COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF NATIONAL DEVELOPMENT

BUREAU OF MINERAL RESOURCES GEOLOGY AND GEOPHYSICS

RECORDS:

1966/151

CHEMICAL INVESTIGATIONS DURING THE YEAR 1960

Compiled by

E. Woodhead

5928/65

CHEMICAL INVESTIGATIONS DURING THE YEAR 1960

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RECORDS 1966/151

The Record consists of reports completed by the chemical personnel of the Bureau Laboratory, during 1960. The reports are in chronological order.

CHEMICAL INVESTIGATIONS DURING THE YEAR 1960

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Report No1 January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLR FOR AGE DETERMINATION.

by

A. McClure

The sample No.E53/8/2 was submitted by C. Bennett of Broken Hill Pty Co.Ltd., in August, 1959. Locality: Northern Territory. Sheet: Calvert Hills, Pandanus Creek Area. Results are as follows:

SiO_2	67.29
Al_2O_3	14.78
Fe_2O_3	1.20
FeO	3.18
MgO	1.91
CaO	2.76
Na_2O	3.08
K_2O	4.11
H_2O (105°)	0.04
H_2O	1.25
TiO_2	0.49
P_2O_5	0.08
MnO	0.01
Total	100.18

Lab. No.60/822.

Report No. 2. January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by A. McClure

The sample No H51/13/149 was submitted by E.J. Malone, August,1959. Locality, Western Australia. Sheet, H/51/13. Results are as follows:

SiO_2	73.56
Al_2O_3	12.85
Fe_2O_3	1.71
FeO	1.33
MgO	0.71
CaO	1.57
Na_2O	3.39
K_2O	4.32
H_2O (105°)	0.05
H_2O +	0.36
TiO_2	0.38
P_2O_5	0.01
MnO	0.01
Total	100.25

Lab. No. 60/824.

Report No.3 7th January, 1960.
107N/1

ANALYSIS OF TWO DIATOMITE SAMPLES

by

A. McClure

Two samples were submitted by W.S. McColl, of Sydney.
Locations: Sample No.1. Malcha Gundle, N.S.W.,
Sample No.2 Paling Yard Creek, Cargo Road, Bowan Down. N.S.W.

Results:

	Sample 1.	Sample 2.
SiO_2	81.68	79.77
Al_2O_3	7.98	4.94
Fe_2O_3	1.09	1.01
CaO	0.32	0.26
MgO	0.00	0.00
Na_2O	0.18	0.24
K_2O	0.34	0.23
MnO	0.02	0.01
TiO_2	0.36	0.15
P_2O_5	0.00	0.00
Loss 105^o	2.73	7.16
Loss 1000^o	5.73	6.23
Total	100.43%	100.00%

Report No.4. January. 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

Sample No. H51/13/151 was submitted by E.J. Malone, in August,1959.
Locality, Western Australia. Sheet. H51/13. The results are -

SiO_2	71.56
Al_2O_3	14.72
Fe_2O_3	1.75
FeO	1.32
MgO	0.50
CaO	1.46
Na_2O	3.65
K_2O	4.79
H_2O (105^o)	0.03
H_2O +	0.32
TiO_2	0.42
P_2O_5	0.07
MnO	0.05
Total	100.64.

Lab. No. 60/823.

Report No.5 January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure.

Sample No. E55/13/2 was submitted by C. Branch, in September, 1958.
Locality: Queensland, Sheet, Clarke River, Run 4, Photo 5155.
Quod. C. X 3.17: Y.1.66. Diag. 3.56.

Results are as follows:

SiO_2	72.63
Al_2O_3	14.38
Fe_2O_3	1.08
FeO	0.96
MgO	0.43
CaO	1.94
Na_2O	4.10
K_2O	3.54
H_2O (105°)	0.04
H_2O +	0.62
TiO_2	0.14
P_2O_5	0;03
MnO	0.08
Total	99.97.

Lab.No. 60/830.

Report No.6 January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure.

Sample Np E55/9/10 was submitted by C. Branch, in September, 1958.
Locality: Queensland. Sheet, Einasleigh. Run 12, Photo 5089.
Results are as follows:

SiO_2	72.34
Al_2O_3	13.84
Fe_2O_3	0.82
FeO	2.29
MgO	0.71
CaO	2.02
Na_2O	3.33
K_2O +	3.69
H_2O (105°)	0.05
H_2O	0.62
TiO_2	0.24
P_2O_5	0.03
MnO	0.06
Total	100.04

Lab. No. 60/826.

