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BASIC DATA FOR SOME RECENT
AUSTRALIAN HEAT-FLOW MEASUREMENTS



OPEN-FILE REPORT 75-567

Menlo Park, California

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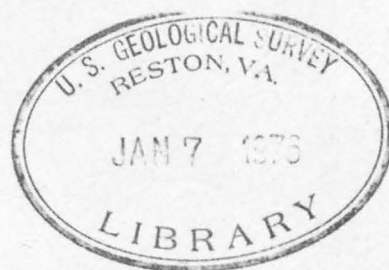
U.S. Geological Survey

BASIC DATA FOR SOME RECENT AUSTRALIAN HEAT-FLOW MEASUREMENTS

by

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This report is preliminary and has not been edited or reviewed
for conformity with Geological Survey standards and nomenclature.

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1. INTRODUCTION

This report has been compiled to provide background information and detailed temperature and thermal conductivity data for the heat-flow values reported in Sass, Jaeger, and Munroe (in press). The data were collected as part of a joint heat-flow study by the Australian National University (ANU) and the U.S. Geological Survey (USGS) under the direction of J. C. Jaeger (ANU) and J. H. Sass (USGS). The format is similar to that used for basic data from United States heat-flow determinations (Sass and Munroe, 1974). Each section contains a state map showing the geographic distribution of heat-flow data followed by tables which list individual temperatures, thermal conductivities, and radiogenic heat-production values. A companion volume (Bunker and others, 1975) gives details of the heat-production measurements together with individual radioelement concentrations. Localities are arranged in alphabetical order within each state. The methods and techniques of measurements have been described by Sass and others (1971a, b). Unusual methods or procedures which differ markedly from these techniques are noted and described in the comments sections of the tables. Corrections other than for topography also are identified in the comments sections. Topographic corrections were made where local topography exceeded a few tens of meters. Some were made using the three-dimensional Birch- (1950) type correction. In these instances, radii and elevations of circular annuli centered on the borehole collar are given. Two-dimensional

corrections involved exact solutions of Lees-type hills and monoclines which approximated or bracketed the true topography. They can be reconstructed by reference to Jaeger and Sass (1963) and to the following parameters given in the comments sections of the applicable tables:

H, hill height or valley depth meters

B, half width of hill or valley at a height of $H/2$

X, horizontal distance with the same origins and sign convention as Jaeger and Sass (1963)

ALPHA, shape factor for monoclines (this is " α " in equations 10 through 13 of Jaeger and Sass, 1963)

Table 1-1 explains the abbreviations and units given in the tables of data. Figure 1-1 is a sketch map showing the distribution of heat-flow data throughout Australia by means of coded symbols in steps of 0.3 heat-flow units. Both previously published results and those from the present work are shown in this map. The maps given in individual sections differentiate between previously published values and those resulting from the present study.

In the tables, each site is assigned to a rather broadly defined "tectonic unit" based primarily on the terminology of Brown, Campbell, and Crook (1968). The Archaean rocks (~ 2500 m.y.) are in Western Australia and were subdivided into the Yilgarn and Pilbara Systems. Proterozoic rocks (~ 600 to 1600 m.y.) were designated as simply "Prot. Shld." Cambrian and younger rocks were found in the Tasman

Orthogeosyncline, and this unit was abbreviated as "Tas. fold belt."

The Sydney Basin was designated as a separate tectonic unit, and the sites in Southwestern Victoria were assigned, for our purposes, to the Murray Basin.

Table 1-1. Symbols and units used in the tables

Note: All depths, radii and elevations are in meters.

ELEV,	elevation
N,	number of conductivity samples
COND,	harmonic mean thermal conductivity, mcal/cm sec °C
GRAD,	vertical temperature gradient, °C/km
HEAT FLOW,	vertical conductive heat flux, (HFU) = 10^{-6} cal/cm ² sec (cond.grad)
DEPTH,	vertical depth below ground surface
TEMP,	temperature, °C
DENS,	density gm/cm ³
A,	radioactive heat production, (HGU) 10^{-13} cal/cm ³ sec
ERROR,	standard error of mean (cond) of slope (grad), or of product (heat flow)
RADIUS,	outer radius (in meters) of a circular zone, centered on the borehole collar. The elevation given in terrain data is the mean elevation of a circular annulus with outer radius as specified and inner radius specified by the preceding zone
ANGLE,	the angle in degrees that the hole makes to the horizontal at the depth in question

Acknowledgments. We are indebted to numerous colleagues within the mining industry, universities, and government agencies for their help in this project. We are particularly grateful to Professor A. R. Crawford for his invaluable assistance in the selection of drilling sites and the collection of samples for radioactivity. Brendan P. Thomson, Department of Mines, South Australia, arranged access to holes drilled by his department, helped to schedule Mines Department drills for the holes at Wudinna and Tarcoola, and generously supplied splits of systematically sampled granitic rocks from the Eyre Peninsula.

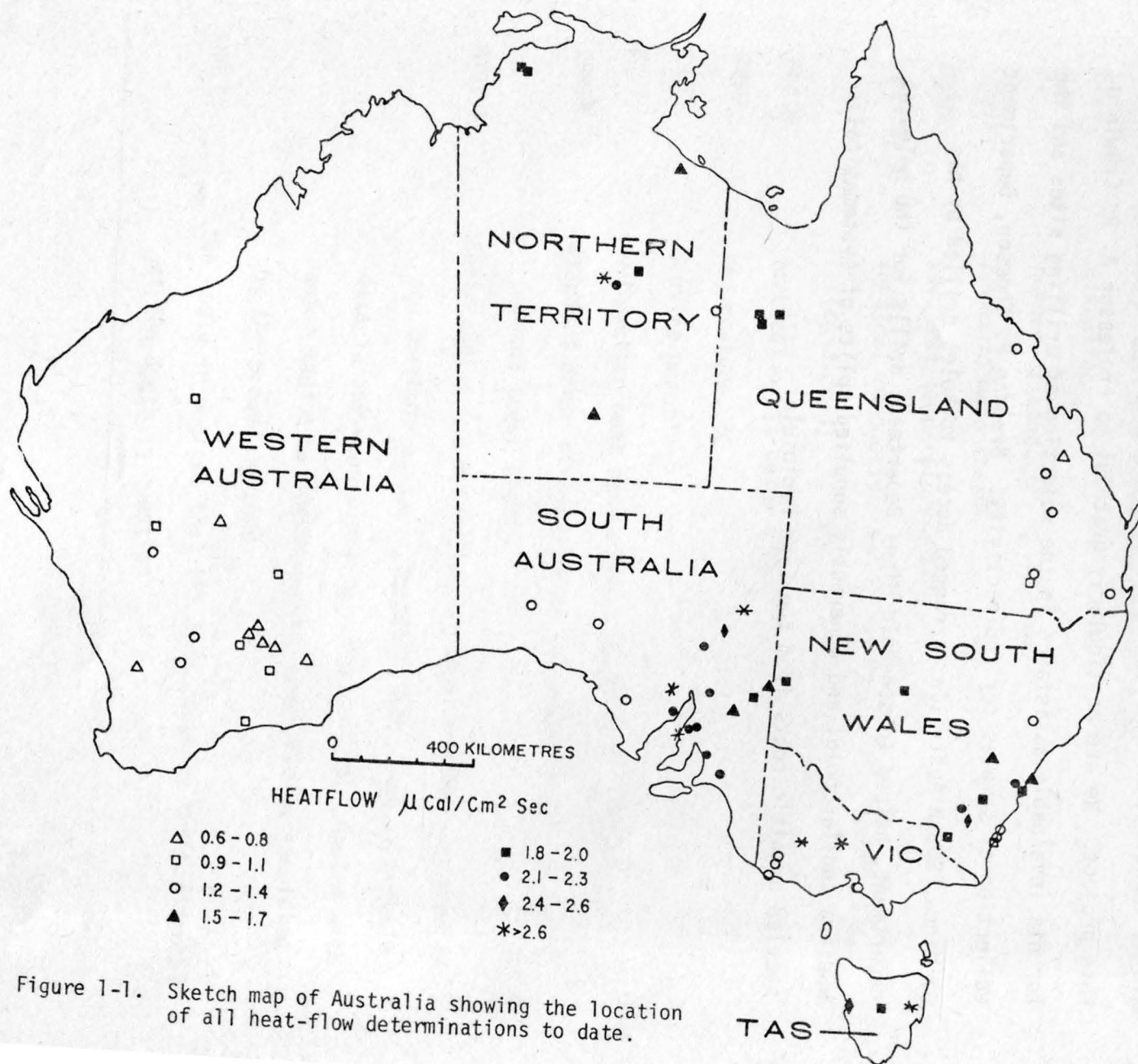


Figure 1-1. Sketch map of Australia showing the location of all heat-flow determinations to date.

2. NEW SOUTH WALES

Measurements were made at nine new sites in New South Wales including one hole drilled by the ANU at Moruya. Figure 2-1 shows the distribution of values. Further work was also done near Cobar. Figure 2-2 (p. 12) shows the new measurements in hole 18E16 as compared with previous measurements by Le Marne and Sass (1962).

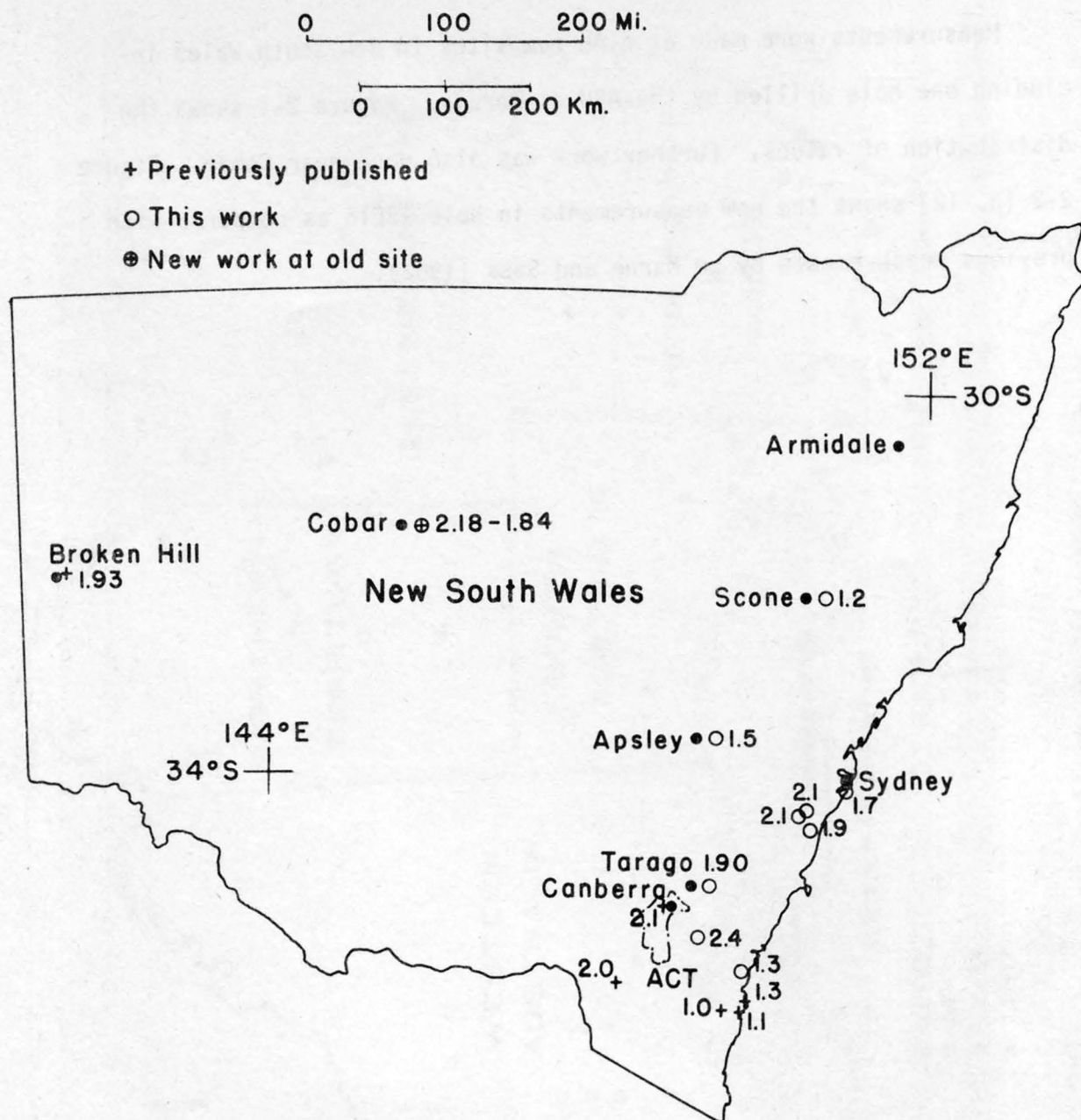


Figure 2-1. Heat flow in New South Wales.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	TAS. FOLD BELT	APSLEY	DDH-6A	33 34	149 34	884	65- 137	15	9.69	13.5	1.31	1.5
									ERROR	0.20	0.06	0.02

COMPLETED ON OR BEFORE: 06/72 MEASURED: 07/28/72 STATIC WATER LEVEL: 9.

REFERENCE:

GEOLOGY: 0-137, QUARTZ SERICITE SCHIST.

TEMPERATURE

DEPTH	8.84	11.79	14.75	17.71	20.69	23.67	26.66	29.64	32.63	35.62	38.61	41.60
TEMP	15.450	15.558	15.581	15.593	15.622	15.672	15.749	15.820	15.886	15.958	16.018	16.072
DEPTH	44.59	47.58	50.57	53.55	56.54	59.53	62.52	65.50	68.47	71.43	74.39	77.34
TEMP	16.117	16.164	16.209	16.251	16.294	16.339	16.383	16.423	16.469	16.516	16.572	16.617
DEPTH	80.27	83.18	86.08	88.99	91.90	94.79	97.67	100.55	103.44	106.26	109.18	112.04
TEMP	16.650	16.680	16.713	16.759	16.795	16.832	16.870	16.912	16.949	16.987	17.028	17.067
DEPTH	114.39	117.75	120.83	123.45	126.28	129.12	131.96	134.79	136.21			
TEMP	17.107	17.148	17.183	17.222	17.260	17.299	17.336	17.387	17.411			

CONDUCTIVITY AND DENSITY

DEPTH	51.76	54.45	59.83	65.50	71.13	78.53	83.18	90.44	94.50	100.55	106.32	113.47	120.60	123.73	129.12	
COND	10.38	11.03	10.49	9.35	9.99	9.38	10.05	8.92	9.32	9.42	10.29	9.85	10.23	8.81	9.88	
DENS	2.61	2.65	2.65	2.61	2.80	2.62	2.63	2.62	2.62	2.62	2.65	2.60	2.64	2.60	2.61	
DEPTH	135.36															
COND	8.12															
DENS	2.64															

HEAT PRODUCTION

DEPTH	56.90	86.70	114.10
A	5.71	6.28	5.77

DIP ANGLE

DEPTH	0	8	17	30	44	56	68	80	95	110	126	141
ANGLE	75.0	75.0	77.0	79.0	79.0	78.0	79.0	73.0	72.0	70.0	69.0	68.0

TERRAIN DATA

RADIUS	0	121	241	402	603	821	1074	1394	1843	2559	3933	5358	8037
ELEV	891	891	874	865	854	849	836	837	853	828	787	762	774

COMMENTS: APSLEY DDH-6A IS LOCATED ON THE SOUTH FLANK OF THE BATHURST RATHOLITH. SEE TABLE 2-2 OF BUNKER AND OTHERS (1975) FOR RADIOACTIVITY DATA AT ADDITIONAL SITES WITHIN THE BATHURST RATHOLITH.

STATE	TECT UNIT	LOCALITY	HOLE NO	S. LAT DEG MIN	E. LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
NSW	TAS. FOLD BELT	CAPTAIN'S FLAT	E7-5	35 36	149 27	914	66- 263	12	10.50	23.0	2.42	2.4
									ERROR	0.35	0.06	0.08

COMPLETED ON OR BEFORE: 01/14/73 MEASURED: 01/26/73 STATIC WATER LEVEL: 13.

REFERENCE:

GEOLOGY: 0-263, RHYODACITIC CRYSTAL TUFF.

TEMPERATURE												
DEPTH	13.20	19.76	26.33	32.90	39.46	46.03	52.59	59.16	65.72	72.29	78.85	85.42
TEMP	13.671	13.818	13.942	14.075	14.189	14.390	14.520	14.660	14.787	14.924	15.066	15.212
DEPTH	91.99	98.55	105.12	111.68	118.25	124.81	131.38	137.66	143.94	150.22	156.50	162.78
TEMP	15.350	15.498	15.647	15.789	15.942	16.083	16.221	16.360	16.525	16.710	16.850	16.986
DEPTH	169.06	175.34	181.62	186.96	192.30	197.64	202.98	208.32	213.66	219.00	224.35	228.72
TEMP	17.124	17.257	17.399	17.566	17.712	17.805	17.924	18.038	18.150	18.257	18.360	18.483
DEPTH	233.09	237.46	241.83	245.87	249.90	253.71	257.52	261.33	262.71			
TEMP	18.573	18.673	18.785	18.899	18.986	19.084	19.159	19.252	19.291			

CONDUCTIVITY AND DENSITY															
DEPTH	39.46	52.59	65.72	78.85	91.99	105.12	118.25	131.38	143.94	156.50	169.06	192.30	202.98	213.66	224.35
COND	10.83	10.27	12.46	11.35	10.80	11.52	9.91	8.37	9.25	11.90	10.63	10.46	9.80	10.94	10.12
DENS	2.68	2.66	2.66	2.70	2.70	2.70	2.67	2.69	2.63	2.52	2.69	2.70	2.67	2.69	2.70
DEPTH	233.09	241.83	249.90	257.52	265.14	272.76									
COND	9.29	10.06	9.91	8.71	8.89	6.39									
DENS	2.81	2.77	2.72	2.76	2.73	2.75									

DIP ANGLE									
DEPTH	0	15	152	213	274	304	320	335	
ANGLE	60.0	60.0	59.0	52.0	37.0	33.0	31.0	29.0	

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
NSW	TAS. FOLD BELT	COBAR CSA MINE	18E16	31 25	145 48	280	549- 779	10	10.23	18.8	1.92
								ERROR	0.75	0.2	0.14

COMPLETED ON OR BEFORE: ? MEASURED: 71 STATIC WATER LEVEL: ?

REFERENCE:

GEOLOGY: 0-779, SANDSTONE AND SLATE.

TEMPERATURE

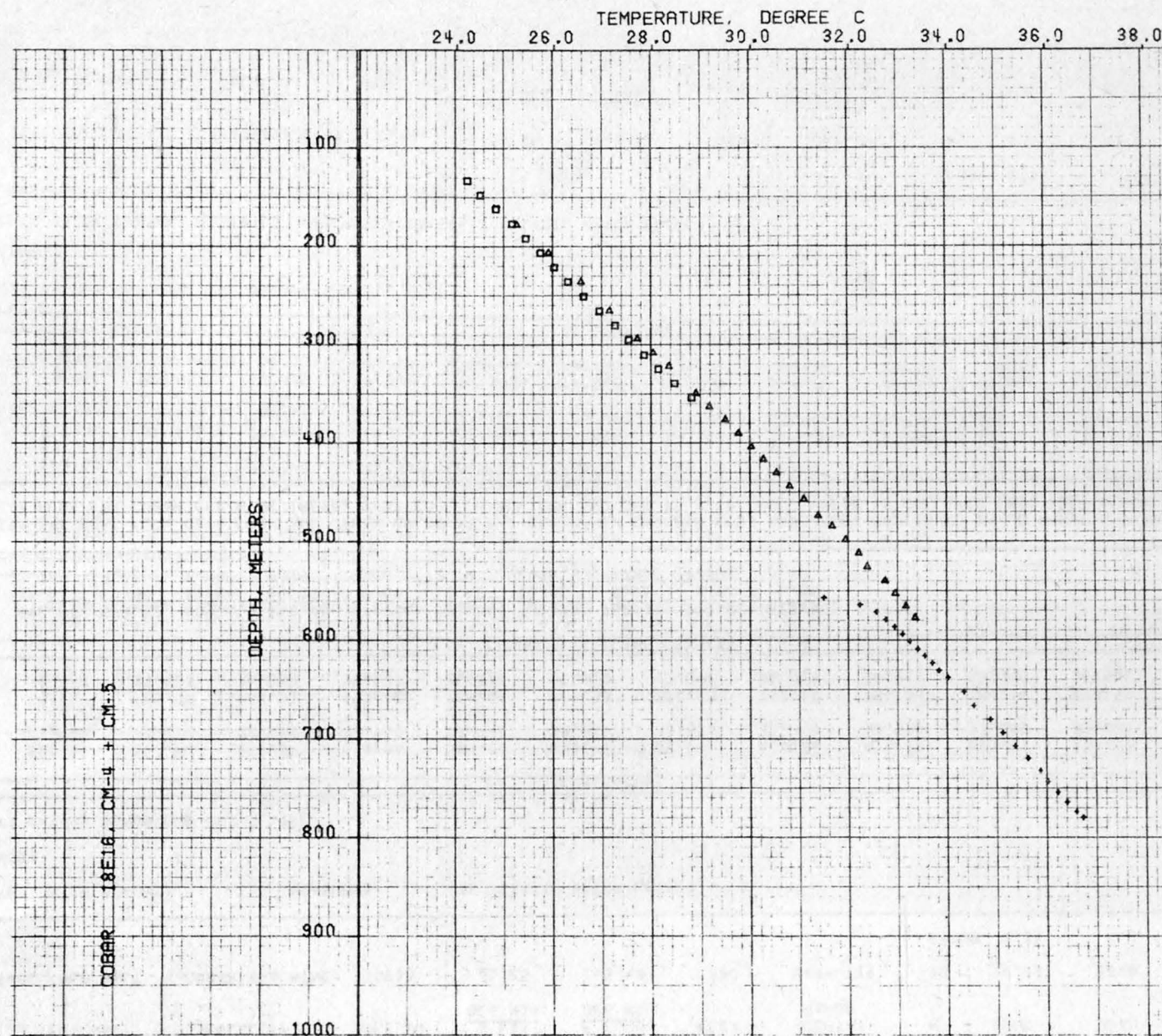
DEPTH	556.08	563.52	571.07	578.66	585.83	593.45	601.01	608.32	615.70	623.01	630.33	637.64
TEMP	31.480	32.220	32.550	32.740	32.920	33.080	33.230	33.390	33.530	33.680	33.820	34.000
DEPTH	651.97	665.99	680.01	693.42	706.83	719.33	731.83	743.10	754.08	764.14	773.58	779.38
TEMP	34.320	34.520	34.850	35.100	35.350	35.610	35.860	36.010	36.210	36.390	36.580	36.710

CONDUCTIVITY AND DENSITY

DEPTH	548.64	579.12	609.60	640.08	670.56	701.04	731.52	762.00	792.48	822.96
COND	11.61	10.97	11.84	14.33	9.49	11.42	13.02	8.46	8.88	6.88
DENS	2.78	2.81	2.79	2.78	2.68	2.74	2.74	2.78	2.79	2.78

COMMENTS: THE HEAT FLOW DATA FROM TWO OTHER HOLES AT THE CSA MINE, CM4 AND CM5, HAVE BEEN PUBLISHED IN LE MARNE AND SASS 1962. THE MEAN HEAT FLOW FOR COBAR CSA MINE 18E16, SPOTTED LEOPARD, CM4 AND CM5 IS 1.98. HOLE 18E16 IS COLLARED 1800 FEET BELOW THE SURFACE.

Figure 2-2. Temperatures near the CSA mine, Cobar, N.S.W.



STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	TAS. FOLD BELT	COBAR	SPOTTED LEOPARD	31 27	145 49	268	161- 367	15	8.42	20.97	1.77	
									ERROR	0.04	0.09	0.09

COMPLETED ON OR BEFORE: ? MEASURED: 71 STATIC WATER LEVEL: ?

REFERENCE:

GEOLOGY: 0-367, SANDSTONE AND SLATE.

