations or the licence, and to minimise the likelihood of recurrence of any such non-compliances."

No instances of non-compliance with obligations imposed by the Act occurred during Year One.

Management System Audits

Pursuant to Regulation 33(2) (d) under the Act, an annual report must include:

"a summary of any management system audits undertaken during the relevant licence year including information on any failure or deficiency identified by the audit and any corrective actions that has, or will be taken".

No Management System Audits where undertaken during Year One.

Report and Data Submissions

Pursuant to Regulation 33(2) (e) under the Act, an annual report must include:

"a list of all reports and data relevant to the operation of the Act generated by the licensee during the licence year".

Table 3 List of report and data submissions during current licence reporting year

Description of Report/Data	Date Due	Date Submitted	Compliant / Non-Compliant
Geological and Geophysical Review of Geothermal Exploration Licences 563, 564 and 565, South Australia – Review undertaken by Hot Dry Rocks Pty Ltd	17 July 2012	17 July 2012	

Incidents

Pursuant to Regulation 33(2) (f), an annual report must include:

"in relation to any incidents reported to the Minister under the Act and these Regulations during the relevant licence year –

(i) an overall assessment and analysis of the incidents, including the identification and analysis of any trends that have emerged; and

(ii) an overall assessment of the effectiveness of any action taken to rectify non-compliance with obligations imposed by the Act, these regulations or the licence, or to minimise the risk of recurrence of any such non-compliance".

No reportable incidents occurred during Year One.

Threat Prevention
Pursuant to Regulation 33(2) (g) under the Act, an annual report must include:

"a report on any reasonably foreseeable threats (other than threats previously reported on) that reasonably presents, or may present, a hazard to facilities or activities under the licence, and a report on any corrective action that has, or will be taken".

No threats to activities under the licences have been identified.

Future Work Program
Pursuant to Regulation 33(2) (h) under the Act, an annual report must include:

"unless the relevant licence year is the last year in which the licence is to remain in force – a statement outlining operations proposed for the ensuing year".

Exploration in Year 2 will continue with further geological and geophysical studies with a view to delineate areas of enhanced geothermal potential within the Roxby Geothermal Project area.

5 Expenditure Statement

Pursuant to Regulation 33(3) under the Act, an annual report must contain:

"An annual report must be accompanied by a statement of expenditure on regulated activities conducted under the licence for the relevant licence year, showing expenditure under each of the following headings:

a) drilling activities;

b) seismic activities;

c) technical evaluation and analysis;

d) other surveys;

e) facility construction and modification;

f) operating and administration expenses (not already covered under another heading)".

Please refer to Appendix 1 for the expenditure statement for the current reporting period.

Roxby Geothermal Pty Ltd

Annual Report

Licence Year 2

18th May 2012 to 17th May 2013

Geothermal Exploration Licences 563, 564 & 565

CONTENTS Page No.

1 Introduction

Geothermal Exploration Licences (GEL's) 563, 564 and 565 were granted to Roxby Geothermal Pty Ltd on 18th May 2011. These contiguous licences are located south and west of Lake Torrens in central South Australia, and have a combined total area of approximately 8,905 km^2.

This report details the work conducted during Licence Year 2 of licences GEL 563, 565 and 565 (18th May 2012 – 17th May 2013 inclusive), in accordance with Regulation 33 of the *Petroleum and Geothermal Energy Act 2000*.

2 Permit Summary

For the duration of the licence year, the sole licensee for Geothermal Exploration Licences (GEL's) 563, 564 & 565 was Roxby Geothermal Pty Ltd.

The current work commitments (including all variations) associated with GEL's 563, 564 & 565 can be seen in Table 1.

Table 1 Current work commitments by licence year

Licence Year	Licence Dates	Minimum Work Program
Year 1	18th May 2011 – 17th May 2012	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 2	18th May 2012 – 17th May 2013	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 3	18th May 2013 – 17th May 2014	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 4	18th May 2014 – 17th May 2015	▪ Drill 5 shallow wells, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 5	18th May 2015 – 17th May 2016	▪ 100 km 2D seismic, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)

Licence Year 2 concluded on 18th May 2013. The following table displays the minimum work program (after all variations) and the actual work completed up until the end of the current licence period.

Table 2 Final work program and work completed (as of end of current reporting period) by licence year

Licence Year	Minimum Work Program	Actual Work
Year 1	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	*Geological and Geophysical Review of Geothermal Exploration Licences 563, 564 and 565, South Australia* – Report conducted by Hot Dry Rocks Pty Ltd
Year 2	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	No regulated activities undertaken.
Year 3	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable
Year 4	▪ Drill 5 shallow wells, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable
Year 5	▪ 100 km 2D seismic, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	Not applicable

3 Regulated Activities

Pursuant to Regulation 33(2)(a) under the Act, an annual report must include:

“a summary of the regulated activities conducted under the licence during the [current reporting] year.”

This information is detailed below in designated sections.

Drilling and Related Activities
No regulated activities undertaken in the licence reporting period

Seismic Data Acquisition
No regulated activities undertaken in the licence reporting period

Seismic Data Processing and Reprocessing
No regulated activities undertaken in the licence reporting period

Geochemical, Gravity, Magnetic and other surveys
No regulated activities undertaken in the licence reporting period

Production and Processing
No regulated activities undertaken in the licence reporting period

Pipeline Construction and Operation
No regulated activities undertaken in the licence reporting period

Preliminary Survey Activities
No regulated activities undertaken in the licence reporting period

4 Compliance Issues

Licence and Regulatory Compliance

Pursuant to Regulations 33(2) (b) & (c), an annual report must include:

“a report for the year on compliance with the Act, these regulations, the licence and any relevant statement of environmental objectives;” and

“a statement concerning any action to rectify non compliance with obligations imposed by the Act, these regulations or the licence, and to minimise the likelihood of recurrence of any such non-compliances.”

No instances of non-compliance with obligations imposed by the Act occurred during Year Two.

Management System Audits

Pursuant to Regulation 33(2) (d) under the Act, an annual report must include:

“a summary of any management system audits undertaken during the relevant licence year including information on any failure or deficiency identified by the audit and any corrective actions that has, or will be taken”.

No Management System Audits where undertaken during Year Two.

Report and Data Submissions

Pursuant to Regulation 33(2) (e) under the Act, an annual report must include:

"a list of all reports and data relevant to the operation of the Act generated by the licensee during the licence year".

Table 3 List of report and data submissions during current licence reporting year

Description of Report/Data	**Date Due**	**Date Submitted**	**Compliant / Non-Compliant**
Year 1 Annual Report	17th July 2012	17th July 2012	Compliant
Geological and Geophysics Review of Geothermal Exploration Licences 563, 564 and 565, South Australia (**Commercial in Confidence**)	17th July 2012	17th July 2012	Compliant

Incidents

Pursuant to Regulation 33(2) (f), an annual report must include:

"in relation to any incidents reported to the Minister under the Act and these Regulations during the relevant licence year –

(i) an overall assessment and analysis of the incidents, including the identification and analysis of any trends that have emerged; and

(ii) an overall assessment of the effectiveness of any action taken to rectify non-compliance with obligations imposed by the Act, these regulations or the licence, or to minimise the risk of recurrence of any such non-compliance".

No reportable incidents occurred during Year Two.

Threat Prevention
Pursuant to Regulation 33(2) (g) under the Act, an annual report must include:

"a report on any reasonably foreseeable threats (other than threats previously reported on) that reasonably presents, or may present, a hazard to facilities or activities under the licence, and a report on any corrective action that has, or will be taken".

Continuing financial market volatility has resulted in no regulated activities being undertaken within the GEL's in Year 2. Roxby Geothermal Pty Ltd has therefore formally requested that DMITRE allow deferment of Year 2 activities, and an amendment to the forward work program.

Future Work Program
Pursuant to Regulation 33(2) (h) under the Act, an annual report must include:

"unless the relevant licence year is the last year in which the licence is to remain in force – a statement outlining operations proposed for the ensuing year".

Exploration in Year 3 will continue with further geological and geophysical studies with a view to delineate areas of enhanced geothermal potential within the Roxby Geothermal Project area.

5 Expenditure Statement

Pursuant to Regulation 33(3) under the Act, an annual report must contain:

"An annual report must be accompanied by a statement of expenditure on regulated activities conducted under the licence for the relevant licence year, showing expenditure under each of the following headings:

a) drilling activities;

b) seismic activities;

c) technical evaluation and analysis;

d) other surveys;

e) facility construction and modification;

f) operating and administration expenses (not already covered under another heading)".

Please refer to Appendix 1 for the expenditure statement for the current reporting period.

Roxby Geothermal Pty Ltd

Annual Report

Licence Year 3

18th May 2013 to 17th May 2014

Geothermal Exploration Licences 563, 564 & 565

CONTENTS Page No.

1 *Introduction*

Geothermal Exploration Licences (GEL's) 563, 564 and 565 were granted to Roxby Geothermal Pty Ltd on 18th May 2011. These contiguous licences are located south and west of Lake Torrens in central South Australia, and have a combined total area of approximately 8,905 km^2.

This report details the work conducted during Licence Year 3 of licences GEL 563, 565 and 565 (18th May 2013 – 17th May 2014 inclusive), in accordance with Regulation 33 of the *Petroleum and Geothermal Energy Act 2000*.

2 *Permit Summary*

For the duration of the licence year, the sole licensee for Geothermal Exploration Licences (GEL's) 563, 564 & 565 was Roxby Geothermal Pty Ltd.

The current work commitments (including all variations) associated with GEL's 563, 564 & 565 can be seen in Table 1.

Table 1 Current work commitments by licence year

Licence Year	Licence Dates	Minimum Work Program
Year 1	18th May 2011 – 17th May 2012	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 2	18th May 2012 – 17th May 2013	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 3	18th May 2013 – 17th May 2014	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 4	18th May 2014 – 17th May 2015	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 5	18th May 2015 – 17th May 2016	▪ Drill 5 shallow wells, and 100 km 2D seismic ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)

Licence Year 3 concluded on 18th May 2014. The following table displays the minimum work program (after all variations) and the actual work completed up until the end of the current licence period.

Table 2 Final work program and work completed (as of end of current reporting period) by licence year

Licence Year	Minimum Work Program	Actual Work
Year 1	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	*Geological and Geophysical Review of Geothermal Exploration Licences 563, 564 and 565, South Australia* – Report conducted by Hot Dry Rocks Pty Ltd
Year 2	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	No regulated activities undertaken.
Year 3	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	No regulated activities undertaken.
Year 4	▪ Drill 5 shallow wells, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 5	▪ 100 km 2D seismic, and ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)	▪ Drill 5 shallow wells, and 100 km 2D seismic ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)

A work program variation was submitted on 22nd August 2013. Specifically requesting that the drilling component of Year 4 be moved and amalgamated with the seismic program of Year 5.

The following summarises the variations:

Year 4	18th May 2014 – 17th May 2015	▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)
Year 5	18th May 2015 – 17th May 2016	▪ Drill 5 shallow wells, and 100 km 2D seismic ▪ Geological and geophysical review (to be conducted anywhere within the boundaries of GEL's 563, 564 & 565)

3 Regulated Activities

Pursuant to Regulation 33(2)(a) under the Act, an annual report must include:

"a summary of the regulated activities conducted under the licence during the [current reporting] year."

This information is detailed below in designated sections.

Drilling and Related Activities
No regulated activities undertaken in the licence reporting period

Seismic Data Acquisition
No regulated activities undertaken in the licence reporting period

Seismic Data Processing and Reprocessing
No regulated activities undertaken in the licence reporting period

Geochemical, Gravity, Magnetic and other surveys
No regulated activities undertaken in the licence reporting period

Production and Processing
No regulated activities undertaken in the licence reporting period

Pipeline Construction and Operation
No regulated activities undertaken in the licence reporting period

Preliminary Survey Activities
No regulated activities undertaken in the licence reporting period

4 <u>Compliance Issues</u>

Licence and Regulatory Compliance

Pursuant to Regulations 33(2) (b) & (c), an annual report must include:

"a report for the year on compliance with the Act, these regulations, the licence and any relevant statement of environmental objectives;" and

"a statement concerning any action to rectify non compliance with obligations imposed by the Act, these regulations or the licence, and to minimise the likelihood of recurrence of any such non-compliances."

No instances of non-compliance with obligations imposed by the Act occurred during Year Three.

Management System Audits

Pursuant to Regulation 33(2) (d) under the Act, an annual report must include:

"a summary of any management system audits undertaken during the relevant licence year including information on any failure or deficiency identified by the audit and any corrective actions that has, or will be taken".

No Management System Audits where undertaken during Year Three.

Report and Data Submissions

Pursuant to Regulation 33(2) (e) under the Act, an annual report must include:

“a list of all reports and data relevant to the operation of the Act generated by the licensee during the licence year”.

Table 3 List of report and data submissions during current licence reporting year

Description of Report/Data	Date Due	Date Submitted	Compliant / Non-Compliant
No regulated activities undertaken.			
Request for 1-month extension for submission of Year 2 Annual Report		16/07/2013	approved
Work Program Variation application		20/08/2013	approved
Year 2 Annual Report Year 2 Annual Report	17/07/2013	20/08/2013	Minor edits requested
Re submission of Year 2 Annual Report		30/09/2013	accepted
Request for 1 year suspension of GELs		16/05/2014	approved

Incidents

Pursuant to Regulation 33(2) (f), an annual report must include:

“in relation to any incidents reported to the Minister under the Act and these Regulations during the relevant licence year –

(i) an overall assessment and analysis of the incidents, including the identification and analysis of any trends that have emerged; and

(ii) an overall assessment of the effectiveness of any action taken to rectify non-compliance with obligations imposed by the Act, these regulations or the licence, or to minimise the risk of recurrence of any such non-compliance”.

No reportable incidents occurred during Year Three.

Threat Prevention
Pursuant to Regulation 33(2) (g) under the Act, an annual report must include:

"a report on any reasonably foreseeable threats (other than threats previously reported on) that reasonably presents, or may present, a hazard to facilities or activities under the licence, and a report on any corrective action that has, or will be taken".

Continuing financial market volatility has resulted in no regulated activities being undertaken within the GEL's in Year 3. Roxby Geothermal Pty Ltd has therefore formally requested that DMITRE allow deferment of Year 3 activities, and an amendment to the forward work program.

Future Work Program
Pursuant to Regulation 33(2) (h) under the Act, an annual report must include:

"unless the relevant licence year is the last year in which the licence is to remain in force – a statement outlining operations proposed for the ensuing year".

Roxby Geothermal has been pursuing finance and project development partners to fund future exploration and development of the Project, however, due to a severe downturn in investor and industry interest in the Geothermal Sector in Australia, at this point the Company has been unsuccessful in our efforts to secure future funding for the project.

As such, a request for a 12-month suspension of activity within the Roxby Geothermal Project area was submitted and approved for nominal Year 4 of the project (refer Appendix 2).

5 <u>Expenditure Statement</u>

Pursuant to Regulation 33(3) under the Act, an annual report must contain:

"An annual report must be accompanied by a statement of expenditure on regulated activities conducted under the licence for the relevant licence year, showing expenditure under each of the following headings:

- *a) drilling activities;*
- *b) seismic activities;*
- *c) technical evaluation and analysis;*
- *d) other surveys;*
- *e) facility construction and modification;*
- *f) operating and administration expenses (not already covered under another heading)".*

Please refer to Appendix 1 for the expenditure statement for the current reporting period.

APPENDIX 2 Request to Suspend GELs 563, 564 & 565 for 12-months

Shane Farrelly
Manager Licensing and Legislation
Energy Resources Division
Department for Manufacturing, Innovation, Trade, Resources and Energy
Level 6, 101 Grenfell Street
GPO Box 1264
ADELAIDE SA 5001

Friday, May 16, 2014

RE: ROXBY GEOTHERMAL PTY LTD request to suspend GELs 563, 564 & 565 for 12-months

Dear Shane,

Roxby Geothermal Pty Ltd ("Roxby Geothermal") holds 3 Geothermal Exploration Licenses in South Australia comprising the Roxby Geothermal Project (GELs 563, 564 & 565).

Roxby Geothermal has been pursuing finance and project development partners to fund future exploration and development of the Project, however, due to a severe downturn in investor and industry interest in the Geothermal Sector in Australia, at this point the Company has been unsuccessful in our efforts to secure future funding for the project.

As such, Roxby Geothermal requests a 12-month suspension of the three GELs for a period of 12-months under Section 90 of the Act commencing the 18th May 2014.

Please do not hesitate if contact me if you require additional information and also advise of fees applicable for this process.

Yours sincerely

Stephen Biggins
Tel: 0499 000 600
Director
Roxby Geothermal Pty Ltd

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Geological and Geophysical Review of Geothermal Exploration Licences 563, 564 and 565, South Australia

Commercial in Confidence

Compiled for Roxby Geothermal Pty Ltd

7 July 2012

Executive Summary

Summary

Roxby Geothermal Pty Ltd (RG) commissioned Hot Dry Rocks Pty Ltd (HDR) to review existing data with its three geothermal exploration licences located south and west of Lake Torrens in central South Australia.

Principle Recommendations

The principle recommendations of this data review are:

- That HDR undertake a full Geothermal Systems Assessment (GSA) to define an ongoing exploration work program for the RGP. The GSA is a desktop scoping study of an area incorporating regional data, utilising open-file data and encompassing as much existing information as possible. During the process of the GSA, gaps in available data are identified and highlighted for future studies.
- That all minerals companies with Exploration Licences (EL's) overlapping the RGP (Figure 5 and Appendix 1) be contacted to establish collaborative agreements, similar to that enacted between Southern Gold and Monax Mining. This will allow temperature data (and samples for thermal conductivity analysis) to be collected at a much reduced cost to RG. Benefits to the mineral exploration company includes a greater geological understanding of their tenement; sharing of costs for future drill holes; and any geothermal resource identified could be utilised to supply power to any mines that may be developed (cf. Beverley Uranium mine and Petratherm's Paralana Project).
- That stress tests be conducted on bores drilled within the RGP to depths greater than 700 m. Unlike the petroleum industry, mineral drilling rigs do not usually have the capability of undertaking stress measurements whilst drilling. It would therefore be necessary to undertake these tests once drilling has completed. It is also possible to undertake these tests on minerals bores drilled previously provided the bore is open to accommodate the testing equipment
- That HDR liaise with the DMITRE core library to identify core samples from well bores elsewhere in the RGP. That representative samples be collected and

subjected to thermal conductivity analysis. The results could be used to further constrain subsurface geological heat flow modelling and enable more accurate temperature prediction.

- That HDR undertake further validation of heat generation of basement rocks and sediments from hand specimen or core samples. Whole Rock Fusion analysis is a fast and relatively inexpensive means of determining heat generation. Results would reduce uncertainties in future regional heat flow and temperature modelling.
- That South Australian government agencies be contacted to ascertain water data attributes from the RGP.
- That wells that intersect deeper intervals of the stratigraphic section in the RGP be identified, and that, if possible, groundwater from these deeper intervals be obtained and analysed.

Authors

Jim Driscoll, Nicky Pollington and Luke Mortimer compiled this report. Graeme Beardsmore reviewed the report and approved its release in its final form.

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Acronyms

$	Australian Dollars
CEFC	Clean Energy Finance Corporation
CPM	Carbon Pricing Mechanism
CSP	Central Shield Province
DfW	Department for Water (South Australia)
DMITRE	Department of Manufacturing, Innovation, Trade, Resources and Energy (South Australia)
DWLBC	Department of Water, Land and Biodiversity Conservation (South Australia) – Since July 2010: Department for Water (South Australia)
EGS	Engineered Geothermal Systems
EIR	Environmental Impact Report
EL	Exploration Licence (minerals)
GA	Geoscience Australia
GAP	Groundwater Action Plan
GEL	Geothermal Exploration Licence
GRK	Green Rock Energy Limited
GSA	Geothermal Systems Assessment
HDR	Hot Dry Rocks Proprietary Limited
HSA	Hot Sedimentary Aquifer
K	Potassium
km	kilometre = 1,000 metres
m	metre
Ma	million years
MOX	Monax Mining Limited
NRM boards	Natural Resources Management boards (South Australia)
NRMA 2004	*Natural Resources Management Act* 2004 (South Australia)
PA 2000	*Petroleum Act* 2000 (South Australia)
PGEA 2000	*Petroleum and Geothermal Energy Act* 2000 (South Australia)
PGER 2000	*Petroleum and Geothermal Energy Regulations* 2000 (South Australia)
RG	Roxby Geothermal Pty Ltd
RGP	Roxby Geothermal Project
S_h	minimum horizontal principal stress
S_H	maximum horizontal principal stress
S_V	vertical principal stress

S_1	maximum principal axes of stress
S_2	intermediate principal axes of stress
S_3	minimum principal axes of stress
SA	South Australia
SAHFA	South Australian Heat Flow Anomaly
SEO	Statement of Environmental Objectives
Th	Thorium
U	Uranium
WAP	Water Allocation Plan
WCR	Well Completion Report
WSM	World Stress Map

1. Introduction

1.1. Hot Dry Rocks

Hot Dry Rocks Pty Ltd (HDR) is one of the world's leading geothermal consulting firms. Unique in the geothermal industry, our capabilities are in-house. From rock laboratory work to resource predictions to project development, we have over 100 man-years of industry experience.

At HDR, we provide clients with the Resource Estimates they need to secure financing. We undertake project development, drilling plans, seismicity management strategies and reservoir assessments (compliant with both the Australian and the Canadian Geothermal Reporting Codes). We help you take your tenement holding forward to a viable producing resource. Our laboratory, modelling, mapping and analysis lead to the temperature and flow estimates necessary to predict power.

HDR is the only global geothermal consultancy with the capacity to provide cutting edge 3D thermal modelling of fractured rock systems over time. With this service, we can demonstrate the degradation of heat over time during production from your fractured rock resource. Coupled with our temperature prediction models and other analyses, we provide a comprehensive geothermal systems assessment that gives you the predictions, data and maps you need to move your project forward.

Our mapping work has set the standard and protocols for mapping global Engineered Geothermal Systems (EGS) potential.

1.2. Project Concept

Geothermal exploration aims to identify sites with elevated geothermal potential by assessing the likelihood of each of the main components of a geothermal system being present. Namely: the availability of water, the likelihood of *in situ* permeable aquifers or rock units susceptible to artificial permeability enhancement, and the likelihood of elevated temperatures at drillable depth.

Roxby Geothermal Pty Ltd (RG) is an Australian-based geothermal exploration company with a focus on the conversion of discovered geothermal resources to the production of commercial geothermal energy. RG is the sole licensee of Geothermal Exploration Licenses (GEL's) 563, 564 and 565 in South Australia, also referred to as the Roxby Geothermal Project (RGP). These contiguous licenses are located south and west of Lake Torrens in central South Australia. 22 smaller GEL's over the same area were previously awarded to Inferus Resources Pty Ltd (a wholly owned subsidiary of Southern Gold Limited; SAU) in two tranches on 8 August 2008 and 6 July 2009. However, SAU ultimately decided to focus on its core portfolio of gold and base metals exploration projects, and relinquished all 22 GEL's in 2010.

The Department of Manufacturing, Innovation, Trade, Resources and Energy (DMITRE) regulates geothermal resources in South Australia and, under the *Petroleum Act 2000* (PA 2000), initially limited the size of any GEL to 500 km^2. Other Australian state governments subsequently enacted their own geothermal acts and stipulated much larger tenements sizes, most notably Victoria with a maximum size of 10,000 km^2. Consultations with industry led to the South Australia government amending PA 2000, and in 2009 the maximum size of GEL's was increased to 10,000 km^2. Smaller licence areas were amalgamated into larger GEL's.

As such, the area initially covered by 22 GEL's was consolidated into three contiguous GEL's (GEL 563, 564 and 565) and awarded to RG on 18 May 2011.

RG commissioned HDR to undertake a review of all existing geological and geophysical data within GEL's 563, 564 and 565.

1.2.1. Location

The RGP is located south and west of Lake Torrens in central South Australia on the eastern margin of the Gawler Craton. The project covers an area of approximately 8,905 km^2 (Figure 1).

The area under investigation for geothermal resources is very sparsely populated with a just a handful of pastoral stations. Just three towns are located nearby: Port Augusta (population 13,257) some 15 km south of the southernmost edge of GEL 563, Woomera (population 450) proximal to the westernmost margin of GEL 564, and Roxby Downs (population 4,055) approximately 15 km north of the northernmost margin of GEL 565. The only major sealed road network, and a rail track, traverses a restricted corridor along the western portions of the GEL's. However, some minor roads and tracks are present. The nearest airport is in Port Augusta, although several airfields are located at Andamooka, Woomera and Mount Gunson.

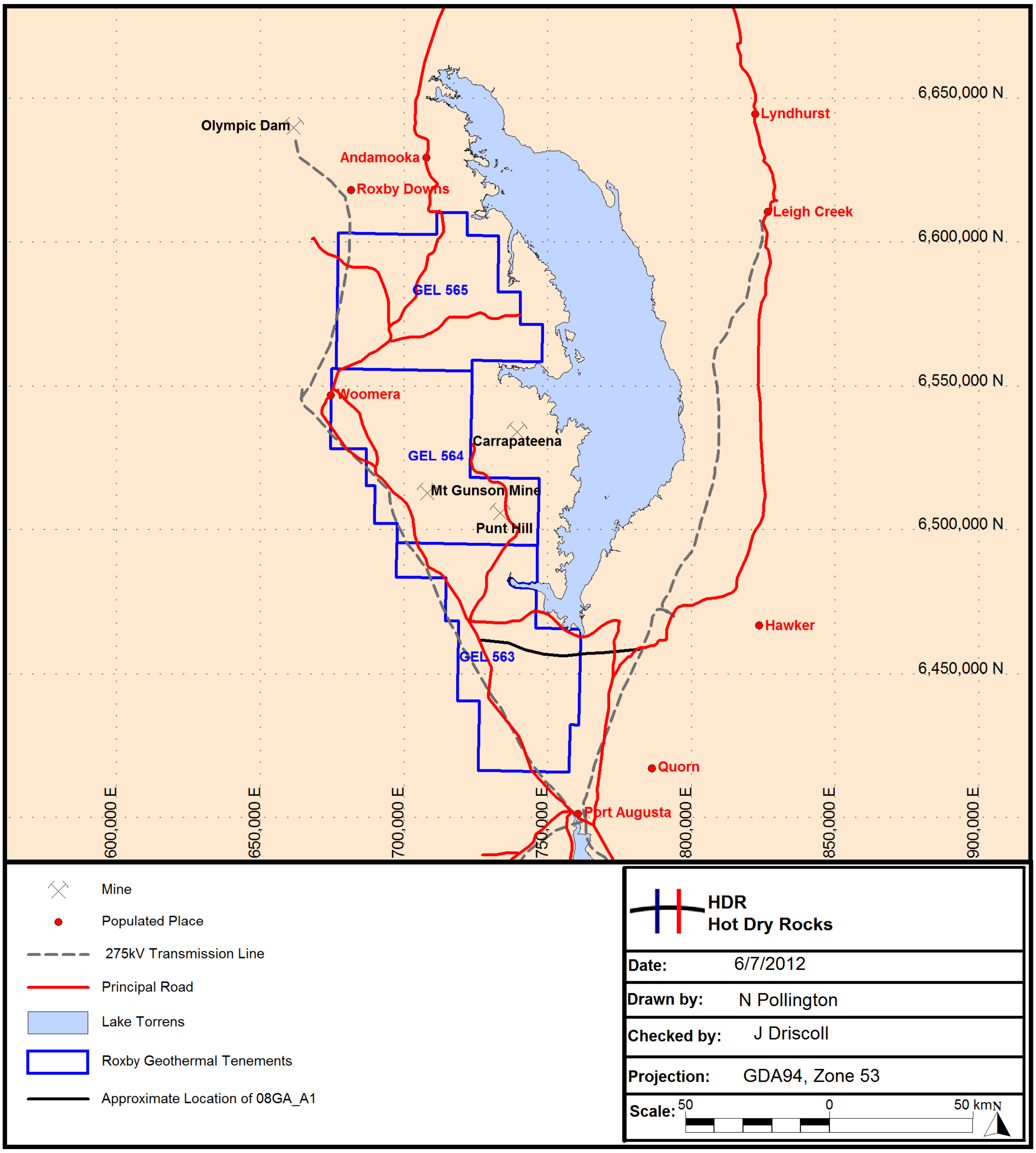

Figure 1. Location of the Roxby Geothermal Project (GEL's 563, 564 and 565). The seismic trace (08GA-A1) is applicable to Figure 15.