Report No.7. January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure

Sample No. E55/9/5 was submitted by C.Branch in September, 1958.
Locality: Queensland, Sheet: Einasleigh. Run 15, Photo 5047.
Quad 0 X 1.64, Y 2.14. Diag. 2.70.
Results are as follows:

SiO_2	71.70
Al_2O_3	14.76
Fe_2O_3	0.64
FeO	2.08
MgO	0.88
CaO	2.86
Na_2O	3.62
K_2O	2.54
H_2O (105°)	0.02
H_2O +	0.56
TiO_2	0.23
P_2O_5	0.03
MnO	0.08
Total	100.00

Lab. No. 60/828.

Report No.8. January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A.McClure

Sample No. E54/12/8 was submitted by C. Branch, in September, 1958.
Locality: Queensland, Sheet, Georgetown. Run 12. Photo 5077.
Quod P.P. XO YO Diag 0.
Results are as follows:

SiO_2	75.06
Al_2O_3	14.01
Fe_2O_3	0.87
FeO	0.40
MgO	0.16
CaO	1.13
Na_2O	4.05
K_2O	3.94
H_2O (105°)	0.00
H_2O +	0.41
TiO_2	0.02
P_2O_5	0.02
MnO	0.01
Total	100.08

Lab. No.60/825.

Report No.9. January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure

Sample No. E54/12/3 was submitted by C. Branch in September, 1958.
Locality: Queensland, Sheet, Georgetown. Run 4, Photo 5153.
Quad B X 3.22 Y 3.18. Diag. 4.54
Results are as follows:

SiO_2	73.79
Al_2O_3	15.28
Fe_2O_3	0.62
FeO	1.21
MgO	0.42
CaO	1.83
Na_2O	4.86
K_2O	2.06
H_2O (105°)	0.02
H_2O +	0.42
TiO_2	0.12
P_2O_5	0.03
MnO	0.04
Total	100.70

Lab. No.60/827.

Report No.10. January, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A.McClure

Locality: Queensland, Sheet: Georgetown. Run 3. Photo 5107,
Quad C X 1.38. Y 0.91. Diag. 1.66.
Sample No. E54/12/5 was submitted by C. Branch, in September 1958.
Results are as follows:

SiO_2	71.82
Al_2O_3	14.09
Fe_2O_3	0.75
FeO	1.32
MgO	0.45
CaO	1.38
Na_2O	2.57
K_2O	6.61
H_2O (105°)	0.02
H_2O +	0.93
TiO_2	0.19
P_2O_5	0.03
MnO	0.04
Total	100.20.

Lab. 60/829

Report No.11 1st February, 1960.

WATER ANALYSIS ON BRINES FROM ANTARCTICA

by

.A. McClure

The following are analytical results for brines from the Vestfold Hills, Antarctica; and for seawater also from Antarctica. The samples were submitted by I.R. McLeod.

Club Lake

Ion	Collected 23.9.59.		Collected 5.1.60		Collected 1.2.60.	
	gm/litre	me/litre	gm/litre	me/litre	gm/litre	me/litre
Na^+	78.4	3409	78.4	3409	78.4	3409
K^+	3.69	94.4	3.69	94.4	3.66	93.8
Ca^{++}	2.074	103.7	2.108	105.4	2.121	106.1
Mg^{++}	14.50	1192.0	14.62	1202	14.61	1202
Sum of Cations		4799.1		4810.8		4810.9
Cl'	167.0	4704	168.0	4732	167.8	4726
SO''_4	2.658	55.4	2.683	55.9	2.691	56.1
HCO'_3	0.204	3.54	2.204	3.34	0.204	3.34
		4762.7		4791.2		4785.4
Sum of Anions						
Calculated total salts.	268.526		269.705		269.496	
Salts at 180^o	264.92		267.44		268.12	
Br'	0.704		0.708		0.715	

Deep Lake

Ion	Collected 30.5.59		Collected 5.1.60		Collected 1.2.60.	
	gm/litre	me/litre	gm/litre	me/litre	gm/litre	me/litre
Na^+	76.4	3322	70.8	3078	74.8	3252
K^+	3.79	96.9	3.52	90.0	3.74	95.6
Ca^{++}	2.260	113.0	2.070	103.5	2.205	110.3
Mg^{++}	15.00	1234	13.67	1124	15.02	1235
Sum of Cations		4665.9		4395.5		4692.9
Cl'	167.4	4715	155.6	4383	166.8	4699
SO''_4	2.724	56.8	2.526	52.6	2.716	56.6
HCO'_3	0.254	4.16	0.238	3.90	0.252	4.13
Sum of Anions		4775.9		4449.5		4759.7
Calculated total salts	267.828		248.424		265.513	
Salts at 180^o	270.80		251.48		264.36	
Br'	0.561		0.534		0.565.	