TEMPERATURE

DEPTH	103.63	118.57	132.89	147.22	161.24	174.04	186.54	198.12	209.70	220.98	231.65	242.01
TEMP	23.740	23.940	24.140	24.390	24.600	24.850	25.100	25.310	25.520	25.750	25.990	26.220
DEPTH	252.37	261.82	271.27	280.11	289.26	297.49	305.41	313.33	320.95	329.18	336.19	342.90
TEMP	26.450	26.670	26.880	27.070	27.270	27.440	27.610	27.760	27.910	28.050	28.210	28.350
DEPTH	349.30	355.70	361.80	366.98								
TEMP	28.490	28.630	28.760	28.860								

CONDUCTIVITY AND DENSITY

DEPTH	88.70	118.57	147.22	174.04	198.12	220.98	242.01	261.82	280.11	297.49	313.33	329.18	342.90	355.70	366.98
COND	8.75	9.31	12.40	7.95	11.57	11.10	7.22	8.40	9.15	6.74	9.51	6.20	7.30	9.21	6.71
DENS	2.68	2.78	2.70	2.79	2.68	2.67	2.78	2.74	2.73	2.77	2.68	2.78	2.76	2.72	2.78

COMMENTS: THE HEAT FLOW DATA FROM TWO OTHER HOLES AT THE CSA MINE, CM4 AND CM5, HAVE BEEN PUBLISHED IN LE MARNE AND SASS 1962. THE MEAN HEAT FLOW FOR COBAR CSA MINE 18E16, SPOTTED LEOPARD, CM4 AND CM5 IS 1.98. SPOTTED LEOPARD IS AN INCLINED HOLE AND ALL DEPTHS ARE CORRECTED DEPTHS BUT INCLINATIONS ARE NOT AVAILABLE.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	TAS. FOLD BELT	MORUYA		35 54	150 07	7	85- 168	10	7.30	17.5	1.28	1.28
								ERROR	0.08	0.1	0.02	

COMPLETED ON OR BEFORE: 05/01/71 MEASURED: 07/15/71 STATIC WATER LEVEL: 7.

REFERENCE:

GEOLOGY: 0-168, GRANODIORITE.

TEMPERATURE

DEPTH	7.62	15.42	23.04	30.33	38.22	45.72	53.34	60.96	68.58	76.20	79.25	82.30
TEMP	17.130	17.090	17.090	17.170	17.240	17.290	17.360	17.500	17.590	17.630	17.660	17.710
DEPTH	85.34	88.39	91.44	94.49	97.54	100.58	103.63	106.68	109.73	112.78	115.82	118.87
TEMP	17.740	17.790	17.840	17.890	17.930	17.980	18.040	18.100	18.150	18.200	18.250	18.310
DEPTH	121.92	124.97	128.02	131.06	134.11	137.16	140.21	143.26	146.30	149.35	152.40	155.45
TEMP	18.350	18.400	18.460	18.520	18.570	18.650	18.690	18.730	18.790	18.850	18.900	18.950
DEPTH	158.50	161.54	164.59	167.64								
TEMP	19.000	19.070	19.120	19.160								

CONDUCTIVITY AND DENSITY

DEPTH	30.48	46.63	60.96	68.58	76.20	82.30	91.44	107.90	120.40	121.92	135.03
COND	7.04	7.47	7.10	7.66	7.61	6.87	7.35	7.44	5.38	7.40	7.14
DENS	2.70	2.70	2.69	2.70	2.69	2.70	2.69	2.70	2.85	2.69	2.71

HEAT PRODUCTION

DEPTH	30.50	61.00	64.50	91.40	101.30	121.90	142.20	150.10	152.40	154.40	161.20	164.90
A	3.01	2.74	5.05	3.55	2.75	3.16	3.56	3.17	4.83	3.15	3.20	3.50

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	TAS. FOLD BELT	SCONE		32 05	150 49	208	30- 366	35	2.99	(39.)	1.17	1.2
									ERROR	0.37	0.01	

COMPLETED ON OR BEFORE: 07/06/71 MEASURED: 10/06/71 STATIC WATER LEVEL: 15.

REFERENCE:

GEOLOGY: 0-366, INTERBEDDED SANDSTONE, SILTSTONE, MUDSTONE, CLAYSTONE, TUFF, SHALE, DIABASE, COAL AND CONGLOMERATE.

TEMPERATURE

DEPTH	15.24	22.86	30.48	38.10	45.72	53.34	60.96	68.58	76.20	83.82	91.44	99.06
TEMP	19.760	19.935	20.103	20.385	20.653	21.106	21.370	21.711	21.997	22.417	22.728	23.031
DEPTH	106.68	114.30	121.92	129.54	137.16	144.78	152.40	160.02	167.64	175.26	182.88	190.50
TEMP	23.323	23.687	24.243	24.499	24.694	24.905	25.113	25.703	26.156	26.473	26.690	27.187
DEPTH	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70	274.32	281.94
TEMP	27.523	27.804	28.211	29.006	29.234	29.418	29.616	29.823	30.077	30.306	30.538	30.811
DEPTH	289.56	297.18	304.80	312.42	320.04	327.66	335.28	342.90	350.52	358.14	365.76	
TEMP	31.084	31.309	31.494	31.708	32.202	32.976	33.187	33.397	33.694	33.981	34.195	

CONDUCTIVITY AND DENSITY

DEPTH	39.50	39.59	54.56	69.80	84.92	85.10	100.10	100.31	115.31	115.52	130.61	130.82	146.30	146.52	176.42
COND	1.67	2.61	2.98	2.63	2.32	2.39	2.85	2.89	0.82	0.82	2.86	2.87	5.32	5.16	5.16
DENS															
DEPTH	176.51	176.60	192.33	205.50	205.71	220.37	237.20	237.41	253.29	268.22	298.22	298.40	313.52	313.70	327.51
COND	3.34	3.77	2.89	2.83	2.85	3.17	5.71	5.82	3.71	4.90	3.82	5.27	3.37	4.58	3.38
DENS							2.63		2.53	2.92	2.2		2.28		2.27
DEPTH	327.72	344.21	344.42	358.63	358.72	365.76									
COND	3.88	5.84	8.36	5.56	8.80	9.75									
DENS		2.41													

COMMENTS: THE HEAT FLOW WAS CALCULATED BY BULLARD'S METHOD. SEE TEXT.

Table 2-1. BULLARD REDUCTION FOR BHP-2, SCONE, NSW

Depth m	Rock*	K mcal/cm sec °C	Total thickness of coal in 30.5 meter interval (m)	R** cm sec °C/cal	SRoz cm ² sec °C/μcal	Temperature (V) Observed calc. (L. Sq.)		ΔV, °C
30.5						20.10		
39.5	Sandstone	1.67						
39.6	Sandstone	2.61						
54.6	Siltstone	2.98						
61.0			0.31	447	1.36	21.37	21.27	+0.10
69.8	Shale	2.63						
84.9	Claystone	2.32						
85.1	Claystone	2.39						
91.4			0.37	420	2.64	22.73	22.77	-0.04
100.1	Mudstone	2.85						
100.3	Mudstone	2.89						
115.3	Coal	0.82						
115.5	Coal	0.82						
121.9			3.05	438	3.98	24.24	24.32	-0.08
130.6	Claystone	2.86						
130.8	Claystone	2.87						
146.3	Siltstone	5.32						
146.5	Siltstone	5.16						
152.4			0.0	270	4.80	25.11	25.28	-0.17
176.4	Siltstone	5.16						
176.5	Siltstone	3.34						
176.6	Siltstone	3.77						
182.9			3.66	372	5.94	26.69	26.61	+0.08
192.3	Tuff	2.89						
205.5	Shale	2.83						
205.7	Shale	2.85						
213.4			4.11	472	7.38	28.21	28.28	-0.07
220.4	Shale	3.17						
237.2	Sandstone	5.71						
237.4	Sandstone	5.82						
243.8			3.81	349	8.44	29.62	29.52	+0.10
253	Diabase	3.71						
268	Diabase	4.90						
274.3			0.0	237	9.16	30.54	30.37	+0.17
298.2	Sandstone	3.82						
298.4	Sandstone	5.27						
304.8			1.37	271	9.99	31.49	31.33	+0.16
313.5	Sandstone	3.37						
313.7	Sandstone	4.58						
327.5	Mudstone	3.38						
327.7	Mudstone	3.88						
335.3			4.27	580	11.76	33.19	33.39	-0.20
344.2	Sandstone	8.36						
344.4	Sandstone	5.56						
358.6	Conglomerate	8.80						
358.7	Conglomerate	9.75						
365.8			2.74	238	12.48	34.19	34.23	-0.04

*Terminology is that of Broken Hill Proprietary Ltd. wellsite geologist.

**Based on weighted harmonic mean of measured conductivities in the interval and the proportions of coal assuming
K_{coal} = 0.6 mcal/cm sec °C.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S</u> <u>LAT</u> DEG MIN	<u>E</u> <u>LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	SYD. BASIN	SYDNEY BASIN	CAPE BANKS	34 00	151 15	5	152- 213	6	7.61	22.5	1.71	
								ERROR	0.33	0.1	0.07	
							213- 320	7	5.34	30.6	1.63	
								ERROR	0.07	0.1	0.02	
							320- 427	6	6.50	26.8	1.74	
								ERROR	0.09	0.1	0.02	
							152- 427				1.69	1.7
								ERROR			0.03	

COMPLETED ON OR BEFORE: 07/71 MEASURED: 07/07/72 STATIC WATER LEVEL: 8.

REFERENCE:

GEOLOGY: 0-427, TRIASSIC SANDSTONE.

TEMPERATURE												
DEPTH	7.62	15.24	22.86	30.48	38.10	45.72	53.34	60.96	68.58	76.20	83.82	91.44
TEMP	18.592	18.505	18.435	18.452	18.476	18.507	18.546	18.610	18.679	18.731	18.787	18.854
DEPTH	99.06	106.68	114.30	121.92	129.54	137.16	144.78	152.40	160.02	167.64	175.26	182.88
TEMP	18.916	18.998	19.085	19.189	19.319	19.454	19.598	19.778	19.934	20.095	20.259	20.436
DEPTH	190.50	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70	274.32
TEMP	20.610	20.763	20.930	21.122	21.318	21.530	21.813	22.056	22.292	22.559	22.765	23.004
DEPTH	281.94	289.56	297.18	304.80	312.42	320.04	327.66	335.28	342.90	350.52	358.14	365.76
TEMP	23.228	23.454	23.641	23.884	24.104	24.363	24.536	24.729	24.930	25.135	25.322	25.522
DEPTH	373.38	381.00	388.62	396.24	403.86	411.48	419.10	426.72	434.34	441.96	449.58	457.20
TEMP	25.710	25.928	26.137	26.342	26.569	26.763	26.965	27.156	27.318	27.621	27.721	27.774

CONDUCTIVITY AND DENSITY															
DEPTH	160.02	169.16	175.26	185.93	196.60	205.74	230.12	242.32	254.51	266.70	277.37	291.08	303.28	336.80	353.57
COND	6.99	8.62	8.32	6.55	7.93	7.68	5.43	5.22	5.11	5.18	5.44	5.68	5.38	6.30	6.40
DENS															
DEPTH	371.86	390.14	408.43	426.72	441.96	454.46	454.46								
COND	6.28	6.88	6.67	6.53	9.36	9.28	9.45								
DENS						2.52	2.50								

COMMENTS: THE CONDUCTIVITIES WERE DETERMINED FOR 20 CHIP SAMPLES ASSUMING AN IN SITU POROSITY OF 11 % WHICH IS CONSISTENT WITH POROSITIES OF 2 SAMPLES DEEPER IN THE HOLE AND WITH THE POROSITY OF CORE FROM OTHER HOLES IN THE VICINITY. THE HEAT FLOW OF 1.7 FOR THE INTERVAL 152-427 METERS IS THE MEAN FOR CAPE BANKS.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	SYD. BASIN	SYDNEY BASIN	LODDON	34 14	150 46	707	198- 365	11	9.89	22.86	2.26	2.1
									ERROR	0.26	0.13	0.06

COMPLETED ON OR BEFORE: 04/20/72 MEASURED: 07/05/72 STATIC WATER LEVEL: 23.

REFERENCE:

GEOLOGY: 0-158, HAWKESBURY SANDSTONE. 158-168, GOSFORD FORMATION. 168-171, GARIE CLAYSTONE. 171-196, BALD HILL CLAYSTONE. 196-365, BULGO SANDSTONE.

TEMPERATURE

DEPTH	22.86	30.48	38.10	45.72	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68
TEMP	16.973	16.973	17.002	17.015	17.096	17.133	17.198	17.286	17.395	17.504	17.593	17.686
DEPTH	114.30	121.92	129.54	137.16	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12
TEMP	17.813	17.937	18.075	18.282	18.503	18.569	18.617	18.778	18.988	19.229	19.462	19.663
DEPTH	205.74	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70	274.32	281.94	289.56
TEMP	19.846	20.051	20.233	20.412	20.594	20.765	20.937	21.103	21.276	21.461	21.634	21.791
DEPTH	297.18	304.80	312.42	320.04	327.66	335.28	342.90	350.52	358.14	365.76	373.38	381.00
TEMP	21.940	22.090	22.266	22.423	22.611	22.810	22.997	23.195	23.395	23.596	23.816	23.974
DEPTH	387.10											
TEMP	24.154											

CONDUCTIVITY AND DENSITY

DEPTH	18.29	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	152.40	182.88	198.12	213.36	228.60	243.84
COND	8.20	10.48	11.13	9.50	10.24	10.72	9.48	12.00	11.74	11.68	6.59	10.72	9.35	10.78	9.65
DENS	2.25	2.30	2.39	2.39	2.30	2.29	2.34	2.36	2.35	2.48	2.89	2.43	2.44	2.42	2.44
DEPTH	259.08	274.32	289.56	304.80	320.04	335.28	350.52	365.76	381.00	396.24	441.96	457.20			
COND	11.52	9.01	10.34	10.47	9.71	8.54	9.45	6.45	9.01	5.53	8.62	6.60			
DENS	2.44	2.57	2.42	2.33	2.57	2.44	2.56	2.75	2.45	2.60		2.79			

COMMENTS: THE BULGO SANDSTONE IS USED AS A FLUX PLATE. IT CONTAINS APPROXIMATELY 10 % SANDY SHALES AND MUDSTONES. NO CONDUCTIVITIES WERE MEASURED FOR THESE SHALES AND MUDSTONES BUT EXTREME VALUES OF 4 AND 8 WERE ASSUMED FROM THE OTHER FORMATIONS GIVING A CORRECTED CONDUCTIVITY BETWEEN 8.6 AND 9.7 AND CORRECTED HEAT FLOWS IN THE RANGE 1.97 TO 2.21.

STATE	TECT UNIT	LOCALITY	HOLE NO	S. LAT DEG MIN	E. LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
NSW	SYD. BASIN	SYDNEY BASIN	NEBO	34 25	150 45	52	104- 202	5	9.2	19.25	1.77	
								ERROR	0.9	0.12	0.17	
							202- 287	7	7.5	27.1	2.03	
								ERROR	0.3	0.4	0.09	
							104- 287				1.90	1.9

COMPLETED ON OR BEFORE: 06/28/72 MEASURED: 09/07/72 STATIC WATER LEVEL: 15.

REFERENCE:

GEOLOGY: 0-79, HAWKESBURY SANDSTONE. 79-90, GOSFORD FORMATION. 90-92, GARIE CLAYSTONE. 92-107, BALD HILL CLAYSTONE. 107-202, BULGO SANDSTONE. 202-232, STANWELL PARK CLAYSTONE. 232-250, SCARBOROUGH SANDSTONE. 250-275, WOMBARRA SHALE. 275-288, COALCLIFF SANDSTONE.

TEMPERATURE

DEPTH	15.24	18.29	24.38	30.48	36.58	42.67	48.77	54.86	60.96	67.06	73.15	79.25
TEMP	15.687	15.646	15.565	15.513	15.519	15.544	15.585	15.642	15.707	15.787	15.858	15.936
DEPTH	85.34	91.44	97.54	103.63	109.73	115.82	121.92	128.02	134.11	140.21	146.30	152.40
TEMP	16.047	16.156	16.282	16.410	16.524	16.618	16.739	16.860	16.971	17.090	17.210	17.327
DEPTH	158.50	164.59	170.69	176.78	182.88	188.98	195.07	201.17	207.26	213.36	219.46	225.55
TEMP	17.434	17.538	17.664	17.789	17.915	18.037	18.166	18.296	18.491	18.681	18.839	19.030
DEPTH	231.65	237.74	243.84	249.94	256.03	262.13	268.22	274.32	280.42	286.51	286.70	
TEMP	19.182	19.323	19.447	19.585	19.792	19.952	20.093	20.302	20.497	20.690	20.692	

CONDUCTIVITY AND DENSITY

DEPTH	79.20	82.00	84.00	89.00	104.00	109.00	113.00	115.50	196.00	223.00	232.00	241.00	259.00	268.00
COND	10.55	5.36	9.93	10.05	6.71	10.70	11.68	9.37	9.16	7.00	6.11	8.20	7.76	7.86
DENS	2.41	2.62	2.51	2.63	2.64	2.55	2.60	2.51	2.47	2.64	2.68	2.48	2.54	2.60
DEPTH	284.00													
COND	7.56													
DENS	2.51													

COMMENTS: THE HEAT FLOW OF 1.9 FOR THE INTERVAL 104-287 METERS IS THE MEAN FOR NEBO.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
NSW	SYD. BASIN	SYDNEY BASIN	WALLANDoola	34 19	150 44	309	200- 374	11	9.4	23.0	2.16	2.1
									ERROR	0.5	0.2	0.12

COMPLETED ON OR BEFORE: 09/09/72 MEASURED: 11/29/72 STATIC WATER LEVEL: 46.

REFERENCE:

GEOLOGY: 0-168, HAWKESBURY SANDSTONE. 168-174, GOSFORD FORMATION. 174-197, BALD HILL CLAYSTONE. 197-317, BULGO SANDSTONE. 317-374, SCARBOROUGH SANDSTONE. 374-404, WOMBARRA SHALE. 404-419, COALCLIFF SANDSTONE.

TEMPERATURE

DEPTH	45.72	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68	114.30	121.92	129.54
TEMP	16.037	16.079	16.146	16.217	16.253	16.387	16.479	16.582	16.725	16.833	16.968	17.099
DEPTH	137.16	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12	205.74	213.36	220.98
TEMP	17.236	17.344	17.476	17.606	17.734	17.926	18.169	18.406	18.639	18.846	19.020	19.183
DEPTH	228.60	236.22	243.84	251.46	259.08	266.70	274.32	281.94	289.56	297.18	304.80	312.42
TEMP	19.349	19.558	19.710	19.920	20.067	20.231	20.371	20.538	20.710	20.875	21.049	21.214
DEPTH	320.04	327.66	335.28	342.90	350.52	358.14	365.76	373.38	381.00	388.62	396.24	403.86
TEMP	21.385	21.578	21.766	21.958	22.145	22.315	22.472	22.635	22.896	23.121	23.302	23.553
DEPTH	408.43											
TEMP	23.679											

CONDUCTIVITY AND DENSITY

DEPTH	139.00	150.00	165.00	210.00	225.00	240.00	255.00	270.00	285.00	300.00	315.00	330.00	345.00	360.00	390.00
COND	11.32	11.39	12.58	11.85	10.60	10.91	8.59	11.76	7.15	10.43	8.90	8.48	7.92	9.60	8.12
DENS	2.35	2.33	2.20	2.40	2.37	2.40	2.43	2.36	2.66	2.36	2.51	2.47	2.63	2.44	2.56
DEPTH	408.00														
COND	8.05														
DENS	2.66														

COMMENTS: THE BULGO AND SCARBOROUGH SANDSTONES ARE USED AS A FLUX PLATE. THEY CONTAIN APPROXIMATELY 6 % SHALES AND MUDSTONES. NO CONDUCTIVITIES WERE MEASURED FOR THESE SHALES AND MUDSTONES BUT EXTREME VALUES OF 4 AND 8 WERE ASSUMED FROM LODDON GIVING A CORRECTED CONDUCTIVITY BETWEEN 8.7 AND 9.3 AND CORRECTED HEAT FLOWS IN THE RANGE 2.00 TO 2.14.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NSW	TAS. FOLD BELT	TARAGO	DH-40	35 04	149 34	800	45- 285	25	8.05	22.93	1.85	
									ERROR	0.50	0.04	0.11

COMPLETED ON OR BEFORE: MEASURED: 06/10/71 STATIC WATER LEVEL: 3.

REFERENCE:

GEOLOGY: 0-402, FELSIC VOLCANIC ROCKS AND VOLCANICALLY DERIVED SEDIMENTARY ROCKS.

TEMPERATURE

DEPTH	2.61	6.53	13.06	19.59	26.13	32.63	39.02	45.41	51.80	58.14	64.27	70.39
TEMP	13.727	14.106	14.697	15.203	15.225	15.246	15.450	15.705	15.832	15.975	16.134	16.289
DEPTH	76.52	82.57	88.32	94.07	99.82	105.53	111.05	116.58	122.11	127.61	133.00	138.38
TEMP	16.438	16.577	16.710	16.850	16.982	17.110	17.243	17.367	17.475	17.589	17.709	17.831
DEPTH	143.77	149.13	154.38	159.62	164.87	170.09	175.24	180.39	185.54	190.65	195.65	200.65
TEMP	17.950	18.058	18.174	18.295	18.417	18.539	18.687	18.821	18.946	19.064	19.175	19.281
DEPTH	205.65	210.59	215.28	219.97	224.66	229.36	234.05	238.74	243.12	247.49	251.86	256.23
TEMP	19.386	19.497	19.614	19.739	19.853	19.964	20.066	20.169	20.266	20.361	20.459	20.557
DEPTH	260.60	264.87	269.13	273.39	277.65	281.91	284.47					
TEMP	20.651	20.740	20.822	20.922	21.015	21.099	21.149					

CONDUCTIVITY AND DENSITY

DEPTH	39.02	51.80	64.26	76.52	88.32	99.82	111.05	122.11	132.99	143.77	154.38	164.87	175.24	185.54	195.65
COND	6.31	6.93	7.20	8.97	4.91	4.39	7.87	11.60	7.00	10.37	10.44	9.02	8.01	6.47	10.23
DENS	2.67	2.74	3.01	2.72	2.83	2.88	2.72	2.69	2.68	2.68	2.68	2.64	2.71	2.68	2.70
DEPTH	205.65	215.28	224.66	234.05	243.12	251.86	260.60	269.13	277.65	285.66					
COND	10.69	8.27	6.63	5.80	11.83	11.50	9.85	12.65	8.73	12.17					
DENS	2.70	2.77	2.95	2.74	2.68	2.69	2.68	2.59	2.67	2.66					

DIP ANGLE

DEPTH	0	36	67	97	128	158	188	219	249	280	327	365	411
ANGLE	60.0	58.0	56.0	51.0	47.0	46.0	44.0	43.0	42.0	40.0	36.0	34.0	34.0

COMMENTS: THE MEAN HEAT FLOW FOR TARAGO DH-40 AND DH-47 IS 1.90. THE AZIMUTH OF THE HOLE IS 72 DEGREES.

STATE	TCT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
NSW	TAS. FOLD BELT	TARAGO	DH-47	35 04	149 34	793	47- 265	25	8.18	23.97	1.96
								ERROR	0.43	0.09	0.10

COMPLETED ON OR BEFORE: ? MEASURED: 06/11/71 STATIC WATER LEVEL: 3.

REFERENCE:

GEOLOGY: 0-265, FELSIC VOLCANIC ROCKS AND VOLCANICALLY DERIVED SEDIMENTARY ROCKS.

TEMPERATURE

DEPTH	5.81	9.60	15.92	22.24	28.55	34.87	41.19	47.42	53.22	59.01	64.81	70.51
TEMP	14.737	14.683	14.859	15.058	15.245	15.480	15.688	15.763	15.865	15.989	16.090	16.206
DEPTH	75.76	81.00	86.25	91.48	96.63	101.77	106.92	112.04	116.99	121.94	126.88	131.84
TEMP	16.325	16.441	16.553	16.670	16.790	16.927	17.062	17.196	17.322	17.453	17.575	17.695
DEPTH	136.84	141.84	146.84	151.81	156.66	161.51	166.19	170.72	175.26	179.79	184.35	188.93
TEMP	17.828	17.945	18.070	18.193	18.309	18.423	18.538	18.668	18.789	18.908	19.029	19.149
DEPTH	193.52	198.11	202.49	206.70	210.91	215.11	219.05	222.75	226.44	230.13	233.83	237.52
TEMP	19.236	19.312	19.397	19.497	19.598	19.701	19.807	19.917	20.012	20.078	20.144	20.209
DEPTH	241.22	244.91	248.61	252.30	255.99	259.69	263.38	264.86				
TEMP	20.259	20.343	20.464	20.564	20.659	20.753	20.830	20.856				

CONDUCTIVITY AND DENSITY

DEPTH	16.42	29.06	41.69	53.68	65.27	76.18	86.67	97.04	107.33	117.38	127.28	137.24	147.24	157.05	166.55
COND	7.35	6.35	10.77	5.84	7.93	5.32	6.20	10.95	9.85	7.64	7.60	9.28	9.61	10.93	10.77
DENS		2.58		2.68	2.64	2.69	2.71	2.63		2.67	2.68	2.67	2.71	2.69	
DEPTH	175.62	184.71	202.83	219.35	226.73	234.12	241.51	248.90	256.29	261.46					
COND	6.01	6.33	9.81	10.04	13.05	7.85	6.35	12.94	11.04	8.57					
DENS	2.84	2.81	2.72		2.77	2.77	2.76		2.71						

DIP ANGLE

DEPTH	0	56	86	117	147	178	208	228	259	289	320	350	381
ANGLE	56.0	56.0	43.0	44.0	41.0	40.0	42.0	37.0	36.0	38.0	29.0	29.0	29.0

COMMENTS: THE MEAN HEAT FLOW FOR TARAGO DH-40 AND DH-47 IS 1.90.