The area west of Lake Torrens is a proven minerals province, overlapping the Olympic Dam iron oxide copper-gold (IOCG) Province, which hosts the world class Olympic Dam Cu–U–Au–Ag resource, as well as the Prominent Hill Cu–Au and Carrapateena Cu–Au deposits.

Much of the RGP is covered by a thin veneer of Pleistocene to Quaternary alluvium and aeolian sands with limited exposures of Proterozoic to Cambrian-aged quartzite and limestone, concentrated in the northern portions of the permits. Several endorheic salt lakes are present, the largest of which is Lake Torrens; averaging approximately 200 km north–south and 30 km east–west. These salt lakes comprise red–brown clays and silts beneath a thin salt crust, and rarely fill with water (just twice in recent history: 1897 and April 1989). Topographic relief within the RGP is generally flat to low-lying, ranging from ~30 m along the shoreline of Lake Torrens to ~210 m along some of the rocky scarps and tablelands.

1.2.2. Regional Geothermal Drivers

The recent passing of the Clean Energy Bill by the Australian Lower (October 2011) and Upper (November 2011) House's of Parliament sees the creation of a Carbon Pricing Mechanism (CPM), beginning with a fixed-price carbon tax which came into effect on 1 July 2012 before proceeding to a floating-price Emissions Trading Scheme by July 2015. Under the CPM, the (approximately) 500 biggest polluters will be required to buy permits for each tonne of CO_2 emitted. The CPM acts as a catalyst for the deployment of clean energy sources such as geothermal. A further stimulus is the creation of the $10b Clean Energy Finance Corporation (CEFC). The CEFC has been established to drive innovation through commercial investments in clean energy through loans, loan guarantees and equity investments, and will leverage private sector financing for renewable energy and clean technology projects.

The RGP lies proximal to an area that hosts growing energy markets, including the world class Olympic Dam (the proposed Olympic Dam expansion is forecast to consume close to half of SA's power supply) and Prominent Hill mines. The project area is ideally located to straddle the existing 275 kV and 132 kV power lines that connect Olympic Dam and Prominent Hill mines to the national power grid at Port Augusta (Figure 1).

Only limited mining exploration activities have been undertaken within the RGP and geological and geophysical datasets are therefore sparse.

1.2.3. Legislation and Regulation

South Australia was the first of the Australian state and territory governments to enact geothermal legislation and regulations. The *Petroleum Act* 2000 regulates geothermal resources in SA, subject to an amendment proclaimed in late 2009 (*Petroleum and Geothermal Energy Act* 2000 (PGEA 2000) and the *Petroleum and*

Geothermal Energy Regulations 2000 (PGER 2000)). DMITRE regulates the PGEA 2000. The PGEA 2000 allows for concurrent overlapping resource licences (minerals, petroleum and geothermal).

1.2.4. Conceptual Heat Source

The RGP lies within the Central Shield Province (CSP) of Sass & Lachenbruch (1979) (Figure 2). The CSP correlates with the approximate distribution of Proterozoic metamorphic terranes, and is associated with regions of elevated heat flow, most notably the South Australian Heat Flow Anomaly (SAHFA), which has been demonstrated to host very high temperature rocks with potential for geothermal power production. The source of these high temperatures is related to the very high elemental concentrations of uranium (U), thorium (Th) and potassium (K) within Basement rocks. A number of geothermal companies are assessing the potential to produce geothermal power within the SAHFA.

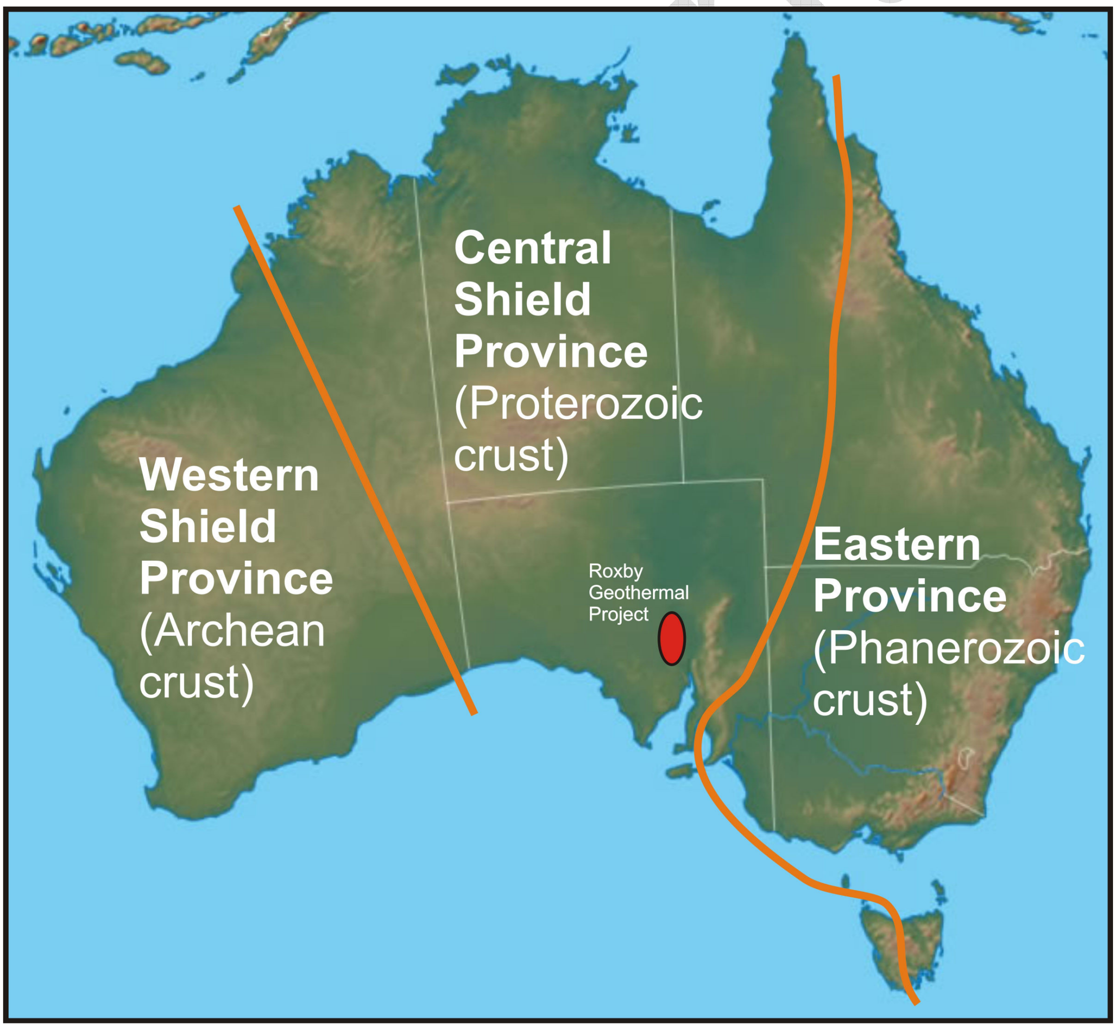

Figure 2. Broad divisions of the Australian continental crust, based on basement rock age (based on Sass & Lachenbruch, 1979).

2. Actions Undertaken in this Data Review

2.1. Datasets Sought

The key pieces of information required for geothermal exploration are a firm understanding of the 3D geological architecture of the Geothermal Play, the thermal properties and structure of the rocks, and the existing porosity and permeability distribution within the rocks. This report constitutes a data collation exercise to compile all existing data pertaining to these aims. The report also lists a series of recommendations that are designed to be framed into an ongoing work program.

Recommendation: That HDR undertake a full Geothermal Systems Assessment (GSA) to define an ongoing exploration work program for the RGP. The GSA is a desktop scoping study of an area incorporating regional data, utilising open-file data and encompassing as much existing information as possible. During the process of the GSA, gaps in available data are identified and highlighted for future studies.

2.2. Datasets Collected

The primary data sources used in this assessment were all publicly available and included data such as local petroleum wells and their corresponding well completion reports (WCR's), both published and unpublished HDR reports and geothermal resource assessments, published geological maps, interpretations, and reports. For this document the available datasets and the manner in which they were compiled follow:

- A review of pertinent published literature and maps on the geology of the relevant portion of the Gawler Craton/Stuart Shelf.
- Assessment of minerals well data relevant to geothermal exploration.
- Compilation of heat generation data as estimated from chemical analyses in Geoscience Australia's (GA's) OZCHEM (2007) database, and from previous work undertaken by HDR.
- Collation of rock thermal conductivity data.
- Compilation of heat flow data and quality assessment from the Global Heat Flow Database and any other publications of relevance.
- Compilation of seismic data within, and proximal to the RGP.
- Review of selected borehole data and/or cross-sectional data, where suitable.

- Collation of published stress data for the area and qualitative assessment of stress, fault and other data.
- Generation of base maps for well and licence locations, heat flow and heat generation.

2.3. Data Review

2.3.1. Geological Data

2.3.1.1. Well Data

HDR interrogated DMITRE's online interactive mapping application (SARIG) to record all minerals, petroleum and geothermal wells drilled within, and proximal to the RGP (Figure 3).

In addition, HDR interrogated several South Australian Government databases to record the location of minerals, petroleum and water bores within the RGP that contained temperature data (Table 1; Figure 4). The results indicate that much of the area is devoid of useful temperature data. In 2009, SAU established a collaborative agreement with Monax Mining Limited (MOX), to access their recently drilled minerals bores and perform geothermal exploration activities. In November 2009 HDR undertook precision temperature logging of five of these mineral bores within the area covered by SAU's GEL 300 (now incorporated into GEL 564).

One petroleum well had been drilled in the RGP (Woomera 1). However, the well was completed in 1958 and did not yield any temperature data.

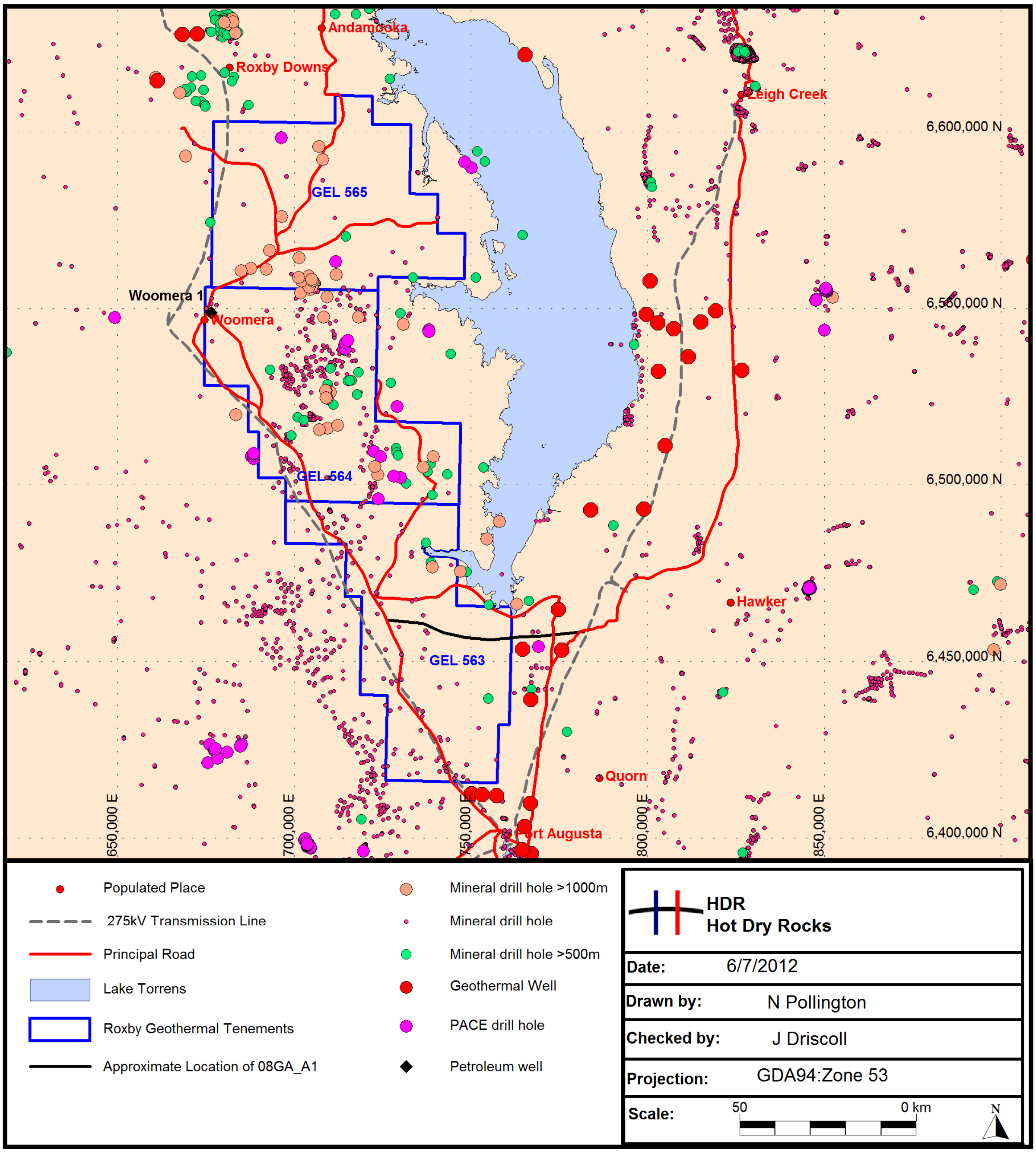

Figure 3. The spatial location of all minerals, geothermal and petroleum bores drilled proximal to the Roxby Geothermal Project (data sourced from SARIG).

Table 1. Bore holes within the Roxby Geothermal Project that yielded temperature data **(**data sourced from SARIG, the South Australia Department of Water, Land and Biodiversity Conservation, and Southern Gold).

Bore	Tenement	Year drilled	MGA Easting (m)	MGA Northing (m)	Zone	Total Depth (m)	Data type
LTDD002A	GEL 563	2007	752841	6446012	53	996.5	Precision Temperature Log
LTDD003	GEL 563	2007	755015	6439978	53	1034.3	Precision Temperature Log
MMDD1	GEL 564	2007	743328	6503022	53	906.3	Precision Temperature Log
PDDD2	GEL 564	2007	739236	6508108	53	1014.2	Precision Temperature Log
WDDD2	GEL 564	2007	737703	6503971	53	901.2	Precision Temperature Log
WPDD2	GEL 564	2006	739172	6501952	53	891.3	Precision Temperature Log
BLDD1	GEL 564	2006	728620	6510574	53	822.2	Precision Temperature Log
SAR 8	GEL 564	1981	723550	6502906	53	1340.0	Bottom Hole Tempera-ture
WLD1	GEL 565	1982	721725	6606171	53	650.0	Precision Temperature Log
DRD1	GEL 565	1981	708314	6591966	53	1100.0	Precision Temperature Log

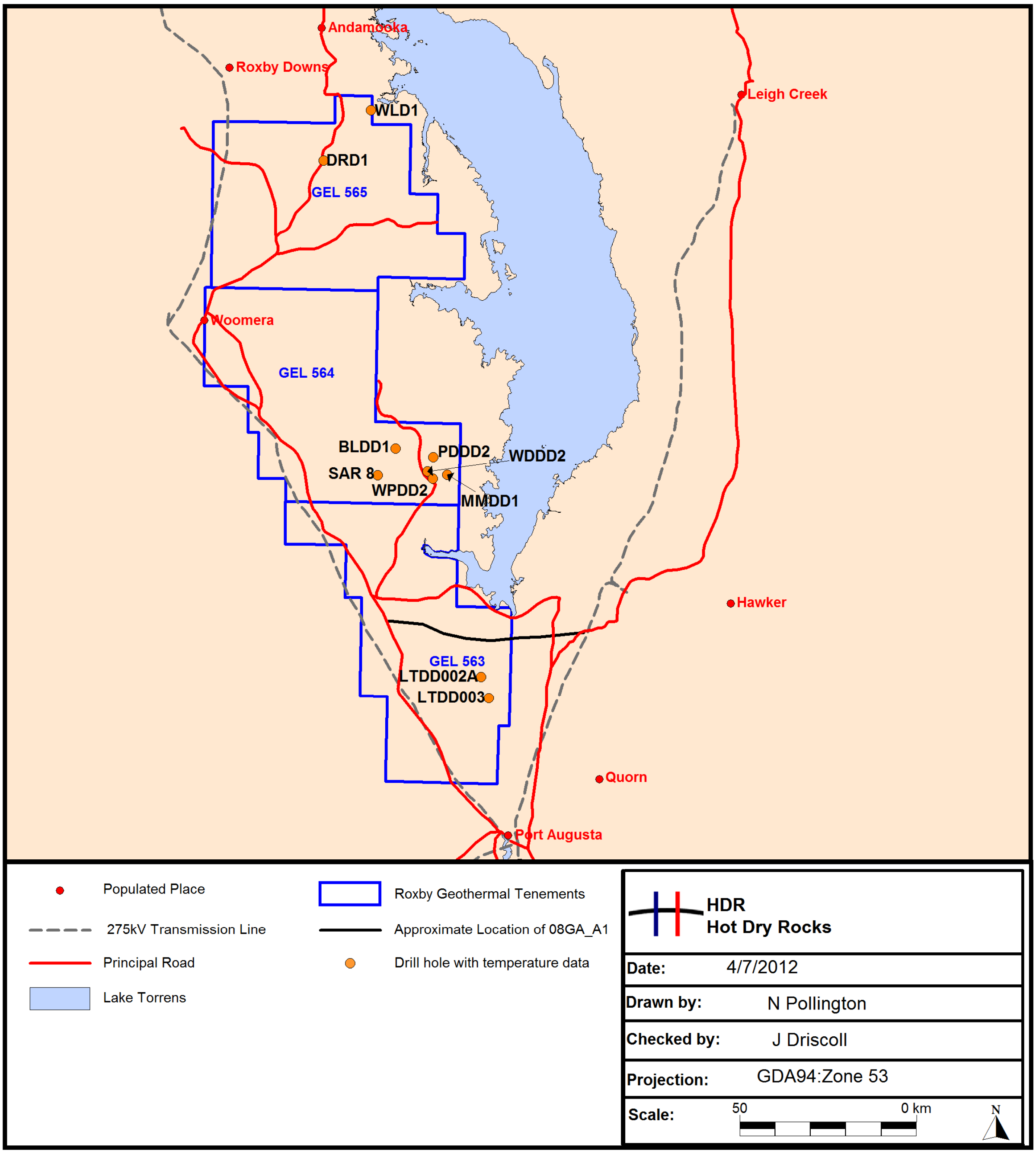

Figure 4. The location of all bore holes that yield temperature data within the Roxby Geothermal Project (See Table 1 for specific data points).

Recommendation: That all minerals companies with Exploration Licences (EL's) overlapping the RGP (Figure 5 and Appendix 1) be contacted to establish collaborative agreements, similar to that enacted between Southern Gold and Monax Mining. This will allow temperature data (and samples for thermal conductivity analysis) to be collected at a much reduced cost to RG. Benefits to the mineral exploration company includes a greater geological understanding of their tenement; sharing of costs for future drill holes; and

any geothermal resource identified could be utilised to supply power to any mines that may be developed (*cf*. Beverley Uranium mine and Petratherm's Paralana Project).

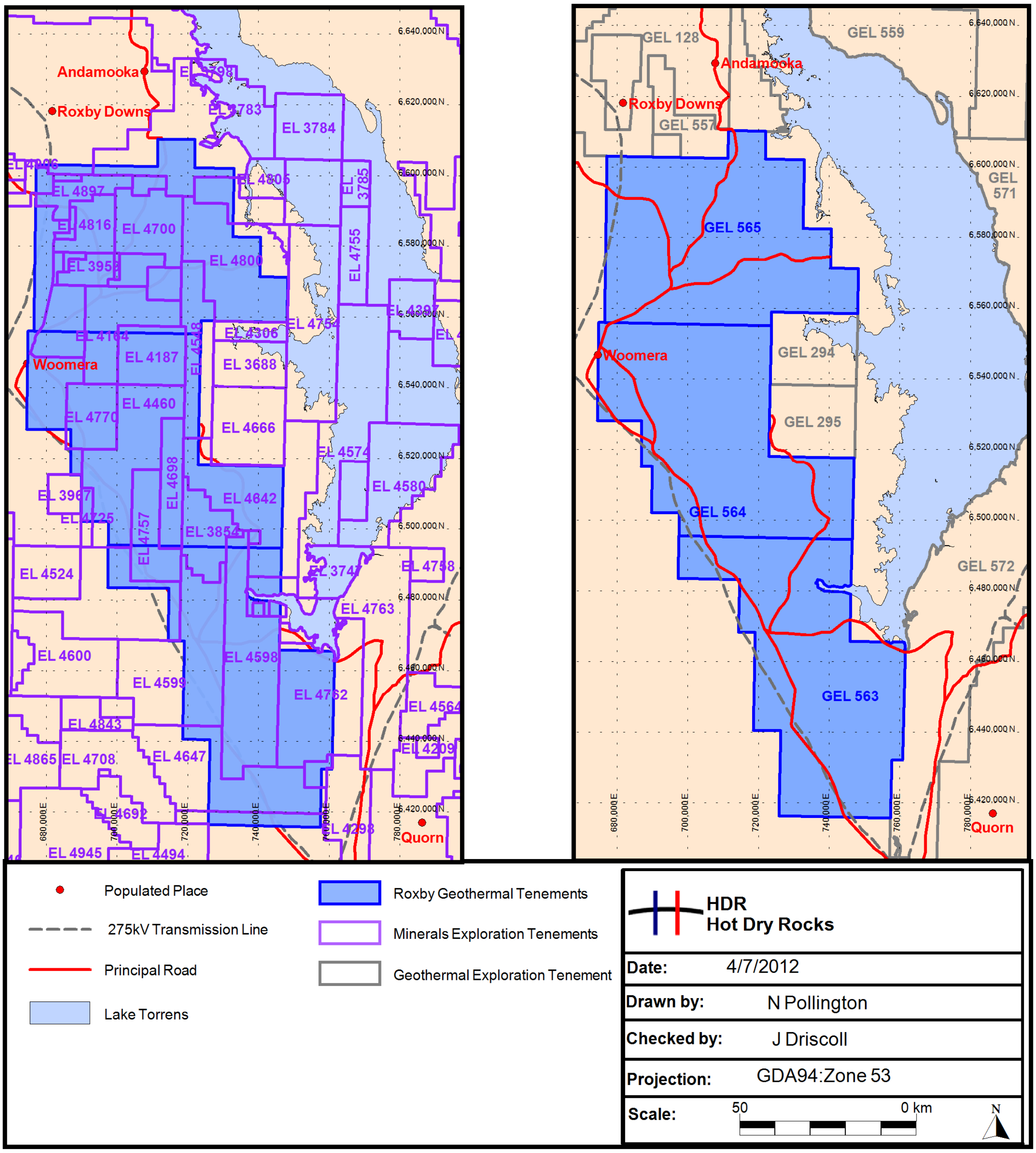

Figure 5. Minerals licenses that overlap the Roxby Geothermal Project (data sourced from SARIG). Full details are presented in Appendix 1.

2.3.1.2. Stress Data

In general, stress fields are anisotropic and inhomogeneous. They are defined in simplified terms by three mutually orthogonal principal axes of stress, being the maximum (S_1), intermediate (S_2) and minimum (S_3) stress axes. The determination of the local stress field is important as the theory of stress-dependent fracture permeability predicts enhanced permeability associated with critically stressed faults or fractures that are either undergoing dilation (~parallel to S_1) or shear reactivation (<45° to S_1) under the influence of the contemporary stress field.

In practice, the classification of far-field stress regimes is based upon the Andersonian scheme, which relates the three major styles of faulting in the crust to the three major arrangements of the principal axes of stress—the vertical principal stress (S_V) and the maximum and minimum horizontal principal stresses (S_H and S_h, respectively) (Anderson, 1951). These three major stress regimes are: (a) the normal faulting stress regime where $S_V > S_H > S_h$; (b) the strike-slip faulting stress regime where $S_H > S_V > S_h$; and (c) the reverse (or thrust) faulting stress regime where $S_H > S_h > S_V$ (Figure 6).

The RGP is located proximal to the Flinders Ranges of the Adelaide Geosyncline, which are currently seismically active and experiencing hundreds of earthquakes annually (Figures 7 and 8). This present-day seismic activity was initiated by coupling and/or convergence between the Pacific and Australian plates during the late Miocene period (<6 Ma) (Hillis and Reynolds, 2000; Sandiford *et al*., 2004). Evidence from earthquake focal mechanisms and fault kinematic analyses suggest that the regional far-field stress field within the Adelaide Geosyncline ranges from reverse fault, strike-slip fault and transitional stress regimes with an ~E–W compression direction (S_H) of 083° ± 30° (see classifications TF, SS and TS of Figure 6; Hillis & Reynolds, 2000; Quigley *et al*., 2006). The closest stress field indicator in the southern portion of the RGP is the Wilkatana Fault, which is a reactivated major bounding fault of the Adelaide Geosyncline located ~35 km to the east of GEL 563 (Figure 7). Fault kinematic analyses along the Wilkatana Fault show contemporary reverse oblique-slip (transitional strike-slip?) fault displacements related to the present-day stress regime (Quigley *et al*., 2006). Directly north of the RGP near the Olympic Dam mine site, Green Rock Energy Limited (GRK) have conducted an *in situ* bore hole stress test in their Blanche 1 well. The results of this test indicated a reverse fault stress regime (Green Rock Energy, 2008). In comparison, a compilation of the World Stress Map (WSM) data release (Heidbach *et al*., 2008) for all quality ranked *in situ* stress field data for the eastern Gawler Craton/Adelaide Geosyncline region is shown in Figure 8 and Appendix 2. This dataset consists entirely of earthquake focal mechanism data, which shows a mixture of strike-slip and reverse fault stress regime indicators.

As a consequence of this variability, the local stress field is best determined at individual well locations. However, it is notable that the two closest stress field indicators to the RGP both record the more favourable reverse fault stress regime. With respect to EGS-style developments, in either a reverse or strike-slip fault stress regime S_1 is horizontally compressive. In a reverse fault stress regime hydraulic stimulation generally results in approximately horizontal fracture growth (considered optimal for EGS heat recovery). Hydrofracs in a strike-slip stress regime will form steep to vertical dipping fractures that strike <45° (commonly 30°) to the direction of S_1. An additional implication of the potential transitional reverse/strike-slip stress regime is that if the magnitude of S_h does approach that of S_V then greater injection pressures may be required for hydraulic stimulation.

HDR notes the stress data are sparse and the question as to whether the RGP possess a favourable stress regime for reservoir development is unresolved.