Report 11. (Cont.)

Surface Seawater

Ion	Western edge of Dibble Glacier Tongue, Wilkes Coast, Antarctica.		Lewis Island Anchorage, Davis Bay, Wilkes Coast, Antarctica.	
	gm/litre	me/litre	gm/litre	me/litre
Na^+	10.72	466.1	10.72	466.1
K^+	0.397	10.15	0.394	10.08
Ca^{++}	0.413	20.65	0.414	20.70
Mg^{++}	1.30	107.	1.30	107
Sum of Cations		593.90		593.88
Cl^-	19.528	550.1	19.544	550.5
SO_4^{--}	2.744	57.17	2.753	57.35
HCO_3^-	0.141	2.31	0.141	2.31
Sum of Anions		609.58		610.16
Calculated total salts	35.243		35.266	
Salts at 180°	35.758		35.736	
Br^-	0.0696		0.0696	

Lake Dingle

Ion	Collected 15/11/59		Collected 5/1/60		Collected 1/2/60.	
	gm/litre	me/litre	gm/litre	me/litre	gm/litre	me/litre
Na^+	32.30	1404	60.8	2643.5	60	2609
K^+	1.04	26.6	1.97	50.4	1.97	50.4
Ca^{++}	1.016	50.8	2.024	101.2	2.024	101.2
Mg^{++}	4.535	373.2	8.810	724.5	8.886	730.9
Sums of Cations		1854.6		3519.6		3491.5
Cl^-	64.0	1794	124.0	3496	124.5	3507
SO_4^{--}	2.354	49.0	2.625	54.7	2.617	54.5
HCO_3^-	0.074	1.21	0.163	2.67	0.165	2.70
Sums of Anions		1844.2		3553.4		3564.2
Calculated total salts.	105.319		200.392		200.162.	
Salts at 180°	104.52		201.92		200.80	
Br^-	0.207		0.403		0.402	

Report No.11. (Cont.)

Lake Stinear

Ion	Collected 30/8/59		Collected 5/1/60		Collected 1/2/60	
	gm/litre	me/litre	gm/litre	me/litre	gm/litre	me/litre
Na^+	72.2	3139	68.4	2974	68.4	2974
K^+	2.37	60.5	2.30	58.8	2.30	58.8
Ca^{++}	2.021	101.1	2.091	104.5	2.10	105.
Mg^{++}	10.373	853.1	9.89	813.4	9.924	816.2
Sum of Cations		4153.7		3950.7		3954.0
Cl'	147.7	4160	140.4	3955	140.7	3963
SO''_4	2.543	53	2.477	51.6	2.477	51.6
HCO_3	0.184	3.02	0.176	2.88	0.171	2.80
Sum of Anions		4216.0		4009.5		4017.4
Calculated total salts.	237.391		225.734		226.072	
Salts at 180°	236.08		225.72		227.64	
Br'	0.486		0.461		0.461.	

Meltwater Lake. Davis Island Vincennes Bay, Knox Coast.

Ion	gm/litre	me/litre
Na^+	0.135	5.87
K^+	0.0037	0.09
Ca^{++}	0.01	0.50
Mg^{++}	0.02	1.64
Sum of Cations		8.10
Cl'	0.280	7.90
SO''_4	0.064	1.333
HCO_3	0.007	0.11
		9.333
Sum of Anions		
Calculated total salts	0.520	
Salts at 180°	0.514	

Report No.11.

Lake 27 metres east of Club Lake. 25/11/59.

Ion	gm/litre	me/litre
Na^+	16.60	722
K^+	2.40	61.4
Ca^{++}	0.501	25.05
Mg^{++}	2.37	194.9
Sum of Cations		1003.35
Cl'	35.46	1000
SO''_4	1.121	23.35
HCO'_3	0.079	1.294
Sum of Anions		1024.644
Calculated total salts	58.531	
Salts at 180^o	57.56	

Clear Lake 1/2/60.

Ion	gm/litre	me/litre
Na^+	2.320	108.7
K^+	0.032	0.8
Ca^{++}	0.0306	1.53
Mg^{++}	0.35	28.80
Sum of Cations		139,83
Cl'	4.67	131.60
SO''_4	0.465	9.687
HCO'_3	0.346	5.67
Sum of Anions		146,957
Calculated total salts	8.189	
Salts at 180^o	8.442.	
Br'	0.0121.	