3. NORTHERN TERRITORY

The work in the Northern Territory involves new results from two sites described previously by Howard and Sass (1964). Near Rum Jungle, they reported conflicting values, probably the result of refraction at a nearby vertical contact between formations of contrasting conductivity component heat-flow values were either 1 or 2 HFU, and Howard and Sass (1964) indicated a preference for the higher values. New results from Batchelor in Precambrian metasedimentary rocks confirm the earlier interpretation.

Howard and Sass (1964) reported a value of 2.3 HFU for the Peko Mine near Tennant Creek. New measurements in the region tend to confirm the earlier estimate of high heat flow, the values ranging from 1.8 to 2.7 HFU. The higher values were obtained at Warrego (see also Figure 3-2), where uncorrected values within the high-conductivity mineralized zone were as high as 3.4 HFU.

0 100 200 Mi.

0 100 200 Km.

- + Previously published
- This work
- New work at old sites

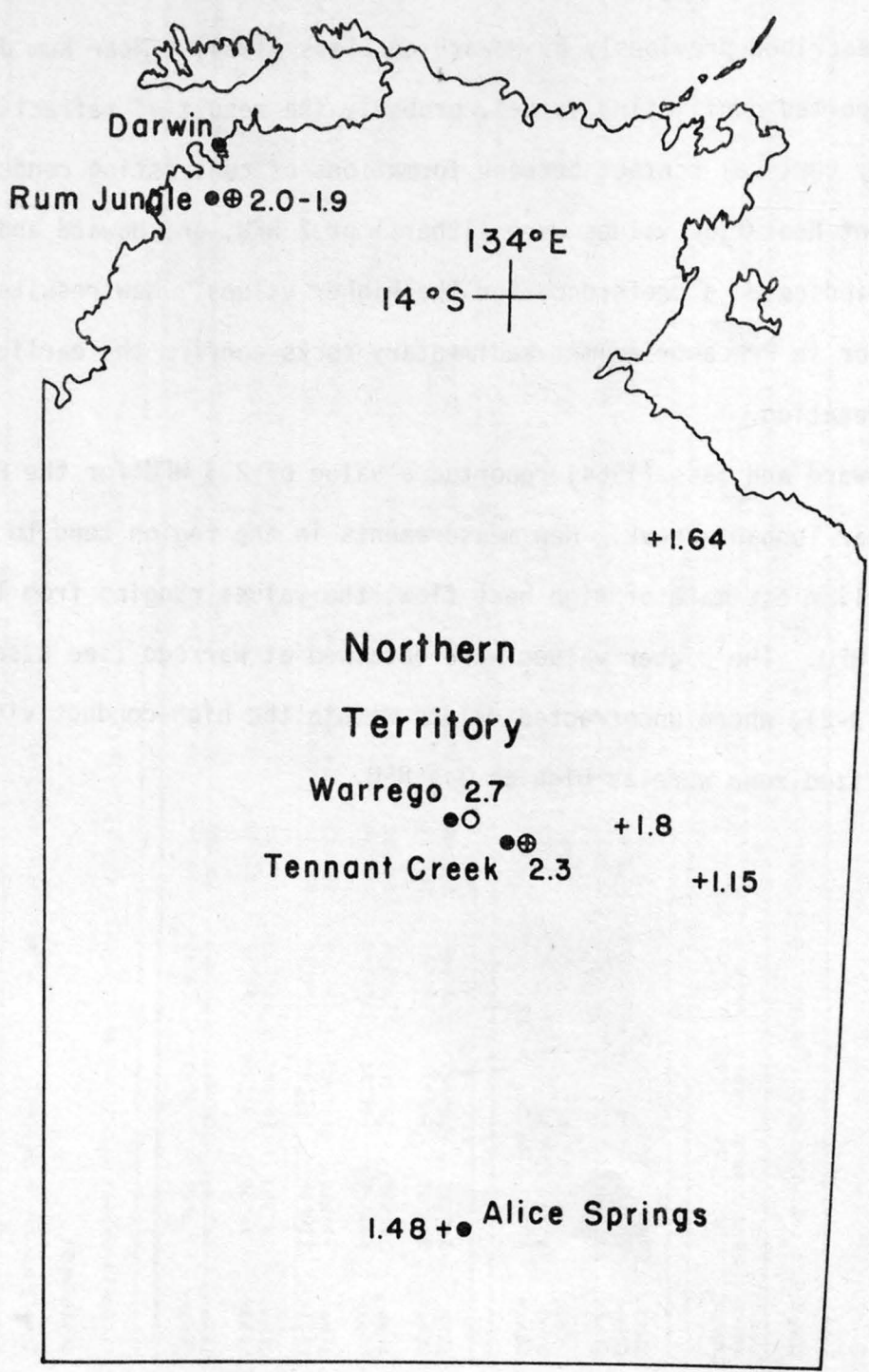


Figure 3-1. Heat flow in the Northern Territory

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
NT	PROT. SHLD	BACHELOR	70-R-54	13 02	131 05	150	107- 242	14	12.08	15.78	1.91	1.9
								ERROR	0.59	0.10	0.09	

COMPLETED ON OR BEFORE: 12/70 MEASURED: 08/26/71 STATIC WATER LEVEL: 15.

REFERENCE:

GEOLOGY: 0-69, SANDSTONE. 69-102, SILTSTONE. 102-114, CONGLOMERATE. 114-125, SANDSTONE. 125-139, CONGLOMERATE. 139-200, SANDSTONE AND ARKOSE. 200-221, CONGLOMERATE. 221-233, ARKOSE AND CONGLOMERATE. 233-242, DOLOMITIC SHALE.

TEMPERATURE

DEPTH	15.24	22.86	30.48	38.10	45.72	53.34	60.96	68.58	76.20	83.82	91.44	99.06
TEMP	30.984	31.050	31.072	31.159	31.243	31.337	31.436	31.541	31.670	31.777	31.878	31.978
DEPTH	106.68	114.30	121.92	129.54	137.16	144.78	152.40	160.02	167.64	175.26	182.88	190.50
TEMP	32.077	32.172	32.285	32.398	32.509	32.615	32.731	32.856	32.983	33.102	33.231	33.355
DEPTH	198.12	205.74	213.36	220.98	228.60	236.22	241.62					
TEMP	33.477	33.595	33.716	33.845	33.963	34.093	34.189					

CONDUCTIVITY AND DENSITY

DEPTH	92.05	102.11	106.68	121.62	139.90	154.23	169.77	188.98	202.69	219.46	223.11	230.12	235.92	240.79
COND	12.14	8.60	13.74	9.40	14.22	13.40	13.62	12.87	14.08	12.95	13.19	14.82	10.41	10.26
DENS	2.68	2.80	2.73	2.71	2.64	2.64	2.63	2.63	2.64	2.65	2.67	2.68	2.74	2.65

STATE	TECT UNIT	LOCALITY	HOLE NO	S. LAT DEG MIN	E. LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
NT	PROT. SHLD	TENNANT CK.	EX. 46	19 40	134 13	350	75- 250	6	9.03	24.86	2.24	
								ERROR	0.41	0.33	0.11	
							250- 320	5	5.19	27.71	1.44	
								ERROR	0.48	0.32	0.13	
							75- 320				1.84	1.8
								ERROR			0.4	

COMPLETED ON OR BEFORE: 08/25/72 MEASURED: 10/25/72 STATIC WATER LEVEL: 12.

REFERENCE:

GEOLOGY: 0-320, BEDDED SEDIMENTARY ROCKS.

TEMPERATURE

DEPTH	12.07	24.30	36.46	48.66	60.67	72.82	83.44	96.98	108.87	120.61	132.31	143.81
TEMP	29.228	29.295	29.726	30.014	30.314	30.753	31.091	31.424	31.727	32.037	32.329	32.602
DEPTH	154.90	166.45	177.61	188.35	200.51	209.05	218.98	228.67	238.11	247.14	255.93	264.30
TEMP	32.849	33.099	33.445	33.637	33.962	34.220	34.418	34.630	34.870	35.087	35.313	35.539
DEPTH	272.35	280.00	287.20	294.08	300.68	306.25	311.40	316.29	318.99			
TEMP	35.726	35.991	36.168	36.374	36.586	36.725	36.837	36.997	37.058			

CONDUCTIVITY AND DENSITY

DEPTH	92.60	121.60	141.20	176.00	202.00	226.80	250.20	269.20	288.80	302.00	316.50	
COND	8.21	7.85	10.28	8.72	9.75	9.96	6.09	5.20	4.32	6.96	4.31	
DENS	2.69	2.77	2.73	2.74	2.74	2.91	2.81	2.80	2.80	2.72	2.81	

DIP ANGLE

DEPTH	0	50	90	105	120	138	153	168	183	199	208	220	226	241	256	273	288	303
ANGLE	90.0	80.0	80.0	77.0	74.0	71.5	67.5	67.0	65.5	61.0	58.0	56.0	55.0	53.0	50.5	47.5	45.0	42.0
DEPTH	313	323	328	343	354	358	364	379	394	409								
ANGLE	40.0	37.0	36.5	34.0	32.0	32.0	27.5	25.0	23.0	23.5								

COMMENTS: THE HEAT FLOW IN THE INTERVAL 75-320 METERS IS THE BEST VALUE FOR HEAT FLOW FOR TENNANT CK. EX. 46. THE AZIMUTH OF THE HOLE IS 180 DEGREES.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NT	PROT. SHLD	TENNANT CK.	J 900-73	19 43	134 15	340	320- 542	9	10.3	23.03	2.37	2.3
								ERROR	0.5	0.12	0.12	

COMPLETED ON OR BEFORE: 06/16/72 MEASURED: 10/25/72 STATIC WATER LEVEL: 3.

REFERENCE:

GEOLOGY: 320-435, GREYWACKE. 435-437, MINERALIZED SEDIMENTARY ROCKS. 437-542, GREYWACKE.

TEMPERATURE

DEPTH	273.16	284.88	296.62	308.08	319.71	331.25	342.75	354.65	366.02	377.24	388.43	399.52
TEMP	35.200	36.734	37.286	37.613	37.939	38.250	38.535	38.772	39.017	39.254	39.515	39.773
DEPTH	410.56	421.60	432.81	443.45	453.91	464.23	474.67	485.05	495.20	505.37	515.49	525.05
TEMP	40.017	40.248	40.552	40.728	41.005	41.257	41.454	41.728	41.982	42.244	42.451	42.730
DEPTH	534.53	542.31										
TEMP	42.946	43.091										

CONDUCTIVITY AND DENSITY

DEPTH	280.90	308.95	337.90	367.16	422.64	458.60	487.56	516.82	552.48
COND	11.13	13.50	8.46	12.25	8.97	11.54	9.66	9.51	9.51
DENS	2.76	2.75	2.80	2.77	2.78	2.79	2.78	2.86	2.77

COMMENTS: JUNO J 900-73 IS AN UNDERGROUND, INCLINED HOLE. ALL DEPTHS ARE CORRECTED DEPTHS BUT NO INCLINATIONS ARE AVAILABLE. A TEMPERATURE CORRECTION WAS APPLIED TO THE CONDUCTIVITIES REDUCING THE MEAN FROM 10.3 TO 10.0 AND THE HEAT FLOW FROM 2.37 TO 2.3. THE MEAN HEAT FLOW FOR JUNO J 900-73 AND J 900-75 IS 2.2.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NT	PROT. SHLD	TENNANT CK.	J 900-75	19 43	134 15	340	346- 518	16	9.5	22.88	2.17	2.1
								ERROR	0.5	0.24	0.12	

COMPLETED ON OR BEFORE: 06/13/72 MEASURED: 10/25/72 STATIC WATER LEVEL: 3.

REFERENCE:

GEOLOGY: 346-360, SEDIMENTARY ROCKS. 360-378, MINERALIZED SEDIMENTARY ROCKS. 378-518, SEDIMENTARY ROCKS.

TEMPERATURE												
DEPTH	276.33	288.15	299.94	311.61	323.31	335.05	346.64	358.21	369.68	380.90	392.03	402.80
TEMP	36.889	37.511	37.719	37.900	38.141	38.335	38.580	38.788	39.089	39.343	39.609	39.852
DEPTH	413.65	423.89	434.10	444.19	453.80	462.41	471.08	479.67	488.30	496.91	505.52	512.57
TEMP	40.119	40.275	40.519	40.733	40.922	41.212	41.381	41.654	41.838	42.023	42.186	42.368
DEPTH	518.06											
TEMP	42.509											

CONDUCTIVITY AND DENSITY															
DEPTH	285.60	317.60	346.86	374.60	411.79	431.60	466.34	495.91	521.51	555.35	584.91	617.83	647.40	679.10	711.10
COND	8.94	11.69	11.35	13.83	9.92	11.43	8.61	9.28	12.36	6.87	11.50	9.12	8.88	8.00	6.55
DENS	2.78	2.73	2.76	2.73	2.80	2.75	2.81	2.84	2.75	2.82	2.88	2.78	2.78	2.78	2.81
DEPTH	735.79														
COND	9.92														
DENS	2.76														

COMMENTS: JUNO J 900-75 IS AN UNDERGROUND, INCLINED HOLE. ALL DEPTHS ARE CORRECTED DEPTHS BUT NO INCLINATIONS ARE AVAILABLE. A TEMPERATURE CORRECTION WAS APPLIED TO THE CONDUCTIVITIES REDUCING THE MEAN FROM 9.5 TO 9.2 AND THE HEAT FLOW FROM 2.17 TO 2.1. THE MEAN HEAT FLOW FOR JUNO J 900-73 AND J 900-75 IS 2.2.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NT	PROT. SHLD	TENNANT CK.	PEKO	19 41	134 17	330	374- 558	16	9.52	22.00	2.09	2.0
								ERROR	0.69	0.50	0.16	

COMPLETED ON OR BEFORE: ? MEASURED: 11/30/69 STATIC WATER LEVEL: 360.

REFERENCE: HOWARD AND SASS(1964).

GEOLOGY: 0-558, SEDIMENTARY ROCKS.

TEMPERATURE												
DEPTH	360.58	374.29	388.01	401.73	414.53	427.33	440.13	465.43	491.03	514.81	537.06	557.78
TEMP	36.800	38.200	38.700	39.000	39.300	39.600	39.900	40.300	41.000	41.300	42.000	42.400

COMMENTS: CONDUCTIVITIES ARE PUBLISHED IN THE REFERENCE AND HAVE BEEN CORRECTED FOR TEMPERATURE FROM A MEAN OF 10.2 TO 9.52.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
NT	PROT. SHLD	TENNANT CK.	WAR. 20	19 27	133 49	330	48- 240	8	9.0	28.9	2.60
								ERROR	0.4	0.3	0.12

COMPLETED ON OR BEFORE: ? MEASURED: 06/23/66 STATIC WATER LEVEL: 46.

REFERENCE:

GEOLOGY: 0-240, MINERALIZED SEDIMENTARY ROCKS, MASSIVE MAGNETITE AND SULFIDES.

TEMPERATURE

DEPTH	46.94	60.96	74.98	88.39	103.02	117.04	130.76	158.19	185.01	208.79	229.51
TEMP	31.200	31.600	32.000	32.300	32.800	33.200	33.600	34.500	35.300	36.200	36.700

CONDUCTIVITY

DEPTH	106.38	135.64	164.29	192.94	220.07	240.18	268.22	292.61
COND	11.6	9.5	8.0	8.64	9.48	10.92	8.47	8.55

COMMENTS: WARREGO 21 IS AN INCLINED HOLE AND ALL DEPTHS ARE CORRECTED DEPTHS BUT NO INCLINATIONS ARE AVAILABLE. CONDUCTIVITIES WERE MEASURED BY TAMMEMAGI. A TEMPERATURE CORRECTION WAS APPLIED TO THE CONDUCTIVITIES REDUCING THE RANGE FROM 9.04-8.96 TO 8.75-8.53 WITH A MEAN OF 8.6. THE MEAN HEAT FLOW FOR WARREGO 20,21,27,29,30 AND 31 IS 2.9.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NT	PROT. SHLD	TENNANT CK.	WAR. 21	19 27	133 49	330	47- 651	16	8.6	33.5	2.88	
								ERROR	0.3	0.3	0.10	

COMPLETED ON OR BEFORE: 06/18/66 MEASURED: 06/23/66 STATIC WATER LEVEL: 45.

REFERENCE:

GEOLOGY: 0-651, MINERALIZED SEDIMENTARY ROCKS, MASSIVE MAGNETITE AND SULFIDES.

TEMPERATURE

DEPTH	45.72	73.76	101.80	128.93	156.36	183.49	214.88	235.61	259.99	284.68	308.46	331.93
TEMP	30.860	31.810	32.800	33.700	34.800	35.500	36.400	37.200	38.100	39.200	39.700	40.600
DEPTH	355.40	376.43	397.16	417.58	434.95	452.63	469.39	487.68	501.09	517.25	532.79	548.03
TEMP	41.400	42.300	43.100	44.000	45.000	46.000	46.900	47.700	48.400	48.900	49.600	50.100
DEPTH	562.05											
TEMP	51.000											

CONDUCTIVITY

DEPTH	76.50	105.77	134.42	160.63	192.33	220.37	256.95	275.54	329.79	356.31	383.13	407.52	432.21	455.98	547.12
COND	8.64	9.39	8.69	8.77	9.33	7.79	9.99	8.91	9.94	9.38	7.39	8.65	9.09	6.59	10.91
DEPTH	567.23	588.57	609.60	651.05											
COND	8.43	9.67	13.32	9.74											

COMMENTS: WARREGO 20 IS AN INCLINED HOLE AND ALL DEPTHS ARE CORRECTED DEPTHS BUT NO INCLINATIONS ARE AVAILABLE. CONDUCTIVITIES WERE MEASURED BY TAMMEMAGI. A TEMPERATURE CORRECTION WAS APPLIED TO THE CONDUCTIVITIES REDUCING THE MEAN FROM 9.26 TO 9.0. THE MEAN HEAT FLOW FOR WARREGO 20,21,27,29,30 AND 31 IS 2.9.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
NT	PROT. SHLD	TENNANT CK. WAR.	27,29,30&31	19 27	133 49	330	50- 400	0	(8.6)	31.0	2.67	
									ERROR	1.0		
							400- 670	31	12.0	28.4	3.4	
									0.7	0.2	0.2	

COMPLETED ON OR BEFORE: 69 MEASURED: 08/69 STATIC WATER LEVEL: ?

REFERENCE:

GEOLOGY: 0-670, MINERALIZED SEDIMENTARY ROCKS, MASSIVE MAGNETITE AND SULFIDES.

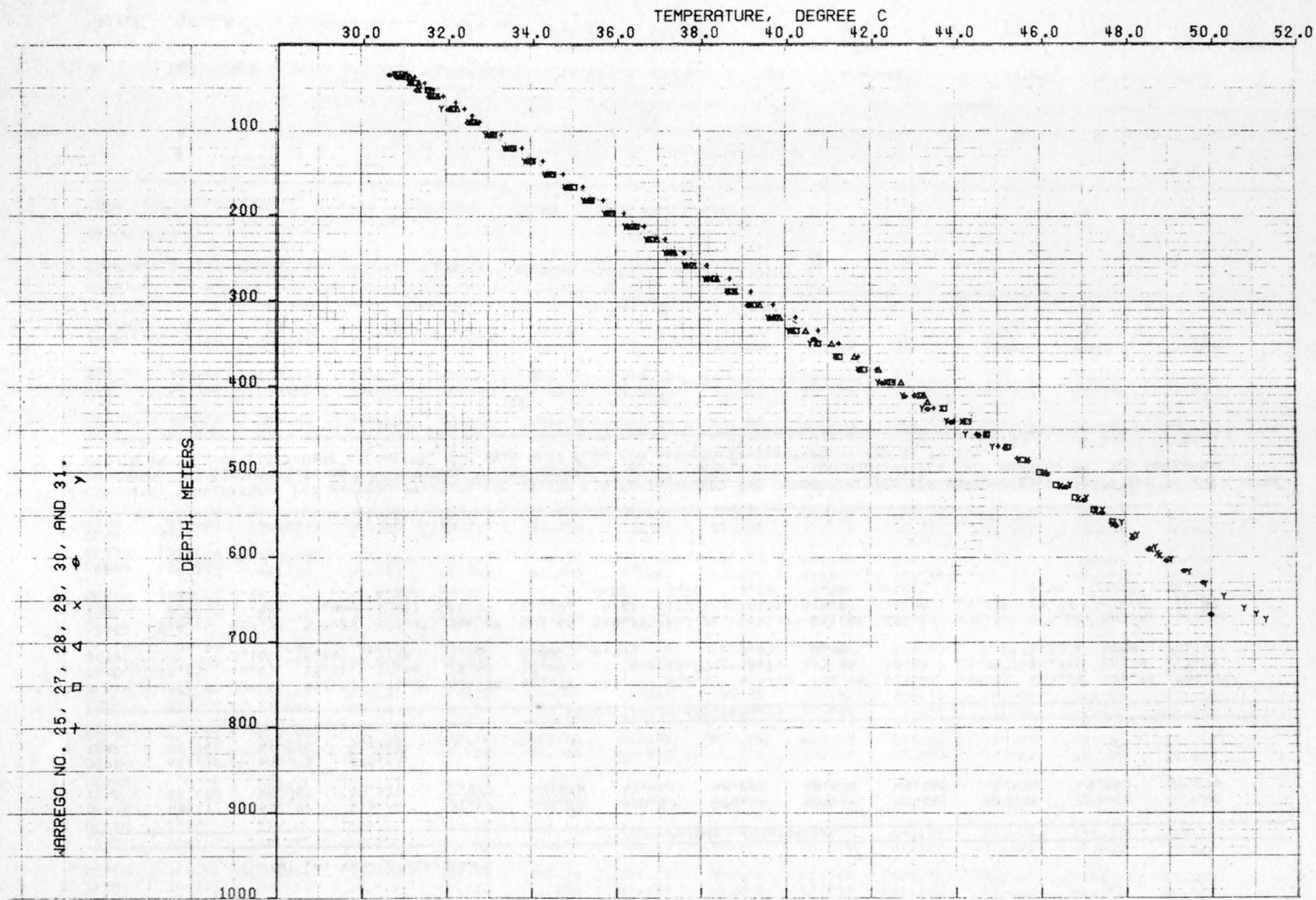
TEMPERATURE												
DEPTH	35.05	38.10	45.72	53.34	60.96	76.20	91.44	106.68	121.92	137.16	152.40	167.64
TEMP	30.890	30.970	31.210	31.500	31.690	32.090	32.580	33.050	33.510	33.960	34.440	34.950
DEPTH	182.88	198.12	213.36	228.60	243.84	259.08	274.32	289.56	304.80	320.04	335.28	350.52
TEMP	35.360	35.850	36.420	36.800	37.230	37.790	38.310	38.670	39.220	39.740	40.220	40.730
DEPTH	365.76	381.00	396.24	411.48	426.72	441.96	457.20	472.14	486.77	501.70	516.33	530.96
TEMP	41.230	41.810	42.470	43.160	43.680	44.240	44.690	45.190	45.540	45.930	46.320	46.760
DEPTH	545.59	559.61	35.05	38.10	45.72	53.34	60.96	76.20	91.44	106.68	121.92	137.16
TEMP	47.210	47.650	30.760	30.920	31.070	31.310	31.580	32.070	32.550	33.030	33.460	33.910
DEPTH	152.40	167.64	182.88	198.12	213.36	228.60	243.84	259.08	274.32	289.56	304.80	320.04
TEMP	34.400	34.850	35.340	35.810	36.280	36.760	37.230	37.710	38.220	38.800	39.200	39.740
DEPTH	335.28	350.52	365.76	381.00	396.24	411.48	426.72	441.96	457.20	472.44	487.68	502.62
TEMP	40.170	40.710	41.200	41.760	42.360	43.050	43.650	44.130	44.690	45.160	45.660	46.080
DEPTH	517.86	532.79	547.73	562.36	576.99	592.23	596.80	599.54	35.05	38.10	45.72	53.34
TEMP	46.450	46.860	47.270	47.680	48.120	48.570	48.710	48.770	30.590	30.770	31.090	31.230
DEPTH	60.96	76.20	91.44	106.68	121.92	137.16	152.40	167.64	182.88	198.12	213.36	228.60
TEMP	31.530	31.980	32.440	32.930	33.350	33.850	34.290	34.750	35.220	35.720	36.240	36.720
DEPTH	243.84	259.08	274.32	289.56	304.80	320.04	335.28	344.42	365.76	381.00	396.24	411.48
TEMP	37.190	37.640	38.130	38.600	39.080	39.600	40.120	40.630	41.150	41.690	42.230	42.760
DEPTH	426.72	441.96	457.20	472.44	487.68	502.92	518.16	533.40	548.34	563.27	577.90	591.62
TEMP	43.300	43.850	44.490	45.130	45.660	46.110	46.550	46.980	47.400	47.720	48.120	48.500
DEPTH	604.42	616.61	630.33	668.12	35.05	38.10	45.72	53.34	60.96	76.20	91.44	106.68
TEMP	48.910	49.320	49.770	49.950	30.710	30.810	31.090	31.310	31.550	31.830	32.480	32.870
DEPTH	121.92	137.16	152.40	167.64	182.88	198.12	213.36	228.60	243.84	259.08	274.32	289.56
TEMP	33.310	33.790	34.270	34.750	35.180	35.680	36.170	36.670	37.120	37.600	38.080	38.620
DEPTH	304.80	320.04	335.28	350.52	365.76	381.00	396.24	411.48	426.72	441.66	456.90	471.53
TEMP	39.130	39.570	40.050	40.560	41.150	41.690	42.150	42.730	43.190	43.760	44.210	44.840

TENNANT CK. WAR. 27,29,30&31

TEMPERATURE (CONTINUED)															
DEPTH	486.77	502.01	516.64	531.57	546.20	560.53	575.46	589.48	604.11	618.75	633.07	647.40			
TEMP	45.450	46.050	46.670	47.050	47.430	47.880	48.240	48.670	49.040	49.460	49.840	50.270			
DEPTH	661.42	668.73	675.13												
TEMP	50.740	51.030	51.250												
CONDUCTIVITY AND DENSITY															
DEPTH	347.17	359.66	432.82	471.22	427.94	461.77	493.47	512.37	414.83	462.08	511.46	559.61	463.60	538.58	596.49
COND	15.03	15.61	15.51	11.44	17.60	17.48	15.70	15.73	16.26	17.06	13.22	10.98	13.77	14.16	11.17
DENS		3.10	2.79	2.76	3.56	2.82	4.94		3.60	3.35			4.78	4.55	2.77
DEPTH	510.24	512.37	517.25	527.91	544.07	544.68	549.25	553.21	569.37	581.56	604.11	632.16	653.80	663.86	670.56
COND	8.95	17.68	6.06	15.61	14.94	16.03	6.83	11.84	15.82	15.27	14.90	15.61	13.53	10.46	10.25
DENS	2.80	2.70		4.16	4.26		2.82	2.76	3.73	4.96	4.24		5.00	3.57	2.77
DEPTH	683.06														
COND	10.51														
DENS	2.80														

COMMENTS: TEMPERATURES FOR WARREGO 27,29,30 AND 31 ARE LISTED IN ORDER. THE CONDUCTIVITIES FOR WARREGO 25,27,28,29 AND 31 ARE LISTED IN ORDER. THE CONDUCTIVITY IN THE INTERVAL 50-400 METERS IS AN ESTIMATE BASED ON CONDUCTIVITIES FROM WARREGO 21. ALL HOLES ARE WITHIN AN AREA OF 0.1 SQUARE KILOMETER. THE MEAN HEAT FLOW FOR WARREGO 20,21,27,29,30 AND 31 IS 2.9.