Recommendation: That stress tests be conducted on bores drilled within the RGP to depths greater than 700 m. Unlike the petroleum industry, mineral drilling rigs do not usually have the capability of undertaking stress measurements whilst drilling. It would therefore be necessary to undertake these tests once drilling has completed. It is also possible to undertake these tests on minerals bores drilled previously provided the bore is open to accommodate the testing equipment

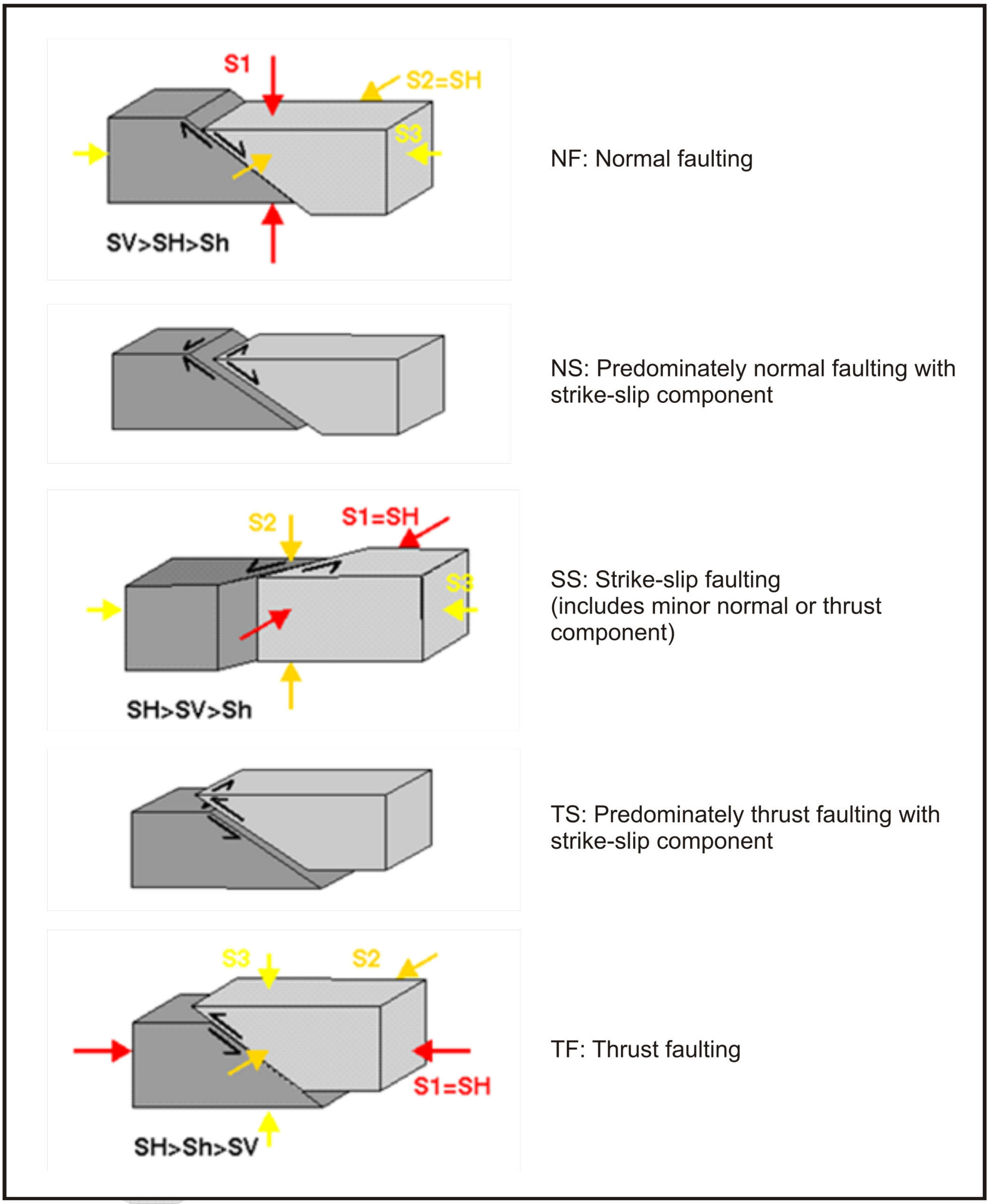

Figure 6. The World Stress Map stress regime classifications and their associated styles of faulting (from Heidbach *et al*., 2008).

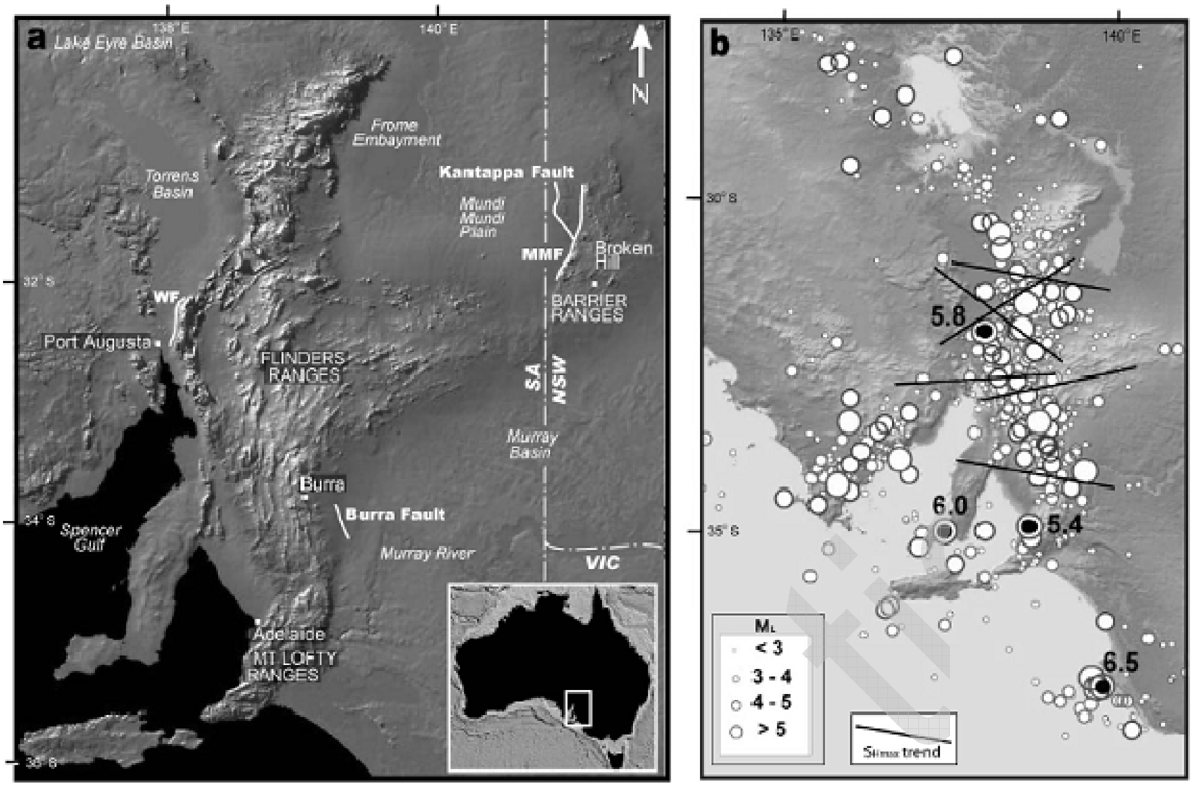

Figure 7: (a) Major physiographic features of south-central Australia. Note the position of the Wilkatana Fault (WF), which is located northeast of Port Augusta and provides the closest stress field indicator to GEL 563. (b) Distribution of historical seismic activity, earthquake magnitudes and S_H azimuth estimates in southern South Australia (from Quigley *et al*., 2006).

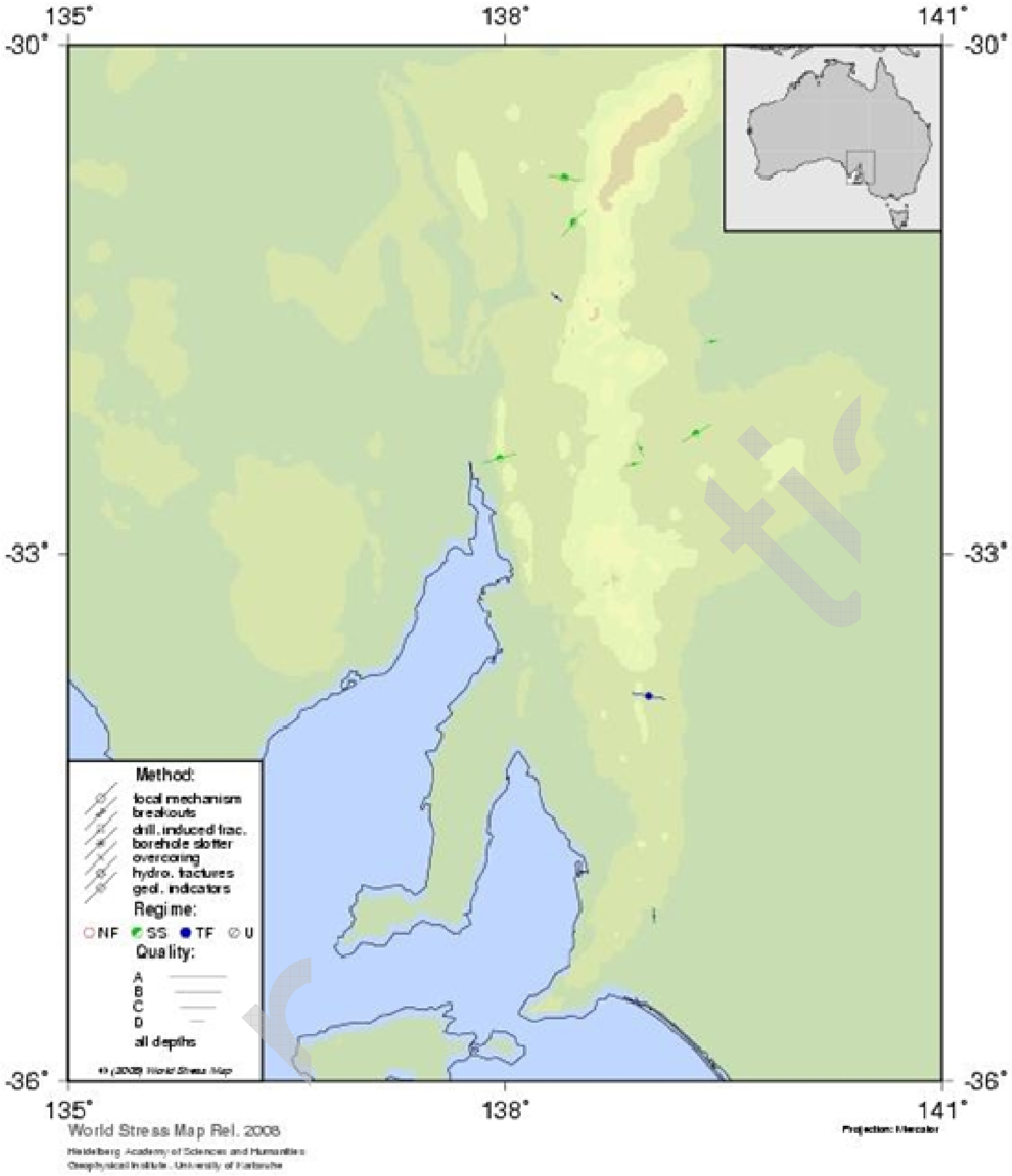

Figure 8: World Stress Map maximum horizontal stress (S_H) orientation indicators (Heidbach *et al*., 2008) located within the Adelaide Geosyncline, including the method, quality ranking, and stress regime. See Appendix 2 for specific data points.

2.3.1.3. Surface Manifestations

HDR has uncovered no records of any springs or seeps within the RGP.

2.3.2. Geophysical Data

2.3.2.1. Heat Flow Data

The International Heat Flow Commission global heat flow database lists four values proximal to the RGP: Ediacara (Munro *et al*., 1975), Iron Knob (Sass *et al*., 1976), Carrieton (Munro *et al*., 1975), and Mount McTaggart (Munro *et al*., 1975).

In addition to the global heat flow data points, a number of surface heat flow values have been calculated in recent years by geothermal companies, most notably Torrens Energy, GRK and SAU (Table 2, Figure 9). These 54 datasets indicated the median surface heat flow to be 93 mW/m^2 in this area. The global average for Proterozoic continental basins is approximately 58.3 mW/m^2 (Beardsmore & Cull, 2001), thus surface heat flow in the RGP can be considered to be highly elevated.

Table 2. Details of the publically available surface heat flow values within and surrounding GEL's 563, 564 and 565.

Bore Hole/Site	Project	Lat (°)	Long (°)	Easting (mE)	Northing (mN)	Zone	Total Depth (m)	Heat Flow (mW m^2)	Source	Tenement
BLDD1	RGP	31.517	137.408	728620	6510574	53	822.2	92	Southern Gold	GEL 564
MMDD1	RGP	31.582	137.564	743328	6503022	53	906.3	87	Southern Gold	GEL 564
PDDD2	RGP	31.537	137.520	739236	6508108	53	1014.2	85	Southern Gold	GEL 564
WDDD2	RGP	31.575	137.505	737703	6503971	53	901.2	83	Southern Gold	GEL 564
WPDD2	RGP	31.593	137.521	739172	6501952	53	891.3	85	Southern Gold	GEL 564
LTDD002A	RGP	32.094	137.679	752839	6446014	53	997.0	94	Southern Gold	GEL 563
LTDD003	RGP	32.148	137.704	755015	6439984	53	1118.7	94	Southern Gold	GEL 563
Blanche 1	Olympic Dam	30.470	136.797	672516	6627749	53	1935.0	94	Blanche 1 WCR [GRK]	GEL 128
Balrog 1	Parachilna	31.265	138.270	240075	6537810	54	507.0	110	TEY ASX Announcement 19Oct09	GEL 571
Faramir 1	Port Augusta	31.920	137.905	774717	6464754	53	443.0	67	TEY Annual Report 2011	GEL 571
Gandalf 1	Parachilna	31.305	138.183	231885	6533218	54	585.0	116	TEY ASX Announcement 19Oct09	GEL 571
Gollum 1	Parachilna	31.147	138.348	247129	6551120	54	501.0	106	TEY ASX Announcement 19Oct09	GEL 571
Melkor 1	Parachilna	31.160	138.143	227627	6549188	54	1007.0	115	TEY Annual Report 2011	GEL 571
Nazgul 1	Parachilna	31.075	138.151	228175	6558636	54	600.0	120	TEY ASX Announcement 19Oct09	GEL 571
Sauron 1	Parachilna	31.181	138.178	231051	6546894	54	375.0	120	TEY ASX Announcement 19Oct09	GEL 571
Shelob 1	Port Augusta	32.023	137.919	775655	6453313	53	321.0	61	TEY ASX Announcement 30Jun09	GEL 572
Theoden 2	Port Augusta	32.535	137.816	764480	6396816	53	372.0	101	TEY ASX Announcement 30Jul09	GEL 572

Thorin 1	Port Au-gusta	32.476	137.821	765133	6403333	53	363.0	93	TEY ASX Announcement 30Jun09	GEL 572
Treebeard 1A	Para-chilna	31.195	138.226	235638	6545422	54	1807.0	91	TEY ASX Announcement 19Oct09	GEL 571
Torrens 1 (TDH001)	Para-chilna	31.702	138.062	221587	6488843	54	760.0	82	TEY ASX Announcement 24Nov08	GEL 572
Edeowie 1	Para-chilna	31.296	138.431	255505	6534753	54	759.0	74	TEY ASX Announcement 19Oct09	GEL 571
TKHD1A	Port Au-gusta	32.016	137.848	769049	6454259	53	1002.0	96	TEY ASX Announcement 31Mar09	GEL 572
Carrieton	-	32.550	138.469	-	-	-	376.0	92	Open-File Report 75-567	-
Ediacara	-	30.600	138.117	-	-	-	213.0	96	Open-File Report 75-567	GEL 576
Iron Knob	-	32.717	137.119	-	-	-	305.0	109	Open-File Report 76-250	-
Mount McTaggart	-	30.450	138.300	-	-	-	175.0	101	Open-File Report 75-567	GEL 576
ACD2	Olym-pic Dam	30.641	136.795	-	-	-	915.0	92	Olympic Dam report 2009	GEL 128
ACD3	Olym-pic Dam	30.649	136.824	-	-	-	1229.0	95	Olympic Dam report 2009	GEL 128
ACD4	Olym-pic Dam	30.580	136.785	-	-	-	848.0	88	Olympic Dam report 2009	GEL 128
ACD5	Olym-pic Dam	30.578	136.811	-	-	-	670.0	99	Olympic Dam report 2009	GEL 128
ACD9	Olym-pic Dam	30.619	136.769	-	-	-	670.0	94	Olympic Dam report 2009	GEL 128
BD2	Olym-pic Dam	30.127	136.810	-	-	-	829.4	81	Olympic Dam report 2009	-
BLD1	Olym-pic Dam	30.380	137.216	-	-	-	768.0	92	Olympic Dam report 2009	GEL 206
BLD3	Olym-pic Dam	30.377	137.316	-	-	-	1024.0	75	Olympic Dam report 2009	-
DRD1	Olym-pic Dam	30.787	137.177	-	-	-	1100.0	74	Olympic Dam report 2009	GEL 565
HHD1	Olym-pic Dam	30.784	136.775	-	-	-	1187.0	81	Olympic Dam report 2009	-
HRD1	Olym-pic Dam	30.461	136.978	-	-	-	330.0	89	Olympic Dam report 2009	GEL 557
PD2	Olym-pic Dam	30.522	136.971	-	-	-	500.0	91	Olympic Dam report 2009	GEL128
PD3	Olym-pic Dam	30.522	137.008	-	-	-	442.0	86	Olympic Dam report 2009	GEL 557
RD2773	Olym-pic Dam	30.448	136.913	-	-	-	2328.9	119	Olympic Dam report 2009	GELA 164
RD2785	Olym-pic Dam	30.445	136.894	-	-	-	2323.4	115	Olympic Dam report 2009	GELA 164
SGD2	Olym-pic Dam	30.375	137.088	-	-	-	598.4	101	Olympic Dam report 2009	GEL 128
SGD4	Olym-pic Dam	30.402	136.979	-	-	-	800.0	92	Olympic Dam report 2009	GEL 128
SGD5	Olym-pic Dam	30.376	137.099	-	-	-	800.0	109	Olympic Dam report 2009	GEL 128

SGD6	Olym-pic Dam	30.366	137.089	-	-	-	800.0	98	Olympic Dam report 2009	GEL 128
TOD3	Olym-pic Dam	30.393	136.762	-	-	-	850.0	82	Olympic Dam report 2009	-
WLD1	Olym-pic Dam	30.657	137.314	-	-	-	650.0	95	Olympic Dam report 2009	GEL 565
WRD11	Olym-pic Dam	30.652	136.960	-	-	-	695.0	89	Olympic Dam report 2009	GEL 128
WRD12	Olym-pic Dam	30.663	136.950	-	-	-	388.0	100	Olympic Dam report 2009	GEL 128
WRD2	Olym-pic Dam	30.658	136.937	-	-	-	900.0	115	Olympic Dam report 2009	GEL 128
WRD4	Olym-pic Dam	30.656	137.000	-	-	-	584.8	82	Olympic Dam report 2009	GEL 128
WRD5	Olym-pic Dam	30.679	136.958	-	-	-	628.3	93	Olympic Dam report 2009	GEL 128
WRD6	Olym-pic Dam	30.647	137.058	-	-	-	748.9	84	Olympic Dam report 2009	GEL 128
WRD9	Olym-pic Dam	30.663	136.954	-	-	-	580.0	119	Olympic Dam report 2009	GEL 128

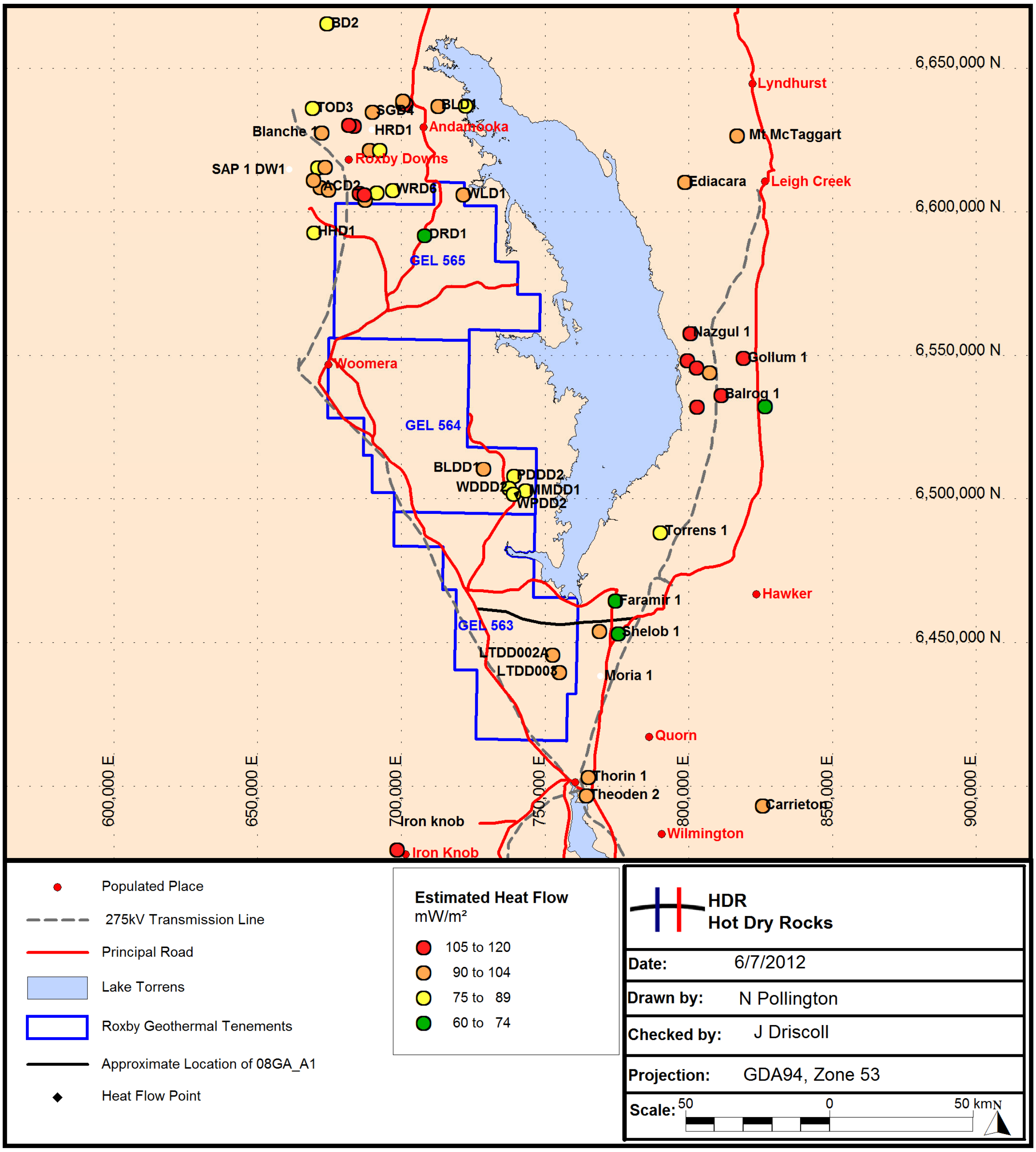

Figure 9. Surface heat flow map for the 54 wells and bore holes listed in Table 2.

2.3.2.2. Directly Measured Temperature Data

There are no directly measured temperature datasets deeper than 1,340 m in the RGP. This is shallower than any potential geothermal reservoir target.

2.3.2.3. *Gravity Data*

Figure 10 is an image of the regional gravity data for the RGP.

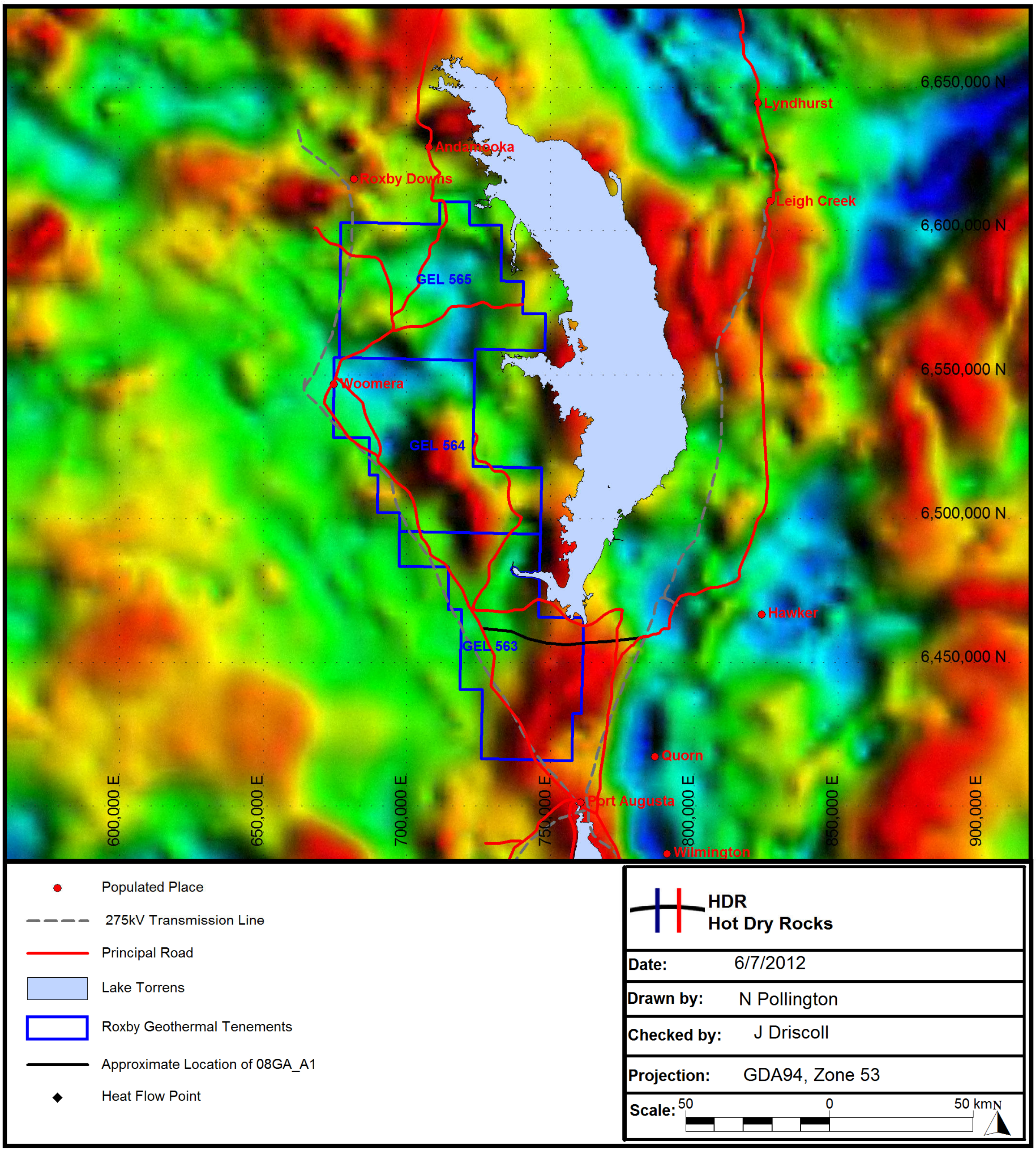

Figure 10. Isostatic residual Bouguer gravity (low-pass 200 km filter) of the Roxby Geothermal Project (Source: Kilgour, 2001).

2.3.2.4. Magnetics Data

Figure 11 is an image of the regional magnetics data for the RGP.

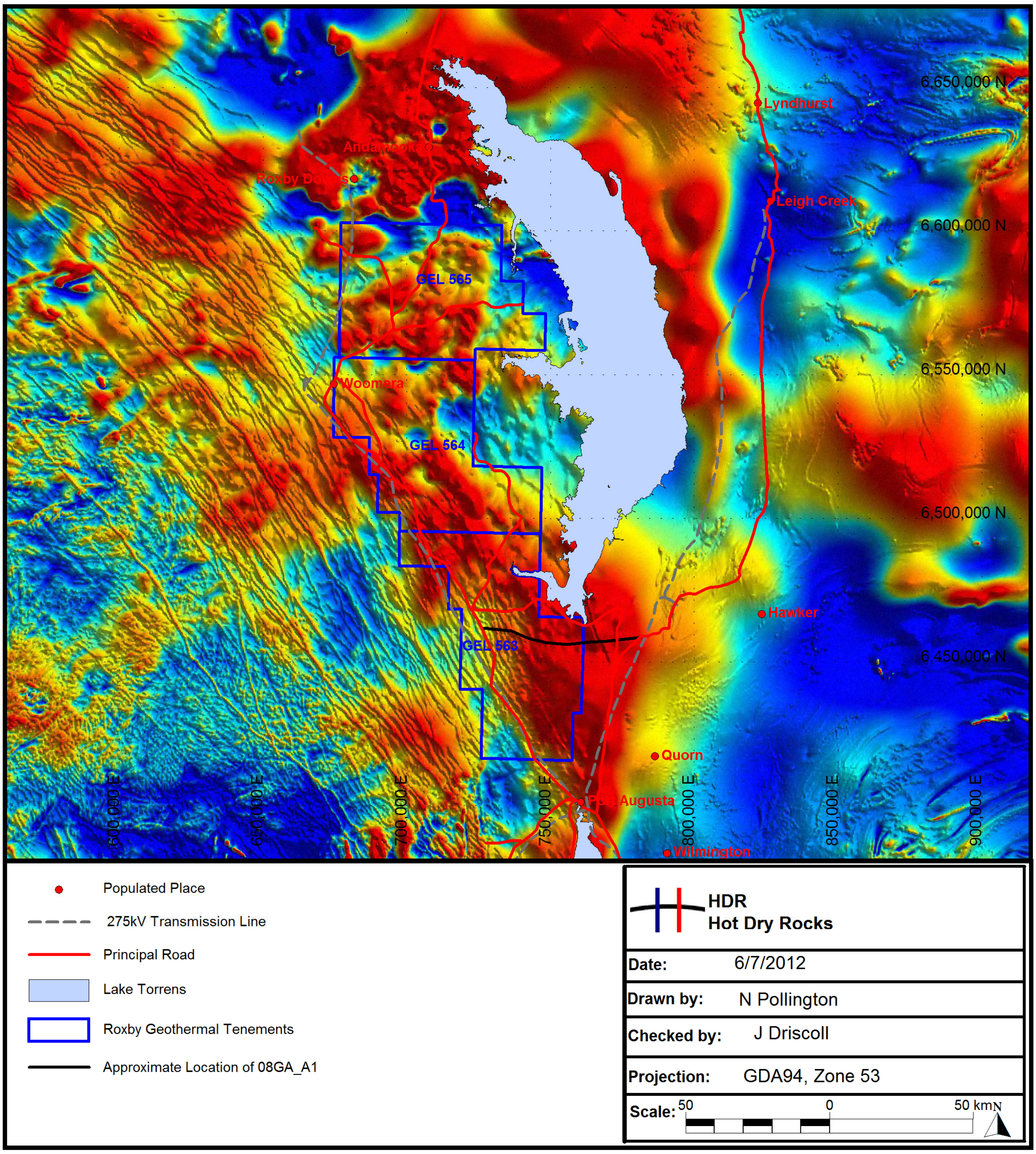

Figure 11. Magnetics image of the Roxby Geothermal Project (Source: Kilgour, 2001).