Note. Powerful smell of H_2S when bottle was opened.

Report No.12. 9th February, 1960.

ANALYSIS OF A BORE WATER SAMPLE FROM "THE KURRAJONG". N.W.W

by

D.A.Anderson

The following chemical results were obtained for a sample of water collected from a bore at "The Kurrajong", Weir, N.S.W., by E.G. Wilson on 25th January, 1960.

	Parts per million	milli equivalent/litre
Sodium (as Na)	36	1.6
Potassium (as K)	2	0.1
Calcium (as Ca)	109	5.5
Magnesium (as Mg)	74	6.1
		13.3
Chloride (as Cl)	70	2.0
Sulphate (as SO_4)	27	0.6
Carbonate (as CO_3)	nil	nil
Bicarbonate (as HCO_3)	705	11.5
		14.1
Total Soluble Salts (180°C)	746	-
Conductivity at 25°C	1140 micromho	
Reaction pH = 7.15		
Bottle Ref. No. L3.		

Report No.13. 12th February. 1960.

ANALYSIS OF A WATER SAMPLE FROM SPIRIT HILL NO. 1. BORE

by

D.A.Anderson

The following chemical results were obtained for a sample of water collected from Spirit Hill No.1 Bore at 2,261 feet. The sample was submitted by M.Konecki on behalf of Westralian Oil. Sample (1) quantity of oil on the surface which was extracted with benzene before analysis.

	Parts per million		milli-equivalents per litre	
	(1)	(2)	(1)	(2)
Calcium (Ca)	31	38	1.5	1.9
Magnesium (Mg)	39	34	3.2	2.8
Sodium (Na)	48	48	2.1	2.1
Potassium (K)	21	21	0.5	0.5
			7.3	7.3
Chloride (Cl)	15	17	0.4	0.5
Sulphate (SO_4)	1	5	-	0.1
Carbonate (CO_3)	58	58	1.9	1.9
Bicarbonate (HCO_3)	305	285	5.0	4.7
			7.3	7.2
Total Soluble Salts (180°C)	362	332		
Conductivity at 25°C	730 (1)	620(2) micromho		
Reaction pH =	8.3	8.4		

Report No.14. 18th February, 1960.

ANALYSIS OF FIVE WATER SAMPLES

by

S. Baker

Following are results for the analysis of five water samples, submitted by M. Konecki.

Sample	A	Innamincka	No.1	4390 - 9400
"	B	"	D.S.T. No.6.	6810-20 6830-50 6855-65 6875-95.
"	C	"	D.S.T. No.7	4495-5515
"	D	"	D.S.T. No.8	5040-55
"	E	"	D.S.T. No.9	4775-95

p.p.m.	A	B	C	D	E
Na^{+}	1968	2700	1930	2300	2300
K^{+}	37	65	44	56	58
Mg^{++}	1.2	3.6	1.2	1.1	1.1
Ca^{++}	48	48	37	43	43
Fe^{+++}	312	22	87	89	136
SiO_2	190	120	38	250	110
$Cl^{'}$	1546	3210	1600	1813	1820
SO^{-}_4	438	160	220	480	545
CO_3^{--}	459	nil	nil	476	120
HCO^{-}_3	1540	1720	2150	1940	1490
Dissolved - Solids	6300	7060	5500	7160	7020
pH	9.57	8.37	8.27	9.78	

Note: (1) All samples contained a considerable amount of suspended material, which was filtered off prior to analysis.

(s) Sample A had a distinct fishy odour.

Report No.15. 22nd February, 1960.

PARTIAL ANALYSIS OF A LATERITIC PROFILE FROM KOKODA. N.G.

by

S. Baker

Following are results for the partial analysis of a lateritic profile, from Kokoda, Headwaters Okawu Creek, submitted by J.E.Thompson.

Sample	Fe_2O_3	Al_2O_3	TiO_2	H_2O (100°C).
0-3'	7.59%	25.26%	0.17%	12.5%
3-6'	10.0	24.13	0.29	13.1
6-9'	9.8	23.62	0.22	12.9
9-12'	12.1	25.0	0.30	13.9
12-15'	11.3	19.43	0.27	2.5

Lab.No.60/871.

Report No.16. 1st March. 1960

ANALYSIS OF A WATER SAMPLE FROM THE MOLONGLO RIVER.

by

S. Baker

Following ~~are~~ the results of the analysis of Molonglo River water taken at Corkhills on 3/2/60.