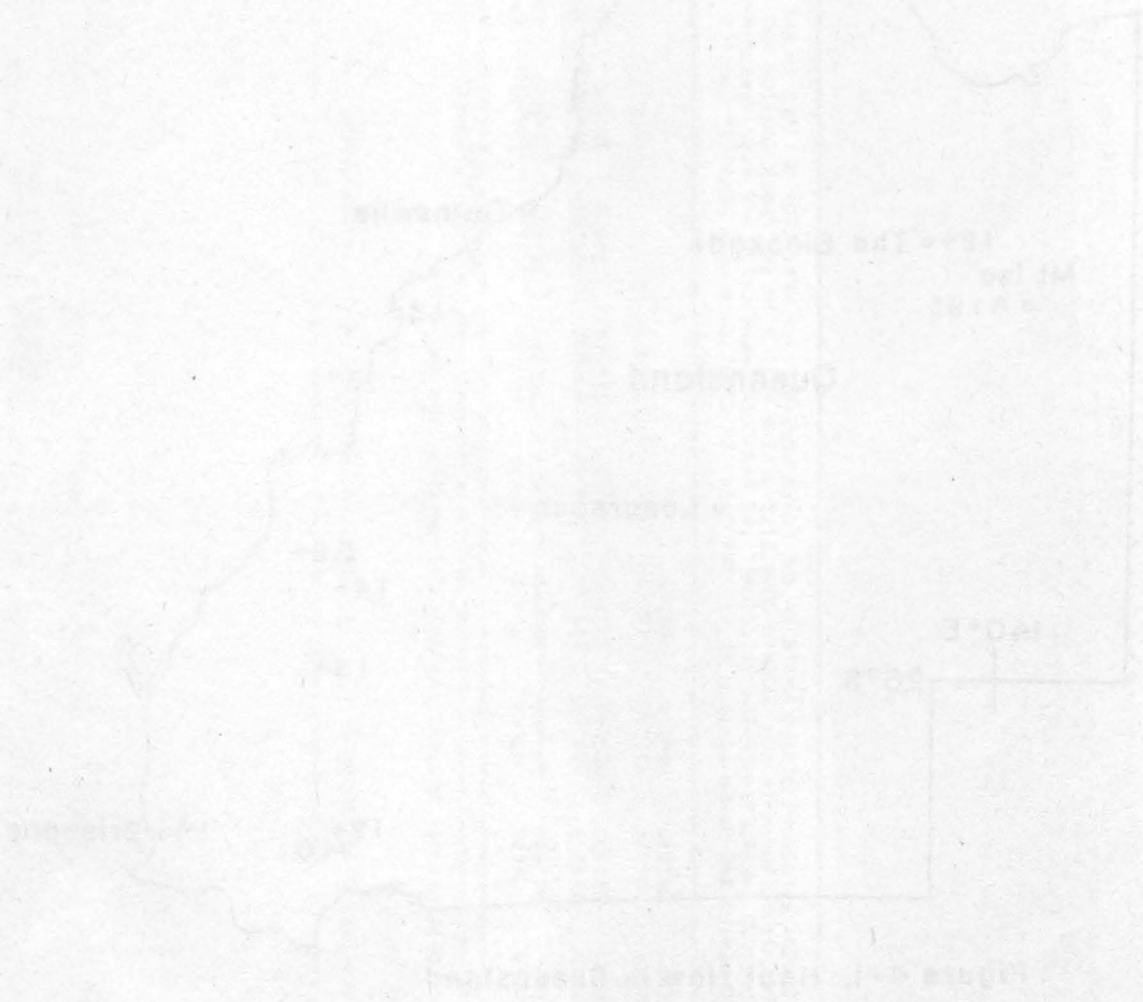
Figure 3-2. Temperatures in the Warrego mine area, N.T.



4. QUEENSLAND

The present work in Queensland consists entirely of new measurements in the Mount Isa area (Figure 4-1). Howard and Sass (1964) and Hyndman and Sass (1966) reported heat-flow values in the range 1.8 to 2 HFU.

The present results extend the depth in the main mine area to nearly 1.5 km (Figure 4-2) and a group of seven holes in the "Northern Leases" (Figure 4-3) is about 20 km north of the original group.



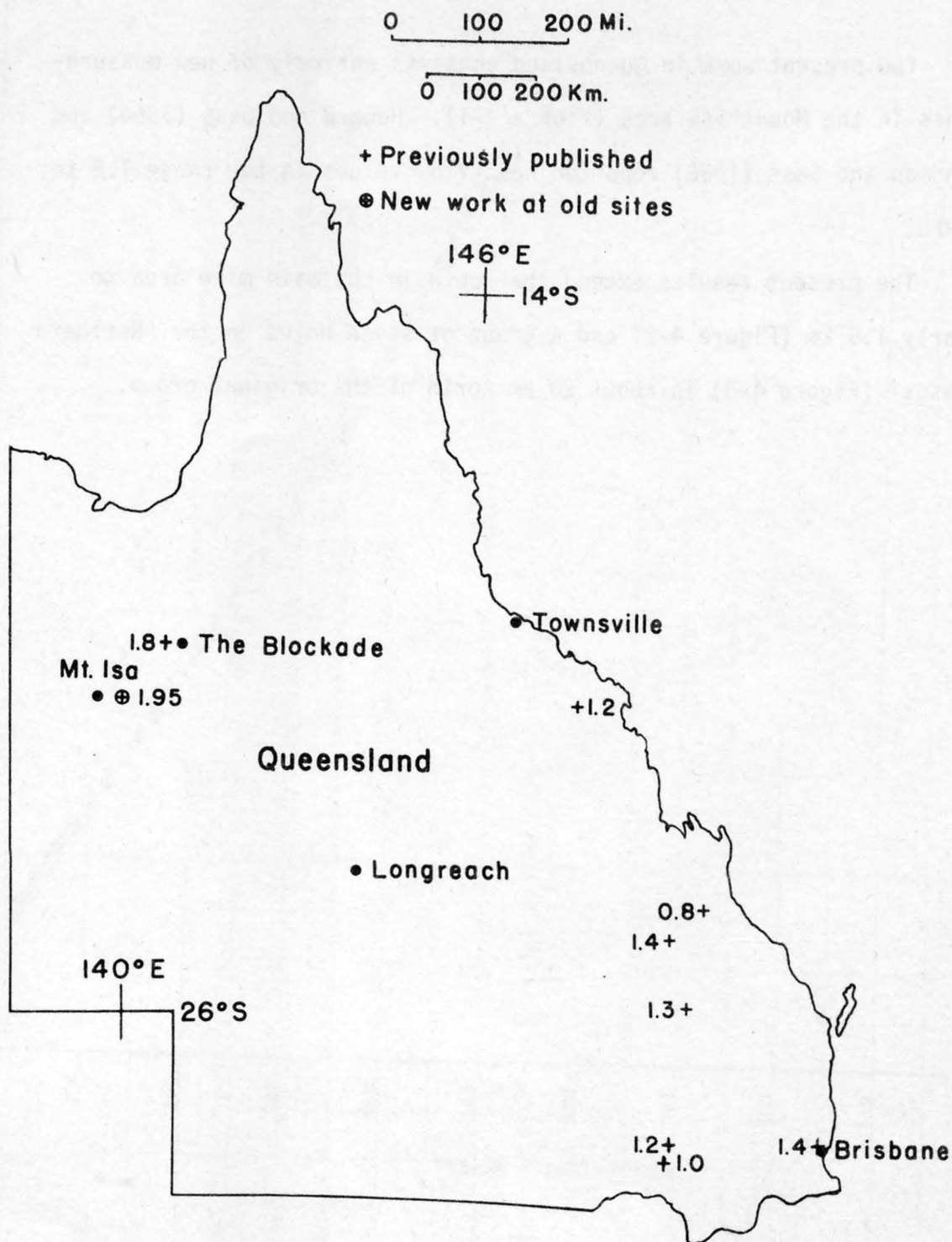


Figure 4-1. Heat flow in Queensland.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
Q	PROT. SHLD	MT. ISA	J-184	20 32	139 29	414	99- 213		11.5	16.4	1.89
								ERROR		0.1	
							213- 419		8.5	18.51	1.57
								ERROR		0.04	
							99- 419				1.73

COMPLETED ON OR BEFORE: ? MEASURED: 08/13/69 STATIC WATER LEVEL: 76.

REFERENCE:

GEOLOGY: 99-336, WESTERN GREENSTONE. 336-419, MAGAZINE SHALE.

TEMPERATURE												
DEPTH	76.20	83.82	91.44	99.06	106.68	114.30	121.92	137.16	152.40	167.64	182.88	198.12
TEMP	30.280	30.400	30.490	30.610	30.740	30.860	30.970	31.210	31.460	31.720	31.980	32.230
DEPTH	213.36	228.60	243.84	259.08	274.32	289.56	304.80	320.04	335.28	350.52	365.76	381.00
TEMP	32.490	32.760	33.030	33.330	33.610	33.890	34.170	34.460	34.730	35.000	35.280	35.580
DEPTH	396.24	411.48	419.10									
TEMP	35.870	36.150	36.300									

COMMENTS: THE UPPER PORTION OF MT. ISA J-184 IS CLOSE TO A NEAR VERTICAL CONTACT WITH JUDENAN QUARTZITE AND THE BOTTOM PORTION CONTACTS THE SPEAR-KENNEDY SILTSTONE. THE RESULTING REFRACTION HAS BEEN APPROXIMATED BY AVERAGING CONDUCTIVITIES K=9 FOR WESTERN GREENSTONE AND K=14 FOR JUDENAN QUARTZITE GIVING K=11.5 IN THE UPPER PORTION AND K=7.8 FOR MAGAZINE SHALE AND K=9.2 FOR SPEAR-KENNEDY SILTSTONE GIVING K=8.5 IN THE LOWER PORTION. THE HEAT FLOW OF 1.73 IN THE INTERVAL 99-419 METERS IS THE MEAN FOR J-184.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
Q	PROT. SHLD	MT. ISA	S-172	20 32	139 29	393	68- 164		11.95	17.0	2.03
								ERROR	0.93	0.3	

COMPLETED ON OR BEFORE: ? MEASURED: 08/14/69 STATIC WATER LEVEL: 48.

REFERENCE:

GEOLOGY: 68-164, URQUHART SHALE.

TEMPERATURE												
DEPTH	48.77	50.90	57.91	64.62	72.54	79.25	86.87	95.10	101.80	109.73	116.74	124.05
TEMP	29.480	29.500	29.640	29.970	30.230	30.380	30.480	30.590	30.710	30.820	30.940	31.090
DEPTH	131.06	145.69	160.02	174.35	182.27							
TEMP	31.230	31.480	31.740	32.070	32.280							

COMMENTS: THE CONDUCTIVITY IS THE ESTIMATED AVERAGE FOR THE URQUHART SHALE.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
Q	PROT. SHLD	MT. ISA	G-114	20 33	139 29	399	53- 297		9.15	19.01	1.74
								ERROR		0.04	

COMPLETED ON OR BEFORE: ? MEASURED: 08/15/69 STATIC WATER LEVEL: 53.

REFERENCE:

GEOLOGY: 53-297, SPEAR-KENNEDY SILTSTONE.

TEMPERATURE												
DEPTH	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68	114.30	121.92	129.54	137.16
TEMP	29.670	29.800	29.930	30.040	30.200	30.350	30.490	30.660	30.810	30.960	31.070	31.230
DEPTH	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12	205.74	213.36	220.98	228.60
TEMP	31.360	31.500	31.650	31.810	31.970	32.110	32.250	32.390	32.530	32.650	32.820	32.980
DEPTH	236.22	243.84	251.46	259.08	266.70	274.32	281.94	289.56	297.18	304.80	312.42	320.04
TEMP	33.130	33.250	33.400	33.530	33.680	33.830	33.980	34.150	34.290	34.400	34.520	34.650
DEPTH	327.66	335.28	342.90	350.52	358.14	365.76	373.38					
TEMP	34.790	34.910	35.060	35.140	35.240	35.360	35.440					

COMMENTS: THE CONDUCTIVITY USED IS THE REGIONAL AVERAGE FOR THE SPEAR-KENNEDY SILTSTONE.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
Q	PROT. SHLD	MT. ISA	I-210	20 32	139 29	405	106- 424			21.05		
								ERROR		0.05		
							424- 831		12.0	19.14	2.30	
								ERROR	1.0	0.04	0.19	

COMPLETED ON OR BEFORE: ? MEASURED: 08/14/69 STATIC WATER LEVEL: 60.

REFERENCE:

GEOLOGY: 106-424, QUARTZ-MUSCOVITE PHYLLITES. 424-833, URQUHART SHALE.

TEMPERATURE												
DEPTH	60.35	67.67	75.59	82.60	89.61	97.84	105.77	120.40	135.64	150.88	166.12	181.05
TEMP	29.000	29.170	29.350	29.510	29.690	29.860	30.020	30.330	30.630	30.920	31.240	31.550
DEPTH	196.60	211.84	227.08	241.71	256.95	272.19	287.43	302.36	317.60	332.84	348.08	363.32
TEMP	31.880	32.190	32.530	32.850	33.160	33.480	33.810	34.090	34.420	34.750	35.080	35.420
DEPTH	374.48	393.80	408.74	423.67	439.52	453.54	468.78	482.50	499.26	514.50	529.44	543.46
TEMP	35.740	36.070	36.380	36.700	36.990	37.270	37.510	37.820	38.150	38.440	38.710	39.010
DEPTH	559.92	575.16	590.40	605.33	620.57	634.59	649.83	664.47	679.71	691.90	707.14	719.33
TEMP	39.290	39.570	39.880	40.190	40.480	40.730	41.080	41.330	41.530	41.790	42.070	42.330
DEPTH	733.05	745.24	756.51	769.62	780.90	791.87	801.63	810.77	819.30	826.62	830.58	833.02
TEMP	42.600	42.860	43.110	43.320	43.570	43.760	43.930	44.100	44.240	44.380	44.470	44.470

COMMENTS: THE CONDUCTIVITY USED IS THE REGIONAL AVERAGE FOR THE URQUHART SHALE.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	FLEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
Q	PROT. SHLD	MT. ISA	H-177	20 32	139 29	454	91- 381		11.6	19.09	2.21	
								ERROR	2.6	0.05	0.5	

COMPLETED ON OR BEFORE: ? MEASURED: 08/13/69 STATIC WATER LEVEL: 91.

REFERENCE:

GEOLOGY: 91-381, ON THE CONTACT BETWEEN JUDENAN QUARTZITE AND WESTERN GREENSTONE.

TEMPERATURE												
DEPTH	91.44	99.06	106.68	114.30	121.92	137.16	152.40	167.64	182.88	198.12	213.36	228.60
TEMP	29.350	29.510	29.650	29.800	29.960	30.250	30.510	30.770	31.040	31.350	31.650	31.970
DEPTH	243.84	259.08	274.32	289.56	304.80	320.04	335.28	350.52	365.76	381.00	388.62	
TEMP	32.250	32.530	32.820	33.130	33.440	33.740	34.020	34.300	34.590	34.870	34.950	

COMMENTS: MT. ISA H-177 IS DRILLED ALONG THE MT. ISA FAULT WHICH SEPARATES THE JUDENAN QUARTZITE, WITH CONDUCTIVITY OF 14.2, FROM THE WESTERN GREENSTONE, WITH CONDUCTIVITY OF 9.0, RESULTING IN AN EFFECTIVE CONDUCTIVITY OF ABOUT 11.6.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	FLV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
Q	PROT. SHLD	MT. ISA	E-148	20 32	139 29	405	167- 282		8.98	18.22	1.64	
									ERROR	0.61	0.06	0.11

COMPLETED ON OR BEFORE: ? MEASURED: 08/12/69 STATIC WATER LEVEL: 53.

REFERENCE:

GEOLOGY: 167-282, WESTERN GREENSTONE.

TEMPERATURE												
DEPTH	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68	114.30	121.92	129.54	137.16
TEMP	29.810	29.910	30.010	30.120	30.250	30.360	30.480	30.630	30.740	30.840	30.940	31.020
DEPTH	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12	205.74	213.36	220.98	228.60
TEMP	31.130	31.240	31.350	31.570	31.710	31.830	31.970	32.120	32.250	32.390	32.530	32.670
DEPTH	236.22	243.84	251.46	259.08	266.70	274.32	281.94					
TEMP	32.800	32.940	33.090	33.220	33.360	33.510	33.660					

COMMENTS: THE CONDUCTIVITY USED IS THE REGIONAL AVERAGE FOR THE WESTERN GREENSTONE.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
Q	PROT. SHLD	MT. ISA	0-177	20 32	139 29	398	129- 224		9.15	20.22	1.85
								ERROR		0.03	

COMPLETED ON OR BEFORE: ? MEASURED: 08/13/69 STATIC WATER LEVFL: 45.

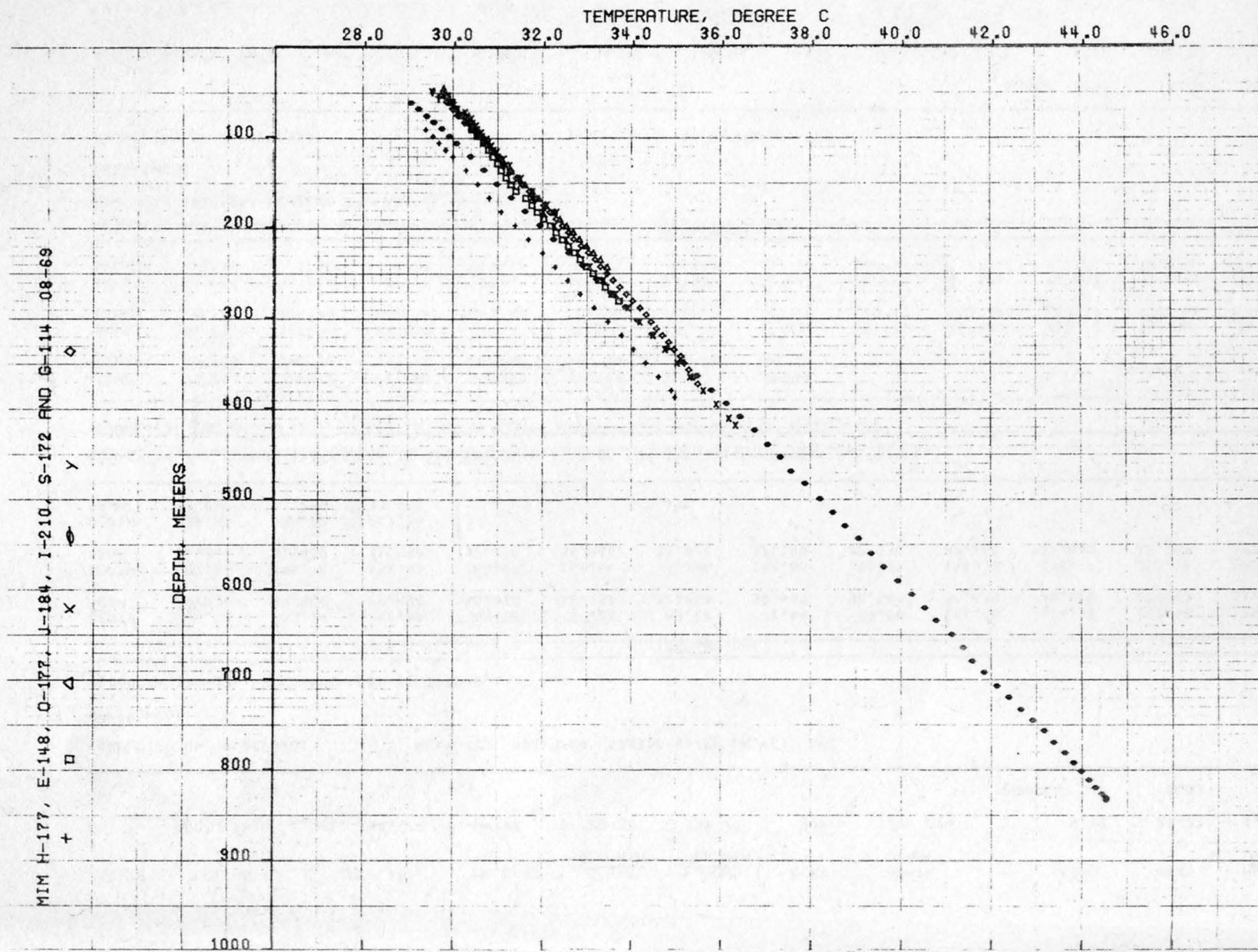
REFERENCE:

GEOLOGY: 129-224, SPEAR-KENNEDY SILTSTONE.

TEMPERATURE												
DEPTH	45.72	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68	114.30	121.92	129.54
TEMP	29.730	29.800	29.890	30.010	30.130	30.260	30.400	30.540	30.670	30.820	30.960	31.090
DEPTH	137.16	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12	205.74	213.36	220.98
TEMP	31.240	31.400	31.550	31.710	31.860	32.020	32.180	32.330	32.480	32.640	32.780	32.940
DEPTH	228.60	236.22	243.84									
TEMP	33.090	33.250	33.400									

COMMENTS: THE CONDUCTIVITY USED IS THE REGIONAL AVERAGE FOR THE SPEAR-KENNEDY SILTSTONE.

Figure 4-2. Temperatures in the Northern Leases, Mt. Isa, Queensland



STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
Q	PROT. SHLD	MT. ISA	FW/78	20 41	139 29	393	763- 821	7	10.5	18.4	1.93
									ERROR	0.5	0.2 0.09

COMPLETED ON OR BEFORE: ? MEASURED: 08/16/69 STATIC WATER LEVEL: ?

REFERENCE:

GEOLOGY: 763-821, SILICA DOLOMITE.

TEMPERATURE												
DEPTH	722.30	727.40	734.10	740.50	746.60	752.70	758.50	763.40	769.50	775.00	780.80	786.30
TEMP	40.440	41.790	42.540	42.920	43.130	43.270	43.430	43.570	43.680	43.790	43.870	44.010
DEPTH	792.40	798.50	803.90	809.70	820.70							
TEMP	44.100	44.210	44.300	44.410	44.640							

COMMENTS: MT. ISA FW/78 IS AN UNDERGROUND HOLE WHICH IS INCLINED AT APPROXIMATELY 49 DEGREES.