2.3.2.5. *Seismic Data*

HDR interrogated DMITRE's online mapping database, SARIG, and collated all references to seismic data in the RGP. Results indicate that most lines are of vintage quality (Figure 12, Table 3).

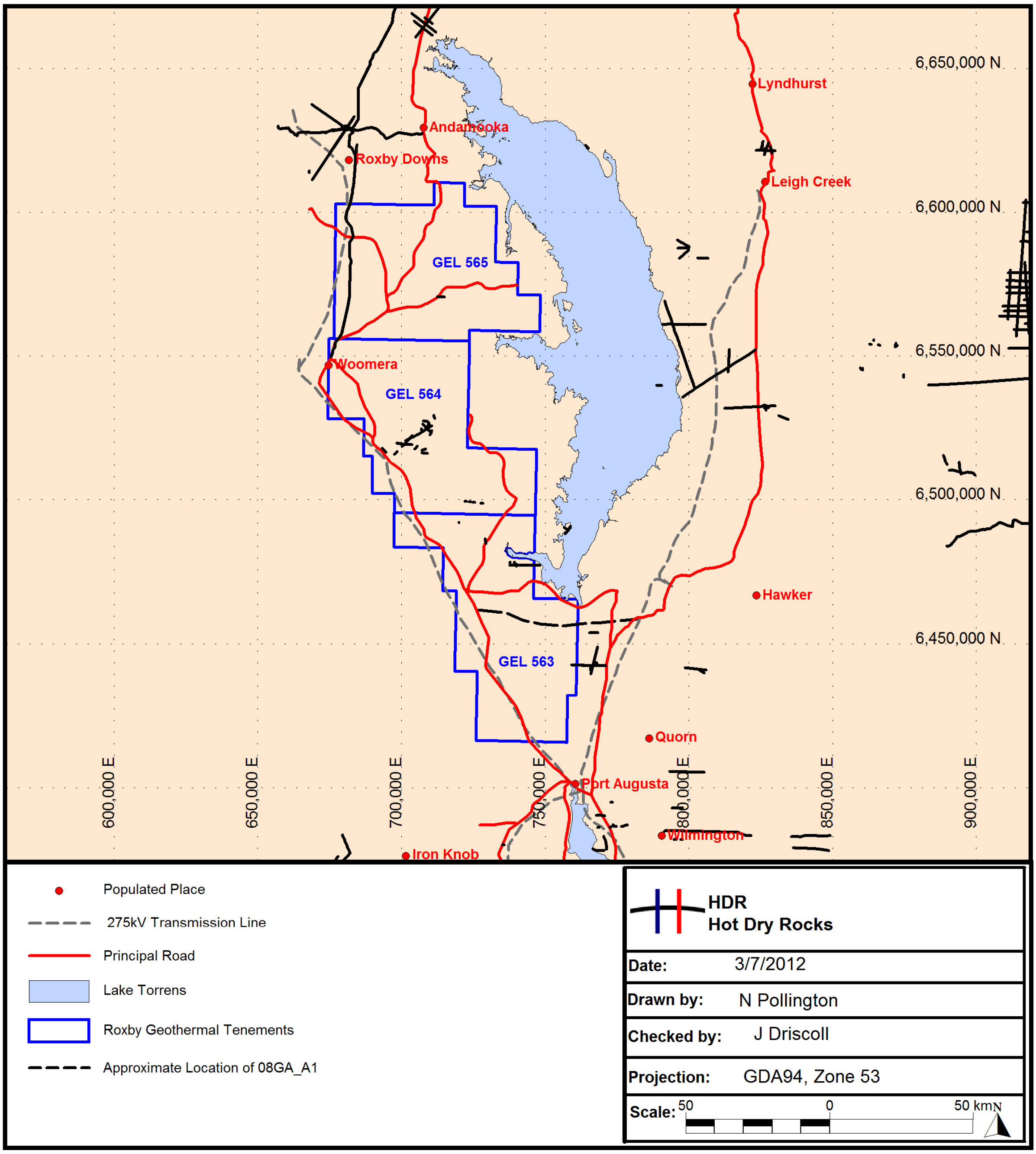

Figure 12. Location of 2D seismic lines within and proximal to the Roxby Geothermal Project. A summary of the data is detailed in Table 3 (data sourced from SARIG).

Table 3. Details of all seismic lines acquired within GEL's 563, 564 and 565 (data sourced from SARIG).

Line	Survey	Year recorded	Name	Province	Mining Tenement	Line Km	Comment	Tenement
WMC81-004	81SS01	1981	Oak Dam	Stuart Shelf	EL 784	2.46		GEL 565
OD81-007	81SS03	1981	Oak Dam 81/07	Stuart Shelf	EL 784	2.33		GEL 565
03GA-OD1	03GC01	2003	L163 Gawler Seismic Survey SA 2003	Gawler Craton		250.79		GEL 564, 565
MG80-EC5	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
RL791A-3	79SS02	1979	Stuart Shelf	Stuart Shelf	EL 226	2.91	580 m Of 600% And 710 m Of 1200% Rl79-04-1A Side By Side Comp	GEL 564
RL791A-5	79SS02	1979	Stuart Shelf	Stuart Shelf	EL 226	2.91	580 m Of 600% And 710 m Of 1200% Rl79-04-1A Side By Side Comp	GEL 564
RL791A-6	79SS02	1979	Stuart Shelf	Stuart Shelf	EL 226	2.91	580 m Of 600% And 710 m Of 1200% Rl79-04-1A Side By Side Comp	GEL 564
RL791A-7	79SS02	1979	Stuart Shelf	Stuart Shelf	EL 226	2.91	580 m Of 600% And 710 m Of 1200% Rl79-04-1A Side By Side Comp	GEL 564
WH77-006	77SS04	1977	Whittata 77/06	Stuart Shelf	EL 226	1.69	Expanded Spread	GEL 563
WP79-014B	79SS08	1979	Wilga Point 79/14	Stuart Shelf	EL 390	6.73		GEL 563
WP79-EXP	79SS08	1979	Wilga Point 79/14	Stuart Shelf	EL 390	6.73		GEL 563
WP79-014A	79SS08	1979	Wilga Point 79/14	Stuart Shelf	EL 390	6.73		GEL 563
MG77-005-1	77SS03	1977	Mt Gunson 77/05	Stuart Shelf		3.48		GEL 564
MG77-005-2	77SS03	1977	Mt Gunson 77/05	Stuart Shelf		3.48		GEL 564
MG80-006	80SS01	1980	Mt Gunson 80/06	Stuart Shelf		8.32		GEL 564
MG80-006W	80SS01	1980	Mt Gunson 80/06	Stuart Shelf		8.32		GEL 564
MG83-004-2	83SS01	1983	Mt Gunson 83-004	Stuart Shelf		15.77		GEL 564
MG80-39	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
MG80-004	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
MG79-011	79SS11	1979	Mt Gunson MG79-11	Stuart Shelf		2.13		GEL 564
MG83-004-1	83SS01	1983	Mt Gunson 83-004	Stuart Shelf		15.77		GEL 564
MG79-005	79SS03	1979	Mt Gunson 79/05	Stuart Shelf		1.23	Expanding Spread	GEL 564
MG80-500	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564

MG79-013-1	79SS07	1979	Mt Gunson 79/13	Stuart Shelf		4.37	Shot Between S/P 6/7 Then 18/19 And Then Move Up Two Positions	GEL 564
MG80-2400	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
MG80-007	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
MG80-EC21	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
MG80-EC2	80SS02	1980	Mt Gunson 80/07	Stuart Shelf		12.45		GEL 564
BA77-007	77SS05	1977	Beda Arm 77/07	Stuart Shelf	EL 206	10.47		GEL 563
BA77-A	77SS02	1977	Beda Arm 77/04	Stuart Shelf	EL 206	4	Side By Side Comp On Same Line	GEL 563
BA77-B	77SS02	1977	Beda Arm 77/04	Stuart Shelf	EL 206	4	Side By Side Comp On Same Line	GEL 563
BA79-3A	79SS01	1979	Beda Arm 79/03	Stuart Shelf		3.03		GEL 563
BA79-2A	79SS01	1979	Beda Arm 79/03	Stuart Shelf		3.03		GEL 563
BA79-1A	79SS01	1979	Beda Arm 79/03	Stuart Shelf		3.03		GEL 563
BA78-1B	78SS02	1978	Beda Arm 78/07	Stuart Shelf	EL 206	1.67	230 m Of 600% And 530 m Of 1200%	GEL 563
BA78-2	78SS02	1978	Beda Arm 78/07	Stuart Shelf	EL 206	1.67	230 m Of 600% And 530 m Of 1200%	GEL 563
08GA-A1	08AG01	2008	2008 Adelaide Geosyncline Seismic Trav-erse	Adelaide Geosyncline		60.38	This line traverses the Torrens hinge Zone and is part of a State-wide GA Survey L189	GEL 563
65-WILK	65PT02	1965	Wilkatana Seismic Survey 1965	Pirie-Torrens Basin	OEL 20, OEL 21	27.1	8 Km Refraction, 18 Km Reflection	GEL 563

DMITRE confirmed the majority of the seismic lines within the RGP were acquired over a six year period (1977–1983) as part of a seismic experiment on the Stuart Shelf. The main objective of the study was to record seismic lines using ‘high resolution principles’, basically using small charge sizes, high frequency, high sample rates, single geophones and downhole dynamite. Unfortunately the recording unit deployed by DMITRE only had 24 channels. The depth of penetration of the small charge sizes and limited offsets meant that DMITRE were restricted to the near surface only, and did not image the basement. Five areas were covered by this seismic project:

- Red Lake (RL prefix lines part of seismic survey 79SS02),
- Wilga Point (WP prefix lines part of seismic survey 79SS08),
- Oak Dam (WMC and OD prefix lines part of seismic surveys 81SS01 and 81SS03),

- Mount Gunson (MG prefix lines part of a number of seismic surveys), and
- Beda Arm (BA prefix lines part of a number of seismic surveys).

The lines only imaged the shallow surface and are of vintage quality; many of the lines listed were simply noise analysis. DMITRE released a brief paper regarding these activities (Nelson, 1979—Attachment 1) and has supplied all available images (Attachment 2).

2.3.2.6. Thermal Conductivity Data

Rock thermal conductivity is most accurately measured on core, outcrop or cuttings samples using a Divided Bar Apparatus. HDR builds and operates such equipment in the HDR Thermal Properties Laboratory in Melbourne.

HDR previously carried out measurements on a number of core specimens from the RGP and proximal localities (Beardsmore, 2005; Sewell, 2008; Antriasian, 2009, 2010). The results are tabulated in Appendix 3 and shown in Figure 13. Facies variation of formations across the RGP is poorly understood.

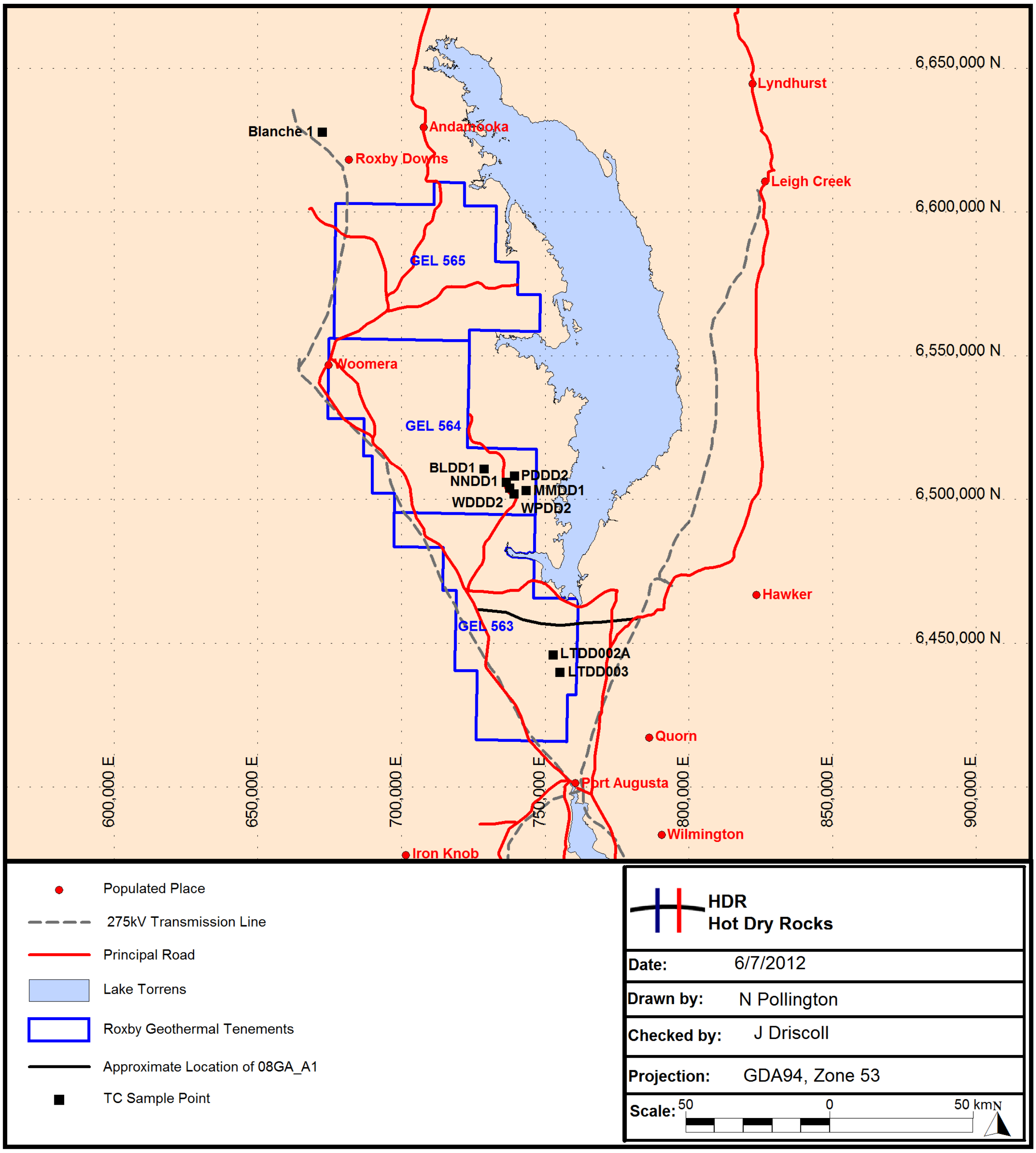

Figure 13. Geographical representation of wells and bore holes bores sampled for thermal conductivity analysis in this report. See Appendix 3 for specific data points.

Recommendation: That HDR liaise with the DMITRE core library to identify core samples from well bores elsewhere in the RGP. That representative samples be collected and subjected to thermal conductivity analysis. The results could be used to further constrain subsurface geological heat flow modelling and enable more accurate temperature prediction.

2.3.3. Geochemical Data

2.3.3.1. Heat Generation Data

Heat generation is a physical property of rocks related to the elemental concentrations of uranium (U), thorium (Th) and potassium (K), and rock density. It is reported in micro-Watts per cubic metre (μW/m^3). Heat generation needs to be incorporated into a heat flow model to accurately predict temperature.

Heat generation is best determined from the analytical measurement of U, Th and K concentrations within rock samples. HDR assessed the heat generation of rocks proximal to the RGP using data from GA's geochemical database (OZCHEM, 2007; Appendix 4). In addition, HDR commissioned Whole Rock Fusion analysis for SAU to assess the heat generation of rocks proximal to the RGP (Table 4). Both sets of data have been turned into heat generation estimates following the method described in Beardsmore & Cull (2001), and the locations of these data points are detailed in Figure 14.

Table 4. Heat generation results from HDR's Whole Rock Fusion analysis for SAU. Data are plotted in Figure 14.

Sample	Drillhole	Density (g/cm3)	±	U (ppm)	Th (ppm)	K (%)	Heat generation (μW/m3)	±[1]	Formation	Lithology
SAU093	BLDD1	2.818	0.01	6.70	5.50	2.87	2.52	0.03	Gairdner Dyke	Dark red fine-grained basalt
SAU063	PDDD2	2.588	0.01	8.40	36.40	10.10	5.49	0.07	Gawler Range Volcanics	Blood red to brown/grey rhyolite, haematite
SAU064	PDDD2	2.519	0.01	14.70	4.00	5.53	4.33	0.06	Gawler Range Volcanics	Red-brown rhyolite
SAU075	WDDD2	2.438	0.00	1.20	1.70	1.35	0.51	0.01	Gawler Range Volcanics	Pale pink rhyolite
SAU092	BLDD1	2.946	0.01	6.50	3.40	0.04	2.12	0.03	Gawler Range Volcanics	Red fine-grained basalt, friable
SAU094	BLDD1	2.651	0.01	4.28	20.90	5.80	3.09	0.04	Donington Suite Granite	Granite, haematite and chlorite alteration
SAU095	BLDD1	2.665	0.01	3.20	19.30	5.42	2.68	0.03	Donington Suite Granite	Granite, haematite alteration
SAU066	PDDD2	2.861	0.01	5.10	6.90	2.91	2.22	0.03	Wallaroo Group	Altered sediment, bleached pale pink/cream to grey, fractured, sulphides, carbonate, siderite, chlorite, remnant bedding?
SAU077	WDDD2	2.978	0.01	4.80	17.60	9.05	3.70	0.05	Wallaroo Group	Altered sediment, grey-dark green, chlorite, carbonate, haematite, healed fractures
SAU085	WPDD2	3.181	0.01	5.80	11.90	0.56	2.84	0.04	Wallaroo Group	Altered sediment, red, haematite, carbonate
SAU086	WPDD2	3.189	0.01	26.60	21.70	1.18	10.15	0.14	Wallaroo Group	Altered sediment, purple-grey, fluorite, chlorite, haematite, carbonate, ?quartz, remnant bedding
SAU087	WPDD2	3.540	0.02	6.20	3.40	0.04	2.44	0.04	Wallaroo Group	Altered sediment, dark grey, haematite, carbonate, chlorite

The range of 0.43–431 μW/m^3 (median value of 5.93 μW/m^3) for the 83 granitic samples is elevated. However, it is not as high as values reported from the Big Lake Suite Granodiorite beneath the Cooper Basin in South Australia (~10 μW/m^3, McLaren *et al*., 2003).

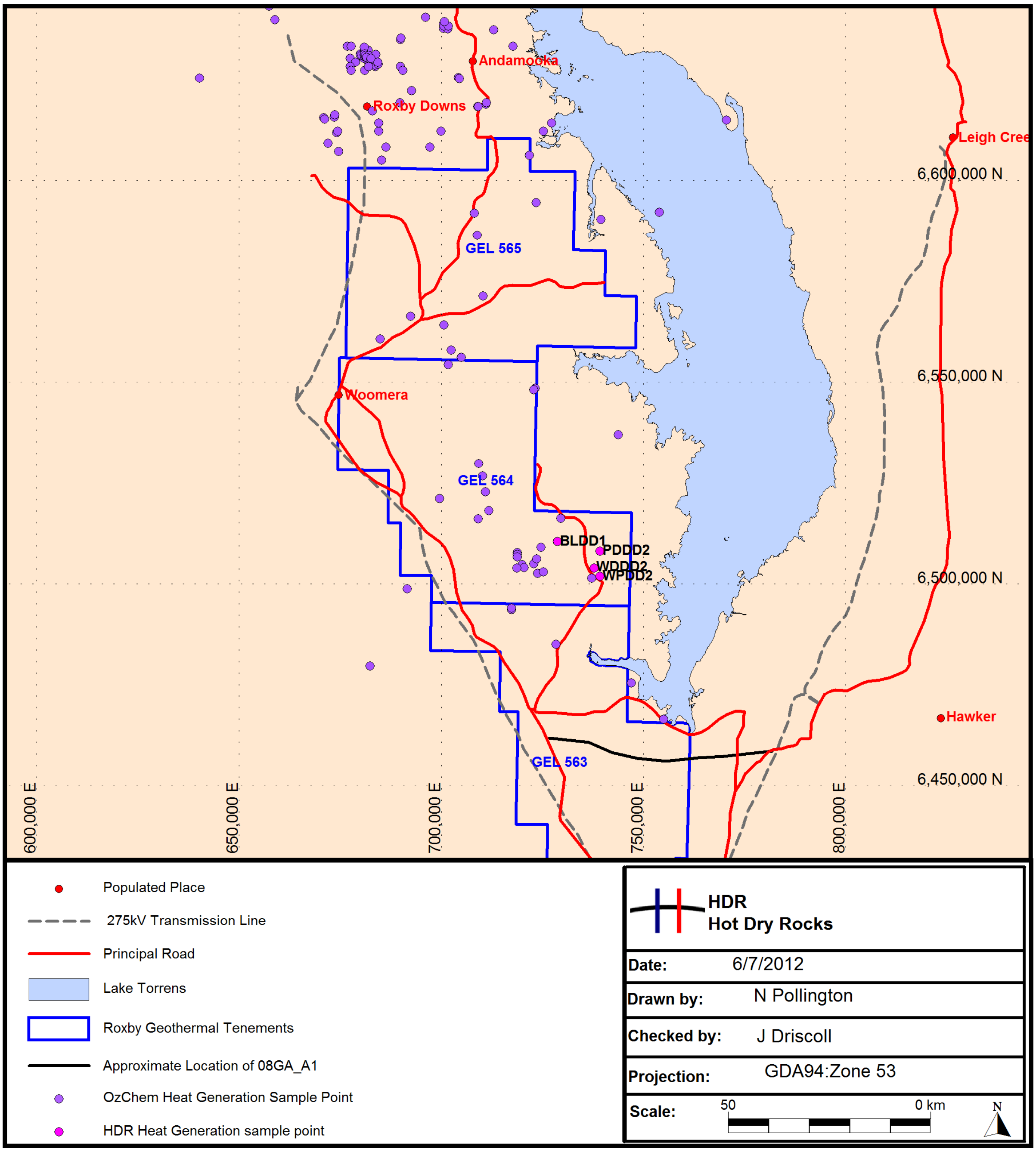

Figure 14. Spatial distribution of estimated heat generation data proximal to the Roxby Geothermal Project (values calculated using elemental proportions of radioactive isotopes from Geoscience Australia's OZCHEM database and Hot Dry Rock's whole rock fusion analysis). See Table 4 and Appendix 4 for specific data points.

Recommendation: That HDR undertake further validation of heat generation of basement rocks and sediments from hand specimen or core samples. Whole Rock Fusion analysis is a fast and relatively inexpensive means of determining heat generation. Results would reduce uncertainties in future regional heat flow and temperature modelling.

2.3.3.2. Water

Geothermal projects require access to water during several stages of exploration, development and operation. Water is needed firstly for basic drinking and washing purposes for exploration, drilling, construction, operations and maintenance crews. Water is needed in larger amounts during the drilling process at all stages of exploration and production drilling.

For an EGS project, water is needed to carry out the hydraulic stimulation program, to 'charge' the artificial reservoir, and possibly to provide 'make up' fluid during the life of the production. If water is present in sufficient quantities it can be used to cool the surface plant, maximising generation efficiency and minimising plant costs.

HSA projects rely on the presence of *in situ* hot water in the underground reservoir. In order to commercially exploit an HSA resource, detailed data on the temperature and water-flow characteristics of the aquifer need to be obtained.

Water is the medium through which heat is extracted from the subsurface and brought to surface, otherwise referred to as the 'working fluid' or 'heat transmission fluid'.

2.3.3.2.1. Regulation and Legislation

In South Australia, water resources (groundwater, surface water and watercourses) and licensing/permitting requirements are administered by the South Australian Department for Water (DfW) under the *Natural Resources Management Act* (2004). The main method of managing water allocation and use is the process of prescription, which is administrated by the DfW, and results in the development of a Water Allocation Plan (WAP) by one of the eight Natural Resources Management boards (NRM boards) operating in South Australia. For instance, the WAP for the Far North Prescribed Wells Area (South Australian Arid Lands Natural Resources Management Board, 2009) covers a large part (but not all) of the arid north-eastern quarter of South Australia, including the South Australian component of the Great Artesian Basin and the Cooper Basin, areas of significant geothermal prospectivity. The northern and southern portions of the RGP are administered by the Kingoonya and Gawler Range Natural Resources Management Groups respectively.

The WAP sets the principles or rules under which consumptive pools, entitlements and allocations are created, and details how water is allocated to new licensed water users and how licences or entitlements can be traded. The DfW assists NRM boards in the preparation of WAPs by providing data (hydrogeological and hydrological) and advice about licensing, permits, legislation, policy and intergovernmental agreements. Once an NRM board has prepared a draft WAP, the community is consulted. Once community consultation has been completed, WAP's are adopted by the relevant Minister and become state government policy.

The PGEA 2000 does not authorise water take outside the provisions of the NRMA 2004. The PGEA 2000 stipulates that a geothermal company must prepare and submit an Environmental Impact Report (EIR) and a Statement of Environmental Objectives (SEO), or demonstrate the geothermal project can achieve the objectives of an existing SEO. As part of the development of the SEO and EIR, potential water sources for operations must be identified, including consulting with all relevant stakeholders (including government agencies) to identify their concerns and offer mitigation strategies. Once this process is completed the geothermal company must apply for specific activity approvals pursuant to the PGER 2000 Regulation 18 or 19, where the Regulator is informed of the source of water. Whilst the SEO covers most water requirements for exploratory geothermal drilling and field operations, activities that may involve substantial water volumes (e.g. extended fracture stimulation activities, or make-up water to offset water losses from an operational system), then a specific water licence would be required under the terms of the relevant WAP.

Proponents must obtain a well construction permit from DfW for a specified geothermal well-casing design that is designed for aquifer resource protection (e.g. through engineering measures to isolate aquifer units).

In terms of water allocation and licensing, some parts of South Australia are not prescribed under the NRMA 2004, and thus any development in these areas would not require a water allocation (i.e. if an adequate water supply can be identified in a non-prescribed area, then a licence or allocation is not required). It is unclear whether the area covered by the RGP would require water allocation, and thus the South Australian government should be consulted in this regard.

With regards to discharge of water (i.e. not involving reinjection) for geothermal operations falling under PGER 2000, the key issue for the Regulator is whether discharge is sustainable. It is understood that the option preferred by the Regulator would be that water used in geothermal operations is reinjected to the same aquifer to maintain pressure and support sustainability; however, the Regulator will consider alternatives if the geothermal operator can demonstrate the system will be more sustainable via discharging by other methods. In any case, a licence for water take and discharge would be required under the NRMA 2004.

2.3.3.2.2. Water Availability in the RGP

The area west of Lake Torrens experiences an arid climate with hot summers and mild winters. Three Bureau of Meteorology recording stations are within or proximal to the RGP (Andamooka, Woomera Aerodrome and Yudnapinna). Annual rainfall is approximately 200 mm, and this is generally evenly distributed through the year. Rainfall variability is moderate to high, and evaporation rates typically exceed rainfall rates by an order of magnitude.

2.3.3.2.3. Water Analysis

As yet, HDR has been unable to source subsurface water data from the RGP.

Recommendation: That South Australian government agencies be contacted to ascertain water data attributes from the RGP.

Recommendation: That wells that intersect deeper intervals of the stratigraphic section in the RGP be identified, and that, if possible, groundwater from these deeper intervals be obtained and analysed.