Ca^{++}	p.p.m.	10 (0.5)
Mg^{++}	"	6 (0.5)
Na^{+}	"	14. (0.61)
K^{+}	"	2 (0.04)
Sr^{++}	"	0.3 (0.006)
Cl^{-}	"	26 (0.73)
SO^{-}_4	"	not detected
HCO^{-}_3	"	49 (0.80)
pH	"	8.3

Conductivity at 23°C 216 micromho

Note: Figures in brackets denote milliequivalent per litre.

Lab. No.60/872

Report No. 17

1st March, 1960
45ACT/1

ANALYSIS OF A SAMPLE OF BORE WATER FROM ROYALLA I.

by

S. Baker

Following are the results for the analysis of a bore water sample, from Royalla I, (Mr. J.R. Wells, "Mount Pleasant"), taken on February 3rd, 1960.

Ca^{++}	p.p.m.	6	(0.29)
Mg^{++}	"	7	(0.57)
Na^{+}	"	24	(1.04)
K^{+}	"	1	(0.02)
Sr^{++}	"	0. 5	(0.01)
Cl^{-}	"	40	(1.13)
SO_4^{--}	"	not detected	
HCO_3^{-}	"	60	(1.0)
pH	"	7.2	
Conductivity at 23°C		222	micromho

Note: Figures in brackets refer to milliequivalent per litre.

Lab. No.60/872

Report No.18.

1st March, 1960.
45ACT/1

ANALYSIS OF A SAMPLE OF BORE WATER FROM QUEANBEYAN I.

by

S. Baker

Following are the resultsfor the analysis of a bore water sample from Queanbeyan I, (Mr. P. Moore +Jerrabomberra") taken on February 3rd, 1960.

Ca^{++}	p.p.m.	185	(9.23)
Mg^{++}	"	76	(6.25)
Na^{+}	"	123	(5.35)
K^{+}	"	3	(0.07)
Sr^{++}	"	3	(0.06)
Cl^{-}	"	270	(7.61)
SO_4^{--}	"	57	(1.19)
HCO_3^{-}	"	713	(11.7)
pH		81	
Conductivity at 23°C		1920	micromho

Note: Figures in brackets are milliequivalent per litre.

Lab.No.60/872

Report No. 19.

1st March, 1960
45ACT/1

ANALYSIS OF A BORE WATER SAMPLE FROM ROYALLA 4.

by

S. Baker

Following are the results for the analysis of a bore water sample, from Royalla 4,(Mr. G. Gibbs, "Roselawn", Queanbeyan, taken on February 3rd. 1960.

Ca^{++}	p.p.m.	30	(1.5)
Mg^{++}	"	31	(2.55)
Na^{+}	"	44	(1.91)
K^{+}	"	3	(0.07)
Sr^{++}	"	1	(0.02)
Cl^{-}	"	60	(1.69)
SO_4^{--}	"	not detected	
HCO_3^{-}	"	250	(4.1)
pH		7.4	
Conductivity at 23°C		526 micromho	

Note: Figures in brackets are milliequivalent per litre.

Lab.No.60/872.

Report No.20.

3rd March, 1960

COPPER ASSAYS ON SOME ROCK SAMPLES

by

A. McClure

The following results are for copper analyses on rocks submitted by C. Branch.

Mewcastle Range area.

Sample No.	Copper, p.p.m.
B258	22
B259	28
B261	20
B266	22
B273	18
B282	48
B283	20
B286	34
B288	38
B295	22
97451	26

Ruddygore Area

Sample No.	Copper.p.p.m.
A346	14
A347	24
A348	32
A349	18
A350	28
A351	24
A352	760
A353	22
A355	20
A356	22

Report No.21. 4th March, 1966.

PARTICLE-SIZE ANALYSIS OF A SAMPLE OF RIVER GRAVEL.

by

A.D. Haldane

At the request of the Department of the Interior, Building Section a particle size analysis was carried out on a sample of river gravel intended for use as concrete aggregate. The following results were obtained.

Sieve aperture	%retained on
0.250 "	51.3
0.131	6.6
0.064	6.5
0.034	5.0
0.016	22.9
0.007	5.8
0.004	0.6
0.002	0.8
Base	0.5
	100.0

The material retained on the 0.25 in. sieve had a maximum size corresponding to a 3 inch square mesh. Subdivision of this fracture could nnt be carried out as there are no sieves greater than 0.25 inch available.