STATE	TECT UNIT	LOCALITY	HOLE NO	S. LAT DEG MIN	E. LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
Q	PROT. SHLD	MT. ISA	FW/82	20 41	139 29	393	764-1289	32	11.18	19.79	2.21
									ERROR 0.33	0.06	0.06
							1289-1451	10	13.2	16.6	2.19
									ERROR 0.7	0.2	0.03
							764-1451				2.0

COMPLETED ON OR BEFORE: ? MEASURED: 08/17/69 STATIC WATER LEVEL: ?

REFERENCE:

GEOLOGY: 764-1451, SILICA DOLOMITE.

TEMPERATURE												
DEPTH	719.50	722.50	726.80	734.40	742.00	749.60	757.30	764.30	779.80	794.70	808.50	823.40
TEMP	41.330	41.760	42.310	42.940	43.380	43.650	43.900	44.070	44.350	44.670	44.950	45.250
DEPTH	838.60	853.30	867.90	881.60	895.90	910.00	923.40	938.60	953.50	966.70	981.00	995.60
TEMP	45.510	45.780	46.050	46.320	46.580	46.830	47.120	47.380	47.650	47.950	48.200	48.500
DEPTH	1008.70	1021.50	1036.10	1049.30	1063.60	1077.00	1091.00	1103.80	1116.90	1130.60	1142.80	1157.20
TEMP	48.780	49.080	49.390	49.670	49.920	50.200	50.450	50.700	50.970	51.220	51.480	51.740
DEPTH	1169.70	1194.60	1219.00	1243.40	1266.30	1289.10	1312.90	1334.20	1354.10	1374.50	1393.40	1412.00
TEMP	52.000	52.540	53.100	53.600	54.010	54.380	54.750	55.130	55.520	55.820	56.130	56.480
DEPTH	1435.40	1450.70										
TEMP	56.800	57.030										

CONDUCTIVITY AND DENSITY															
DEPTH	701.50	730.40	745.70	760.90	776.20	787.70	803.00	818.80	835.30	849.00	865.60	881.00	894.40	913.30	930.10
COND	9.30	9.74	10.82	10.08	9.69	10.62	11.09	11.66	13.85	13.39	9.53	14.46	14.16	10.62	14.56
DENS	2.83	2.89	3.63	2.92	2.93	3.02	2.86	2.81	2.75	2.85	2.92	3.09	2.94	2.90	2.96
DEPTH	943.80	957.80	975.80	987.40	1004.10	1020.00	1035.20	1049.60	1065.10	1081.00	1111.40	1126.70	1160.20	1160.20	1186.10
COND	11.65	9.87	11.98	10.75	11.76	14.13	10.15	11.71	14.65	8.86	9.13	5.18	12.00	12.36	9.88
DENS	2.82	2.91	2.89	2.92	2.85	2.73	2.90	2.80	2.72	2.95	2.96	.76	2.97	2.87	2.96
DEPTH	1218.10	1232.40	1248.60	1265.40	1294.60	1310.20	1338.50	1354.40	1371.10	1387.30	1433.30	1446.70	1477.20	1510.10	1522.30
COND	12.12	8.44	10.70	8.87	9.80	12.94	14.75	11.61	10.97	15.18	10.75	13.35	12.06	19.22	15.40
DENS	2.82	3.00	2.93	2.99	2.95	2.89	3.09	2.89	2.93	3.17	2.95	2.72	3.19	3.54	3.42

COMMENTS: MT. ISA FW/82 IS AN UNDERGROUND HOLE. THE HEAT FLOW IN THE INTERVAL 764-1451 IS THE MEAN FOR FW/82.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
Q	PROT. SHLD	MT. ISA	13/R55	20 42	139 29	411	689- 819	5	9.4	22.6	2.1
								ERROR	1.0	0.3	0.2
							819- 942	10	16.7	13.9	2.3
								ERROR	1.1	0.2	0.2

COMPLETED ON OR BEFORE: ? MEASURED: 08/18/69 STATIC WATER LEVEL: ?

REFERENCE:

GEOLOGY: 689-819, SPEAR-KENNEDY SILTSTONE AND URQUHART SHALE. 819-884, SILICA DOLOMITE. 884-942, ORE.

TEMPERATURE

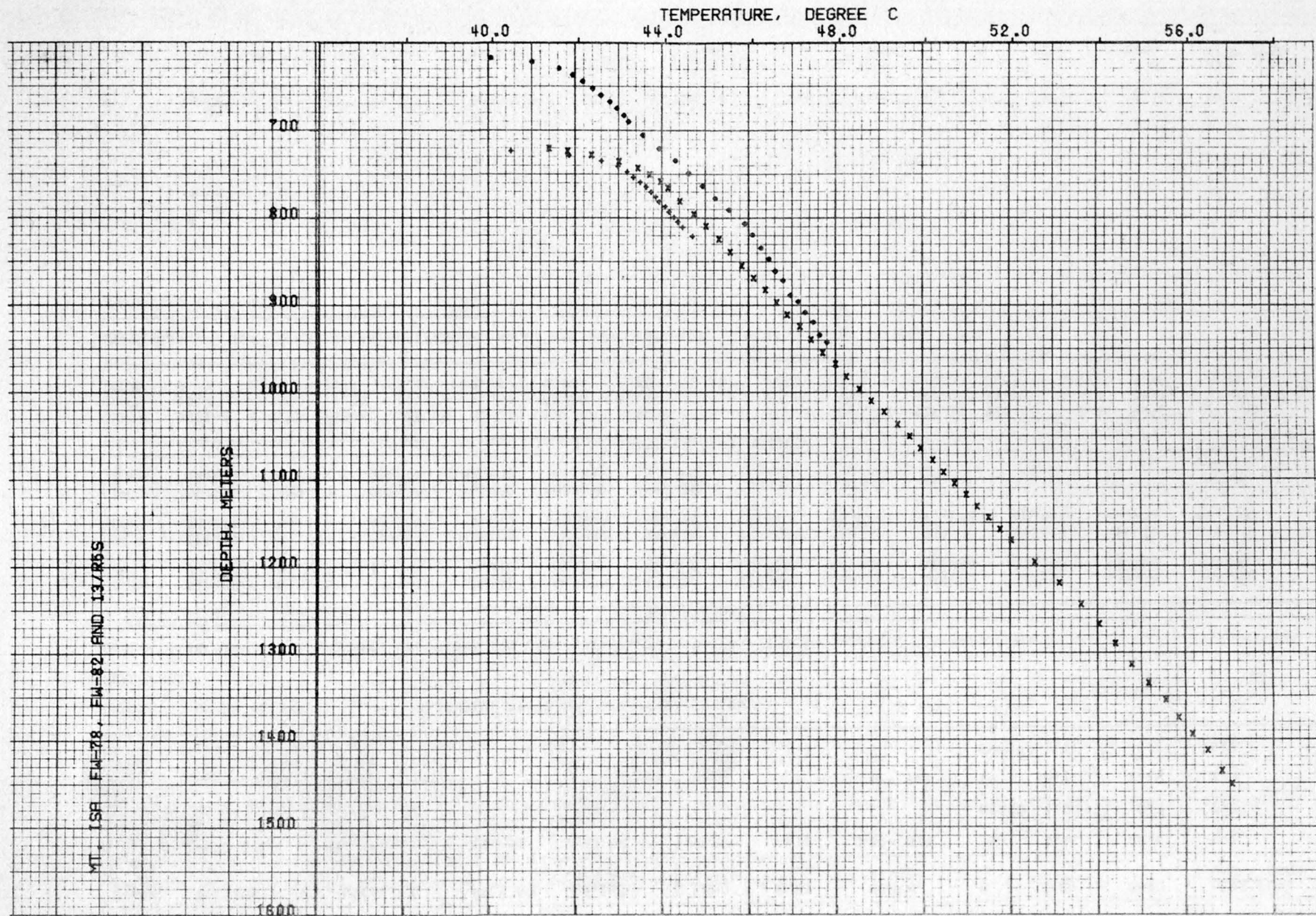
DEPTH	616.20	620.80	628.40	636.10	643.70	651.30	658.90	666.50	674.20	681.80	689.10	704.60
TEMP	39.980	40.930	41.560	41.870	42.100	42.330	42.520	42.730	42.890	43.050	43.160	43.490
DEPTH	719.90	733.60	747.90	762.50	777.20	790.00	805.50	818.30	833.60	845.80	860.10	871.10
TEMP	43.870	44.240	44.550	44.870	45.160	45.480	45.840	46.020	46.220	46.400	46.550	46.730
DEPTH	887.50	895.10	907.30	918.60	933.50	941.50						
TEMP	46.900	47.080	47.240	47.430	47.580	47.750						

CONDUCTIVITY AND DENSITY

DEPTH	633.40	679.20	758.40	785.80	804.10	821.80	849.80	865.40	880.30	895.80	925.40	926.00	942.50	957.70	971.20
COND	10.22	6.65	9.55	10.93	11.37	13.04	17.78	21.30	22.15	19.06	11.46	17.52	16.30	16.71	17.95
DENS	2.72	2.76	2.77	3.82	2.86	3.06	2.80	3.15	3.29	3.04	2.72	2.89	3.57	2.72	2.78

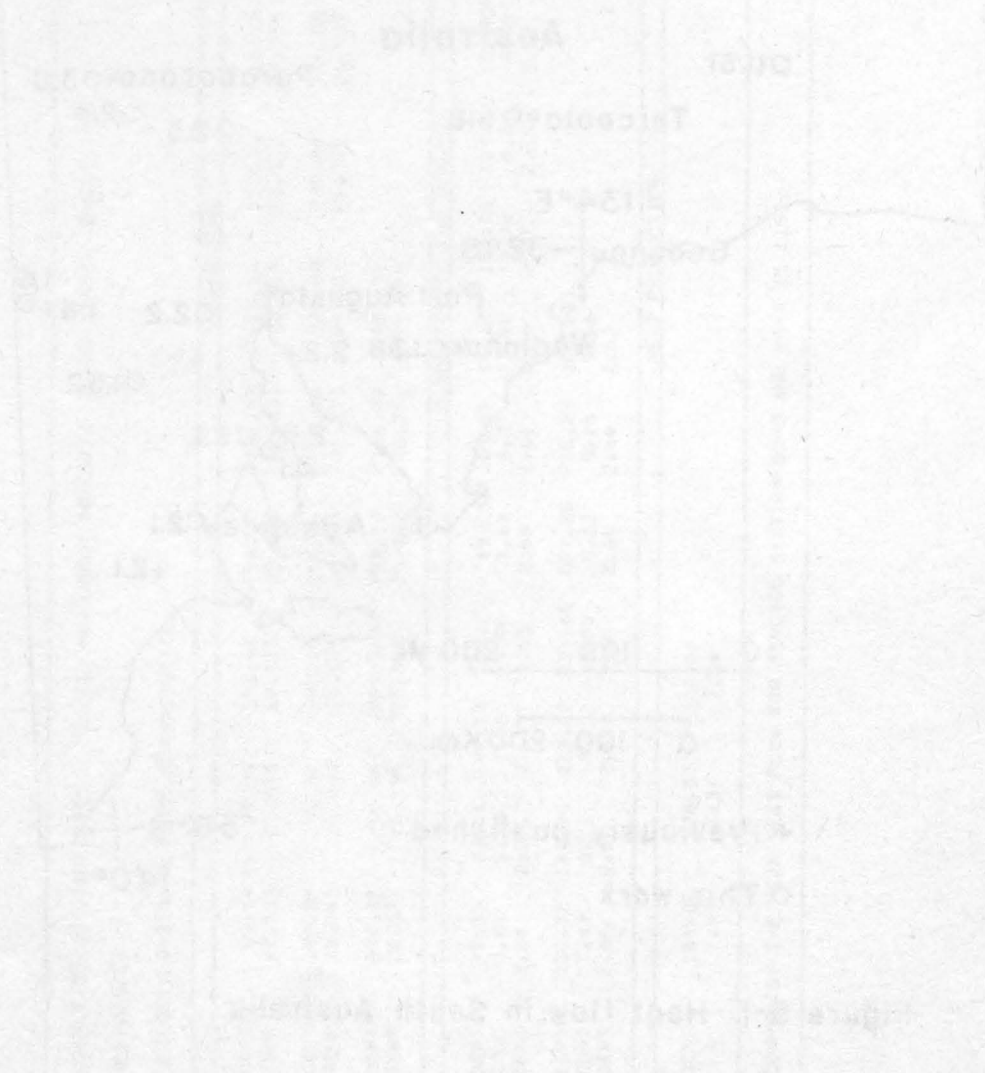
COMMENTS: MT. ISA 13/R55 IS AN UNDERGROUND HOLE. THE BEST ESTIMATE OF HEAT FLOW IN 13/R55 IS 2.1.

Figure 4-3. Temperatures in the Mt. Isa mine, Queensland



5. SOUTH AUSTRALIA

New data were obtained at 13 localities in the Proterozoic (~ 600 to 1600 m.y.) shield of South Australia (Figure 5-1). Two of these sites (Tarcoola and Wudinna) were drilled for the ANU by the South Australian Mines Department to provide reliable determinations of heat flow and heat production from granitic intrusive rocks.



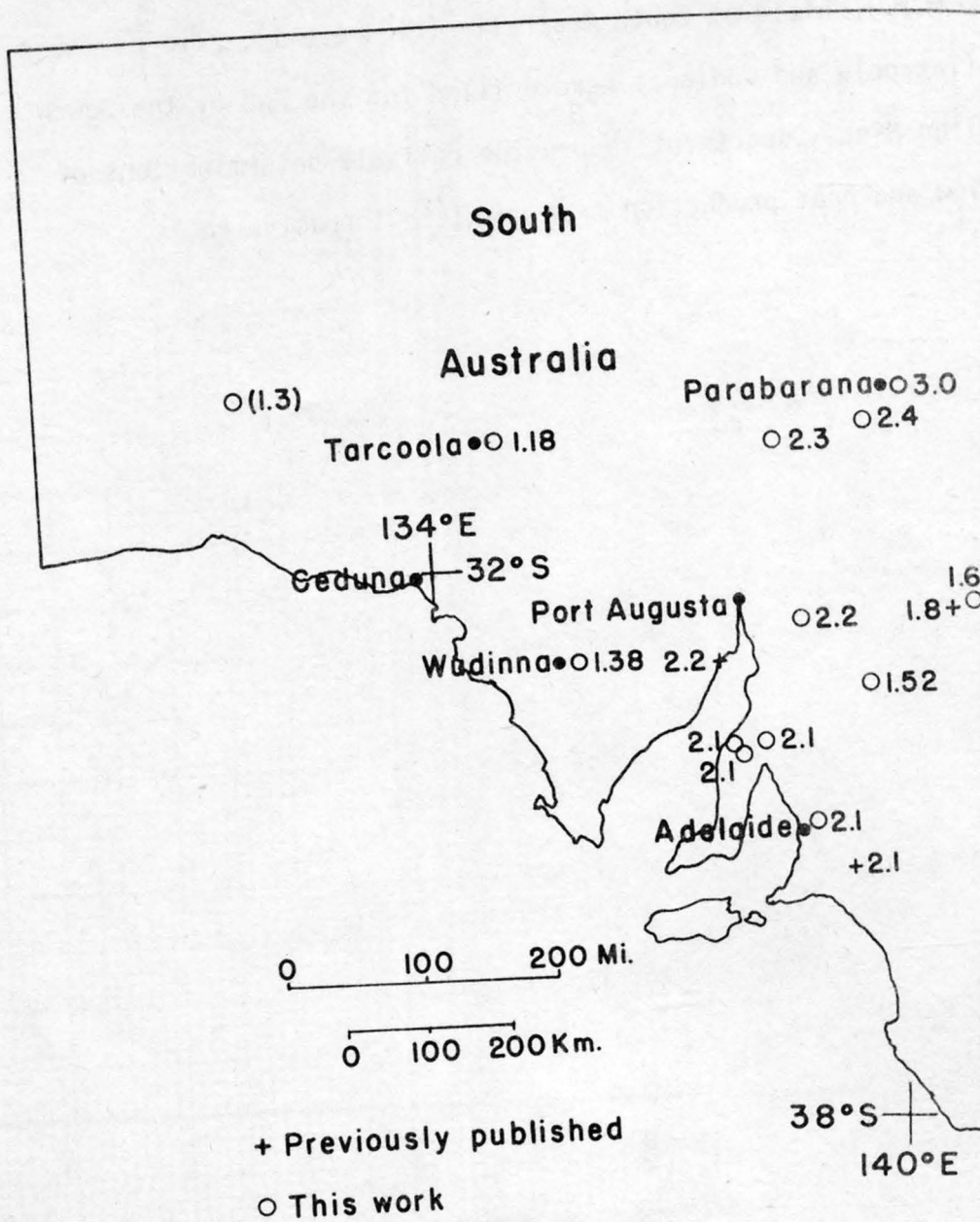


Figure 5-1. Heat flow in South Australia.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
SA	PROT. SHLD	BENDIGO STATION	BD-3	33 12	139 28	229	100- 310	22	8.34	18.3	1.53
								ERROR	0.11	0.2	0.03

COMPLETED ON OR BEFORE: 12/71 MEASURED: 08/24/72 STATIC WATER LEVEL: 91.

REFERENCE:

GEOLOGY: 0-310, ALTERED GRANODIORITE.

TEMPERATURE

DEPTH	91.44	99.06	106.68	114.30	121.92	129.54	137.16	144.78	152.40	160.02	167.64	175.26
TEMP	22.433	22.456	22.570	22.692	22.831	22.963	23.102	23.236	23.371	23.524	23.656	23.806
DEPTH	182.88	190.50	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70
TEMP	23.943	24.082	24.225	24.366	24.513	24.657	24.795	24.935	25.075	25.214	25.364	25.500
DEPTH	274.32	281.94	289.56	297.18	304.80	307.39						
TEMP	25.627	25.756	25.896	26.042	26.201	26.260						

CONDUCTIVITY AND DENSITY

DEPTH	77.11	81.08	87.17	93.27	99.06	106.68	111.25	114.30	117.96	122.23	129.54	135.03	146.00	152.40	154.84
COND	8.61	8.26	7.95	9.96	7.63	8.37	7.90	8.74	8.24	8.58	7.77	8.62	9.40	8.17	8.32
DENS	2.64	2.64	2.64	2.63	2.65	2.61	2.64	2.67	2.63	2.60	2.66	2.65	2.63	2.65	2.60
DEPTH	159.72	183.79	213.67	231.65	257.25	275.23	306.02								
COND	7.87	8.71	8.10	8.53	8.23	8.16	7.96								
DENS	2.66	2.66	2.62	2.66	2.66	2.64	2.62								

HEAT PRODUCTION

DEPTH	186.00	228.00	284.00
A	7.61	7.37	7.56

COMMENTS: THE MEAN HEAT FLOW FOR BENDIGO STATION BD-3 AND BD-7 IS 1.52.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	FLEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
SA	PROT. SHLD	BENDIGO STATION	BD-7	33 12	139 28	229	90- 295	12	8.04	18.5	1.49
								ERROR	0.10	0.2	0.02

COMPLETED ON OR BEFORE: 12/71 MEASURED: 08/24/72 STATIC WATER LEVEL: 91.

REFERENCE:

GEOLOGY: 0-295, GRANODIORITE.

TEMPERATURE														
DEPTH	91.44	99.06	106.68	114.30	121.92	137.16	144.78	152.40	160.02	167.64	175.26	182.88		
TEMP	22.358	22.484	22.620	22.760	22.899	23.142	23.286	23.425	23.567	23.716	23.855	23.993		
DEPTH	190.50	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70	274.32		
TEMP	24.136	24.278	24.421	24.565	24.704	24.849	25.007	25.149	25.295	25.441	25.580	25.720		
DEPTH	281.94	289.56	297.18											
TEMP	25.870	26.011	26.148											
CONDUCTIVITY AND DENSITY														
DEPTH	91.44	102.11	112.78	119.79	145.39	172.21	201.17	217.63	232.26	250.55	267.01	290.78	295.66	304.80
COND	8.48	8.05	7.78	7.49	8.20	8.04	8.90	7.94	7.68	7.58	7.89	8.56	8.00	8.28
DENS	2.64	2.67	2.62	2.61	2.65	2.67	2.66	2.66	2.65	2.66	2.66	2.68	2.66	2.64
HEAT PRODUCTION														
DEPTH	97.00	122.00	123.00	160.00	175.00	221.00	234.00	282.00	286.00					
A	10.54	9.15	9.25	10.11	9.86	8.88	9.30	9.51	9.48					

COMMENTS: THE MEAN HEAT FLOW FOR BENDIGO STATION BD-3 AND BD-7 IS 1.52.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
SA	PROT. SHLD	BUTE		33 52	138 01	116	55- 218	27	8.58	24.3	2.08	2.1
								ERROR	0.18	0.1	0.04	

COMPLETED ON OR BEFORE: 06/30/71 MEASURED: 07/02/71 STATIC WATER LEVEL: 55.

REFERENCE:

GEOLOGY: 0-21, AEOLIAN SAND AND CLAY. 21-36, KULPARA LIMESTONE. 36-218, WILLAMULKA VOLCANIC ROCKS, METASILTSTONES AND AMPHIBOLITE.

TEMPERATURE

DEPTH	54.86	60.96	67.06	73.15	79.25	85.34	91.44	97.54	103.63	109.73	115.82	121.92
TEMP	20.238	20.416	20.561	20.703	20.848	21.023	21.176	21.332	21.502	21.665	21.822	21.953
DEPTH	128.02	134.11	140.21	146.30	152.40	158.50	164.59	170.69	176.78	182.86	188.98	195.07
TEMP	22.090	22.243	22.387	22.525	22.668	22.802	22.935	23.096	23.265	23.421	23.563	23.696
DEPTH	201.17	207.26	212.75									
TEMP	23.833	23.945	24.052									

CONDUCTIVITY AND DENSITY

DEPTH	60.35	67.06	73.15	79.25	85.95	91.44	98.45	103.94	109.73	116.74	121.92	128.02	134.11	140.82	147.52
COND	8.23	8.88	9.88	9.67	7.64	7.68	9.48	10.09	7.36	8.11	9.44	8.28	8.68	8.23	9.54
DENS	2.77	2.65	2.75	2.77	2.80	2.80	2.81	2.79	2.81	2.78	2.84	2.87	2.77	2.73	2.77
DEPTH	153.01	158.50	163.68	168.55	174.35	180.14	185.93	192.02	198.12	204.22	209.09	213.36			
COND	10.45	10.43	9.58	8.29	8.51	8.18	8.11	8.44	7.18	7.01	8.33	8.70			
DENS	2.76	2.74	2.80	2.82	2.78	2.80	2.86	2.84	2.87	2.77	2.81	2.80			

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	CARRIETON	EDO-6	32 33	138 29	520	150- 376	15	12.9	17.2	2.22	2.2
									ERROR 0.5	0.2	0.09	

COMPLETED ON OR BEFORE: 72 MEASURED: 11/14/72 STATIC WATER LEVEL: 93.

REFERENCE:

GEOLOGY: 0-376, INTERBEDDED SILTSTONES AND CLAYSTONES.

TEMPERATURE

DEPTH	92.99	100.06	107.12	114.19	121.25	128.32	135.38	142.45	149.51	156.58	163.64	170.71
TEMP	22.062	22.018	22.115	22.223	22.321	22.439	22.533	22.620	22.725	22.861	22.980	23.089
DEPTH	177.44	184.16	190.89	197.62	204.35	211.08	217.80	224.53	231.26	237.99	244.72	251.44
TEMP	23.209	23.329	23.445	23.575	23.679	23.779	23.882	23.995	24.112	24.227	24.337	24.451
DEPTH	257.61	263.77	269.94	276.10	282.27	288.43	294.60	300.76	306.93	313.09	319.26	325.42
TEMP	24.570	24.674	24.781	24.902	25.032	25.124	25.210	25.326	25.399	25.529	25.620	25.729
DEPTH	331.17	336.92	342.67	348.42	354.18	359.93	365.68	371.43	376.03			
TEMP	25.835	25.927	26.037	26.134	26.230	26.336	26.436	26.543	26.614			

CONDUCTIVITY AND DENSITY

DEPTH	57.28	78.77	100.06	121.25	149.51	177.44	204.35	231.26	257.61	282.27	300.76	311.86	331.17	354.18	373.73
COND	12.14	15.55	19.08	17.09	13.93	10.70	11.73	11.55	11.77	12.36	11.99	12.77	13.47	12.90	11.54
DENS	2.72	2.86	2.90	2.83	2.66	2.67	2.77	2.72	2.81	2.81	2.85	2.77	2.61	2.68	2.82

DIP ANGLE

DEPTH	0	91	182	274	365	432
ANGLE	70.0	70.0	66.0	58.0	50.0	48.0

COMMENTS: THE AZIMUTH OF EDO-6 IS 111 DEGREES.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
SA	PROT. SHLD	EDIACARA	T-1	30 48	138 07	290	50- 152	7	4.2	50.	2.10
								ERROR	0.7	1.	0.35
							152- 213	5	3.85	66.	2.54
								ERROR	0.21	1.	0.14
							50- 213				2.3

COMPLETED ON OR BEFORE: 71 MEASURED: 08/29/72 STATIC WATER LEVEL: 36.