3. Geological Findings

3.1.1. Regional Geology

The RGP is sited on the eastern margin of the Gawler Craton (Figure 15), an extensive region of Archaean to Mesoproterozoic crystalline basement, comprising metasediments, volcanic and igneous intrusive rocks, that underlies approximately 440,000 km^2 of central South Australia. The Gawler Craton is subdivided into a number of tectonic subdomains with the RGP restricted to the Olympic Subdomain, a north–south orientated feature.

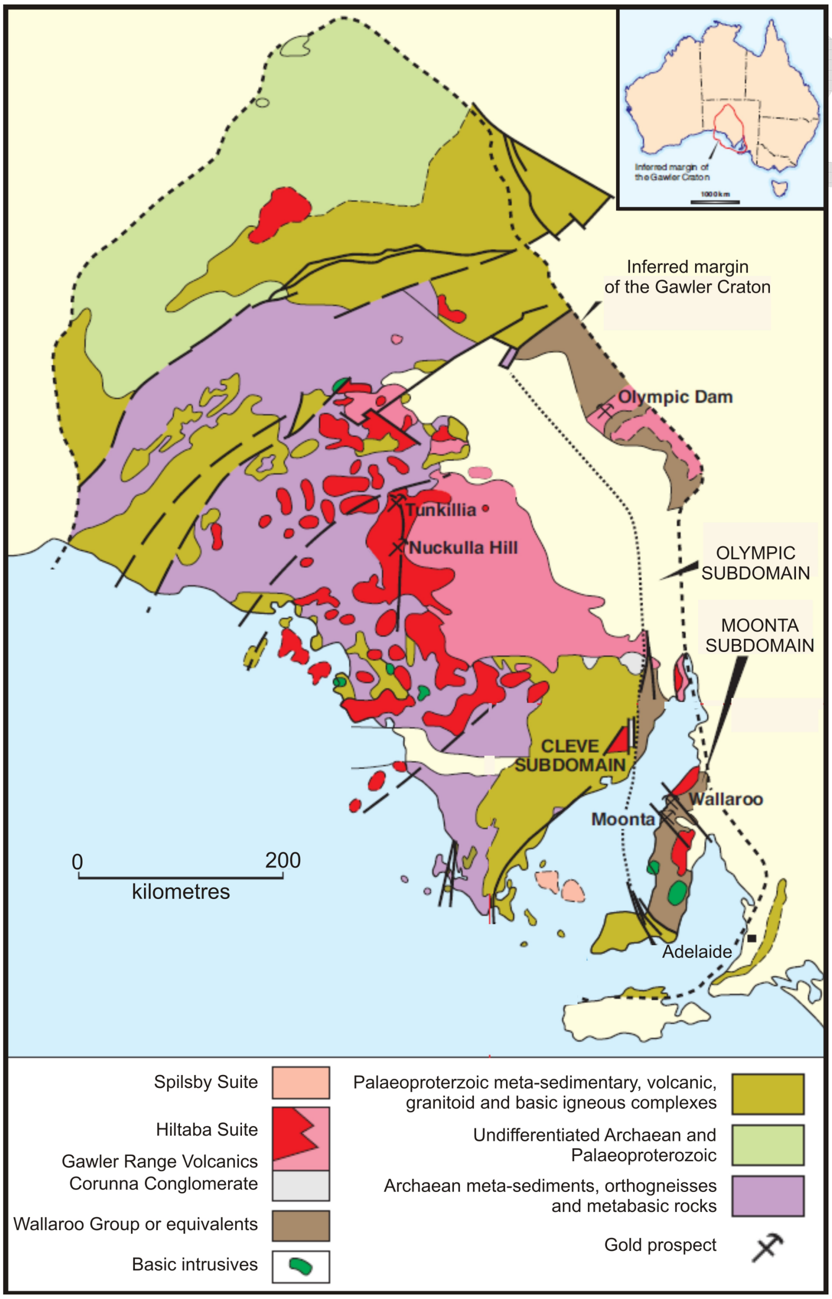

Figure 15. Solid geology interpretation of the Gawler Craton (from Zang, 2002). The RGP lies within the Olympic Subdomain on the eastern margin of the Gawler Craton.

The oldest basement rocks in the Olympic Subdomain are the Palaeoproterozoic Hutchison Group metasediments and Donington Granitoid Suite, and the Late Palaeoproterozoic Wallaroo Group metasediments and volcanics. These rocks are intruded by early Mesoproterozoic Hiltaba Suite felsic granitoids and locally overlain by the comagmatic extrusive Gawler Range Volcanics. Arenaceous Mesoproterozoic redbed sediments of the Pandurra Formation unconformably overlie these volcanics, and are in turn both intruded and overlain by the Gairdner Dolerite dyke swarm and its extrusive equivalent, the Beda Volcanics. Proterozoic to Cambrian flat-lying sedimentary rocks of the Stuart Shelf—the Umberatana and Wilpena Groups—unconformably overlie the Beda Volcanics. The youngest deposits are a thin veneer of Recent to Quaternary sediments.

3.1.2. Structural style of the RGP

Deep seismic data within the RGP are limited to the southern portion of GEL 563 where GA acquired Seismic Line 08GA-A1 (the surface trace of this is shown in Figure 2). The seismic line trends almost east–west and is approximately perpendicular to the structural grain of the Olympic Subdomain. HDR feels that in the absence of other seismic data, Line 08GA-A1 might be used as a proxy for structural relationships in the wider RGP.

HDR independently interpreted GA's Seismic Line 08GA-A1 as part of the GEL 302 Geothermal Resource statement (Beardsmore, 2009), and for ease of reference, the following section has been reproduced from this Geothermal Resource Statement. Note that since the statement was issued, the underlying metasedimentary unit has been interpreted as the Wallaroo Group rather than the Hutchison Group.

Seismic Line 08GA-A1 traverses the northern section of GEL 563 (Figure 2). An interpretation of this line by HDR suggests that the Adelaidean–Cambrian succession thickens towards the east, controlled by a major west-dipping extensional fault (Figure 16). This fault controls a regional, hanging-wall, rollover structure that HDR believes dominates much of the structural development of GEL 563 and surrounding areas. The axis of the half-graben defined by this fault forms the 'Pirie-Torrens Basin', with the eastern footwall probably representing a transition to the 'Torrens Hinge-line'.

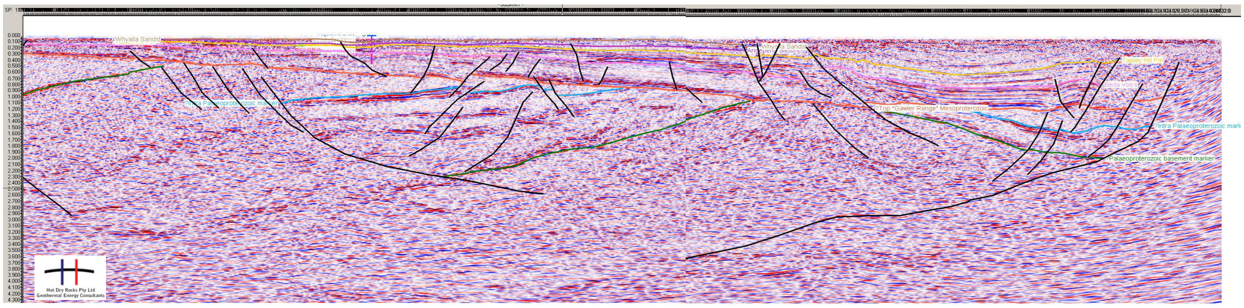

Figure 16. Interpretation of seismic line 08GA-A1 (whole of line) showing thickening of Adelaidean succession towards a basin bounding fault in the east (Beardsmore, 2009). Orange horizon marks a major erosional surface (probable top of Gawler Range Craton succession) with inversion and erosion of the hangingwall roll-over anticline. A possible older Palaeoproterozoic rift basin (blue and green horizons) may exist at depth.

A marked angular unconformity denotes the probable top of the Gawler Range Craton succession. This unconformity suggests kilometre-scale inversion and erosion along the eastern boundary fault sometime prior to the Adelaidean. Although of unknown provenance, these reflections may represent an earlier rift succession with the change in dip representing the eastern and western limbs of a roll-over anticline.

It is possible that this older rift succession was controlled by a fault identified on the western margin of GEL 563 and that basin extension ‘flipped’ polarity to the eastern fault during the later Adelaidean extensional event.

The lithological explanation of seismic reflections deeper than one kilometre is currently unproven by drilling. The Basement of this region is classically referred to as ’Gawler Range Volcanics‘, and it is possible that some of these deeper reflections may represent layered volcanics. However, the seismic character seems to be more characteristic of rocks of a sedimentary origin. It is possible that the deeper rift succession may represent the Palaeoproterozoic Wallaroo Group (interbedded metasediments). Reflections beneath this package are more chaotic and may reflect crystalline Basement.

3.1.3. Stratigraphy

Stratigraphic control in the RGP is provided by a series of minerals bores drilled by MOX in 2006–2007—as well as four other minerals bores drilled by other operators between 1977 and 1980—and these are used to indicate the stratigraphic intervals likely over the wider RGP. These bores provide good control of the subsurface stratigraphic succession to a depth of approximately 1,000 m. A generalised stratigraphic column is shown in Figure 17. The regional stratigraphic framework of the RGP is almost entirely derived from subsurface minerals datasets as most of the area is covered by a thin Cainozoic veneer.

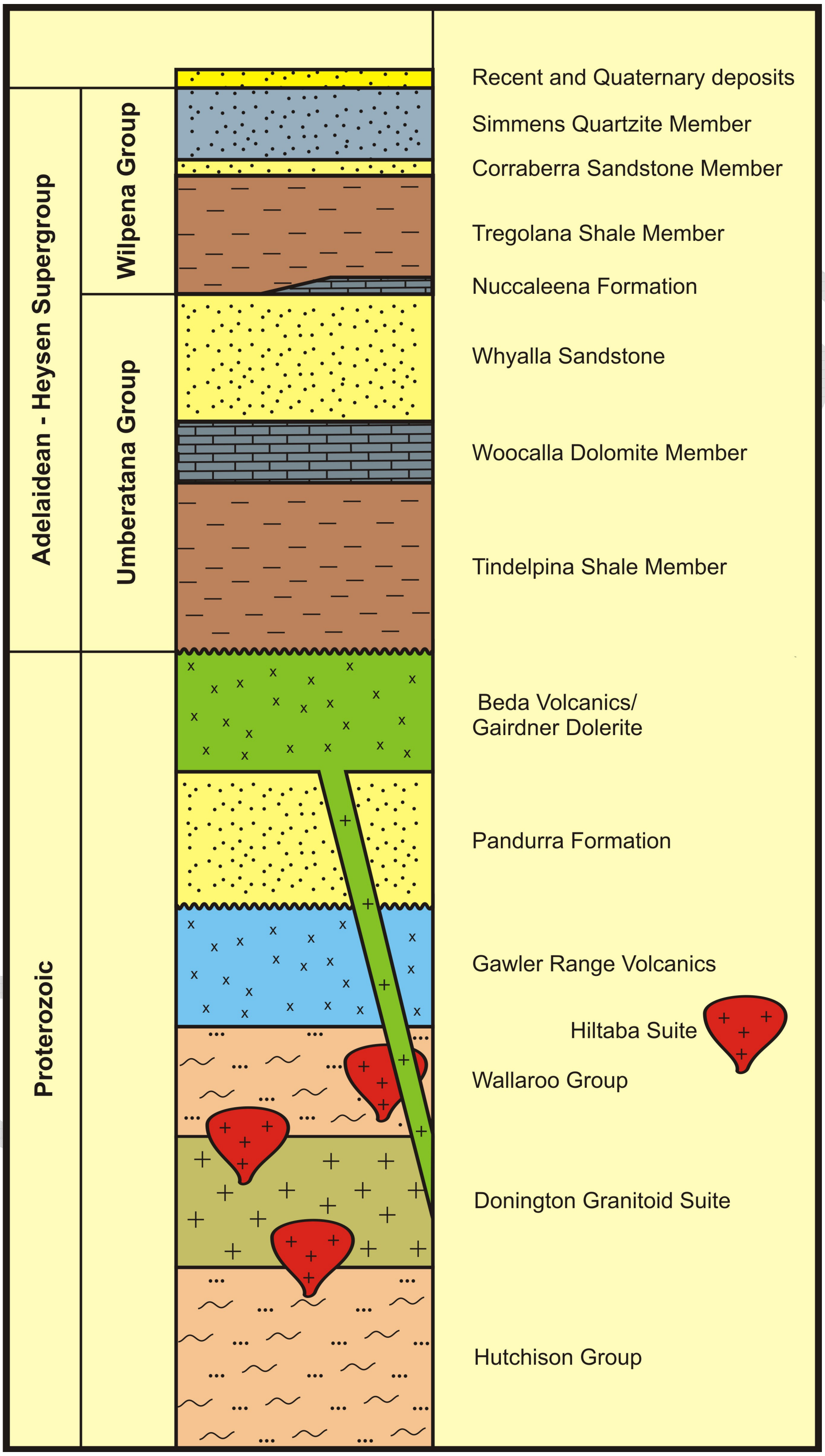

Figure 17. Stratigraphic column for GEL's 563 and 564 (modified from Swain and Grant, 2009).

HDR recommends all deep bores within and surrounding the RGP be examined for stratigraphic data and incorporated into a study.

The shallowest succession comprises a Neoproterozoic- to Cambrian-aged Adelaidean sequence (the Umberatana and Wilpena Groups).

Underlying this is the sequence actively being targeted by MOX for Olympic Dam style Cu–U–Au mineralisation. The main lithological successions are detailed in Figure 18. The Palaeoproterozoic units include the Hutchison Group metasediments (Orosirian); Donington Granitoid Suite (Orosirian); and the Late Palaeoproterozoic (Statherian) Wallaroo Group metasediments and volcanics. These units underwent deformation during the 1,730–1,700 Ma Kimban Orogeny, and were intruded by Early Mesoproterozoic (Calymmian) Hiltaba Suite granitoids and comagmatic Gawler Range Volcanics. The Palaeoproterozoic and Early Mesoproterozoic rocks are unconformably overlain by arenaceous redbed sediments of the Mesoproterozoic Pandurra Formation.

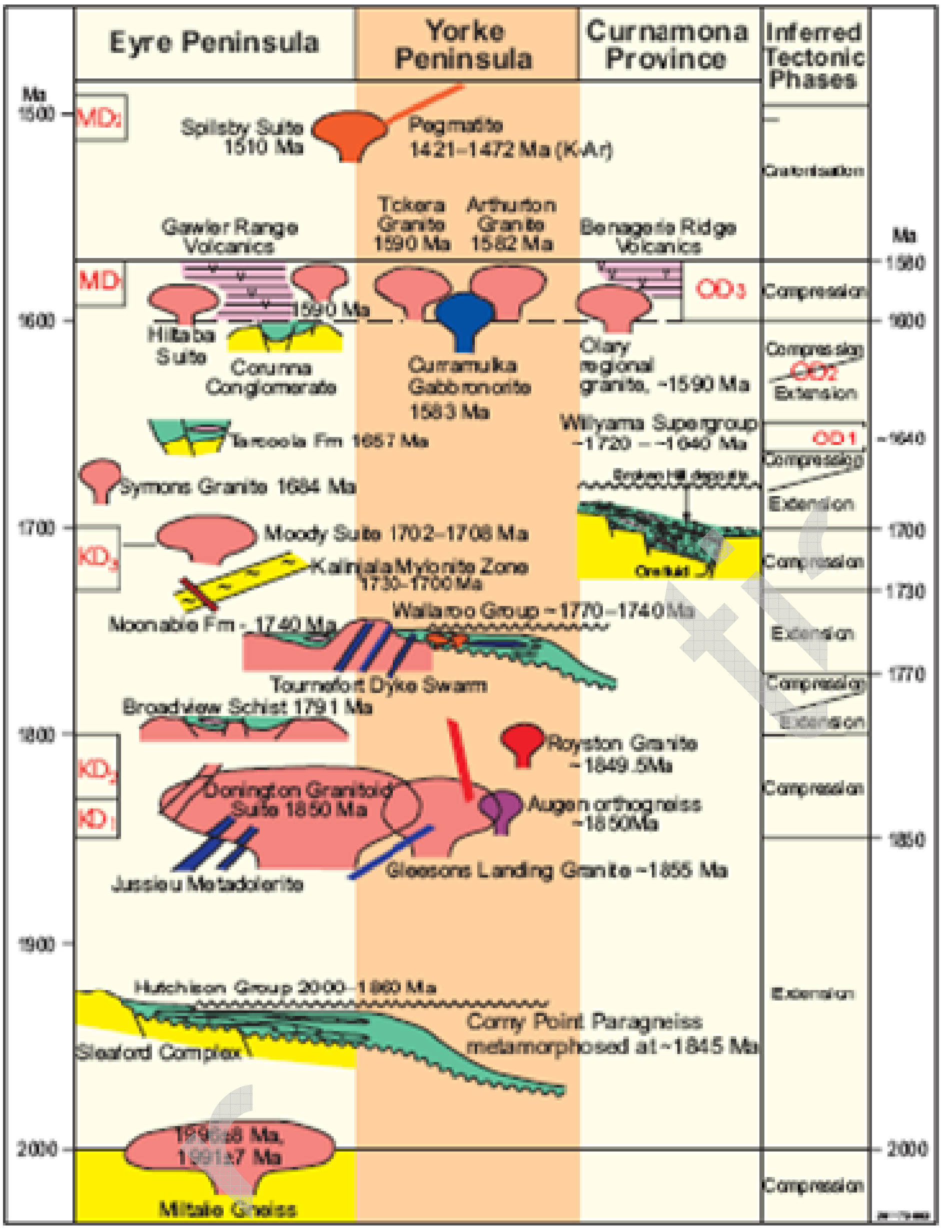

Figure 18. Palaeoproterozoic and Early Mesoproterozoic tectono-stratigraphic correlations between the Eyre and Yorke Peninsulas of the southeastern margin of the Gawler Craton and the Curnamona Craton. The geology of the Yorke Peninsula is inferred to extend along strike into GEL 563 (from Zang, 2002).

3.1.3.1. Proterozoic Units

3.1.3.1.1. Hutchison Group

The Hutchison Group (~1,964–1,850 Ma) comprises a diverse sequence of quartzitic, pelitic and calcsilicate metasediments with occasional iron formations, marble, dolomite and amphibolite units (*cf*. Parker & Lemon, 1982; Vassallo & Wilson, 2001).

3.1.3.1.2. Donington Granitoid Suite

The Donington Granitoid Suite (~1,855–1,846 Ma) is described by Reid & Hand (2008) as a linear batholith approximately 60 km wide and up to 600 km in the north–south orientation, emplaced during the Cornian Orogeny. The unit forms the basement to the Olympic Dam mine (Drummond *et al*., 2006) and the Carrapateena deposit (Jagodzinski *et al*. 2007). The Donington Suite is dominated by granodiorite gneiss, but includes a wide range of other lithologies such as pyroxene-bearing charnockite, megacrystic alkali-feldspar granite and gabbronorite along with co-magmatic mafic units (Mortimer *et al*., 1988).

3.1.3.1.3. Wallaroo Group

The Wallaroo Group (~1,790–1,738 Ma) is a sedimentary and bimodal volcanic basin rift succession that formed along the eastern and southeastern margin of the Gawler Craton; described by Wang (2002) and Cowley *et al*. (2003). The sedimentary basin has a general east-deepening depositional regime with shallow water arenaceous and arkosic successions in the south and southwest whilst the east and northeast is dominated by relatively deep water laminated argillites, carbonates and chemical sediments. The Wallaroo Group is dominated by metasediments of the Wandearah Formation, intercalated with felsic and mafic volcanics of the Weeltulta and Matta Formations, respectively, and is extensively intruded by Early Mesoproterozoic-age Hiltaba Suite granitoids (Table 5).

Table 5. Subdivisions of the Wallaroo Group (from Zang, 2002).

Wallaroo Group		
Formation	Member	Description
Wandearah Formation (metasediments)	Aagot Member	Mainly sandstone and argillite
	Doora Member	Mainly biotite schist, minor calc-silicate
	New Cornwall Member	Carbonate, graphitic siltstone and calc-silicate
	Wokurna Member	Red-brown siltstone, calc-silicate and albitic rocks
	Ninnes Member	Interlayered albitite, siltstone, sandstone, carbonate
Weetulta Formation (A-type felsic volcanics)	Moona Porphyry Member	Porphyritic rhyolite to rhyodacite
	Wardang Volcanics Member	Rhyolite, rhyodacite, dacite
	Mona Volcanics Member	Felsics in the Bute area
Matta Formation (mafic volcanics, tholeiites)	Willamulka Volcanics Member	Amygdaloidal mafics
	Renowden Metabasalt Member	Fine-grained extrusive and shallow intrusive

3.1.3.1.4. Hiltaba Suite and Gawler Range Volcanics

The Hiltaba Suite and coeval Gawler Range Volcanics (~1,595–1,585 Ma) are the result of a large mantle plume that developed in the early Mesoproterozoic (Flint, 1993). The Hiltaba Suite granitoids intrude the underlying sequences and comprise a bimodal magmatic suite. The Gawler Range Volcanics are a regionally extensive diverse suite of mafic and felsic extrusives including rhyodacite, rhyolite, dacite, basalt, tuff, siltstone, sandstone, mudstone, granitic and volcanic breccia.

3.1.3.1.5. Pandurra Formation

Preiss (1987) describes the Pandurra Formation (~1,424 ± 51 Ma) as a widespread dominantly arenaceous red bed sequence which unconformably overlies Mesoproterozoic metasediments and volcanics. The formation is cross-bedded, poorly sorted, dominantly medium- to coarse-grained, lithic and feldspathic with abundant haematitic and kaolinitic matrix. Sedimentary features are common and include pebble imbrication, ripple marks, mudcracks and grit bands with reverse grading.

3.1.3.1.6. Beda Volcanics and Gairdner Dolerite

The Beda Volcanics and Gairdner Dolerite form part of a large Late Proterozoic mantle plume event which resulted in the onset of flood basalt volcanism (Zhao *et al*., 1994) and is thought to be associated with the break-up of Rodinia (Powell *et al*., 1994). The subsequent thermal sag stage initiated the formation of a series of intracratonic basins including the Adelaide Geosyncline, part of the Centralian Superbasin (Walter *et al*., 1992).

The Beda Volcanics are a series of dominantly spilitic pyroxene basalts (Mason *et al*., 1978) composed of albite-oligoclase, clinopyroxene, chlorite, haematite and carbonate (Coats & Preiss, 1987a). The Beda Volcanics penetrated by the MOX drill holes are composed of grey-green-purple amygdaloidal basalt (the amygdules are cream to white coloured). Multiple volcanic flows have been recognised.

The Gairdner Dolerite comprises a mafic dyke swarm that intrudes the underlying units, and is regarded as the intrusive equivalent of the Beda Volcanics. The dykes typically register as long, sub-parallel linear magnetic anomalies. Ages recorded including Sm–Nd 867 ± 47 Ma and 802 ± 35 Ma; U–Pb 827 ± 6 Ma.

3.1.3.2. Adelaidean

3.1.3.2.1. Umberatana Group

Tindelpina Shale Member

Coats & Preiss (1987b) describe the Tindelpina Shale as dark grey to black, very finely laminated, carbonaceous, dolomitic or calcareous silty shale. The shale has up to 1.11% total organic content (McKirdy *et al*., 1975).

Woocalla Dolomite Member

The Woocalla Dolomite Member penetrated in the MOX bores comprises two distinct lithologies. The first is a purple brown to grey finely laminated silty shale sequence. The laminations are commonly convoluted and often discontinuous, deformed and wavy (slumps?), an indication of soft sediment deformation. In some sections there are partially healed fractures filled with carbonate.

3.1.3.2.2. Whyalla Sandstone

The Whyalla Sandstone is dominantly a coarse-grained, poorly cemented sandstone with extremely well rounded, spherical, frosted quartz grains commonly 1–2 mm in size (Coats & Preiss, 1987b). A minor component of finer, more angular interstitial quartz sand with minor feldspar and lithic fragments is also described. Core from the MOX drill holes indicates a deep pink-purple colouration, low angle stratification and pin stripe laminations. Williams (1998) identifies a number of periglacial features within the Whyalla Sandstone. These sedimentological characteristics suggest the succession was deposited in a cold, arid, aeolian environment.

3.1.3.2.3. Wilpena Group

Nuccaleena Formation

The Nuccaleena Formation is a thin pinkish or yellowish laminated dolomite, deposited in a very shallow marine environment (Forbes & Preiss, 1987).

Tregolana Shale Member

Forbes & Preiss (1987) report that a specific type section has yet to be established for the Tregolana Shale Member. The best outcrop totals 55 m of section comprising a 18 m lower section of chocolate shale and siltstone with green shale laminations and rare red sandstone laminae, overlain by 37 m of chocolate siltstone and shale with 10% fine-grained red sandstone laminae. The Tregolana Shale Member is synonymous with the Woomera Shale Member.

Corraberra Sandstone Member

The Corraberra Sandstone Member is a micaceous and shaley sandstone with common interbedded bands of chocolate brown shale (Miles, 1955). The sandstone is flaggy, well laminated, displays common sedimentary structures (cross beds and ripples), with a few massive blocky units towards the top of the sequence.

Simmens Quartzite Member

The quartzites of the Simmens Quartzite Member are described by Forbes & Preiss (1987) as flaggy, fine- to medium-grained, medium bedded with a partly clayey component, and common thin reddish and reworked layers of shale. In addition, Crawford (1964) refers to the unit as dense current-bedded massive white and pale brown quartzites with occasional thin bedded quartzite and intraformational breccias.

3.1.3.3. Cambrian

Andamooka Limestone

The Early Cambrian Andamooka Limestone is a recrystallised, often dolomitised, unit deposited within a subtidal to peritidal setting.

3.1.3.4. Cretaceous

Marree Subgroup

The Marree Subgroup forms a thin veneer of sediment cover over portions of RGP, comprising various siliciclastics of the Bulldog Shale, Coorikiana Sandstone and Oodnadatta Formation.

3.1.4. Surface Geology

Surface geology is a key dataset since subsurface geological interpretations can be tied into the known outcrop distribution. However, since much of the RGP is covered by a thin veneer of cover sequences, this process is somewhat limited in this area. The surface outcrop with the RGP (Figure 19) is mostly limited to flat-lying Cambrian, Cretaceous and Pleistocene/Quaternary alluvial/aeolian deposits with occasional outcrops of Proterozoic to Adelaidean units, especially in the northern portions of the project area. HDR utilised the 1:100k scale South Australian GIS dataset to delineate surface geology.

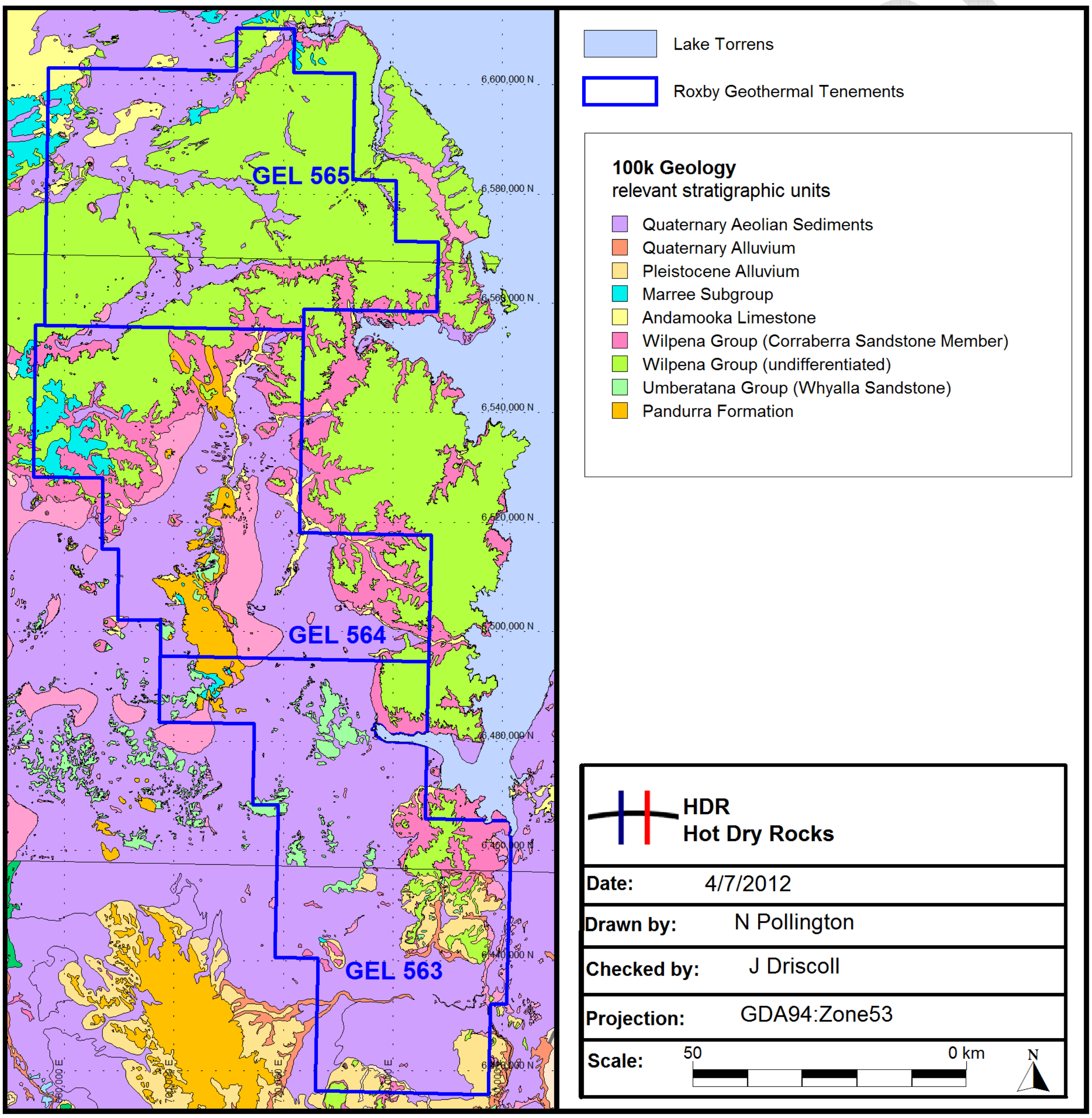

Figure 19. Surface geology for the Roxby Geothermal Project (data sourced from SARIG).

4. Recommendations

The principle recommendations of this data review are:

- That HDR undertake a full Geothermal Systems Assessment (GSA) to define an ongoing exploration work program for the RGP. The GSA is a desktop scoping study of an area incorporating regional data, utilising open-file data and encompassing as much existing information as possible. During the process of the GSA, gaps in available data are identified and highlighted for future studies.
- That all minerals companies with Exploration Licences (EL's) overlapping the RGP (Figure 5 and Appendix 1) be contacted to establish collaborative agreements, similar to that enacted between Southern Gold and Monax Mining. This will allow temperature data (and samples for thermal conductivity analysis) to be collected at a much reduced cost to RG. Benefits to the mineral exploration company includes a greater geological understanding of their tenement; sharing of costs for future drill holes; and any geothermal resource identified could be utilised to supply power to any mines that may be developed (cf. Beverley Uranium mine and Petratherm's Paralana Project).
- That stress tests be conducted on bores drilled within the RGP to depths greater than 700 m. Unlike the petroleum industry, mineral drilling rigs do not usually have the capability of undertaking stress measurements whilst drilling. It would therefore be necessary to undertake these tests once drilling has completed. It is also possible to undertake these tests on minerals bores drilled previously provided the bore is open to accommodate the testing equipment
- That HDR liaise with the DMITRE core library to identify core samples from well bores elsewhere in the RGP. That representative samples be collected and subjected to thermal conductivity analysis. The results could be used to further constrain subsurface geological heat flow modelling and enable more accurate temperature prediction.
- That HDR undertake further validation of heat generation of basement rocks and sediments from hand specimen or core samples. Whole Rock Fusion analysis is a fast and relatively inexpensive means of determining heat

generation. Results would reduce uncertainties in future regional heat flow and temperature modelling.

- That South Australian government agencies be contacted to ascertain water data attributes from the RGP.
- That wells that intersect deeper intervals of the stratigraphic section in the RGP be identified, and that, if possible, groundwater from these deeper intervals be obtained and analysed.

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Appendix 1: Mineral Exploration Licences that overlap the Roxby Geothermal Project.

Licence	Expiry Date	Licensee(s)	Operator(s)	Commodity
EL 4460	21/03/2013	Gunson Resources Limited (49%); Noranda Pacific Pty Ltd (51%)	Gunson Resources Limited; Noranda Pacific Pty Ltd	Copper
EL 3603	16/07/2011	Uranium West Limited (100%)	Uranium West Limited	Uranium; Gold; Copper
EL 4911	6/07/2014	Endeavour Copper Gold Pty Ltd (100%)	Endeavour Copper Gold Pty Ltd	Gold; Copper
EL 4906	6/07/2014	Sturt Exploration Pty Ltd (100%)	Sturt Exploration Pty Ltd	Copper
EL 4816	20/12/2013	Sturt Exploration Pty Ltd (100%)	Sturt Exploration Pty Ltd	Copper
EL 4800	14/11/2013	UXA Resources Limited (100%)	UXA Resources Limited	Uranium; Silver; Gold; Zinc; Copper; Lead
EL 4805	7/06/2013	BHP Billiton Nickel West Pty Ltd (100%)	BHP Billiton Nickel West Pty Ltd	Copper
EL 4941	28/06/2014	UXA Resources Limited (100%)	UXA Resources Limited	Uranium
EL 4356	28/01/2012	BHP Billiton Nickel West Pty Ltd (100%)	BHP Billiton Nickel West Pty Ltd	Copper
EL 4700	20/03/2013	UXA Resources Limited (100%)	UXA Resources Limited	Uranium; Silver; Gold; Zinc; Copper; Lead
EL 4754	20/06/2012	Copper Range (SA) Pty Ltd (100%)	Copper Range (SA) Pty Ltd	Silver; Gold; Copper
EL 4698	10/03/2013	Copper Range (SA) Pty Ltd (100%)	Copper Range (SA) Pty Ltd	Copper
EL 3807	17/06/2012	Copper Range (SA) Pty Ltd (100%)	Copper Range (SA) Pty Ltd	Copper
EL 3959	21/10/2012	Copper Range (SA) Pty Ltd (100%)	Copper Range (SA) Pty Ltd	Gold; Copper
EL 4548	29/08/2012	Monax Mining Limited (100%)	Monax Mining Limited	Gold; Copper
EL 3713	21/02/2012	BHP Billiton Nickel West Pty Ltd (100%)	BHP Billiton Nickel West Pty Ltd	Copper
EL 4164	14/07/2013	Athena Mines Pty Ltd (100%)	Athena Mines Pty Ltd	Uranium; Silver; Cobalt; Gold; Zinc; Copper; Lead

EL 4764	30/06/2013	UXA Resources Limited (100%)	UXA Resources Limited	Uranium
EL 4306	13/09/2013	OZ Minerals Carrapateena Pty Ltd (34%); RMG Services Pty Ltd (66%)	RMG Services Pty Ltd; OZ Minerals Carrapateena Pty Ltd	Gold; Copper
EL 4187	6/10/2012	Gunson Resources Limited (49%); Noranda Pacific Pty Ltd (51%)	Gunson Resources Limited; Noranda Pacific Pty Ltd	Copper
EL 3688	6/01/2012	OZ Minerals Carrapateena Pty Ltd (34%); RMG Services Pty Ltd (66%)	OZ Minerals Carrapateena Pty Ltd	Cobalt; Gold; Copper
EL 4666	13/02/2013	OZ Minerals Carrapateena Pty Ltd (34%); RMG Services Pty Ltd (66%)	RMG Services Pty Ltd; OZ Minerals Carrapateena Pty Ltd	Gold; Copper
EL 4770	31/07/2013	Tasman Resources Limited (100%)	Tasman Resources Limited	Copper
EL 4580	17/10/2012	South East Energy Limited (100%)	South East Energy Limited	Uranium
EL 4642	6/01/2013	Monax Mining Limited (100%)	Monax Mining Limited	Gold; Copper
EL 4757	21/06/2013	Daktyloi Metals Pty Ltd (100%)	Daktyloi Metals Pty Ltd	Manganese; Copper
EL 3854	22/07/2012	Havilah Resources NL (30%); Red Metal Limited (70%)	Havilah Resources NL; Red Metal Limited	Uranium; Gold; Copper
EL 3967	28/10/2012	Gunson Resources Limited (49%); Noranda Pacific Pty Ltd (51%)	Gunson Resources Limited; Noranda Pacific Pty Ltd; Xstrata Copper Exploration Pty Ltd	Copper
EL 4725	19/04/2013	Gunson Resources Limited (49%); Noranda Pacific Pty Ltd (51%)	Gunson Resources Limited; Noranda Pacific Pty Ltd	Copper
EL 4598	7/11/2012	Uranium One Australia Pty Ltd (50 1/10%); Mitsui & Co. Uranium Australia Pty Ltd (49 9/10%)	Uranium One Australia Pty Ltd; Mitsui & Co. Uranium Australia Pty Ltd	Uranium
EL 4599	7/11/2012	Uranium One Australia Pty Ltd (50 1/10%); Mitsui & Co. Uranium Australia Pty Ltd (49 9/10%)	Uranium One Australia Pty Ltd; Mitsui & Co. Uranium Australia Pty Ltd	Uranium
EL 3747	18/04/2012	OZ Minerals Carrapateena Pty Ltd (34%); RMG Services Pty Ltd (66%)	OZ Minerals Carrapateena Pty Ltd	All Minerals

EL 4762	26/06/2013	Minotaur Operations Pty Ltd (100%)	Minotaur Operations Pty Ltd	Uranium; Industrial Minerals; Gold; Copper
EL 4647	17/01/2013	AFMECO Mining and Exploration Pty Ltd (100%)	AFMECO Mining and Exploration Pty Ltd	Uranium
EL 4298	18/08/2012	Torrens Energy Limited (100%)	Torrens Energy Limited	Coal
EL 4903	6/01/2014	OZ Minerals Carrapateena Pty Ltd (34%); RMG Services Pty Ltd (66%)	RMG Services Pty Ltd; OZ Minerals Carrapateena Pty Ltd	Gold; Copper
EL 4897	3/05/2014	Minotaur Operations Pty Ltd (100%)	Minotaur Operations Pty Ltd	Uranium; Gold; Copper

Appendix 2: World Stress Map data points in close proximity to Roxby Geothermal Project (abbreviations for 'type' and 'quality' listed below; abbreviations for 'regime' detailed in Figure 6).

Latitude (°)	Longitude (°)	S_H azimuth (°)	Type	Quality	Regime	Depth (km)
-35.07	139.02	173	OC	D	U	0.058
-30.794	138.405	97	FMS	C	SS	20
-32.476	138.878	76	FMS	D	SS	6.8
-32.389	138.923	153	FMS	D	SS	16.4
-32.3	139.31	59	FMS	C	SS	15
-31.06	138.47	41	FMS	C	SS	10
-32.44	137.96	74	FMS	C	SS	5
-31.76	139.42	86	FMS	D	SS	5
-33.816	138.984	100	FMS	C	TF	20.4
-35.845	135.687	147	BO	C	U	2.593
-35.591	135.35	99	BO	A	U	2.594
-35.604	135.817	130	BO	D	U	2.556
-31.5	138.35	130	FMA	D	TF	3

BO = Individual Borehole Breakout

FMA = Single focal mechanism

FMS = Composite focal mechanism average

OC = Overcoring

Quality Rank = A (best) to E (unreliable)

Appendix 3: Thermal conductivity data yielded from wells and bore holes within and proximal to the Roxby Geothermal Project.

Client	Bore Hole	Formation	Depth from (m)	Depth to (m)	Lithology	Sample Number	Conductivity (W/mK)	St. Dev.	Com-ment
SAU	LTDD002 A	Tapley Hill Formation	448.29	448.58	Grey-green, very finely laminated interbedded siltstone/mudstone with minor cross bedding and high angle carbonate-filled fractures	SAU001	2.43	0.10	
SAU	LTDD002 A	Tapley Hill Formation	483.24	483.43	Grey-green, very finely laminated interbedded siltstone/mudstone with minor cross bedding	SAU002	2.44	0.10	
SAU	LTDD002 A	Tapley Hill Formation	550.56	550.72	Grey-green, very finely laminated interbedded siltstone/mudstone with minor cross bedding and high angle carbonate-filled fractures	SAU003	2.24	0.39	
SAU	LTDD002 A	Tapley Hill Formation	517.00	517.18	Grey-green, very finely laminated interbedded siltstone/mudstone	SAU004	3.03	0.25	
SAU	LTDD002 A	Beda Vol-canics	704.43	704.58	Red-green, fine- to me-dium-grained vesicular basalt. Vesicles infilled with calcite and lesser chlorite	SAU005	2.48	0.13	
SAU	LTDD002 A	Beda Vol-canics	657.28	657.40	Red-green brecciated amygdoidal basalt. Frac-tured very large and filled with pink/red dolomitic material NOT REPRESENTATIVE OF BEDA VOLCANICS	SAU006	4.86	0.34	
SAU	LTDD002 A	Beda Vol-canics	775.58	775.73	Red-green, fine- to me-dium-grained vesicular basalt. Vesicles infilled with chlorite and lesser carbonate	SAU007	2.30	0.09	
SAU	LTDD002 A	Beda Vol-canics	786.80	786.96	Red-green, mainly me-dium-grained massive basalt with local coarse-grained amygdules	SAU008	2.41	0.14	
SAU	LTDD003	Tapley Hill Formation	647.29	647.50	Grey-black, very finely laminated interbedded siltstone/mudstone	SAU009	2.89	0.26	
SAU	LTDD003	Angepena Formation	462.70	462.91	Purple-grey, finely lami-nated siltstone with abun-dant rip-up clasts, local micro-faulting (mm-scale)	SAU010	2.73	0.38	
SAU	LTDD003	Tapley Hill Formation	520.90	521.19	Grey-black, very finely laminated interbedded siltstone/mudstone, rip-up clasts	SAU011	3.26	0.24	only use higher value as per GRB
SAU	LTDD003	Tapley Hill Formation	614.60	614.83	Grey-black, very finely laminated interbedded siltstone/mudstone	SAU012	2.53	0.13	
SAU	LTDD003	Angepena Formation	433.74	434.17	Purple-grey, siltstone to medium-grained sandstone, finely laminated, cross bedded, local micro-faulting (mm-scale), healed fractures	SAU013	3.80	0.28	
SAU	LTDD002 A	Tapley Hill Formation	449.94	450.13	Grey-black, very finely laminated interbedded siltstone/mudstone	SAU014	2.45	0.13	
SAU	LTDD003	Beda Vol-canics	853.30	853.50	Purple-grey, fine-grained basalt	SAU015	2.50	0.26	
SAU	LTDD003	Beda Vol-canics	779.52	779.67	Mainly grey (purple tinge), fine-grained basalt	SAU016	2.39	0.22	

SAU	LTDD002 A	Tapley Hill Formation	555.25	555.40	Grey-green, very finely laminated interbedded siltstone/mudstone with minor cross bedding and high angle carbonate-filled fractures	SAU017	2.66	0.27	
SAU	LTDD003	Tregolana Shale Member	246.22	246.47	Purple to green/grey shale/siltstone, thinly laminated with wavy cross bedding, slump structures	SAU018	3.04	0.14	
SAU	LTDD003	Angepena Formation	406.83	407.10	Purple-grey, siltstone to medium-grained sandstone, finely laminated with thicker coarse-grained interbeds (slump features), cross bedded, local micro-faulting (mm-scale)	SAU019	2.80	0.48	
SAU	LTDD003	Backy Point Formation	749.18	749.34	Red siltstone to fine-/medium-grained sandstone, flaser bedding, slump structures, rip-up clasts	SAU020	2.69	0.12	
SAU	NNDD1	Pandurra Formation	552.88	553.08	Mainly fg-mg grey-red to purple quartz sandstone with mottled bleaching and minor lithic fragments.	SAU021	5.25	0.04	
SAU	NNDD1	Pandurra Formation	650.90	651.20	Fg red-brown shale/siltstone with subordinate sandstone, lithic fragment (and shale intraclasts) interbeds. The sandstone beds grade up into siltstone. Strong hematite altered (?) matix.	SAU022	5.03	0.03	
SAU	NNDD1	Pandurra Formation	725.01	725.24	Mainly fg-mg grey-red to purple quartz sandstone with mottled bleaching and minor lithic fragments.	SAU023	2.83	0.13	
SAU	NNDD1	Donington Granite	822.20	822.46	Grey-cream/pink, cg feldspar-quartz-hornblende/biotite±plagioclase granite. Local sericite alteration and hematite dusting of feldspars.	SAU024	3.49	0.13	
SAU	NNDD1	Donington Granite	855.97	856.30	Grey-cream/pink, cg feldspar-quartz-hornblende/biotite±plagioclase granite. Local sericite alteration and hematite dusting of feldspars.	SAU025	3.24	0.01	
SAU	NNDD1	Donington Granite	885.63	885.85	Grey-cream/pink, cg feldspar-quartz-hornblende/biotite±plagioclase granite. Local sericite alteration and hematite dusting of feldspars.	SAU026	3.36	0.12	
SAU	WDDD1	Gawler Range Volcanics	604.65	604.95	Porphyritic dacite comprising plagioclase phenocryts set within a fg red-brown microgranular hematite-chlorite-felsic matrix.	SAU027	2.93	0.11	
SAU	WDDD1	Gawler Range Volcanics	677.42	677.73	Porphyritic dacite comprising plagioclase phenocryts set within a fg red-brown microgranular hematite-chlorite-felsic matrix.	SAU028	2.60	0.15	
SAU	WDDD1	Gawler Range Volcanics	737.00	737.20	Porphyritic dacite comprising plagioclase phenocryts set within a fg red-brown microgranular hematite-chlorite-felsic matrix. Minor lithic fragments.	SAU029	2.76	0.11	

SAU	MMDD1	Whyalla Sandstone	307.40	307.57	Purple medium-grained sandstone, low-angle stratification, pin stripe laminations, occasional thin dark grey fines	SAU030	5.39	0.13	Transition Beda to Pandurra (740.5-744.8 m)
SAU	MMDD1	Whyalla Sandstone	328.20	328.36	Purple coarse-grained sandstone to grit, low-angle stratification, pin stripe laminations	SAU031	4.39	0.25	
SAU	MMDD1	Whyalla Sandstone	359.25	359.40	Purple-pink siltstone to fine-grained sandstone, low-angle stratification, pin stripe laminations	SAU032	3.98	0.04	
SAU	MMDD1	Woocalla Dolomite Member	382.52	382.73	Purple brown to grey fine laminated silty shale sequence; convoluted laminations - discontinuous, deformed and wavy (slumps?); soft sediment deformation; carbonate partially infilled fractures	SAU033	2.46	0.10	
SAU	MMDD1	Woocalla Dolomite Member	400.90	401.08	Purple brown to grey fine laminated silty shale sequence; convoluted laminations - partially deformed and wavy (slumps?)	SAU034	2.54	0.41	
SAU	MMDD1	Woocalla Dolomite Member	409.80	410.00	Purple brown to grey fine laminated silty shale sequence; laminations occasionally deformed and wavy (slumps?). Some coarser-grained intervals; rip-up clasts	SAU035	3.29	0.23	
SAU	MMDD1	Woocalla Dolomite Member	413.61	413.77	Grey contorted vuggy dolomite	SAU036	3.55	0.28	
SAU	MMDD1	Tindelpina Shale Member	424.19	424.38	Light grey-dark grey/black fine laminated carbonaceous silty shale; whispy appearance; concretions and veining?	SAU037	3.86	0.14	
SAU	MMDD1	Tindelpina Shale Member	462.91	463.16	Dark grey-black fine laminated carbonaceous silty shale (rhythmite?)	SAU038	2.34	0.10	
SAU	MMDD1	Tindelpina Shale Member	527.83	528.01	Light grey-black fine laminated carbonaceous silty shale (bundles of rhythmites?)	SAU039	2.70	0.19	
SAU	MMDD1	Tindelpina Shale Member	569.05	569.25	Light grey-black fine laminated carbonaceous silty shale (rhythmite?)	SAU040	3.27	0.33	
SAU	MMDD1	Tindelpina Shale Member	579.99	580.19	Grey to dark grey pebbly grit (angular clasts), matrix supported, massive	SAU041	3.12	0.09	
SAU	MMDD1	Tindelpina Shale Member	596.98	597.22	Light grey-black fine laminated silty shale; some coarser-grained intervals; rip-up clasts	SAU042	4.52	0.24	
SAU	MMDD1	Beda Volcanics	614.25	614.49	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured)	SAU043	3.08	0.26	
SAU	MMDD1	Beda Volcanics	819.79	819.93	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured)	SAU044	2.37	0.01	
SAU	MMDD1	Beda Volcanics	911.71	912.10	Grey-green-purple basalt	SAU045	2.43	0.02	
SAU	PDDD2	Whyalla Sandstone	300.97	301.14	Purple medium-grained sandstone, grit lenses	SAU046	4.73	0.04	

SAU	PDDD2	Woocalla Dolomite Member	305.80	305.90	Purple brown to grey fine laminated silty shale sequence; convoluted laminations - discontinuous, deformed and wavy (slumps?); soft sediment deformation	SAU047	2.50	0.16	
SAU	PDDD2	Woocalla Dolomite Member	324.29	324.35	Light grey to black fine laminated silty dolomite(?) sequence; laminations deformed and wavy, some vugs	SAU048	3.57	0.16	
SAU	PDDD2	Tindelpina Shale Member	341.11	341.31	Light grey to black silty shale sequence; discontinuous, deformed sausage shaped sedimentary features (rip up clasts?), cemented	SAU049	3.55	0.03	
SAU	PDDD2	Tindelpina Shale Member	341.31	341.44	Dark grey to black silty shale. Almost massive - very feint fine laminated?	SAU050	2.78	0.14	
SAU	PDDD2	Tindelpina Shale Member	390.26	390.48	Dark grey to black fine laminated silty shale sequence	SAU051	2.25	0.07	
SAU	PDDD2	Tindelpina Shale Member	456.80	456.97	Medium grey to black fine to moderate laminated carbonaceous silty shale (zebra style/rhythmite?), occassional convoluted strata	SAU052	2.88	0.08	
SAU	PDDD2	Tindelpina Shale Member	428.18	428.32	Dark grey to black silty shale, very feint fine laminated	SAU053	2.15	0.03	
SAU	PDDD2	Beda Volcanics	470.89	471.04	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured), healed thin fractures	SAU054	2.93	0.07	
SAU	PDDD2	Beda Volcanics	480.04	480.17	Grey-green-purple basalt	SAU055	2.86	0.05	not tested - friable
SAU	PDDD2	Beda Volcanics	566.81	566.94	Light grey-green basalt	SAU056	2.37	0.02	
SAU	PDDD2	Beda Volcanics	666.71	666.87	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured)	SAU057	2.16	0.01	
SAU	PDDD2	Beda Volcanics	735.33	735.50	Grey-green-purple basalt, healed fractures	SAU058	2.49	0.05	
SAU	PDDD2	Pandurra Formation	741.32	741.48	Red beds, silty fraction through to grit, convoluted bedding? Grey laminations infrequent	SAU059	5.28	0.14	
SAU	PDDD2	Pandurra Formation	750.18	750.38	Purple-red coarse-grained sandstone to grit, massive	SAU060	5.14	0.09	
SAU	PDDD2	Pandurra Formation	781.12	781.24	Purple-red coarse-grained sandstone to grit, massive	SAU061	6.29	0.06	
SAU	PDDD2	Pandurra Formation	816.54	816.73	Purple-red coarse-grained sandstone to grit, massive	SAU062	5.13	0.06	
SAU	PDDD2	Gawler Range Volcanics	841.23	841.51	Blood red to brown/grey rhyolite, haematite	SAU063	1.87	0.08	
SAU	PDDD2	Gawler Range Volcanics	856.65	856.83	Red-brown rhyolite	SAU064	1.77	0.06	not tested - friable
SAU	PDDD2	Wallaroo Group	867.50	867.71	Altered sediment, purple-red, carbonate, magnetite, haematite, remnant vesicles?	SAU065	2.40	0.17	
SAU	PDDD2	Wallaroo Group	931.80	932.06	Altered sediment, bleached pale pink/cream to grey, fractured, sulphides, carbonate, siderite, chlorite, remnant bedding?	SAU066	2.52	0.07	

SAU	PDDD2	Wallaroo Group	993.71	993.97	Altered sediment, pale grey-green, blotchy concretions, chlorite, carbonate, haematite	SAU067	2.92	0.08	
SAU	WDDD2	Tindelpina Shale Member	314.62	314.78	Light grey to black fine laminated silty shale sequence; laminations occassionally wavy	SAU068	2.49	0.02	
SAU	WDDD2	Tindelpina Shale Member	370.74	370.86	Medium grey to black fine laminated silty shale sequence; healed fractures	SAU069	2.32	0.16	
SAU	WDDD2	Beda Volcanics	389.60	389.74	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured)	SAU070	2.65	0.06	
SAU	WDDD2	Beda Volcanics	501.56	501.74	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured), healed thin fractures	SAU071	2.48	0.03	
SAU	WDDD2	Pandurra Formation	530.88	531.05	Purple-red coarse-grained to small pebble sandstone, massive	SAU072	5.03	0.06	
SAU	WDDD2	Pandurra Formation	587.09	587.25	Purple-red coarse-grained sandstone to grit, massive	SAU073	5.11	0.02	
SAU	WDDD2	Pandurra Formation	646.76	646.94	Purple-red fine-grained sandstone, possilby siltstone, few floating small pebbles?	SAU074	4.17	0.04	
SAU	WDDD2	Gawler Range Volcanics	688.86	689.01	Pale pink rhyolite	SAU075	2.56	0.06	
SAU	WDDD2	Wallaroo Group	797.09	797.20	Altered sediment, grey-green, chlorite, carbonate, haematite, remnant bedding?	SAU076	2.46	0.17	
SAU	WDDD2	Wallaroo Group	882.34	882.49	Altered sediment, grey-dark green, chlorite, carbonate, haematite, healed fractures	SAU077	2.12	0.07	
SAU	WPDD2	Tindelpina Shale Member	304.77	304.90	Dark grey to black silty shale, very feint fine convoluted laminations	SAU078	2.67	0.37	
SAU	WPDD2	Tindelpina Shale Member	362.64	362.78	Dark grey to black silty shale, fine convoluted laminations, healed fractures	SAU079	2.25	0.04	
SAU	WPDD2	Tindelpina Shale Member	437.49	437.63	Medium grey to black silty shale, fine convoluted laminations	SAU080	2.59	0.22	
SAU	WPDD2	Beda Volcanics	449.61	449.75	Grey-green-purple basalt	SAU081	2.54	0.02	
SAU	WPDD2	Beda Volcanics	516.13	516.33	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured), healed thick fractures	SAU082	1.77	0.01	
SAU	WPDD2	Beda Volcanics	642.05	642.20	Grey-green-purple amygdaloidal basalt (amygdules cream to white coloured)	SAU083	2.47	0.03	
SAU	WPDD2	Wallaroo Group	678.95	679.13	Altered sediment, dark purple, haematite, highly fractured	SAU084	-	-	
SAU	WPDD2	Wallaroo Group	695.61	695.81	Altered sediment, red, haematite, carbonate	SAU085	3.83	0.14	
SAU	WPDD2	Wallaroo Group	765.63	765.77	Altered sediment, purple-grey, fluorite, chlorite, haematite, carbonate, ?quartz, remnant bedding	SAU086	3.92	0.05	
SAU	WPDD2	Wallaroo Group	830.82	830.97	Altered sediment, dark grey, haematite, carbonate, chlorite	SAU087	3.98	0.08	
SAU	WPDD2	Wallaroo Group	890.80	891.00	Altered sediment, grey-green, chlorite, carbontae, fluorite	SAU088	3.23	0.01	

SAU	BLDD1	Tindelpina Shale Member	301.36	301.51	Dark grey to black silty shale, fine convoluted laminations	SAU096	2.18	0.13	
SAU	BLDD1	Tindelpina Shale Member	406.13	406.28	Dark grey to black silty shale, fine convoluted laminations, healed fractures	SAU089	2.89	0.06	
SAU	BLDD1	Tindelpina Shale Member	459.01	459.15	Cream-pale pink fine- to medium-grained sandstone, massive	SAU090	5.05	0.06	
SAU	BLDD1	Pandurra Formation	508.53	508.65	Purple-red coarse-grained to small pebble sandstone, massive	SAU091	3.91	0.09	
SAU	BLDD1	Gawler Range Volcanics	540.97	541.11	Red fine-grained basalt, friable	SAU092	-	-	
SAU	BLDD1	Gairdner Dyke	618.94	619.08	Dark red fine-grained basalt	SAU093	3.04	0.05	
SAU	BLDD1	Donington Suite Granite	695.95	696.14	Granite, haematite and chlorite alteration	SAU094	3.89	0.07	
SAU	BLDD1	Donington Suite Granite	821.43	821.54	Granite, haematite alteration	SAU095	4.16	0.30	
GRK	Blanche 1	Corraberra Sandstone Member	298.70		finer sandstone, red mudstone, quartz sandstone, medium-grained green (chlorite) cross laminations, well laminated	1	3.34	0.08	
GRK	Blanche 1	Tregolana Shale Member	335.00		mudstone-shale, Fe, qtz	2	3.00	0.07	
GRK	Blanche 1	Tregolana Shale Member	426.60		shale-mudstone, minor blue-white lenses, green-cream-pale brown blue mudstone-shale, fine-grained, well laminated, cross bedding	3	1.85	0.05	
GRK	Blanche 1	Tregolana Shale Member	542.80		mudstone, brown shale, minor green layers, not mottled, fine-grained, Fe, qtz, well laminated	4	2.46	0.06	
GRK	Blanche 1	Tapley Hill Formation	572.30		grey mudstone-shale, well laminated, fine-grained, minor shear zone, Fe, qtz, no dolomite, occasional coarse sandy lenses	19	2.31	0.06	
GRK	Blanche 1	Pandurra Formation	642.00		quartzite-sandstone, coarse-grained, local congl., horizontal joints, Fe, qtz, coarse, poorly sorted poorly rounded, bedding laminations, x-bedding	5	4.50	0.11	
GRK	Blanche 1	Hiltaba Suite Granite	756.00		granite, pale green feldspar + quartz, mica, minor shears	6	3.53	0.09	
GRK	Blanche 1	Hiltaba Suite Granite	894.70		fresh granite, feldspar qtz, minor veins & fractures, red-brown, orange, occasional veins at low angle to core axis, occasional shears at low angle to core axis, only minor mica	7	3.20	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1005.60		fresh granite, feldspar qtz, minor veins & fractures, red-brown, orange, occasional veins at low angle to core axis, occasional shears at low angle to core axis, only minor mica	8	3.36	0.08	

GRK	Blanche 1	Hiltaba Suite Granite	1101.00		fresh granite orange colour, qtz, feldspar, mica, no fabric, few discontonities, iron-rich, with mica, coarse-grained	9	3.37	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1207.00		iron rich, coarse-grained siliceous igneous rock, (granite - no mica), no fabric, magnetite	10	3.28	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1322.00		iron rich, coarse-grained siliceous igneous rock, (granite - no mica), no fabric, magnetite	11	3.19	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1460.00		coarse-grained granite, magnetite, biotite, quartz, feldspar	12	2.93	0.07	
GRK	Blanche 1	Hiltaba Suite Granite	1500.60		granitoid, feldspar, qtz, magnetite, coarse-grained, no foliation, few fractures	13	3.17	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1601.60		granite ortho, quartz, feldspar, magnetite, abundant subhorizontal fractures	14	3.15	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1701.00		granite, qtz, feldspar, magnetite, strong subhorizontal fractures, rare quartz veins and fractures at low angle to core axis	15	3.27	0.11	
GRK	Blanche 1	Hiltaba Suite Granite	1714.50		granite ortho, quartz, feldspar, magnetite, coarse-grained	16	3.42	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1801.14		coarse ortho granite, strong fracturing (discing), Fe, feldspar, qtz, magnetite, minor shallow angled natural joints with chlorite	17	3.11	0.08	
GRK	Blanche 1	Hiltaba Suite Granite	1903.30		medium-grained red/orange granite qtz, feldspar, biotite (magnetite), natural fractures with chlorite	18	3.46	0.09	

Appendix 4: Estimated heat generation for rocks in the vicinity of the Roxby Geothermal Project (values calculated using elemental proportions of the radioactive isotopes K_2O, U and Th extracted from Geoscience Australia's OZCHEM database, 2007).