REFERENCE:

GEOLOGY: 0-155, SILTY CLAY. 155-162, SANDSTONE AND SILTSTONE. 162-222, CLAY.

TEMPERATURE												
DEPTH	36.58	42.67	48.77	54.86	60.96	67.06	73.15	79.25	85.34	91.44	97.54	103.63
TEMP	25.351	25.409	25.610	25.852	26.075	26.324	26.622	26.905	27.170	27.473	27.789	28.087
DEPTH	109.73	115.82	121.92	128.02	134.11	140.21	146.30	152.40	155.45	158.50	161.54	164.59
TEMP	28.405	28.715	29.059	29.429	29.812	30.141	30.468	30.807	30.986	31.078	31.207	31.347
DEPTH	167.64	170.69	173.74	176.78	179.83	182.88	185.93	188.98	192.02	195.07	198.12	201.17
TEMP	31.523	31.756	31.973	32.142	32.397	32.600	32.817	33.004	33.236	33.410	33.602	33.746
DEPTH	204.22	207.26	210.31	213.36	216.41	219.46	222.05					
TEMP	33.944	34.153	34.330	34.589	34.691	34.794	34.868					
CONDUCTIVITY												
DEPTH	60.96	76.20	91.44	106.68	121.92	137.16	152.40	167.64	182.88	198.12	213.36	
COND	5.12	5.07	5.05	4.02	3.36	3.58	4.63	3.68	3.37	3.64	4.16	

COMMENTS: CONDUCTIVITIES WERE MEASURED USING CHIPS AND ESTIMATED POROSITIES OF 25% PLUS OR MINUS 5% IN THE INTERVAL 53-152 METERS. THE HEAT FLOW IN THE INTERVAL 50-213 IS THE MEAN FOR EDIACARA T-1.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	KADINA	M-111	33 58	137 45	46	286- 476	27	7.27	28.91	2.10	2.10
									ERROR	0.17	0.06	0.05

COMPLETED ON OR BEFORE: 06/23/71 MEASURED: 07/02/71 STATIC WATER LEVEL: 8.

REFERENCE:

GEOLOGY: 60-182, DACITIC TUFF, 182-336, TUFFACEOUS METASEDIMENTARY ROCKS, 336-495, METASILTSTONES AND GREYWACKES.

TEMPERATURE

DEPTH	7.54	15.07	22.61	30.18	37.76	45.34	52.91	60.49	68.07	75.65	83.23	90.81
TEMP	19.145	19.346	19.924	20.340	20.718	21.112	21.485	21.794	22.092	22.375	22.656	22.938
DEPTH	98.38	105.96	113.54	121.12	128.70	136.27	143.83	151.39	158.91	166.41	173.92	181.42
TEMP	23.441	23.839	24.158	24.489	24.861	25.204	25.257	25.382	25.545	25.624	25.657	25.764
DEPTH	188.93	196.43	203.94	211.44	218.93	226.41	233.89	241.37	248.85	256.33	263.81	271.29
TEMP	25.930	26.104	26.292	26.473	26.684	26.866	27.064	27.455	27.539	27.641	27.760	27.852
DEPTH	278.72	286.11	293.50	300.90	308.29	315.69	323.08	330.47	337.71	344.85	351.99	359.13
TEMP	27.970	28.136	28.363	28.560	28.756	28.972	29.180	29.394	29.611	29.827	30.046	30.268
DEPTH	366.26	373.40	380.54	387.68	394.59	401.34	408.10	414.86	421.62	428.38	435.14	441.90
TEMP	30.484	30.688	30.895	31.095	31.290	31.479	31.666	31.863	32.060	32.256	32.449	32.644
DEPTH	448.66	455.42	462.18	468.93	475.69	482.45	489.21					
TEMP	32.841	33.032	33.215	33.393	33.580	33.723	33.830					

CONDUCTIVITY AND DENSITY

DEPTH	95.96	105.96	120.21	127.79	127.79	187.73	196.73	206.34	214.44	225.51	233.29	251.84	260.52	269.19	278.72
COND	6.76	7.24	4.36	6.36	7.98	8.05	8.46	8.26	7.98	8.55	8.13	7.41	10.17	8.97	8.45
DENS				2.42		2.71	2.82	2.82	2.73	2.66	2.68	2.67	2.75	2.70	2.71
DEPTH	287.89	297.05	305.63	314.80	322.49	332.54	341.14	349.42	358.27	362.27	371.12	379.40	387.96	395.13	402.70
COND	8.37	8.61	8.87	6.56	8.76	9.09	6.93	8.07	6.48	5.94	7.58	7.53	7.39	7.26	7.32
DENS	2.68	2.69	2.78	2.64	2.69	2.71	2.70	2.69	2.71	2.76	2.79	2.76	2.79	2.78	2.95
DEPTH	410.81	419.19	427.30	435.68	444.06	451.90	460.01	467.85	475.96	483.80	492.46				
COND	6.92	6.25	7.05	6.49	6.35	6.44	6.79	6.94	8.67	7.23	6.85				
DENS	2.80	2.77	2.74	2.74	2.75	2.71	2.72	2.72	2.66	2.71	2.73				

HEAT PRODUCTION

DEPTH	96.32	99.67	152.40	170.38
A	9.25	5.78	6.12	3.49

KADINA

M -111

DIP ANGLE

DEPTH	0	24	137	155	216	277	338	399	463
ANGLE	80.0	83.0	85.0	80.0	80.0	78.0	74.0	65.0	60.0

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	MARALINGA		30 10	131 36	180	183- 252	8	5.53	24.1	1.3	(1.3)
								ERROR	0.31	1.7	0.1	

COMPLETED ON OR BEFORE: 06/20/60 MEASURED: 08/29/71 STATIC WATER LEVEL: 182.

REFERENCE:

GEOLOGY: 0-252, SHALE, SAND AND CONGLOMERATE.

TEMPERATURE												
DEPTH	182.88	190.50	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70
TEMP	28.713	28.861	29.011	29.056	29.197	29.755	29.865	29.977	30.110	30.236	30.321	30.348
DEPTH	274.32	281.94	289.56	297.18	304.80	312.42	320.04	327.66	335.28	342.90	350.52	358.14
TEMP	30.376	30.416	30.439	30.483	30.508	30.535	30.613	30.638	30.673	30.744	30.750	30.768
DEPTH	365.76	373.38	381.00	388.62	396.24	397.77	399.29	400.81	402.34	403.86	405.39	408.43
TEMP	30.809	30.832	30.870	30.886	30.897	30.908	31.139	31.395	31.592	31.711	31.829	32.289
CONDUCTIVITY												
DEPTH	169.16	182.88	198.12	203.61	213.36	243.84	259.08	274.32				
COND	6.02	4.87	4.21	5.93	6.48	5.29	5.81	6.51				

COMMENTS: AN UNUSED WATER WELL. THE HEAT FLOW ESTIMATE IS AN UPPER LIMIT BASED ON THE INTERPRETATION OF A MAXIMUM GRADIENT IN THE HOLE WHICH IS SEVERELY DISTURBED VERTICAL WATER MOVEMENT.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
SA	PROT. SHLD	MUOTOOROO	MM-16	32 15	140 56	220	30- 589	37	6.37	25.23	1.61 1.61
								ERROR	0.18	0.06	0.05

COMPLETED ON OR BEFORE: ? MEASURED: 08/23/71 STATIC WATER LEVEL: 30.

REFERENCE:

GEOLOGY: 0-589, GRANITIC GNEISS, SERICITIC SCHIST AND MINOR AMPHIBOLITE.

TEMPERATURE

DEPTH	29.97	44.95	59.94	74.82	89.70	104.58	119.45	133.95	148.44	162.94	177.43	191.93
TEMP	21.725	22.049	22.382	22.716	23.058	23.428	23.827	24.180	24.506	24.846	25.220	25.529
DEPTH	205.65	219.38	233.11	246.83	259.50	272.18	284.85	297.52	310.19	321.78	333.37	344.96
TEMP	25.918	26.333	26.688	27.074	27.433	27.819	28.141	28.471	28.740	29.033	29.330	29.620
DEPTH	356.54	367.92	378.79	389.66	400.53	411.02	421.51	432.00	442.49	452.66	462.66	472.66
TEMP	29.875	30.163	30.425	30.752	31.009	31.231	31.484	31.716	32.015	32.294	32.518	32.768
DEPTH	482.66	492.66	502.66	512.65	522.65	532.65	542.65	552.65	562.65	572.64	582.64	588.64
TEMP	33.031	33.269	33.556	33.825	34.067	34.326	34.568	34.782	34.994	35.192	35.406	35.566

CONDUCTIVITY AND DENSITY

DEPTH	29.97	48.55	65.89	102.20	131.05	148.44	165.84	183.23	200.16	217.73	233.11	249.37	263.81	279.78	294.98
COND	6.99	7.49	7.71	7.58	7.27	8.07	6.35	7.15	7.32	6.06	4.59	4.93	4.72	6.99	11.98
DENS	2.67	2.65	2.67	2.71	2.74	2.64	3.08	3.09	2.67	2.71	2.77	2.67	2.72	2.69	2.66
DEPTH	310.19	324.10	338.00	351.91	365.74	378.79	391.83	404.72	417.31	429.90	442.49	454.66	466.66	478.66	490.66
COND	6.85	5.30	8.03	6.33	6.84	5.55	6.92	5.84	6.83	6.76	6.24	6.24	6.55	6.09	5.87
DENS	2.78	2.71	2.70	2.74	2.72	2.74	2.67	3.14	2.66	2.68	3.02	3.03	3.03	3.03	3.02
DEPTH	502.66	514.65	526.65	538.65	550.65	562.65	574.64	586.64							
COND	5.91	4.26	6.17	6.96	6.86	10.68	6.21	6.31							
DENS	3.05	2.69	3.14	3.07	2.74	2.87	2.68	2.78							

HEAT PRODUCTION

DEPTH	11.89	17.37	22.56	33.53	38.10	42.37	65.84	85.04	106.98	133.81	173.13
A	7.79	8.23	7.74	8.45	5.80	8.38	7.49	5.98	6.47	9.52	6.68

DIP ANGLE

DEPTH	0	60	121	198	259	335	406	457	523	640
ANGLE	80.0	79.0	76.0	68.0	60.5	52.0	47.0	44.0	43.0	39.0

COMMENTS: THE HEAT PRODUCTION SAMPLES ARE COMPOSITE SAMPLES. THE DEPTH LISTED IS THE CENTER OF THE INTERVAL.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	MT. MCTAGGART	C2A	30 27	139 18	147	97- 175	6	8.6	28.9	2.49	(2.4)
								ERROR	0.7	0.5	0.21	

COMPLETED ON OR BEFORE: 03/72 MEASURED: 08/28/72 STATIC WATER LEVEL: 6.

REFERENCE:

GEOLOGY: 0-24, TILLITE. 24-94, MICRODOLERITE WITH QUARTZ VEINS. 94-175, TILLITE.

TEMPERATURE												
DEPTH	6.10	12.19	18.29	24.38	30.48	36.58	42.67	48.77	54.86	60.96	67.06	73.15
TEMP	23.481	23.914	24.179	24.504	24.862	25.096	25.246	25.386	25.434	25.457	25.509	25.660
DEPTH	79.25	85.34	91.44	97.54	103.63	109.73	115.82	121.92	128.02	134.11	140.21	146.30
TEMP	25.723	25.849	25.969	26.116	26.274	26.453	26.631	26.819	27.006	27.198	27.394	27.554
DEPTH	152.40	158.50	164.59	170.69	173.74	174.65						
TEMP	27.767	27.920	28.074	28.242	28.320	28.330						
CONDUCTIVITY												
DEPTH	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	152.40	167.64	175.26	
COND	12.66	13.43	9.71	13.90	14.41	6.51	8.48	7.80	9.41	9.55	11.30	

COMMENTS: A TWO DIMENSIONAL TOPOGRAPHIC CORRECTION WAS MADE WITH A LEES VALLEY 23 METERS DEEP WITH B/H = 2.13 AND X/H = 5.33.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	PARABARANA		29 59	139 43	275	76- 320	17	7.62	40.0	3.05	3.0
								ERROR	0.48	0.5	0.2	

COMPLETED ON OR BEFORE: 05/72 MEASURED: 8/28/72 STATIC WATER LEVEL: 76.

REFERENCE:

GEOLOGY: 0-34, GRANITIC GNEISS. 34-227, CHLORITIZED PORPHYRITIC MICROGRANITE. 227-320, MICROADAMELLITE.

TEMPERATURE

DEPTH	76.20	83.82	91.44	99.06	106.68	114.30	121.92	129.54	137.16	144.78	152.40	160.02
TEMP	27.451	27.633	28.042	28.392	28.695	28.881	29.184	29.573	30.001	30.311	30.815	31.155
DEPTH	167.64	175.26	182.88	190.50	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46
TEMP	31.444	31.745	32.034	32.273	32.514	32.801	33.096	33.321	33.528	33.845	34.165	34.503
DEPTH	259.08	266.70	274.32	281.94	289.56	297.18	304.80	312.42	320.04			
TEMP	34.889	35.194	35.480	35.761	36.059	36.370	36.714	37.233	37.535			

CONDUCTIVITY AND DENSITY

DEPTH	60.96	76.20	91.44	106.68	121.92	137.16	152.40	166.42	183.19	199.95	233.17	243.84	259.08	274.32	289.56
COND	8.21	6.10	4.74	8.52	9.34	7.67	7.00	10.02	9.50	10.17	7.98	7.31	14.39	9.24	6.03
DENS	2.63	2.59	2.54	2.59	2.65	2.68	2.75	2.73	2.65	2.68	2.74	2.85	2.84	2.68	2.73
DEPTH	301.14	304.80													
COND	6.16	6.01													
DENS	2.70	2.72													

HEAT PRODUCTION

A	8.93	9.10	8.75	9.18
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STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	STOCKYARD GULLY		34 46	138 48	300	125- 185	15	9.28	22.9	2.13	2.1
								ERROR	0.37	0.3	0.19	

COMPLETED ON OR BEFORE: 03/22/71 MEASURED: 08/22/72 STATIC WATER LEVEL: 22.

REFERENCE:

GEOLOGY: 55-68, ALTERED GNEISS. 68-74, QUARTZITE. 74-98, ALTERED GNEISS. 98-110, QUARTZITE. 110-185, ALTERED GNEISS.

TEMPERATURE

DEPTH	22.28	27.84	33.41	38.98	44.55	50.12	55.79	61.46	67.14	72.81	78.48	84.15
TEMP	17.141	17.241	17.342	17.387	17.434	17.496	17.619	17.696	17.767	17.857	17.941	18.034
DEPTH	89.84	95.53	101.23	106.92	112.61	118.24	123.87	129.50	135.14	140.77	146.36	151.95
TEMP	18.187	18.314	18.435	18.558	18.695	18.897	19.034	19.166	19.325	19.459	19.581	19.712
DEPTH	157.54	163.13	168.72	174.29	179.86	182.64						
TEMP	19.846	19.968	20.114	20.212	20.328	20.401						

CONDUCTIVITY AND DENSITY

DEPTH	55.79	65.15	74.79	84.15	93.54	103.22	112.61	121.90	131.19	140.77	149.99	159.50	168.72	177.91	182.64
COND	7.83	12.14	8.57	8.41	13.73	10.84	9.13	8.33	8.77	8.68	8.23	8.30	11.22	8.59	10.03
DENS	2.76	2.67	2.79	2.75	2.65	2.80	2.84	2.80	2.84	2.80	2.84	2.80	2.76	2.81	2.91

DIP ANGLE

DEPTH	0	54	91	121	152	182	213
ANGLE	65.0	67.0	70.0	68.0	67.0	66.0	66.0

COMMENTS: THE AZIMUTH THE STOCKYARD GULLY HOLE IS 240 DEGREES.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	TARCOOLA		30 37	134 30	150	100- 304	20	7.58	15.60	1.18	1.18
								ERROR	0.06	0.03	0.01	

COMPLETED ON OR BEFORE: 08/15/71 MEASURED: 11/16/72 STATIC WATER LEVEL: 30.

REFERENCE:

GEOLOGY: 0-304: COOLADDIN GRANITE.

TEMPERATURE

DEPTH	30.48	38.10	45.72	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68	114.30
TEMP	24.122	24.148	24.200	24.267	24.349	24.439	24.535	24.634	24.736	24.841	24.953	25.062
DEPTH	121.92	129.54	137.16	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12	205.74
TEMP	25.175	25.285	25.399	25.510	25.634	25.752	25.868	25.985	26.100	26.218	26.342	26.461
DEPTH	213.36	220.98	228.60	236.22	243.84	251.46	259.08	266.70	274.32	281.94	289.56	297.18
TEMP	26.581	26.702	26.823	26.945	27.064	27.184	27.305	27.430	27.552	27.671	27.794	27.912
DEPTH	303.58											
TEMP	28.018											

CONDUCTIVITY AND DENSITY

DEPTH	3.05	24.38	30.78	59.13	65.84	87.17	93.57	116.13	121.62	150.88	156.97	178.31	185.62	206.96	213.36
COND	7.58	7.39	7.83	7.38	7.47	7.36	7.36	8.27	7.62	7.59	7.44	7.59	7.79	7.87	7.86
DENS	2.62	2.62	2.62	2.62	2.62	2.61	2.61	2.62	2.63	2.63	2.62	2.63	2.63	2.62	2.62
DEPTH	242.32	248.72	270.05	275.84	305.41										
COND	7.00	7.85	7.27	7.54	7.75										
DENS	2.62	2.61	2.62	2.62	2.62										

HEAT PRODUCTION

DEPTH	3.00	24.00	31.00	59.00	66.00	87.00	94.00	116.00	122.00	151.00	157.00	178.00
A	6.22	6.09	5.58	6.25	6.79	6.83	6.11	5.79	7.01	6.97	6.37	5.92
DEPTH	186.00	207.00	213.00	242.00	249.00	270.00	276.00	305.00				
A	6.83	6.15	5.93	6.44	7.34	5.80	7.08	7.52				

COMMENTS: THE TARCOOLA HOLE WAS DRILLED ESPECIALLY AS A HEAT FLOW HOLE BY THE A.N.U.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
SA	PROT. SHLD	WEST DOORA		33 59	137 40	45	30- 259	16	8.79	31.2	2.74	2.7
									ERROR	0.44	0.5	0.14

COMPLETED ON OR BEFORE: ? MEASURED: 07/12/72 STATIC WATER LEVEL: 8.

REFERENCE:

GEOLOGY: 0-260, SCHISTS INTERBEDDED WITH PORPHYRY (MOONTA?) AND GRANITE PORPHYRY.

TEMPERATURE

DEPTH	7.34	14.69	22.03	29.37	36.71	44.04	51.37	58.68	65.97	73.25	80.48	87.71
TEMP	18.979	19.408	19.860	20.105	20.335	20.554	20.790	21.041	21.255	21.449	21.776	21.969
DEPTH	94.90	102.06	109.19	116.23	123.27	130.31	137.35	144.39	151.43	158.47	165.51	172.40
TEMP	22.158	22.389	22.688	22.885	23.169	23.423	23.618	23.852	24.078	24.270	24.482	24.688
DEPTH	179.21	186.03	192.85	199.67	206.49	213.18	218.93	224.69	230.44	236.19	241.94	247.69
TEMP	24.860	25.036	25.225	25.399	25.657	25.901	26.066	26.228	26.372	26.622	26.841	27.028
DEPTH	253.44	259.19										
TEMP	27.201	27.391										

CONDUCTIVITY AND DENSITY

DEPTH	58.68	73.25	87.71	102.06	116.23	128.90	144.39	159.87	172.40	186.03	199.67	213.64	224.69	236.19	247.69	
COND	9.18	10.08	10.14	8.99	8.70	8.06	9.51	8.48	8.96	9.31	7.16	8.78	6.68	19.02	8.56	
DENS	2.74	2.73	3.00	2.70	2.57	3.17	2.82	2.75	2.86	2.85	2.55	2.64	3.00	2.68	2.89	
DEPTH	259.19															
COND	6.71															
DENS	2.89															

DIP ANGLE

DEPTH	0	16	39	58	76	94	112	177	227	367	503
ANGLE	75.0	74.0	75.0	73.0	73.0	70.0	70.0	65.0	62.0	36.0	24.0

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
SA	PROT. SHLD	WUDINNA		32 59	135 33	240	198- 303	49	9.04	15.21	1.38 1.38
								ERROR	0.12	0.06	0.02

COMPLETED ON OR BEFORE: 07/24/73 MEASURED: 09/05/73 STATIC WATER LEVEL: 18.

REFERENCE:

GEOLOGY: 0-303: GRANITE.

TEMPERATURE

DEPTH	18.29	21.34	24.38	27.43	30.48	33.53	36.58	39.62	42.67	45.72	48.77	51.82
TEMP	21.250	21.270	21.250	21.210	21.210	21.210	21.230	21.230	21.220	21.230	21.240	21.280
DEPTH	54.86	57.91	60.96	64.01	67.06	70.10	73.15	76.20	79.25	82.30	85.34	88.39
TEMP	21.380	21.430	21.460	21.480	21.510	21.530	21.570	21.600	21.630	21.660	21.690	21.730
DEPTH	91.44	94.49	97.54	100.58	103.63	106.68	109.73	112.78	115.82	118.87	121.92	124.97
TEMP	21.760	21.790	21.820	21.860	21.890	21.930	21.970	22.000	22.040	22.080	22.110	22.150
DEPTH	128.02	131.06	134.11	137.16	140.21	143.26	146.30	149.35	152.40	155.45	158.50	161.54
TEMP	22.190	22.230	22.260	22.300	22.340	22.380	22.420	22.460	22.500	22.540	22.580	22.620
DEPTH	164.59	167.64	170.69	173.74	176.78	179.83	182.88	185.93	188.98	192.02	195.07	198.12
TEMP	22.670	22.710	22.750	22.790	22.830	22.880	22.920	22.960	23.010	23.040	23.090	23.130
DEPTH	201.17	204.22	207.26	210.31	213.36	216.41	219.46	222.50	225.55	228.60	231.65	234.70
TEMP	23.180	23.220	23.270	23.310	23.360	23.400	23.450	23.490	23.540	23.580	23.630	23.670
DEPTH	237.74	240.79	243.84	246.89	249.94	252.98	256.03	259.08	262.13	265.18	268.22	271.27
TEMP	23.720	23.770	23.810	23.850	23.900	23.950	24.000	24.050	24.100	24.150	24.200	24.240
DEPTH	274.32	277.37	280.42	283.46	286.51	289.56	292.61	295.66	298.70	301.75	304.19	
TEMP	24.280	24.330	24.380	24.420	24.470	24.520	24.540	24.610	24.650	24.700	24.740	

CONDUCTIVITY AND DENSITY

DEPTH	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00	110.00	115.00	120.00
COND	8.83	10.19	9.22	7.61	8.03	9.57	8.69	7.87	10.61	8.89	9.94	9.02	9.35	8.36	9.89
DENS	2.61	2.62	2.65	2.60	2.61	2.61	2.60	2.61	2.62	2.61	2.60	2.61	2.60	2.63	2.61
DEPTH	125.00	130.00	135.00	140.00	145.00	150.00	155.00	160.00	165.00	170.00	175.00	180.00	185.00	190.00	195.00
COND	9.15	9.64	10.62	9.51	7.88	9.04	9.28	9.03	9.16	9.80	8.60	9.12	9.21	7.68	9.69
DENS	2.61	2.60	2.62	2.61	2.60	2.60	2.60	2.60	2.58	2.61	2.65	2.60	2.61	2.60	2.61
DEPTH	200.00	205.00	209.30	212.20	213.00	216.00	222.00	230.00	236.00	242.00	252.00	258.00	264.00	270.00	276.00
COND	8.92	9.12	8.25	8.63	8.97	8.07	8.92	11.60	7.52	11.13	9.18	9.96	8.76	9.86	8.08
DENS	2.60	2.61	2.61	2.60	2.62	2.62	2.62	2.63	2.59	2.63	2.62	2.63	2.63	2.62	2.61

WUDINNA

CONDUCTIVITY AND DENSITY (CONTINUED)

DEPTH	282.00	289.00	295.00	302.80
COND	10.10	8.64	9.22	8.80
DENS	2.61	2.63	2.63	2.65

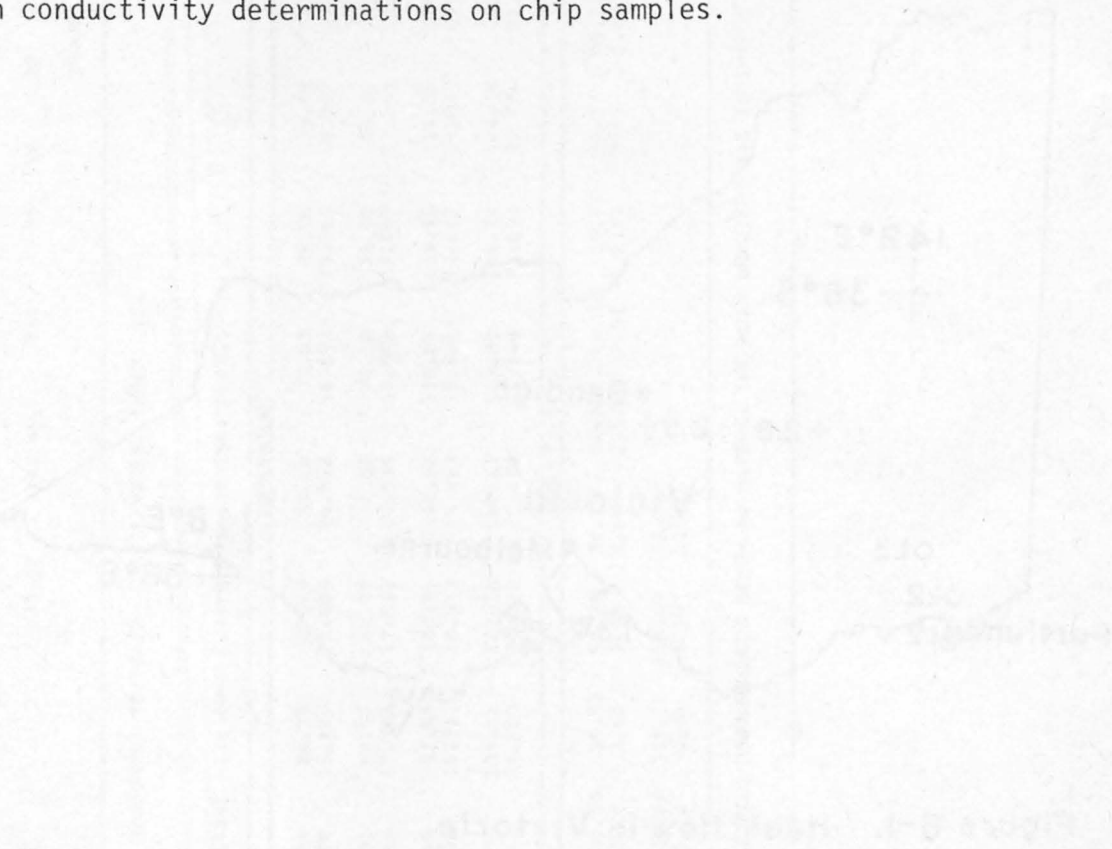
HEAT PRODUCTION

DEPTH	10.10	40.10	70.20	100.20	120.20	150.10	169.50	199.80	212.10	214.50	226.00	239.00
A	10.44	12.61	11.64	10.14	15.03	12.21	10.33	10.03	12.35	15.14	13.77	6.30
DEPTH	255.00	267.00	279.00	298.90								
A	12.84	13.52	9.76	14.42								

COMMENTS: THE WUDINNA HOLE WAS DRILLED ESPECIALLY AS A HEAT FLOW HOLE BY A.N.U. TEMPERATURES IN THE UPPER 200 METERS ARE DISTURBED BY WHAT APPEARS TO BE A CLIMATIC CHANGE POSSIBLY ASSOCIATED WITH THE BEGINNING OF AGRICULTURAL ACTIVITY IN THE EARLY TWENTIETH CENTURY.

6. VICTORIA

Estimates of heat flow were made in sedimentary rocks at four localities in southern Victoria (Figure 6-1). At one (Sorrento) temperatures measured by L. E. Howard (Howard, 1966) were combined with conductivity determinations on chip samples.



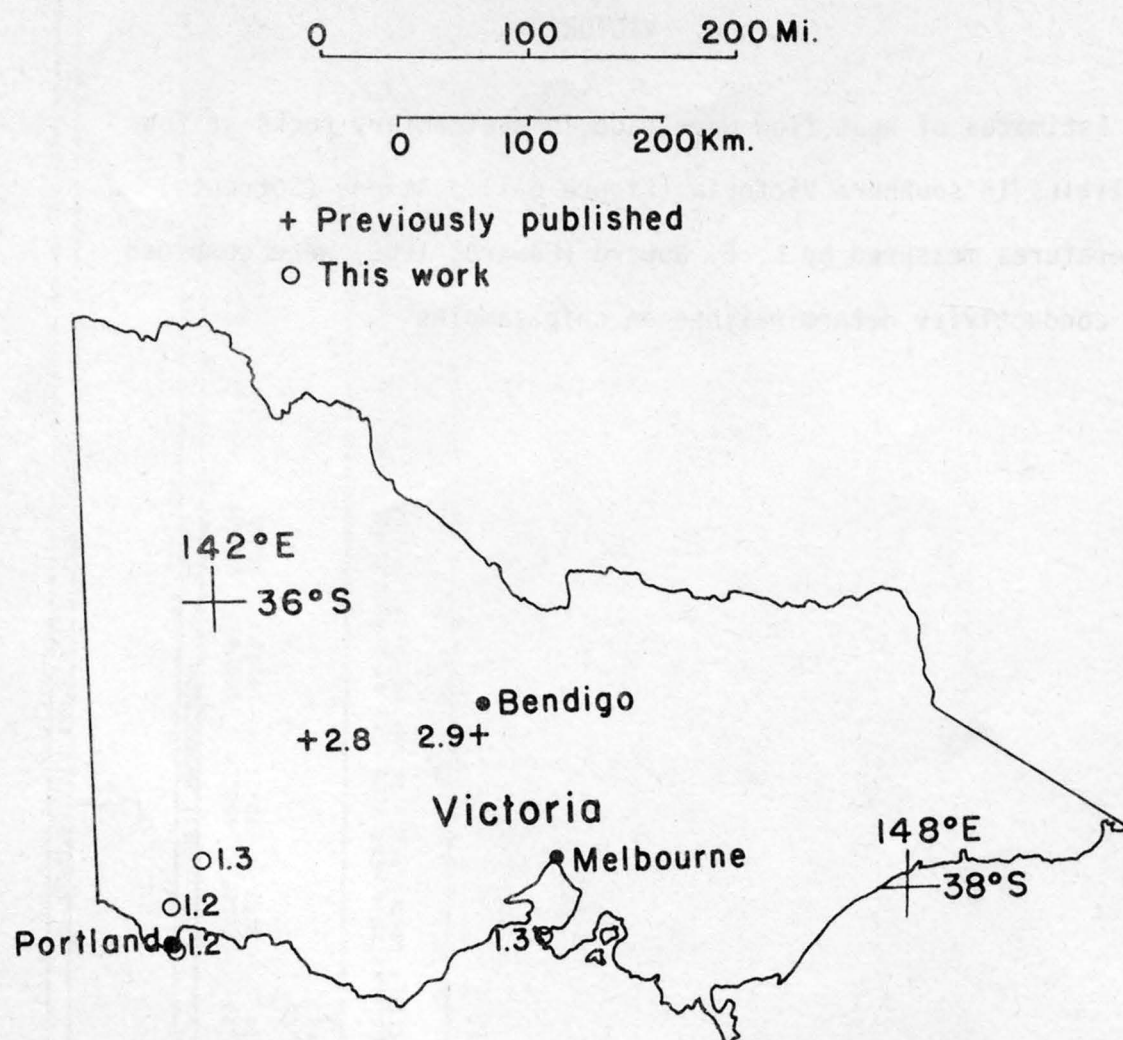


Figure 6-1. Heat flow in Victoria.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
VIC	MUR. BASIN	BRANXHOLME		37 52	141 48	160	25- 158	22	3.06	41.5	1.3
									ERROR	0.08	

COMPLETED ON OR BEFORE: 68 MEASURED: 08/18/72 STATIC WATER LEVEL: 15.

REFERENCE:

GEOLOGY: 0-17, CLAY. 17-109, LIMESTONE WITH SOME CLAY BEDS. 109-158, CLAY.

TEMPERATURE															
DEPTH	15.24	18.29	21.34	24.38	27.43	30.48	33.53	36.58	39.62	42.67	45.72	48.77			
TEMP	16.202	16.230	16.219	16.285	16.406	16.546	16.693	16.858	16.962	17.069	17.196	17.311			
DEPTH	51.82	54.86	57.91	60.96	64.01	67.06	70.10	73.15	76.20	79.25	82.30	85.34			
TEMP	17.422	17.544	17.664	17.775	17.855	17.939	17.983	17.987	17.993	17.993	17.993	17.995			
DEPTH	88.39	91.44	94.49	97.54	100.58	103.63	106.68	109.73	112.78	115.82	118.87	121.92			
TEMP	18.005	18.043	18.142	18.311	18.573	18.883	19.127	19.417	19.921	20.273	20.547	20.719			
DEPTH	124.97	128.02	131.06	134.11	137.16	140.21	143.26	146.30	149.35	152.40	155.45	158.50			
TEMP	20.880	21.013	21.117	21.203	21.322	21.430	21.546	21.653	21.724	21.820	21.923	21.979			
CONDUCTIVITY															
DEPTH	11.89	24.38	24.38	36.58	36.58	50.29	50.29	64.62	64.62	80.77	80.77	95.71	95.71	164.59	213.36
COND	3.21	3.19	3.10	3.20	3.63	2.88	2.48	2.57	2.67	2.77	2.73	2.65	2.92	3.05	3.89
DEPTH	213.36	268.22	268.22	391.06	391.06	455.68	455.68								
COND	3.40	2.91	3.03	3.78	3.72	3.20	3.29								

COMMENTS: DUE TO A SERIES OF HYDROLOGIC DISTURBANCES BELOW 60 METERS, THE MEAN GRADIENT WAS ESTIMATED AND NO LEAST SQUARES CALCULATION WAS MADE.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
VIC	MUR. BASIN	HEYWOOD		38 08	141 32	49	80- 540	16	3.74	31.0	1.2	
								ERROR	0.19	1.0	0.07	

COMPLETED ON OR BEFORE: MEASURED: 08/18/72 STATIC WATER LEVEL: 18.

REFERENCE:

GEOLOGY: 0-29, WEATHERED VOLCANIC ROCKS. 29-540, LIMESTONE.

TEMPERATURE

DEPTH	18.29	25.91	33.53	41.15	48.77	56.39	64.01	71.63	79.25	86.87	94.49	102.11
TEMP	15.783	15.653	15.583	15.474	15.651	16.365	17.146	17.540	17.867	18.138	18.382	18.656
DEPTH	109.73	117.35	124.97	132.59	140.21	147.83	155.45	163.07	170.69	178.31	185.93	193.55
TEMP	18.902	19.153	19.393	19.620	19.886	20.124	20.362	20.606	20.859	21.087	21.320	21.556
DEPTH	201.17	208.79	216.41	224.03	231.65	239.27	246.89	254.51	262.13	269.75	277.37	284.99
TEMP	21.775	22.015	22.266	22.516	22.748	22.961	23.164	23.408	23.604	23.842	24.080	24.277
DEPTH	292.61	300.23	307.85	315.47	323.09	330.71	338.33	345.95	353.57	361.19	368.81	376.43
TEMP	24.514	24.754	24.985	25.230	25.457	25.682	25.911	26.143	26.377	26.659	26.956	27.266
DEPTH	384.05	391.67	399.29	406.91	414.53	422.15	426.72	437.39	445.01	452.63	460.25	467.87
TEMP	27.546	27.808	28.102	28.386	28.662	28.924	29.272	29.555	29.852	30.139	30.380	30.637
DEPTH	475.49	483.11	490.73	498.35	505.97	513.59	521.21	528.83	536.45			
TEMP	30.819	31.006	31.216	31.458	31.673	31.900	32.108	32.355	32.455			

CONDUCTIVITY

DEPTH	70.10	70.10	140.82	161.54	161.54	250.85	259.39	259.39	315.77	372.16	390.14	459.03	520.29	531.88	613.26
COND	1.92	1.92	2.91	3.56	3.53	2.77	3.10	3.10	3.91	3.60	3.32	4.06	4.17	5.34	4.37
DEPTH	620.27	768.71	828.75												
COND	4.09	5.86	4.81												

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	CONC	GRAD	<u>HEAT FLOW</u> UNC CORR	
VIC	MUR. BASIN	PORTLAND	HOLES 8 AND 10	38 23	141 35	46	50-1050	3	3.33	35.0	1.2	
								ERROR	0.02	0.5		

COMPLETED ON OR BEFORE: 69 MEASURED: 08/17/72 STATIC WATER LEVEL: 15.

REFERENCE:

GEOLOGY: 0-60, DECOMPOSED BASALT AND CLAY. 60-1050, MARL WITH SOME LIMESTONE.

TEMPERATURE												
DEPTH	15.24	30.48	45.72	60.96	76.20	91.44	106.68	121.92	137.16	152.40	167.64	182.88
TEMP	14.051	14.549	15.495	16.219	16.817	17.334	17.803	18.409	18.988	19.561	20.099	20.622
DEPTH	184.40	185.93	187.45	188.98	190.50	192.02	193.55	195.07	196.60	198.12	213.36	228.60
TEMP	20.667	20.713	20.767	20.809	20.863	20.919	20.969	21.015	21.057	21.108	21.586	22.056
DEPTH	243.84	259.08	274.32	289.56	304.80	320.04	335.28	350.52	365.76	381.00	396.24	411.48
TEMP	22.546	23.012	23.493	24.027	24.549	25.057	25.571	26.094	26.632	27.174	27.717	28.245
DEPTH	426.72	441.96	457.20	472.44	487.68	502.92	518.16	533.40	548.64	563.88	579.12	594.36
TEMP	28.792	29.343	29.879	30.415	30.931	31.554	32.093	32.617	33.161	33.698	34.215	34.730
DEPTH	609.60	624.84	640.08	655.32	670.56	685.80	701.04	716.28	731.52	746.76	762.00	777.24
TEMP	35.240	35.752	36.276	36.797	37.354	37.910	38.474	38.986	39.509	40.128	40.710	41.283
DEPTH	792.48	807.72	822.96	838.20	853.44	868.68	883.92	899.16	914.40	929.64	944.88	960.12
TEMP	41.934	42.555	43.174	43.778	44.360	44.884	45.420	45.968	46.500	47.038	47.565	48.081
DEPTH	975.36	990.60	1005.84	1021.08	1036.32	1051.56	1066.80	0.0	*22.86	30.48	38.10	45.72
TEMP	48.571	49.094	49.589	50.109	50.559	51.108	51.458	*****	14.977	15.210	15.445	15.668
DEPTH	53.34	60.96	68.58	76.20	83.82	91.44	99.06	106.68	114.30	121.92	129.54	137.16
TEMP	15.936	16.184	16.453	16.729	17.008	17.286	17.548	17.829	18.130	18.427	18.733	19.024
DEPTH	144.78	152.40	160.02	167.64	175.26	182.88	190.50	198.12	205.74	213.36	220.98	228.60
TEMP	19.316	19.618	19.903	20.173	20.409	20.656	20.884	21.131	21.367	21.627	21.863	22.090
DEPTH	236.22	243.84	251.46	259.08	266.70	274.32	281.94	289.56	297.18	304.80	312.42	320.04
TEMP	22.339	22.563	22.823	23.062	23.302	23.576	23.845	24.096	24.347	24.596	24.869	25.124
DEPTH	327.66	335.28	342.90	350.52	358.14	365.76	373.38	381.00	388.62	396.24	403.86	411.48
TEMP	25.376	25.642	25.917	26.172	26.433	26.712	26.971	27.248	27.500	27.780	28.029	28.313
DEPTH	419.10	426.72	434.34	441.96	449.58	457.20	464.82	472.44	480.06	487.68	495.30	502.92
TEMP	28.577	28.868	29.109	29.366	29.640	29.934	30.184	30.460	30.712	30.995	31.322	31.587
DEPTH	510.54	518.16	525.78	533.40	541.02	548.64	556.26	563.88	571.50	579.12	586.74	594.36
TEMP	31.852	32.127	32.363	32.640	32.901	33.169	33.428	33.698	33.918	34.182	34.431	34.684

PORTLAND HOLES 8 AND 10

		TEMPERATURE (CONTINUED)										
DEPTH	601.98	609.60	617.22	624.84	632.46	640.08	647.70	655.32	662.94	670.56	678.18	685.80
TEMP	34.943	35.197	35.440	35.695	35.930	36.208	36.453	36.737	36.997	37.274	37.559	37.823
DEPTH	693.42	701.04	708.66	716.28	723.90	731.52	739.14	746.76	754.38	762.00	769.62	777.24
TEMP	38.110	38.380	38.644	38.875	39.149	39.421	39.707	40.006	40.278	40.558	40.852	41.139
DEPTH	784.86	792.48	800.10	807.72	815.34	822.96	830.58	838.20	845.82	853.44	861.06	868.68
TEMP	41.440	41.739	42.077	42.402	42.702	43.000	43.289	43.587	43.884	44.171	44.430	44.698
DEPTH	876.30	883.92	891.54	899.16	906.78	914.40	922.02	929.64	937.26	944.88	952.50	960.12
TEMP	44.949	45.210	45.473	45.726	45.995	46.233	46.507	46.757	47.009	47.278	47.529	47.789
DEPTH	967.74	975.36	982.98	990.60	998.22	1005.84	1013.46	1021.08	1028.70	1036.32	1043.94	1051.56
TEMP	48.015	48.273	48.526	48.782	49.040	49.271	49.518	49.769	49.982	50.229	50.543	50.812
DEPTH	1059.18	1066.80	1074.42	1082.04	1089.66	1097.28	1104.90	1112.52	1120.14	1127.76	1135.38	1143.00
TEMP	50.976	51.191	51.408	51.618	51.814	51.959	52.088	52.278	52.521	52.847	53.106	53.313
DEPTH	1150.62	1158.24	1165.86	1173.48	1181.10	1188.72	1196.34	1203.96	1211.58	1219.20		
TEMP	53.658	54.017	54.166	54.232	54.297	54.353	54.391	54.410	54.400	54.466		

CONDUCTIVITY

COND 3.38 3.31 3.30

COMMENTS: TEMPERATURES FOR PORTLAND 8 AND 10 ARE LISTED IN ORDER. THE CONDUCTIVITIES LISTED ARE FROM PORTLAND 8. THERE ARE TOO FEW CONDUCTIVITIES TO GIVE A RELIABLE ERROR FOR THE HEAT FLOW. CONDUCTIVITIES WERE MEASURED IN CORE WITHIN THE ZONE OF MEASURED TEMPERATURES. EXACT DEPTHS ARE UNKNOWN.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
VIC	MUR. BASIN	SORRENTO	NEP-29	38 21	144 44	25	335- 427	15	3.45	42.	1.3
									ERROR	0.21	

COMPLETED ON OR BEFORE: ? MEASURED: ? STATIC WATER LEVEL: ?

REFERENCE: HOWARD(1966).

GEOLOGY: 0-427, SAND, CLAY AND SILT.

TEMPERATURE

DEPTH	30.48	60.96	91.44	121.92	152.40	182.88	213.36	243.84	274.32	304.80	335.28	365.76
TEMP	15.200	16.500	17.600	19.000	21.000	23.200	25.400	27.800	29.800	31.100	32.900	34.100
DEPTH	396.24	426.72										
TEMP	35.300	36.300										

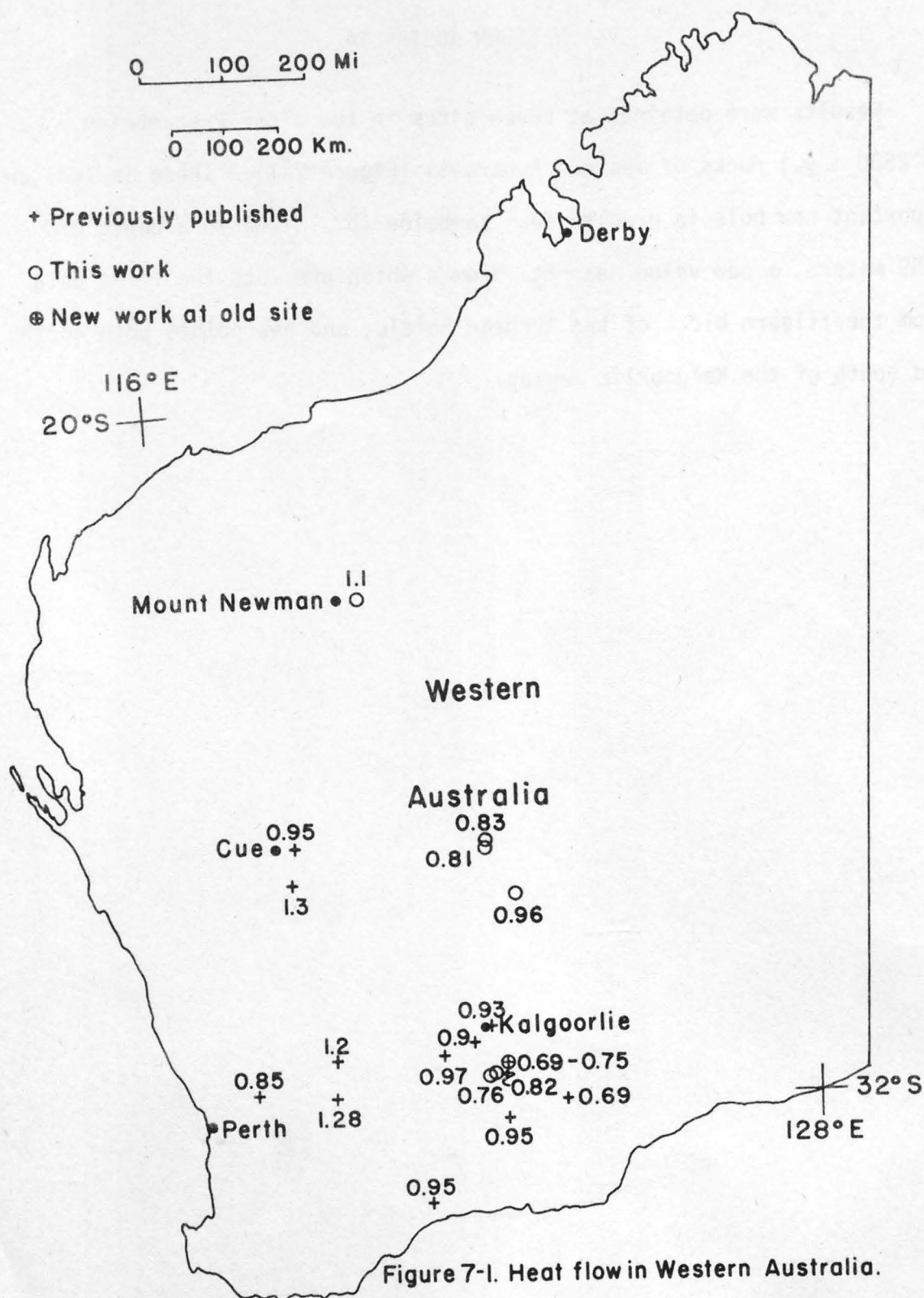
CONDUCTIVITY

DEPTH	10.67	25.91	41.15	71.63	102.11	132.59	163.07	193.55	220.98	251.46	284.99	315.47	345.95	376.43	406.91
COND	3.83	3.57	3.44	4.02	4.44	5.15	4.64	2.87	3.54	2.35	2.31	3.64	3.85	3.54	3.04

COMMENTS: THE TEMPERATURES WERE MEASURED BY L.E. HOWARD. THE CONDUCTIVITIES WERE MEASURED ON CHIP SAMPLES BASED ON ESTIMATES OF IN SITU POROSITY RANGING FROM 38% TO 59%.

7. WESTERN AUSTRALIA

Results were obtained at seven sites in the older Precambrian (~ 2500 m.y.) rocks of Western Australia (Figure 7-1). These include an important new hole in granite near Kambalda (p. 78-79) to a depth of 1059 meters, a new value near Mt. Newman which presents the first data from the Yilgarn block of the Archean Shield; and new points both north and south of the Kalgoorlie region.



STATE	TECT UNIT	LOCALITY	HOLE NO	S. LAT DEG MIN	E. LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
WA	YILGARN	KAMBALDA	KD 262	31 14	121 41	290	100- 350	12	11.76	6.21	0.73	
								ERROR	0.61	0.02	0.04	
							350- 412	6	8.62	7.36	0.63	
								ERROR	0.31	0.03	0.02	
							100- 412				0.68	

COMPLETED ON OR BEFORE: ? MEASURED: 07/15/71 STATIC WATER LEVEL: 8.

REFERENCE:

GEOLOGY: 0-412, GREENSTONE.