Region	Province	OZCHEM uID	OZCHEM site ID	Latitude (°)	Longitude (°)	Lithname	K_2O by weight %	K (ppm)	U (ppm)	Th (ppm)	Ave. assumed density (g/cm^3)	Heat Gen. from isotopic abundance ratios (µW/m^3)
Gawler Region	Gawler Craton	44408	2000366007	30.368	137.087	amphibolite	2.28	18927	0.9	2.8	2.65	0.61
Stuart Region	Stuart Shelf	46006	WMC	30.837	137.184	amphibolite	4.42	36692	14.5	9.0	2.65	4.68
Stuart Region	Stuart Shelf	45798	WMC/WRD-3	30.606	137.085	aplite	8.48	70396	3.6	58.0	2.65	5.62
Stuart Region	Stuart Shelf	45817	WMC/TWN-1	30.564	136.908	aplite	5.78	47982	11.4	70.0	2.65	8.24
Stuart Region	Stuart Shelf	45819	WMC/RD307A	30.448	136.848	aplite	4.79	39764	37.5	73.0	2.65	15.07
Stuart Region	Stuart Shelf	45825	WMC/SGD-4	30.401	136.978	aplite	0.77	6392	10.8	74.0	2.65	7.98
Stuart Region	Stuart Shelf	45828	WMC/RD-575	30.475	136.852	aplite	6.01	49892	34.5	63.0	2.65	13.69
Stuart Region	Stuart Shelf	45837	WMC/RD-161	30.465	136.913	aplite	5.12	42503	48.0	54.0	2.65	16.46
Stuart Region	Stuart Shelf	45846	WMC/OFD-2	30.541	137.201	aplite	5.17	42919	23.5	106.0	2.65	13.81
Stuart Region	Stuart Shelf	45848	WMC/OFD-3	30.551	137.180	aplite	5.31	44081	15.0	105.0	2.65	11.57
Stuart Region	Stuart Shelf	45856	WMC/SGD-5	30.372	137.099	aplite	0.31	2573	5.0	28.0	2.65	3.26
Gawler Region	Gawler Craton	45441	2000366109	31.111	137.149	argillite	7.2	59770	4.0	22.5	2.65	3.16
Gawler Region	Gawler Craton	45435	2000366102	31.022	137.016	arkose	3.17	26316	5.0	18.6	2.65	2.82
Gawler Region	Gawler Craton	45440	2000366108	31.127	137.116	arkose	0.63	5230	5.4	15.5	2.65	2.51
Gawler Region	Gawler Craton	45442	2000366110	31.110	137.149	arkose	3.29	27312	3.0	7.8	2.65	1.57
Gawler Region		45504	2000366133	31.095	137.123	arkose	9.67	80275	5.0	24.9	2.65	3.76
Gawler Region	Gawler Craton	44402	2000366001	30.353	137.041	basalt	4.29	35613	3.3	10.3	2.65	1.89
Gawler Region	Gawler Craton	44403	2000366002	30.353	137.041	basalt	4.63	38436	2.8	10.3	2.65	1.79
Gawler Region	Gawler Craton	44412	2000366016	30.368	137.087	basalt	4	33206	2.7	10.2	2.65	1.71
Gawler Region	Gawler Craton	44413	2000366017	30.368	137.087	basalt	1.81	15026	3.1	10.1	2.65	1.64
Gawler Region	Gawler Craton	44414	2000366018	30.368	137.087	basalt	1.5	12452	2.5	9.3	2.65	1.41
Gawler Region	Gawler Craton	44415	2000366019	30.353	137.041	basalt	4.14	34368	0.6	1.6	2.65	0.59
Gawler Region	Gawler Craton	45439	2000366106	30.129	136.808	basalt	2.63	21833	1.5	2.2	2.65	0.75
Gawler Region	Gawler Craton	45446	2000366118	31.828	137.609	basalt	2.13	17682	0.4	1.5	2.65	0.37
Gawler Region	Gawler Craton	45447	2000366120	31.828	137.609	basalt	0.7	5811	0.2	1.0	2.65	0.18
Stuart Region	Stuart Shelf	45883	WMC/PY-1	31.470	137.201	basalt	2.45	20339	1.8	8.8	2.65	1.26
Stuart Region	Stuart Shelf	45884	WMC/PY-1	31.470	137.201	basalt	2.81	23327	1.6	7.8	2.65	1.17
Stuart Region	Stuart Shelf	45885	WMC/PY-1	31.470	137.201	basalt	2.28	18927	1.2	7.6	2.65	1.01
Stuart Region	Stuart Shelf	45980	WMC/PY-4	31.452	137.229	basalt	4.96	41175	5.0	30.5	2.65	3.79
Stuart Region	Stuart Shelf	46598	BK2	31.747	137.410	basalt	0.44	3653	4.0	6.0	2.65	1.48
Stuart	Gawler	46707	PY3	31.53	137.36	basalt	11.5	954	8.0	30.	2.65	5.03

Region	Craton			1	6			67		0		
Stuart Region	Gawler Craton	46708	PY3	31.531	137.366	basalt	4.24	35198	6.0	32.0	2.65	4.09
Stuart Region	Gawler Craton	46709	PY3	31.531	137.366	basalt	4.74	39349	0.0	26.0	2.65	2.18
Stuart Region	Gawler Craton	46710	PY3	31.531	137.366	basalt	9.55	79279	8.0	26.0	2.65	4.60
Stuart Region	Gawler Craton	46711	PY3	31.531	137.366	basalt	8.45	70147	0.0	34.0	2.65	3.02
Stuart Region	Gawler Craton	46712	PY3	31.531	137.366	basalt	8.3	68902	6.0	42.0	2.65	5.10
Stuart Region	Gawler Craton	46713	PY3	31.531	137.366	basalt	10.9	90486	4.0	40.0	2.65	4.65
Stuart Region	Gawler Craton	46714	PY3	31.531	137.366	basalt	8.6	71393	6.0	40.0	2.65	4.99
Stuart Region	Gawler Craton	46715	PY3	31.531	137.366	basalt	7.85	65166	4.0	44.0	2.65	4.70
Stuart Region	Gawler Craton	46716	PY3	31.531	137.366	basalt	9.3	77204	6.0	30.0	2.65	4.34
Stuart Region	Gawler Craton	46717	PY3	31.531	137.366	basalt	8.2	68072	12.0	60.0	2.65	7.89
Stuart Region	Gawler Craton	46718	PY3	31.531	137.366	basalt	7.45	61846	12.0	70.0	2.65	8.53
Stuart Region	Gawler Craton	46719	PY3	31.531	137.366	basalt	7.85	65166	4.0	42.0	2.65	4.56
Stuart Region	Gawler Craton	46720	PY1	31.597	137.500	basalt	2.44	20256	0.0	16.0	2.65	1.30
Eromanga Region	Stuart Shelf	45898	33MK56W Dr	30.439	136.886	breccia	0.04	332	95.0	10.0	2.65	25.04
Eromanga Region	Stuart Shelf	45899	32MJ53 Stck.	30.442	136.886	breccia	0.04	332	45.0	-2.0	2.65	11.40
Adelaide Region	Stuart Shelf	45900	32MJ54 S Dc	30.443	136.887	breccia	0	0	27.0	0.0	2.65	6.92
Adelaide Region	Stuart Shelf	45901	Grzly Acc.Inc.	30.444	136.888	breccia	0.04	332	23.0	7.0	2.65	6.38
Eromanga Region	Stuart Shelf	45902	26NB56 C.Ac	30.438	136.888	breccia	0.11	913	51.0	29.0	2.65	15.10
Eromanga Region	Stuart Shelf	45903	RD44	30.437	136.886	breccia	0.02	166	181.5	12.0	2.65	47.35
Eromanga Region	Stuart Shelf	45904	RD44	30.437	136.886	breccia	0.14	1162	46.0	19.0	2.65	13.12
Adelaide Region	Stuart Shelf	45905	RD501	30.438	136.875	breccia	1.49	12369	565.5	16.0	2.65	146.14
Adelaide Region	Stuart Shelf	45906	RD501	30.438	136.875	breccia	0.67	5562	47.5	19.0	2.65	13.55
Adelaide Region	Stuart Shelf	45907	RU2314	30.438	136.875	breccia	0.29	2407	149.0	39.0	2.65	40.92
Eromanga Region	Stuart Shelf	45908	RU3 653	30.437	136.886	breccia	0.58	4815	2455.0	16.0	2.65	630.27
Eromanga Region	Stuart Shelf	45909	RU3-653	30.437	136.886	breccia	1.02	8467	1014.0	21.0	2.65	261.38
Adelaide Region	Stuart Shelf	45910	RU3307	30.439	136.875	breccia	0.16	1328	816.5	72.0	2.65	214.26
Adelaide Region	Stuart Shelf	45914	RD829	30.450	136.891	breccia	0.02	166	98.0	23.0	2.65	26.72
Adelaide Region	Stuart Shelf	45917	RD602	30.447	136.883	breccia	0	0	20.0	34.0	2.65	7.49
Adelaide Region	Stuart Shelf	45918	RD602	30.447	136.883	breccia	0.41	3404	11.0	22.0	2.65	4.38
Adelaide Region	Stuart Shelf	45919	RD781	30.446	136.882	breccia	0.03	249	7.0	26.0	2.65	3.61
Adelaide Region	Stuart Shelf	45922	RD602	30.447	136.883	breccia	1.47	12203	35.0	99.0	2.65	15.98
Adelaide Region	Stuart Shelf	45925	RD77A	30.444	136.888	breccia	0	0	44.5	23.0	2.65	13.01
Adelaide Region	Stuart Shelf	45926	RD16W1	30.444	136.886	breccia	0	0	127.0	13.0	2.65	33.45
Adelaide Region	Stuart Shelf	45928	RD96W1	30.438	136.876	breccia	0	0	378.0	37.0	2.65	99.44
Eromanga Region	Stuart Shelf	45931	RU33-59	30.440	136.887	breccia	0.02	166	202.5	14.0	2.65	52.87
Eromanga Region	Stuart Shelf	45932	RU33-59	30.440	136.887	breccia	0.2	1660	230.0	8.0	2.65	59.51
Eromanga Region	Stuart Shelf	45933	38NG52 S.Dc	30.441	136.895	breccia	0	0	484.0	5.0	2.65	124.38
Eromanga Region	Stuart Shelf	45934	38NG52 S.Dc	30.441	136.895	breccia	0.16	1328	467.0	18.0	2.65	120.94

Eromanga Region	Stuart Shelf	45937	39NH51S E.Dc	30.441	136.895	breccia	0.02	166	1565.0	9.0	2.65	401.67
Eromanga Region	Stuart Shelf	45938	39NH51S E.Dc	30.441	136.895	breccia	0.02	166	905.5	8.0	2.65	232.60
Eromanga Region	Stuart Shelf	45944	RD545	30.438	136.886	breccia	0.04	332	1260.0	9.0	2.65	323.51
Adelaide Region	Stuart Shelf	45945	RU4-144	30.449	136.893	breccia	0.03	249	36.5	43.0	2.65	12.35
Eromanga Region	Stuart Shelf	45949	RU3-401	30.445	136.889	breccia	0.7	5811	156.0	60.0	2.65	44.21
Adelaide Region	Stuart Shelf	45950	RU3-401	30.445	136.889	breccia	0.83	6890	110.5	96.0	2.65	35.07
Eromanga Region	Stuart Shelf	45951	RU3-402	30.445	136.890	breccia	0.02	166	92.5	60.0	2.65	27.89
Adelaide Region	Stuart Shelf	45953	RU3-751	30.438	136.875	breccia	0.81	6724	180.5	13.0	2.65	47.22
Eromanga Region	Stuart Shelf	45954	RU3-898	30.440	136.888	breccia	0.76	6309	33.5	20.0	2.65	10.04
Adelaide Region	Stuart Shelf	45956	RU3-769	30.437	136.875	breccia	0.71	5894	1422.0	3.0	2.65	364.66
Adelaide Region	Stuart Shelf	45957	RU3-321	30.438	136.875	breccia	0.1	830	969.0	60.0	2.65	252.50
Stuart Region	Gawler Craton	46726	PY3	31.531	137.366	carbonatite	5.34	44330	0.0	50.0	2.65	3.90
Gawler Region	Gawler Craton	44409	2000366008	30.368	137.087	dacite	4.73	39266	4.0	18.1	2.65	2.65
Gawler Region	Gawler Craton	44411	2000366010	30.368	137.087	dacite	3.87	32127	7.7	19.6	2.65	3.64
Gawler Region	Gawler Craton	44458	2000366048	30.581	136.783	dacite	5.69	47235	14.4	38.9	2.65	6.84
Gawler Region	Gawler Craton	44459	2000366049	30.581	136.783	dacite	6.66	55288	18.8	34.0	2.65	7.70
Gawler Region	Gawler Craton	44460	2000366050	30.579	136.810	dacite	6.49	53876	11.2	48.3	2.65	6.74
Gawler Region	Gawler Craton	45448	2000366121	31.073	136.938	dacite	8.82	73219	18.2	63.8	2.65	9.78
Gawler Region	Gawler Craton	45449	2000366125	31.410	137.219	dacite	6.76	56118	6.5	40.3	2.65	5.01
Gawler Region	Gawler Craton	45451	2000366126	31.410	137.219	dacite	7.2	59770	6.8	39.6	2.65	5.06
Eromanga Region	Gawler Craton	46364	884EU4	30.335	136.638	dacite	5.49	45575	7.0	33.0	2.65	4.52
Gawler Region	Gawler Craton	44406	2000366005	30.404	136.977	diorite	2.83	23493	1.3	1.6	2.65	0.67
Gawler Region	Gawler Craton	44422	2000366021	30.762	137.334	dolerite	1.81	15026	1.6	5.2	2.65	0.92
Gawler Region	Gawler Craton	44427	2000366026	30.762	137.334	dolerite	4.91	40760	1.6	6.0	2.65	1.21
Gawler Region	Gawler Craton	44435	2000366030	30.614	136.817	dolerite	2.41	20007	0.2	0.5	2.65	0.27
Gawler Region	Gawler Craton	44436	2000366031	30.797	137.502	dolerite	1.76	14611	1.3	4.9	2.65	0.82
Gawler Region	Gawler Craton	44445	2000366035	30.545	136.978	dolerite	3.16	26233	0.4	0.1	2.65	0.36
Gawler Region	Gawler Craton	45433	2000366100	31.022	137.016	dolerite	1.86	15441	0.6	2.5	2.65	0.48
Gawler Region	Gawler Craton	45437	2000366104	30.129	136.808	dolerite	2.54	21086	0.8	0.6	2.65	0.44
Stuart Region	Stuart Shelf	45852	WMC/BL D-1	30.379	137.216	dolerite	3.64	30217	10.6	41.5	2.65	5.89
Eromanga Region	Stuart Shelf	45915	RD160	30.442	136.892	dolerite	0.38	3155	0.5	4.0	2.65	0.44
Eromanga Region	Stuart Shelf	45916	RD160	30.442	136.893	dolerite	0	0	0.0	0.0	2.65	0.00
Eromanga Region	Stuart Shelf	45929	RD160	30.442	136.893	dolerite	0	0	0.0	0.0	2.65	0.00
Eromanga Region	Stuart Shelf	45946	RD222	30.460	136.921	dolerite	0.51	4234	1.0	-2.0	2.65	0.16
Eromanga Region	Stuart Shelf	45948	RD271	30.442	136.893	dolerite	0.7	5811	1.5	-2.0	2.65	0.30
Stuart Region	Stuart Shelf	45979	WMC/RD-222	30.456	136.920	dolerite	0.5	4151	1.0	2.8	2.65	0.49
Stuart Region	Stuart Shelf	46264	91-565	31.427	137.100	dolerite	0.05	415	0.3	1.3	2.65	0.16
Stuart Region	Gawler Craton	46721	EC40	31.466	137.416	dolerite	1.67	13863	4.0	14.0	2.65	2.13
Stuart Region	Stuart Shelf	46522	GY14	31.545	137.305	dolostone	0.14	1162	4.0	4.0	2.65	1.31

Stuart Region	Stuart Shelf	46524	GY14	31.545	137.305	dolostone	1.46	12120	4.0	8.0	2.65	1.69
Stuart Region	Stuart Shelf	46525	GY14	31.545	137.305	dolostone	2.41	20007	-4.0	16.0	2.65	0.28
Stuart Region	Stuart Shelf	46533	MG81	31.571	137.318	dolostone	1.47	12203	6.0	10.0	2.65	2.35
Stuart Region	Stuart Shelf	46534	MG81	31.571	137.318	dolostone	3.39	28142	12.0	18.0	2.65	4.59
Stuart Region	Stuart Shelf	46535	MG81	31.571	137.318	dolostone	0.44	3653	4.0	8.0	2.65	1.62
Stuart Region	Stuart Shelf	46538	MG81	31.571	137.318	dolostone	2.04	16935	8.0	10.0	2.65	2.90
Stuart Region	Stuart Shelf	46541	MG62	31.577	137.323	dolostone	2.97	24655	10.0	14.0	2.65	3.77
Stuart Region	Stuart Shelf	46542	MG62	31.577	137.323	dolostone	1.19	9879	26.0	10.0	2.65	7.45
Stuart Region	Stuart Shelf	46543	MG62	31.577	137.323	dolostone	0.52	4317	12.0	6.0	2.65	3.53
Stuart Region	Stuart Shelf	46544	MG62	31.577	137.323	dolostone	1.77	14694	280.0	10.0	2.65	72.58
Stuart Region	Stuart Shelf	46545	MG62	31.577	137.323	dolostone	0.88	7305	4.0	8.0	2.65	1.65
Stuart Region	Stuart Shelf	46546	MG62	31.577	137.323	dolostone	1.13	9381	6.0	6.0	2.65	2.04
Stuart Region	Stuart Shelf	46559	GY05	31.554	137.305	dolostone	1.73	14362	6.0	6.0	2.65	2.09
Stuart Region	Adelaide Fold Belt	46568	LD23	31.630	137.020	dolostone	2.6	21584	4.0	12.0	2.65	2.06
Stuart Region	Adelaide Fold Belt	46571	LD23	31.630	137.020	dolostone	1.74	14445	4.0	10.0	2.65	1.86
Stuart Region	Adelaide Fold Belt	46573	LD23	31.630	137.020	dolostone	0.14	1162	4.0	6.0	2.65	1.45
Stuart Region	Adelaide Fold Belt	46574	LD23	31.630	137.020	dolostone	0.26	2158	4.0	8.0	2.65	1.60
Stuart Region	Adelaide Fold Belt	46584	LD25	31.803	136.927	dolostone	2.64	21916	4.0	16.0	2.65	2.34
Stuart Region	Adelaide Fold Belt	46585	LD25	31.803	136.927	dolostone	2.86	23742	4.0	18.0	2.65	2.50
Stuart Region	Adelaide Fold Belt	46587	LD25	31.803	136.927	dolostone	2.71	22497	4.0	18.0	2.65	2.49
Stuart Region	Adelaide Fold Belt	46589	LD25	31.803	136.927	dolostone	2.29	19010	4.0	14.0	2.65	2.18
Stuart Region	Adelaide Fold Belt	46592	BK2	31.747	137.410	dolostone	2.47	20505	-4.0	14.0	2.65	0.14
Stuart Region	Adelaide Fold Belt	46593	BK2	31.747	137.410	dolostone	2.22	18429	6.0	10.0	2.65	2.41
Stuart Region	Adelaide Fold Belt	46594	BK2	31.747	137.410	dolostone	3.15	26150	6.0	14.0	2.65	2.76
Stuart Region	Adelaide Fold Belt	46595	BK2	31.747	137.410	dolostone	2.21	18346	-4.0	14.0	2.65	0.12
Stuart Region	Adelaide Fold Belt	46596	BK2	31.747	137.410	dolostone	2.03	16852	4.0	12.0	2.65	2.02
Stuart Region	Adelaide Fold Belt	46657	PL32	31.668	137.293	dolostone	2.07	17184	6.0	16.0	2.65	2.81
Stuart Region	Adelaide Fold Belt	46658	PL32	31.668	137.293	dolostone	1.58	13116	6.0	16.0	2.65	2.77
Stuart Region	Adelaide Fold Belt	46659	PL32	31.668	137.293	dolostone	0.74	6143	-4.0	18.0	2.65	0.29
Gawler Region	Gawler Craton	45436	2000366103	30.186	136.999	gneiss	3.83	31795	4.8	28.5	2.65	3.51
Gawler Region	Gawler Craton	45445	2000366117	30.789	137.175	gneiss	6.28	52133	3.2	17.8	2.65	2.54
Gawler Region	Gawler Craton	44404	2000366003	30.377	137.087	granite	4.45	36941	5.8	27.0	2.65	3.72
Gawler Region	Gawler Craton	44405	2000366004	30.404	136.977	granite	3.14	26067	5.7	24.4	2.65	3.41
Gawler Region	Gawler Craton	44407	2000366006	30.378	137.098	granite	0.2	1660	8.4	25.5	2.65	3.93
Gawler Region	Gawler Craton	44416	2000366020	30.762	137.334	granite	3.17	26316	1.9	4.7	2.65	1.05
Gawler Region	Gawler Craton	44417	2000366020	30.762	137.334	granite	2.17	18014	0.7	5.0	2.65	0.69
Gawler Region	Gawler Craton	44418	2000366020	30.762	137.334	granite	2.4	19923	1.1	4.0	2.65	0.75
Gawler Region	Gawler Craton	44419	2000366020	30.762	137.334	granite	2.78	23078	2.2	4.3	2.65	1.08
Gawler Region	Gawler Craton	44420	2000366020	30.762	137.334	granite	3.5	29055	0.7	6.5	2.65	0.91

Gawler Region	Gawler Craton	44421	2000366020	30.762	137.334	granite	2.9	24074	0.8	3.9	2.65	0.71
Gawler Region	Gawler Craton	44423	2000366022	30.762	137.334	granite	4.01	33289	2.5	17.1	2.65	2.13
Gawler Region	Gawler Craton	44424	2000366023	30.762	137.334	granite	3.83	31795	3.7	18.6	2.65	2.54
Gawler Region	Gawler Craton	44425	2000366024	30.762	137.334	granite	3.65	30300	3.7	18.6	2.65	2.53
Gawler Region	Gawler Craton	44426	2000366025	30.762	137.334	granite	4.1	34036	12.1	73.2	2.65	8.52
Gawler Region	Gawler Craton	44428	2000366027	30.656	136.823	granite	7.48	62095	20.6	94.2	2.65	12.42
Gawler Region	Gawler Craton	44429	2000366028	30.656	136.823	granite	6.79	56367	10.8	2.2	2.65	3.44
Gawler Region	Gawler Craton	44430	2000366029	30.614	136.817	granite	2.75	22829	1.0	0.9	2.65	0.54
Gawler Region	Gawler Craton	44431	2000366029	30.614	136.817	granite	3.71	30798	0.4	0.5	2.65	0.43
Gawler Region	Gawler Craton	44432	2000366029	30.614	136.817	granite	4.01	33289	1.2	1.9	2.65	0.75
Gawler Region	Gawler Craton	44433	2000366029	30.614	136.817	granite	4.67	38768	0.9	1.7	2.65	0.70
Gawler Region	Gawler Craton	44434	2000366029	30.614	136.817	granite	2.47	20505	1.5	14.1	2.65	1.54
Gawler Region	Gawler Craton	44437	2000366032	30.797	137.502	granite	5.96	49477	4.2	22.5	2.65	3.09
Gawler Region	Gawler Craton	44438	2000366032	30.797	137.502	granite	6.7	55620	1.5	14.3	2.65	1.89
Gawler Region	Gawler Craton	44439	2000366032	30.797	137.502	granite	6.03	50058	3.0	24.6	2.65	2.93
Gawler Region	Gawler Craton	44440	2000366032	30.797	137.502	granite	6.03	50058	1.4	8.2	2.65	1.39
Gawler Region	Gawler Craton	44441	2000366032	30.797	137.502	granite	6.43	53378	2.2	20.3	2.65	2.48
Gawler Region	Gawler Craton	44442	2000366034	30.673	136.934	granite	8.09	67159	5.1	20.8	2.65	3.37
Gawler Region	Gawler Craton	44443	2000366034	30.673	136.934	granite	6.41	53212	7.4	35.3	2.65	4.85
Gawler Region	Gawler Craton	44444	2000366034	30.673	136.934	granite	5.14	42669	5.6	16.9	2.65	3.01
Gawler Region	Gawler Craton	44446	2000366036	30.545	136.978	granite	3.31	27478	0.9	1.6	2.65	0.59
Gawler Region	Gawler Craton	44447	2000366037	30.545	136.978	granite	6.3	52299	0.8	2.0	2.65	0.84
Gawler Region	Gawler Craton	44448	2000366038	30.487	137.128	granite	0.44	3653	5.0	55.4	2.65	5.18
Gawler Region	Gawler Craton	44449	2000366039	30.487	137.128	granite	4.82	40013	3.7	15.0	2.65	2.37
Gawler Region	Gawler Craton	44452	2000366042	30.545	137.200	granite	5.41	44911	18.8	76.2	2.65	10.54
Gawler Region	Gawler Craton	44453	2000366043	30.545	137.200	granite	4.57	37938	14.6	40.9	2.65	6.94
Gawler Region	Gawler Craton	44454	2000366044	30.550	137.179	granite	4.97	41258	15.2	44.8	2.65	7.40
Gawler Region	Gawler Craton	44455	2000366045	30.550	137.179	granite	6.18	51303	6.5	33.5	2.65	4.48
Gawler Region	Gawler Craton	44456	2000366046	30.550	137.179	granite	3.9	32376	14.3	45.9	2.65	7.16
Gawler Region	Gawler Craton	44457	2000366047	30.550	137.179	granite	3.59	29802	7.9	28.9	2.65	4.32
Gawler Region	Gawler Craton	45444	2000366116	31.276	137.560	granite	5.44	45160	1.5	38.6	2.65	3.50
Stuart Region	Stuart Shelf	45803	WMC/SHD-1	30.184	137.000	granite	7.23	60020	1.2	2.0	2.65	1.00
Stuart Region	Stuart Shelf	45807	WMC/RD-23	30.474	136.886	granite	5.67	47069	14.8	63.0	2.65	8.62
Stuart Region	Stuart Shelf	45808	WMC/RD-23	30.474	136.886	granite	6.65	55205	29.5	67.0	2.65	12.74
Stuart Region	Stuart Shelf	45809	WMC/RD-126	30.421	136.850	granite	7.39	61348	13.4	68.0	2.65	8.74
Stuart Region	Stuart Shelf	45810	WMC/RD-221A	30.456	136.920	granite	8.11	67325	4.8	70.0	2.65	6.73
Stuart Region	Stuart Shelf	45811	WMC/TWN-2	30.591	136.925	granite	8.27	68653	2.6	8.6	2.65	1.90
Stuart Region	Stuart Shelf	45813	WMC/TWN-2	30.591	136.925	granite	5.73	47567	1.6	2.6	2.65	1.03
Stuart Region	Stuart Shelf	45814	WMC/RD-219	30.438	136.914	granite	6.63	55039	6.2	55.0	2.65	5.93

Stuart Region	Stuart Shelf	45815	WMC/RD-219	30.438	136.914	granite	7.53	62510	16.4	69.0	2.65	9.59
Stuart Region	Stuart Shelf	45816	WMC/TWN-1	30.564	136.908	granite	5.28	43832	7.8	67.0	2.65	7.07
Stuart Region	Stuart Shelf	45820	WMC/RD 307A	30.448	136.848	granite	8.26	68570	19.2	64.0	2.65	10.02
Stuart Region	Stuart Shelf	45821	WMC/RD-526	30.456	136.862	granite	8.42	69898	15.0	63.0	2.65	8.88
Stuart Region	Stuart Shelf	45822	WMC/RD-454	30.465	136.896	granite	5.48	45492	14.4	61.0	2.65	8.36
Stuart Region	Stuart Shelf	45823	WMC/RD-142	30.429	136.894	granite	7.62	63257	13.8	56.0	2.65	8.03
Stuart Region	Stuart Shelf	45826	WMC/RD-576	30.466	136.849	granite	5.65	46903	23.5	80.0	2.65	12.03
Stuart Region	Stuart Shelf	45827	WMC/RD-575	30.475	136.852	granite	5.51	45741	21.5	67.0	2.65	10.60
Stuart Region	Stuart Shelf	45829	WMC/RD-575	30.475	136.852	granite	6	49809	9.2	57.0	2.65	6.79
Stuart Region	Stuart Shelf	45830	WMC/RD-516	30.421	136.840	granite	5.71	47401	13.4	60.0	2.65	8.06
Stuart Region	Stuart Shelf	45831	WMC/RD-161	30.465	136.913	granite	5.55	46073	15.4	64.0	2.65	8.83
Stuart Region	Stuart Shelf	45832	WMC/RD-161	30.465	136.913	granite	5.49	45575	15.8	67.0	2.65	9.14
Stuart Region	Stuart Shelf	45833	WMC/RD-161	30.465	136.913	granite	5.29	43915	13.8	65.0	2.65	8.47
Stuart Region	Stuart Shelf	45836	WMC/RD-161	30.465	136.913	granite	5.42	44994	14.2	60.0	2.65	8.24
Stuart Region	Stuart Shelf	45840	WMC/RD-161	30.465	136.913	granite	5.46	45326	15.6	59.0	2.65	8.53
Stuart Region	Stuart Shelf	45855	WMC/SGD-2	30.372	137.088	granite	5.12	42503	7.4	31.0	2.65	4.45
Stuart Region	Stuart Shelf	45859	WMC/RED-2	30.583	137.370	granite	7.22	59937	5.0	33.0	2.65	4.14
Stuart Region	Stuart Shelf	45864	WMC/WRD-3	30.606	137.085	granite	5.5	45658	11.4	78.0	2.65	8.78
Stuart Region	Stuart Shelf	45867	WMC/ACD-6	30.610	136.819	granite	4.71	39100	1.6	1.8	2.65	0.90
Eromanga Region	Stuart Shelf	45920	RD161	30.462	136.912	granite	5.49	45575	13.5	49.0	2.65	7.30
Eromanga Region	Stuart Shelf	45921	RD161	30.462	136.912	granite	5.32	44164	11.5	37.0	2.65	5.94
Eromanga Region	Stuart Shelf	45923	RD478	30.423	136.884	granite	7.33	60850	17.5	80.0	2.65	10.62
Eromanga Region	Stuart Shelf	45924	RD478	30.423	136.884	granite	6.79	56367	24.5	51.0	2.65	10.36
Adelaide Region	Stuart Shelf	45930	RU2-275	30.445	136.890	granite	4.39	36443	13.5	59.0	2.65	7.91
Eromanga Region	Stuart Shelf	45936	39NH51S E.Dc	30.441	136.885	granite	3.3	27395	116.5	76.0	2.65	35.40
Adelaide Region	Stuart Shelf	45952	RU3-751	30.437	136.875	granite	4.82	40013	1664.0	65.0	2.65	431.31
Adelaide Region	Stuart Shelf	45960	32LK58N W D	30.437	136.875	granite	4.15	34451	60.0	38.0	2.65	18.34
Eromanga Region	Stuart Shelf	45961	39NH51S E Dc	30.441	136.895	granite	2.99	24821	220.5	64.0	2.65	61.19
Adelaide Region	Stuart Shelf	45962	40LJ57 L.Lp	30.440	136.875	granite	3.52	29221	28.0	29.0	2.65	9.47
Adelaide Region	Stuart Shelf	45963	36DC Blue Ex	30.441	136.878	granite	8.47	70313	84.5	55.0	2.65	26.14
Eromanga Region	Stuart Shelf	45964	29NB49S Dr	30.445	136.891	granite	3.97	32957	8.0	73.0	2.65	7.44
Stuart Region	Stuart Shelf	45975	WMC/RD-454	30.465	136.896	granite	7.71	64004	25.0	125.0	2.65	15.71
Stuart Region	Stuart Shelf	45976	WMC/RD-161	30.465	136.913	granite	5.53	45907	9.6	60.0	2.65	7.07
Stuart Region	Stuart Shelf	46004	WMC/WRD-3	30.606	137.085	granite	5.63	46737	12.2	76.0	2.65	8.86
Stuart Region	Stuart Shelf	45797	WMC/SGD-4	30.401	136.978	granodiorite	2.9	24074	4.0	20.0	2.65	2.64
Stuart Region	Stuart Shelf	45801	WMC/ASD-1	31.039	137.103	granodiorite	3.55	29470	3.4	30.0	2.65	3.24
Stuart Region	Stuart Shelf	45812	WMC/TWN-2	30.591	136.925	granodiorite	4.1	34036	1.4	1.8	2.65	0.80
Stuart Region	Stuart Shelf	45805	WMC/HUD-1	31.179	137.338	latite	4.87	40428	6.8	42.5	2.65	5.08
Stuart Region	Stuart Shelf	45872	WMC/WRD-1	30.645	136.945	latite	7.46	61929	11.6	40.5	2.65	6.37

Stuart Region	Stuart Shelf	45874	WMC/AC D-5	30.57 4	136.81 1	latite	7.58	629 25	12.0	63. 0	2.65	8.05
Stuart Region	Stuart Shelf	45875	WMC/AC D-4	30.58 4	136.78 5	latite	9.61	797 77	14.2	48. 0	2.65	7.72
Stuart Region	Stuart Shelf	45876	WMC/AC D-4	30.58 4	136.78 5	latite	5.6	464 88	14.6	48. 5	2.65	7.55
Stuart Region	Stuart Shelf	45878	WMC/RD- 693	30.44 7	136.90 2	latite	4.44	368 58	13.8	57. 0	2.65	7.85
Stuart Region	Stuart Shelf	45978	WMC/AC D-2	30.63 8	136.79 5	latite	6.53	542 09	14.2	55. 0	2.65	7.97
Eromanga Region	Stuart Shelf	46005	WMC/RD- 693	30.44 7	136.90 2	latite	4.12	342 02	40.0	35. 0	2.65	13.01
Stuart Region	Stuart Shelf	45834	WMC/RD- 161	30.46 5	136.91 3	mafic rock	1.7	141 12	11.4	40. 5	2.65	5.87
Stuart Region	Stuart Shelf	45835	WMC/RD- 161	30.46 5	136.91 3	mafic rock	1.78	147 77	15.0	44. 0	2.65	7.05
Stuart Region	Stuart Shelf	45838	WMC/RD- 161	30.46 5	136.91 3	mafic rock	2.84	235 76	6.0	25. 5	2.65	3.53
Stuart Region	Stuart Shelf	45839	WMC/RD- 161	30.46 5	136.91 3	mafic rock	1.08	896 6	13.6	88. 0	2.65	9.70
Stuart Region	Stuart Shelf	45854	WMC/SG D-2	30.37 2	137.08 8	mafic rock	1.11	921 5	1.4	22. 5	2.65	2.01
Stuart Region	Stuart Shelf	45860	WMC/RE D-2	30.58 3	137.37 0	mafic rock	4.17	346 17	14.0	36. 0	2.65	6.42
Stuart Region	Stuart Shelf	45863	WMC/WR D-6	30.64 3	137.05 8	mafic rock	1.15	954 7	9.4	30. 0	2.65	4.59
Stuart Region	Stuart Shelf	45866	WMC/WR D-3	30.60 6	137.08 5	mafic rock	5.2	431 68	3.2	17. 2	2.65	2.42
Gawler Region	Gawler Craton	45443	200036611 1	31.58 9	137.35 9	metasomatite	0.13	107 9	3.5	13. 8	2.65	1.88
Gawler Region	Gawler Craton	44450	200036604 0	30.48 7	137.12 8	monzodiorite	2.4	199 23	2.6	12. 9	2.65	1.76
Stuart Region	Stuart Shelf	45794	WMC/PD- 3	30.51 7	137.00 8	monzodiorite	3.04	252 36	4.4	19. 6	2.65	2.73
Stuart Region	Stuart Shelf	45800	WMC/OF D-1	30.48 8	137.13 0	monzodiorite	3.89	322 93	5.6	16. 4	2.65	2.88
Stuart Region	Stuart Shelf	45850	WMC/HR D-2	30.47 3	136.98 4	monzodiorite	3.97	329 57	7.4	28. 0	2.65	4.15
Stuart Region	Stuart Shelf	45857	WMC/OF D-1	30.48 8	137.13 0	monzodiorite	4.43	367 75	4.2	16. 4	2.65	2.56
Stuart Region	Stuart Shelf	45865	WMC/WR D-3	30.60 6	137.08 5	monzodiorite	3.47	288 06	4.0	24. 5	2.65	3.00
Stuart Region	Stuart Shelf	45877	WMC/OF D-2	30.54 1	137.20 1	monzodiorite	2.56	212 52	9.0	26. 0	2.65	4.32
Stuart Region	Stuart Shelf	45879	WMC/OF D-3	30.55 1	137.18 0	monzodiorite	3.74	310 47	8.6	32. 5	2.65	4.76
Stuart Region	Stuart Shelf	45880	WMC/OF D-3	30.55 1	137.18 0	monzodiorite	3.34	277 27	5.8	35. 0	2.65	4.18
Stuart Region	Stuart Shelf	45881	WMC/WR D-3	30.60 6	137.08 5	monzodiorite	3.69	306 32	5.2	24. 0	2.65	3.29
Stuart Region	Stuart Shelf	45977	WMC/HR D-2	30.47 3	136.98 4	monzodiorite	3.29	273 12	6.0	23. 5	2.65	3.43
Gawler Region	Gawler Craton	44451	200036604 1	30.54 5	137.20 0	monzonite	4.19	347 83	7.5	41. 0	2.65	5.10
Stuart Region	Stuart Shelf	45795	WMC/BL D-2	30.41 4	137.26 7	monzonite	3.63	301 34	3.8	59. 0	2.65	5.37
Stuart Region	Stuart Shelf	45796	WMC/HR D-1	30.46 4	136.97 8	monzonite	5.4	448 28	9.2	28. 5	2.65	4.76
Stuart Region	Stuart Shelf	45799	WMC/OF D-1	30.48 8	137.13 0	monzonite	5.58	463 22	17.0	78. 0	2.65	10.22
Stuart Region	Stuart Shelf	45802	WMC/WR D-3	30.60 6	137.08 5	monzonite	6.28	521 33	7.0	26. 5	2.65	4.12
Stuart Region	Stuart Shelf	45806	WMC/RE D-1	30.60 2	137.34 9	monzonite	5.33	442 47	11.8	41. 5	2.65	6.33
Stuart Region	Stuart Shelf	45847	WMC/OF D-2	30.54 1	137.20 1	monzonite	4.67	387 68	11.4	50. 0	2.65	6.77
Stuart Region	Stuart Shelf	45849	WMC/OF D-3	30.55 1	137.18 0	monzonite	6.16	511 37	8.0	31. 5	2.65	4.72
Stuart Region	Stuart Shelf	45851	WMC/BL D-2	30.41 4	137.26 7	monzonite	1.19	987 9	11.0	40. 0	2.65	5.70
Stuart Region	Stuart Shelf	45853	WMC/BL D-1	30.37 9	137.21 6	monzonite	3.98	330 40	2.6	11. 2	2.65	1.75
Stuart Region	Stuart Shelf	45858	WMC/RE D-2	30.58 3	137.37 0	monzonite	5.78	479 82	11.2	44. 5	2.65	6.42
Stuart Region	Stuart Shelf	45861	WMC/WR D-6	30.64 3	137.05 8	monzonite	5.41	449 11	6.8	29. 0	2.65	4.18
Stuart Region	Stuart Shelf	45862	WMC/WR D-6	30.64 3	137.05 8	monzonite	4.73	392 66	7.4	29. 5	2.65	4.32

Gawler Region	Gawler Craton	45438	2000366105	30.129	136.808	phyllite	5.18	43002	2.9	0.9	2.65	1.20
Stuart Region	Stuart Shelf	45974	WMC/RD-126	30.421	136.850	quartz monzonite	6.75	56035	14.6	79.0	2.65	9.77
Eromanga Region	Gawler Craton	46375	884N1	30.364	136.653	rhyodacite	5.78	47982	4.5	38.0	2.65	4.25
Eromanga Region	Gawler Craton	46378	884YAN4	30.496	136.462	rhyodacite	5.65	46903	8.0	41.0	2.65	5.34
Stuart Region	Stuart Shelf	45873	WMC/WRD-1	30.645	136.945	rhyolite	6.89	57197	9.4	41.0	2.65	5.80
Stuart Region	Gawler Craton	46727	PY3	31.531	137.366	rhyolite	9.96	82683	0.0	50.0	2.65	4.25
Stuart Region	Gawler Craton	45700	PY1	31.347	137.200	rock, undefined	7.7	63921	6.0	0.0	2.65	2.13
Stuart Region	Gawler Craton	45701	PY1	31.347	137.200	rock, undefined	1.26	10460	10.0	0.0	2.65	2.66
Stuart Region	Gawler Craton	45702	PY2	31.347	137.200	rock, undefined	6.2	51469	4.0	0.0	2.65	1.50
Stuart Region	Gawler Craton	45704	PY2	31.347	137.200	rock, undefined	6.4	53129	8.0	0.0	2.65	2.54
Stuart Region	Gawler Craton	45705	PY2	31.347	137.200	rock, undefined	8.23	68321	6.0	0.0	2.65	2.17
Stuart Region	Gawler Craton	45706	PY2	31.347	137.200	rock, undefined	0	0	6.0	0.0	2.65	1.54
Stuart Region	Gawler Craton	45707	PY2	31.347	137.200	rock, undefined	9.1	75543	6.0	0.0	2.65	2.24
Stuart Region	Gawler Craton	45708	PY2	31.347	137.200	rock, undefined	7.8	64751	6.0	0.0	2.65	2.14
Eromanga Region	Stuart Shelf	45935	38NG52S.Dc	30.441	136.895	rock, undefined	6.8	56450	48.0	26.0	2.65	14.64
Eromanga Region	Stuart Shelf	45939	33MK56WDr	30.439	136.886	rock, undefined	5.02	41673	68.5	34.0	2.65	20.31
Eromanga Region	Stuart Shelf	45941	33NB53WDr	30.440	136.886	rock, undefined	4.49	37274	8.0	20.0	2.65	3.79
Eromanga Region	Stuart Shelf	45942	33MK56WDr	30.439	136.885	rock, undefined	8.06	66910	48.0	42.0	2.65	15.85
Eromanga Region	Stuart Shelf	45943	RU3-739	30.439	136.885	rock, undefined	1.22	10128	37.0	24.0	2.65	11.25
Eromanga Region	Stuart Shelf	45955	32MJ54SDc.	30.442	136.887	rock, undefined	8.08	67076	36.0	41.0	2.65	12.70
Adelaide Region	Stuart Shelf	45958	RD32	30.451	136.892	rock, undefined	4.29	35613	26.5	58.0	2.65	11.16
Eromanga Region	Stuart Shelf	45959	RD647	30.450	136.902	rock, undefined	4.29	35613	25.5	51.0	2.65	10.42
Gawler Region	Gawler Craton	45452	2000366127	31.073	136.938	sandstone	9.55	79279	6.7	26.7	2.65	4.31
Stuart Region	Stuart Shelf	45967	WMC	30.973	137.202	sandstone	2.67	22165	7.0	15.0	2.65	3.04
Torrens Region	Stuart Shelf	45968	WMC	30.568	137.820	sandstone	0.69	5728	2.0	8.0	2.65	1.12
Stuart Region	Adelaide Fold Belt	46530	GY14	31.545	137.305	sandstone	2.08	17267	-4.0	16.0	2.65	0.25
Stuart Region	Stuart Shelf	46531	MG81	31.571	137.318	sandstone	0.95	7886	6.0	8.0	2.65	2.17
Stuart Region	Stuart Shelf	46532	MG81	31.571	137.318	sandstone	1.39	11539	-4.0	14.0	2.65	0.06
Stuart Region	Stuart Shelf	46539	MG62	31.577	137.323	sandstone	0.6	4981	4.0	4.0	2.65	1.35
Stuart Region	Stuart Shelf	46540	MG62	31.577	137.323	sandstone	0.71	5894	4.0	6.0	2.65	1.50
Stuart Region	Adelaide Fold Belt	46549	MG62	31.577	137.323	sandstone	2.46	20422	6.0	26.0	2.65	3.54
Stuart Region	Stuart Shelf	46556	GY05	31.554	137.305	sandstone	0.68	5645	6.0	10.0	2.65	2.29
Stuart Region	Stuart Shelf	46561	GY05	31.554	137.305	sandstone	1.66	13780	-4.0	14.0	2.65	0.08
Stuart Region	Stuart Shelf	46562	N150/150	31.579	137.304	sandstone	0.19	1577	4.0	22.0	2.65	2.57
Stuart Region	Stuart Shelf	46564	M150/450	31.557	137.356	sandstone	0.09	747	-4.0	30.0	2.65	1.07
Stuart Region	Stuart Shelf	46576	LD23	31.630	137.020	sandstone	0.95	7886	-4.0	14.0	2.65	0.02
Stuart Region	Adelaide Fold Belt	46588	LD25	31.803	136.927	sandstone	3.7	30715	6.0	22.0	2.65	3.36
Stuart Region	Stuart Shelf	46590	LD25	31.803	136.927	sandstone	2.25	18678	4.0	14.0	2.65	2.17
Stuart Region	Stuart Shelf	46591	LD25	31.803	136.927	sandstone	2.2	18263	-4.0	14.0	2.65	0.12

Gawler Region	Gawler Craton	44410	2000366009	30.368	137.087	schist	2.5	20754	8.4	16.5	2.65	3.50
Gawler Region	Gawler Craton	44461	2000366011	30.368	137.087	schist	3.84	31878	14.2	13.5	2.65	4.88
Gawler Region	Gawler Craton	45434	2000366101	31.022	137.016	schist	3.12	25901	4.0	17.4	2.65	2.47
Stuart Region	Adelaide Fold Belt	46249	78420031J	31.671	137.293	sediment, unknown origin	4.25	35281	4.0	100.0	2.65	8.32
Stuart Region	Adelaide Fold Belt	46250	78420031C	31.671	137.293	sediment, unknown origin	2.67	22165	6.0	14.0	2.65	2.72
Stuart Region	Stuart Shelf	46613	LW60	31.586	137.374	sediment, unknown origin	2.74	22746	6.0	20.0	2.65	3.14
Gawler Region		45505	2000366131	31.095	137.123	siltstone	6.04	50141	2.4	15.2	2.65	2.13
Gawler Region		45506	2000366134	31.568	137.348	siltstone	4.98	41341	3.2	14.8	2.65	2.25
Adelaide Region	Stuart Shelf	45911	RD32	30.451	136.892	siltstone	0.62	5147	29.5	19.0	2.65	8.93
Adelaide Region	Stuart Shelf	45912	RD32	30.451	136.892	siltstone	2.07	17184	38.5	38.0	2.65	12.67
Adelaide Region	Stuart Shelf	45913	RD829	30.450	136.891	siltstone	0.72	5977	31.0	26.0	2.65	9.81
Stuart Region	Adelaide Fold Belt	46248	78420023J	31.671	137.293	siltstone	0.85	7056	10.0	16.0	2.65	3.74
Stuart Region	Adelaide Fold Belt	46251	78420028	31.671	137.293	siltstone	1.22	10128	8.0	10.0	2.65	2.84
Stuart Region	Stuart Shelf	46527	GY14	31.545	137.305	siltstone	5.21	43251	10.0	24.0	2.65	4.64
Stuart Region	Stuart Shelf	46528	GY14	31.545	137.305	siltstone	4.91	40760	8.0	28.0	2.65	4.38
Stuart Region	Adelaide Fold Belt	46529	GY14	31.545	137.305	siltstone	5.65	46903	8.0	26.0	2.65	4.30
Stuart Region	Stuart Shelf	46536	MG81	31.571	137.318	siltstone	4.39	36443	8.0	18.0	2.65	3.64
Stuart Region	Adelaide Fold Belt	46548	MG62	31.577	137.323	siltstone	4.28	35530	4.0	20.0	2.65	2.75
Stuart Region	Stuart Shelf	46553	GY09	31.548	137.305	siltstone	4.1	34036	6.0	18.0	2.65	3.11
Stuart Region	Stuart Shelf	46554	GY09	31.548	137.305	siltstone	5.25	43583	6.0	26.0	2.65	3.75
Stuart Region	Adelaide Fold Belt	46555	GY09	31.548	137.305	siltstone	4.36	36194	4.0	22.0	2.65	2.89
Stuart Region	Stuart Shelf	46560	GY05	31.554	137.305	siltstone	5.31	44081	4.0	26.0	2.65	3.25
Stuart Region	Adelaide Fold Belt	46565	LD23	31.630	137.020	siltstone	3.19	26482	6.0	16.0	2.65	2.90
Stuart Region	Adelaide Fold Belt	46566	LD23	31.630	137.020	siltstone	3.17	26316	6.0	20.0	2.65	3.18
Stuart Region	Adelaide Fold Belt	46570	LD23	31.630	137.020	siltstone	3.58	29719	8.0	18.0	2.65	3.58
Stuart Region	Stuart Shelf	46578	LD23	31.630	137.020	siltstone	4.42	36692	0.0	32.0	2.65	2.57
Stuart Region	Adelaide Fold Belt	46580	LD25	31.803	136.927	siltstone	3.53	29304	8.0	16.0	2.65	3.44
Stuart Region	Adelaide Fold Belt	46581	LD25	31.803	136.927	siltstone	2.58	21418	8.0	16.0	2.65	3.36
Stuart Region	Adelaide Fold Belt	46583	LD25	31.803	136.927	siltstone	3.18	26399	4.0	18.0	2.65	2.52
Stuart Region	Adelaide Fold Belt	46586	LD25	31.803	136.927	siltstone	4.48	37191	4.0	20.0	2.65	2.76
Stuart Region	Adelaide Fold Belt	46656	PL32	31.668	137.293	siltstone	4.32	35862	10.0	20.0	2.65	4.29
Stuart Region	Stuart Shelf	45804	WMC/WLD-1	30.657	137.314	syenite	6.41	53212	1.6	9.2	2.65	1.54
Stuart Region	Stuart Shelf	45868	WMC/RED-2	30.583	137.370	syenite	6.28	52133	11.4	41.0	2.65	6.26
Stuart Region	Stuart Shelf	45882	WMC/WRD-3	30.606	137.085	syenite	6.33	52548	14.2	70.0	2.65	9.00
Stuart Region	Stuart Shelf	45818	WMC/TWN-3	30.609	136.925	tonalite	2.33	19342	1.0	7.8	2.65	0.98
Stuart Region	Gawler Craton	46722	EC21	31.347	137.200	trachyte	7.56	62759	4.0	20.0	2.65	3.00
Stuart Region	Gawler Craton	46723	PY3	31.531	137.366	trachyte	7.64	63423	0.0	45.0	2.65	3.72
Stuart Region	Gawler Craton	46724	PY3	31.531	137.366	trachyte	6.72	55786	0.0	45.0	2.65	3.65
Stuart Region	Gawler Craton	46725	PY3	31.531	137.366	trachyte	9.84	81686	0.0	60.0	2.65	4.94

Stuart Region	Gawler Craton	46728	PY3	31.531	137.366	trachyte	8.34	69234	0.0	25.0	2.65	2.38
Stuart Region	Gawler Craton	46730	PY3	31.531	137.366	trachyte	9.24	76705	0.0	35.0	2.65	3.15
Stuart Region	Gawler Craton	46731	PY3	31.531	137.366	trachyte	6.6	54790	0.0	25.0	2.65	2.25
Stuart Region	Gawler Craton	46732	PY3	31.531	137.366	trachyte	3.18	26399	0.0	10.0	2.65	0.94
Eromanga Region	Stuart Shelf	45940	33NB53W Dr	30.440	136.886	tuff	5.95	49394	54.5	18.0	2.65	15.68
Stuart Region	Gawler Craton	46729	PY3	31.531	137.366	tuff	8.14	67574	0.0	50.0	2.65	4.11
Gawler Region		45457	2001360001	31.909	137.696	unknown	6.43	53378	1.6	8.4	2.65	1.48
Gawler Region		45458	2001360001	31.909	137.696	unknown	1.8	14943	0.9	2.1	2.65	0.51
Gawler Region		45459	2001360002	30.778	137.653	unknown	0.15	1245	18.3	19.8	2.65	6.09
Gawler Region		45460	2001360002	30.778	137.653	unknown	0.04	332	4.5	0.5	2.65	1.20
Gawler Region		45461	2001368026	31.176	137.342	unknown	5.44	45160	6.7	37.0	2.65	4.71
Gawler Region		45462	2001368027	31.375	137.210	unknown	4.73	39266	1.7	8.3	2.65	1.37
Gawler Region		45463	2001368027	31.375	137.210	unknown	7.04	58442	4.8	26.2	2.65	3.60
Adelaide Region	Stuart Shelf	45927	RD16W1	30.444	136.886	unknown	0.23	1909	2530.0	-2.0	2.65	648.20
Stuart Region	Stuart Shelf	45869	WMC/SG D-6	30.363	137.089	volcanic rock	3.53	29304	6.4	23.0	2.65	3.51