TEMPERATURE

DEPTH	7.62	15.23	22.85	30.47	38.09	45.70	53.32	60.93	68.55	76.16	83.78	91.39
TEMP	23.384	23.287	23.300	23.336	23.384	23.420	23.454	23.491	23.525	23.559	23.593	23.626
DEPTH	99.01	106.62	114.24	121.85	129.46	137.06	144.67	152.28	159.87	167.46	175.04	182.63
TEMP	23.660	23.699	23.740	23.782	23.824	23.866	23.910	23.961	24.003	24.047	24.093	24.140
DEPTH	190.19	197.75	205.30	212.86	220.40	227.94	235.48	243.02	250.55	258.07	265.60	273.12
TEMP	24.190	24.252	24.300	24.346	24.390	24.432	24.478	24.526	24.577	24.630	24.674	24.728
DEPTH	280.62	288.12	295.61	303.11	310.56	318.01	325.47	332.92	340.33	347.74	355.15	362.56
TEMP	24.783	24.829	24.873	24.914	24.964	25.007	25.050	25.089	25.140	25.202	25.256	25.314
DEPTH	365.49	368.43	371.37	374.30	377.24	380.17	383.11	386.04	388.98	391.92	392.50	393.08
TEMP	25.337	25.360	25.384	25.407	25.429	25.454	25.474	25.493	25.513	25.534	25.539	25.542
DEPTH	393.66	393.95	394.24	394.53	394.81	395.10	395.39	395.68	395.97	396.26	396.55	396.84
TEMP	25.550	25.554	25.555	25.560	25.559	25.561	25.564	25.565	25.568	25.570	25.573	25.575
DEPTH	397.13	397.42	397.71	398.00	398.29	398.58	398.87	399.16	399.45	399.74	400.03	400.32
TEMP	25.577	25.580	25.583	25.585	25.589	25.592	25.594	25.597	25.600	25.603	25.605	25.607
DEPTH	400.61	402.06	403.51	404.96	406.41							
TEMP	25.609	25.620	25.633	25.644	25.652							

CONDUCTIVITY AND DENSITY

DEPTH	33.52	60.93	91.39	121.85	152.28	182.63	211.35	243.02	293.51	303.11	325.47	332.92	349.22	362.56	372.83
COND	11.60	8.07	11.81	12.83	12.13	11.09	13.04	16.02	10.55	14.57	11.99	11.19	8.44	7.46	8.86
DENS	2.81		2.85	2.82	2.87	2.87	2.84	2.85		2.83	2.85	2.84	2.92	2.80	2.89
DEPTH	384.58	391.92	394.81												
COND	9.70	8.98	8.60												
DENS	2.90	3.10													

KAMBALDA

KD 262

		DIP ANGLE													
DEPTH	0	30	60	91	121	152	182	213	243	274	304	335	365	396	426
ANGLE	89.0	88.0	88.0	88.0	87.5	86.0	83.5	81.8	81.5	80.5	78.8	77.2	75.8	73.0	71.0

COMMENTS: THE AZIMUTH OF KAMBALDA KD 262 IS 85 DEGREES. THE HEAT FLOW IN THE INTERVAL 100-412 IS THE MEAN FOR KD 262. THE BEST VALUE FOR THE HEAT FLOW FOR KAMBALDA KD 262 AND KD 6003 IS 0.75.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
WA	YILGARN	KAMBALDA	KD 6003	31 12	121 41	342	46-1059	23	7.75	10.64	0.82
								ERROR	0.09	0.01	0.01

COMPLETED ON OR BEFORE: 06/71 MEASURED: 07/07/71 STATIC WATER LEVEL: 46.

REFERENCE:

GEOLOGY: 0-152, GREENSTONE. 152-1059, GRANITE.

TEMPERATURE												
DEPTH	45.70	53.32	60.93	68.55	76.16	83.77	91.39	99.00	106.61	114.22	121.83	129.44
TEMP	21.710	21.769	21.852	21.953	22.017	22.085	22.150	22.208	22.286	22.362	22.451	22.535
DEPTH	137.06	144.67	152.28	159.88	167.49	175.09	182.69	190.30	197.90	205.50	213.11	220.71
TEMP	22.612	22.689	22.770	22.852	22.932	23.018	23.099	23.179	23.263	23.346	23.429	23.512
DEPTH	228.32	235.92	243.52	251.13	258.73	266.33	273.94	281.54	289.15	296.75	304.35	311.95
TEMP	23.595	23.678	23.759	23.841	23.922	24.006	24.086	24.169	24.253	24.336	24.416	24.497
DEPTH	319.54	327.13	334.73	342.32	349.92	357.51	365.10	372.70	380.29	387.88	395.48	403.07
TEMP	24.577	24.657	24.739	24.824	24.903	24.982	25.071	25.138	25.230	25.345	25.401	25.466
DEPTH	410.67	418.26	425.85	433.45	441.04	448.64	456.23	463.81	471.39	478.96	486.54	501.70
TEMP	25.559	25.659	25.813	25.876	25.917	26.012	26.108	26.188	26.236	26.314	26.401	26.563
DEPTH	516.86	532.01	547.17	562.33	577.48	592.64	607.80	622.90	638.00	653.10	668.20	683.24
TEMP	26.727	26.901	27.054	27.212	27.372	27.532	27.682	27.838	27.994	28.148	28.308	28.465
DEPTH	698.28	713.32	728.37	743.41	758.45	773.49	788.53	803.57	818.62	833.66	848.70	863.74
TEMP	28.621	28.771	28.927	29.091	29.244	29.398	29.555	29.713	29.871	30.033	30.191	30.350
DEPTH	878.78	893.83	908.87	923.91	938.95	953.99	969.04	984.08	999.12	1014.16	1029.20	1044.24
TEMP	30.510	30.682	30.843	30.999	31.156	31.313	31.478	31.637	31.799	31.961	32.119	32.279
DEPTH	1059.29											
TEMP	32.432											

CONDUCTIVITY AND DENSITY															
DEPTH	334.73	343.84	349.92	430.41	431.93	441.04	444.08	607.79	616.85	622.90	743.41	750.93	752.43	758.45	785.52
COND	8.39	7.61	7.68	8.31	7.42	7.22	7.68	7.33	7.47	7.81	7.77	7.58	7.27	7.40	8.46
DENS	2.64	2.65	2.64	2.65	2.64	2.66	2.64	2.65	2.63	2.64	2.64	2.64	2.64	2.65	2.65
DEPTH	788.53	793.04	796.05	797.56	826.14	827.64	833.66	1170.59							
COND	7.97	8.50	8.00	7.96	8.12	7.44	8.22	7.14							
DENS	2.66	2.66	2.47	2.66	2.65	2.65	2.66	2.65							

KAMBALDA

KD 6003

HEAT PRODUCTION

DEPTH	103.33	118.87	132.89	136.86	201.17	227.99	235.31	241.10	242.93	252.68	275.23	288.34
A	2.90	3.04	2.71	2.99	3.06	3.12	3.10	3.33	3.35	3.01	2.86	3.13
DEPTH	349.00											
A	3.08											

DIP ANGLE

DEPTH	0	30	91	152	304	457	609	670	762
ANGLE	90.0	88.0	87.5	87.0	85.5	85.0	83.0	81.5	80.0

COMMENTS: THE HEAT PRODUCTION SAMPLES ARE COMPOSITE SAMPLES. THE DEPTH LISTED IS THE CENTER OF THE INTERVAL. THE BEST VALUE FOR THE HEAT FLOW FOR KAMBALDA KD 6003 AND KD 262 IS 0.75. THE AZIMUTH OF THE HOLE IS 315 DEGREES.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
WA	YILGARN	MT. GOODE	MGD 22B	27 37	120 34	488	24- 79	12	7.74	10.5	0.81
								ERROR	0.09	0.2	0.2

COMPLETED ON OR BEFORE: ? MEASURED: 07/26/71 STATIC WATER LEVEL: 24.

REFERENCE:

GEOLOGY: 0-8, SILT. 8-24, CLAY. 24-79, GRANITE.

TEMPERATURE

DEPTH	24.10	26.58	29.06	31.54	34.03	36.51	38.99	41.47	43.95	46.43	48.91	51.43
TEMP	26.012	26.035	26.061	26.084	26.108	26.129	26.185	26.207	26.226	26.247	26.267	26.288
DEPTH	53.94	56.45	58.96	61.47	63.99	66.50	69.01	71.52	74.03	76.57	79.10	
TEMP	26.308	26.326	26.345	26.375	26.421	26.451	26.480	26.508	26.535	26.575	26.599	

CONDUCTIVITY AND DENSITY

DEPTH	40.23	45.19	50.17	55.19	60.22	65.24	70.27	76.06	79.10	86.71	89.24	99.38
COND	7.82	7.22	8.21	7.71	7.61	7.62	7.60	7.55	7.70	7.85	7.79	8.37
DENS	2.61	2.64	2.47	2.63	2.64	2.64	2.63	2.63	2.63	2.62	2.64	2.61

HEAT PRODUCTION

DEPTH	42.60	52.70	73.00	80.70	82.80	93.90
A	3.81	3.89	4.76	4.89	5.12	4.51

DIP ANGLE

DEPTH	0	30	60	91	121
ANGLE	50.0	54.5	54.5	56.5	56.0

COMMENTS: MT. GOODE MGD 22B IS A FEW KILOMETERS FROM YAKABINDIE. MEAN HEAT FLOW FOR MT. GOODE MGD 22B AND YAKABINDIE SMD 356A IS 0.82.

STATE	TECT UNIT	LOCALITY	HOLE NO	S. LAT DEG MIN	E. LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
WA	PILBARA	MT. NEWMAN	DH-48	23 22	119 39	657	146- 216	7	10.65	10.09	1.07	1.1
									ERROR	1.16	0.08	0.12

COMPLETED ON OR BEFORE: ? MEASURED: 07/21/71 STATIC WATER LEVEL: 125.

REFERENCE:

GEOLOGY: 0-152, JASPILITE. 152-216, HEMATITE.

TEMPERATURE												
DEPTH	60.96	124.97	128.02	131.06	134.11	137.16	140.21	143.26	146.30	149.35	152.40	155.45
TEMP	29.568	29.777	29.798	29.778	29.791	29.812	29.838	29.860	29.883	29.915	29.942	29.968
DEPTH	158.50	161.54	164.59	167.64	170.69	173.74	176.78	179.83	182.88	185.93	188.98	192.02
TEMP	29.996	30.023	30.048	30.075	30.103	30.138	30.166	30.201	30.243	30.271	30.304	30.334
DEPTH	195.07	198.12	201.17	204.22	207.26	210.31	213.36	215.80				
TEMP	30.369	30.402	30.432	30.460	30.492	30.517	30.545	30.577				
CONDUCTIVITY AND DENSITY												
DEPTH	165.51	180.44	186.54	205.13	208.79	213.36	213.36					
COND	18.52	10.65	7.74	10.08	10.82	15.01	8.22					
DENS						4.14						

COMMENTS: THE BEST VALUE FOR THE HEAT FLOW FOR MT. NEWMAN DH-48 AND DH-73 IS 1.1.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S. LAT</u> DEG MIN	<u>E. LONG</u> DEG MIN	ELFV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
WA	PILBARA	MT. NEWMAN	DH-73	23 22	119 40	707	259- 332	17	12.83	8.87	1.14	1.2
									ERROR	1.29	0.14	0.12

COMPLETED ON OR BEFORE: ? MEASURED: 07/21/71 STATIC WATER LEVEL: 175.

REFERENCE:

GEOLOGY: 0-30, SHALE. 30-61, HEMATITE. 61-235, SHALE WITH JASPIRITE. 235-332, HEMATITE WITH SHALE INTERBEDS.

TEMPERATURE

DEPTH	91.44	175.26	182.88	190.50	198.12	205.74	213.36	220.98	228.60	236.22	243.84	251.46
TEMP	28.718	29.540	29.588	29.581	29.697	29.858	29.965	30.079	30.180	30.108	29.738	29.925
DEPTH	252.98	254.51	256.03	257.56	259.08	266.70	274.32	281.94	289.56	297.18	304.80	312.42
TEMP	30.081	30.248	30.404	30.496	30.535	30.630	30.691	30.762	30.838	30.909	30.971	31.028
DEPTH	320.04	327.66	331.93									
TEMP	31.090	31.154	31.201									

CONDUCTIVITY AND DENSITY

DEPTH	188.37	188.37	192.02	206.35	206.35	206.35	222.50	222.50	232.26	232.26	247.19	255.42	262.74	262.74	280.42
COND	11.64	15.6	19.97	9.19	8.01	8.07	9.39	9.30	22.21	9.49	15.39	11.94	14.25	15.52	19.39
DENS				2.50			2.67		3.51						4.22
DEPTH	280.42	291.39	291.39	294.74	294.74	306.32	318.52	318.52	331.32	331.32					
COND	18.52	8.09	5.65	17.56	14.03	14.40	16.88	10.97	15.87	13.51					
DENS				4.01			4.09		3.85						

COMMENTS: THE TWO DIMENSIONAL TOPOGRAPHY WAS APPROXIMATED BY A LEES HILL 305 METERS HIGH WITH X/H = 1.0 AND B/H = 2.0, INCREASING THE HEAT FLOW FROM 1.14 TO 1.2. THE BEST VALUE FOR THE HEAT FLOW FOR MT. NEWMAN DH-48 AND DH-73 IS 1.1.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
WA	YILGARN	MT. WINDARRA	M-298	28 29	122 14	447	112- 213	18	10.54	9.90	1.04
								ERROR	0.64	0.05	0.06

COMPLETED ON OR BEFORE: ? MEASURED: 07/12/71 STATIC WATER LEVEL: 19.

REFERENCE:

GEOLOGY: 0-213; ULTRAMAFIC, MAFIC AND INTERMEDIATE ROCKS.

TEMPERATURE												
DEPTH	19.23	25.63	31.90	38.16	44.42	50.68	56.88	63.09	69.29	75.49	81.64	87.78
TEMP	25.291	25.291	25.299	25.311	25.325	25.345	25.365	25.390	25.422	25.453	25.484	25.522
DEPTH	93.93	100.07	106.14	112.20	118.27	124.34	130.30	136.26	142.23	148.19	153.98	159.78
TEMP	25.559	25.596	25.635	25.674	25.731	25.787	25.842	25.905	25.971	26.034	26.082	26.138
DEPTH	165.57	171.37	177.39	183.42	189.44	195.47	201.77	208.06	212.10			
TEMP	26.201	26.259	26.323	26.387	26.442	26.500	26.559	26.613	26.646			

CONDUCTIVITY AND DENSITY															
DEPTH	49.43	60.60	70.53	80.41	90.24	101.53	110.02	120.21	129.11	136.98	148.42	157.46	166.73	176.19	185.83
COND	8.12	12.66	10.54	11.28	8.30	15.25	13.00	7.71	20.08	7.46	8.92	14.40	8.66	10.44	14.17
DENS	3.02	2.86	3.00	2.97	3.07	2.93	2.85		2.26	2.97	2.94	2.84	3.01	2.80	2.83
DEPTH	195.47	205.54	208.32												
COND	9.43	10.22	12.84												
DENS	2.80	2.79	2.81												

DIP ANGLE										
DEPTH	0	30	60	91	121	152	182	213	243	271
ANGLE	58.0	56.5	54.0	55.0	52.5	53.0	50.0	49.0	55.5	56.0

COMMENTS: THE MEAN HEAT FLOW FOR MT. WINDARRA M-298 AND W-328 IS 0.96.

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR
WA	YILGARN	MT. WINDARA	W-328	28 30	122 14	443	42- 175	11	9.93	8.98	0.89
								ERROR	0.72	0.05	0.06
							175- 318	12	9.23	10.50	0.97
								ERROR	0.85	0.04	0.09

COMPLETED ON OR BEFORE: ? MEASURED: 07/12/71 STATIC WATER LEVEL: 21.

REFERENCE:

GEOLOGY: 0-318, ULTRAMAFIC AND INTERMEDIATE ROCKS.

TEMPERATURE												
DEPTH	21.18	28.24	35.26	42.28	49.31	56.33	63.38	70.43	77.49	84.54	91.57	98.59
TEMP	24.647	24.869	24.956	25.054	25.121	25.177	25.243	25.305	25.362	25.417	25.469	25.533
DEPTH	105.62	112.65	119.62	126.60	133.57	140.55	147.49	154.44	161.39	168.34	175.24	182.13
TEMP	25.602	25.670	25.738	25.796	25.857	25.924	25.991	26.057	26.125	26.185	26.250	26.327
DEPTH	189.03	195.93	202.83	209.72	216.62	223.52	230.38	237.24	244.10	250.96	257.82	264.68
TEMP	26.396	26.467	26.542	26.599	26.678	26.753	26.828	26.913	26.974	27.052	27.126	27.197
DEPTH	271.54	278.40	285.26	292.12	298.98	305.84	312.70	318.19				
TEMP	27.271	27.347	27.414	27.475	27.553	27.630	27.682	27.733				

CONDUCTIVITY AND DENSITY														
DEPTH	28.24	42.28	56.33	70.43	84.54	98.59	112.65	126.60	140.55	154.44	168.34	182.13	195.93	209.72
COND	10.85	8.82	8.67	8.02	9.22	11.29	8.54	8.81	15.89	19.31	8.38	10.02	8.40	11.99
DENS	2.89	3.01	2.87	2.70	2.77	2.82	2.72	2.75	2.94	2.95	2.85	2.78	2.72	2.81
DEPTH	237.24	250.96	264.68	278.40	292.12	305.84	312.70	317.09						
COND	8.08	10.46	18.04	5.75	10.47	6.64	17.06	7.67						
DENS	2.70	2.86	2.90	2.81	3.41		2.67	2.67						

DIP ANGLE									
DEPTH	0	30	60	91	121	152	182	243	304
ANGLE	69.0	66.8	67.5	68.0	66.5	66.0	65.5	64.2	64.2

COMMENTS: THE MEAN HEAT FLOW FOR MT. WINDARRA M-298 AND W-328 IS 0.96.

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR
WA	YILGARN	WANAWAY	W-10E	31 38	121 32	371	45- 513	33	6.89	11.83	0.82
								ERROR	0.20	0.05	0.02

COMPLETED ON OR BEFORE: 10/70 MEASURED: 09/07/71 STATIC WATER LEVEL: 45.

REFERENCE:

GEOLOGY: 0-57, ULTRAMAFIC ROCKS. 57-104, AMPHIBOLITE. 104-115, SEDIMENTARY ROCKS. 115-153, DOLERITE. 153-155, AMPHIBOLITE. 155-398, DOLERITE WITH AMPHIBOLITE. 398-403, SEDIMENTARY ROCKS. 403-513, ULTRAMAFIC ROCKS.

TEMPERATURE

DEPTH	44.64	59.52	74.30	89.09	103.66	118.24	132.81	147.39	161.80	176.21	190.62	205.03
TEMP	21.442	21.552	21.706	21.890	22.072	22.227	22.401	22.585	22.778	22.947	23.123	23.301
DEPTH	219.25	233.48	247.40	261.33	275.25	289.17	302.81	316.45	330.09	343.73	356.92	370.12
TEMP	23.500	23.661	23.845	24.018	24.193	24.358	24.514	24.647	24.850	25.007	25.162	25.318
DEPTH	382.90	395.68	408.47	421.25	433.65	446.06	458.47	470.88	482.84	494.81	506.78	512.76
TEMP	25.472	25.596	25.739	25.868	25.994	26.135	26.293	26.381	26.515	26.663	26.817	26.893

CONDUCTIVITY AND DENSITY

DEPTH	58.92	74.30	91.42	102.79	119.11	132.52	147.09	161.80	176.21	190.62	205.31	221.81	232.91	247.40	262.16
COND	6.36	5.30	5.55	6.12	8.86	7.46	7.04	6.58	6.73	6.87	6.60	6.94	6.17	6.65	6.26
DENS	3.00	2.88	2.82	2.81	2.97	2.94	2.97	2.94	2.93	2.98	2.94	2.98	2.95	2.99	2.93
DEPTH	275.53	289.17	302.81	333.09	345.57	355.60	368.01	381.11	395.43	408.21	421.25	433.16	446.31	458.47	470.88
COND	5.61	6.64	7.60	6.86	6.59	7.23	5.71	8.88	8.16	8.69	8.90	9.20	8.77	8.59	9.51
DENS	2.92	3.08	2.97	2.96	2.95	2.97	2.94	2.90	2.68	2.96	2.93	2.77	2.82	2.75	2.65
DEPTH	494.57	506.78	517.55												
COND	5.88	5.79	5.65												
DENS	3.00	2.95	3.08												

DIP ANGLE

DEPTH	0	30	60	91	152	213	243	304	365	396	457	518	548
ANGLE	77.0	78.0	77.0	75.0	71.0	71.0	67.0	65.0	62.0	58.0	56.0	53.0	50.5

STATE	TECT UNIT	LOCALITY	HOLE NO	<u>S LAT</u> DEG MIN	<u>E LONG</u> DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	<u>HEAT FLOW</u> UNC CORR	
WA	YILGARN	WIDGIEMOOLTHA	W 474A	31 31	121 35	317	39- 110	12	9.21	8.26	0.76	
								ERROR	0.79	0.07	0.07	

COMPLETED ON OR BEFORE: ? MEASURED: 06/07/71 STATIC WATER LEVEL: 13.

REFERENCE:

GEOLOGY: 0-110, ULTRAMAFIC ROCKS WITH BANDS OF SEDIMENTARY ROCKS.

TEMPERATURE

DEPTH	13.04	17.39	21.74	26.16	30.58	35.01	39.43	43.85	48.31	52.77	57.22	61.68
TEMP	21.558	21.570	21.584	21.608	21.649	21.690	21.738	21.777	21.818	21.860	21.905	21.935
DEPTH	66.14	70.62	75.09	79.57	84.05	88.52	92.93	97.33	101.73	106.14	110.54	
TEMP	21.973	22.013	22.047	22.084	22.124	22.161	22.193	22.227	22.263	22.293	22.324	

CONDUCTIVITY AND DENSITY

DEPTH	22.85	31.25	49.42	56.56	67.26	73.97	88.52	90.95	96.23	104.38	107.90	111.42
COND	8.30	7.80	13.12	7.75	16.95	15.94	8.21	8.69	13.81	6.70	8.26	6.78
DENS	2.83	2.81	2.86	3.05	2.87	2.87	2.68	2.82	2.89	2.64	2.66	2.87

DIP ANGLE

DEPTH	0	30	60	91	121	152
ANGLE	45.0	46.0	47.0	47.0	47.5	45.0

STATE	TECT UNIT	LOCALITY	HOLE NO	S LAT DEG MIN	E LONG DEG MIN	ELEV	DEPTH RANGE	N	COND	GRAD	HEAT FLOW UNC CORR	
WA	YILGARN	YAKABINDIE	SMD 356A	27 35	120 34	536	89- 235	8	8.12	10.20	0.83	
								ERROR	0.22	0.09	0.02	

COMPLETED ON OR BEFORE: 05/15/71 MEASURED: 07/27/71 STATIC WATER LEVEL: 35.

REFERENCE:

GEOLOGY: 0-235, ULTRAMAFIC ROCKS WITH INTERBEDDED SEDIMENTARY ROCKS.

TEMPERATURE

DEPTH	35.19	41.11	47.04	53.04	59.05	65.05	71.06	77.06	89.07	95.07	101.06	107.04
TEMP	25.234	25.506	25.573	25.686	25.918	25.917	25.877	25.934	25.973	26.025	26.083	26.136
DEPTH	113.03	119.01	125.04	131.06	137.09	143.11	149.16	155.20	161.25	167.29	173.42	179.54
TEMP	26.182	26.238	26.301	26.363	26.429	26.517	26.572	26.628	26.682	26.729	26.864	26.913
DEPTH	185.67	191.79	197.94	204.08	210.23	216.37	222.52	228.66	234.81			
TEMP	26.963	27.012	27.060	27.117	27.204	27.257	27.310	27.367	27.417			

CONDUCTIVITY AND DENSITY

DEPTH	61.45	71.06	83.06	96.51	109.20	119.73	131.06	143.11	155.20	167.29	179.54	191.79	204.08	216.37	228.66
COND	11.01	8.60	8.44	8.70	7.43	7.38	8.08	7.76	7.32	8.57	9.51	16.24	15.26	11.63	14.73
DENS	2.79	2.56	2.57	2.44	2.64	2.60	2.50	2.55	2.73	2.77	2.65	2.92	2.91	2.94	2.97
DEPTH	234.81														
COND	10.17														
DENS	2.89														

DIP ANGLE

DEPTH	0	30	60	91	121	152	182	213	243	274
ANGLE	50.0	50.0	52.0	52.0	52.0	51.5	53.0	52.0	55.0	52.5

COMMENTS: THE LATITUDE OF YAKABINDIE SMD 356A IS UNCERTAIN. THE HOLE IS WITHIN A FEW KILOMETERS OF MT. GOODE MGD 22B. MEAN HEAT FLOW FOR YAKABINDIE SMD 356A AND MT. GOODE MGD 22B IS 0.82.

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