The above analysis gives the following aggregate composition -

gravel and pebbles	57.9%
coarse sand	34.4%
fine sand	7.2%
silt and clay	0.5%

Report Nop22. 14th March.1960.

PARTIAL ANALYSIS OF THREE ROCK SAMPLES FROM QUEENSLAND.

by

S. Baker

Following are results for the partial analysis of three samples submitted by M.A. Reynolds.

Sample	Tambo Qld 18a	18b	2 miles E. of Arrabury, Queensland.
SiO_2 percent	69.9	69.2	71.2
Fe_2O_3 "	4.43	6.23	6.41
Al_2O_3 "	15.4	13.5	10.89
TiO_2 "	1.1	0.97	1.0

All results refer to the samples dried to constant weight at 105°C.

Notes by M.A. Reynolds: Tambo 18a, 18b, samples were collected from the top of a section exposed in a scarp in the western part of Gartmore Station; the exposure is near the netting fence 5½ miles by track from the homestead.

18a: Top 5 feet of section where outcrop is brick-red, coarsely granular to finely brecciated porcellanitic rock;

18b: from upper part of underlying 20 feet of mpttled brick-red and light-coloured brecciated porcellanitic rock. 2 miles east of Arrabury Homestead. Samples ffom red ferruginised zone 3 feet thick below bed of calcareous tufa up to 10 feet thick in bed and banks of Arrabury Creek.

Lab.No.60/879.

Report No.23. 22nd March, 1960.

ANALYSIS OF TWO LIMESTONE SAMPLES

by

S. Baker

Following are results for the analysis of two limestone samples submitted by M.A. Reynolds.

Sample	6IL Millumgera	Exley
SiO_2	2.36	2.79
$CaCO_3$	90.5	90.1
$MgCo_3$	3.1	3.9
Fe_2O_3	0.70	0.60
Al_2O_3	1.40	-
Mn	0.70	0.10
H_2O (105°)	0.40	1.10

Lab. No.60/881

Report No.24. 31st March, 1960.

ANALYSIS OF BAUXITE SAMPLES

by

A. McClure

The analyses are on potential bauxites submitted and collected by G.A. Taylor in Rabaul. Samples are from the Baininga area: Location 41200, 853900 U.S. Army Provisional Map, Ataliklikun S415-E.15145/15.

Sample	Moisture on air dry sample (105°)	(Insolubles (in H_2SO_1) SiO_2	Al_2O_3	Fe_2O_3	Solubles (in H_2SO_1) Available Al_2O_3	Fe_2O_3	TiO_2	Loss on ignition (1000°)	Total
Soft yellow rock	28.06	33.58	9.45	1.13	27.96	10.80	1.56	15.52	99.28
Soft yellow rock	26.58	33.10	10.40	1.01	26.28	10.94	1.73	15.63	99.09
Grey clay	19.33	34.80	0.47	0.11	37.88	6.34	1.59	18.32	99.51

Results are calculated on a moisture free basis and summation does not include moisture found at 105°.

The sample of grey clay has an interesting content of alumina and warrants further examination.

Report No.25. 1st. April, 1960.

ANALYSIS OF FIVE SAMPLES FOR MANGANESE FROM W.A.

by

S. Baker

Following are the results for the determination of manganese on five samples, which were forwarded by the Geological Survey of Western Australia. As can be seen, there is good agreement between our results and those obtained at the Government Laboratory of Western Australia.

Sample No.	B.M.R.	Govt.Chem.Lab. W.A.
15131/59	0.64% Mn	0.65% Mn
319/60	1.20 "	0.87 "
15118/59	0.80 "	0.83 "
15113/59	0.16 "	0.15 "
15109/59	0.20 "	0.16 "

Lab. No. 60/505

Report No.26. **SILICATE ANALYSIS OF SOME MISCELLANEOUS ROCK SAMPLES.** 4th April, 1960

by

A. McClure

Results are for analyses of samples submitted by M. Reynolds.

Sample No.	Locality	SiO_2	Al_2O_3	Fe_2O_3	FeO	CaO	MgO	Na_2O	K_2O	TiO_2	P_2O_5	MnO	CO_2	So_3	Less 100^o	Less 1000^o	Total
ROM2 Efflorescence	Roma/Gingerboy 1 mile sheet 1¼ m.S.of Nareeten	26.40	7.07	1.18	n.d	33.00	1.05	0.84	1.26	0.36	0.03	0.02	22.20	n.d	0.50	28.98	100.69
S244 Spring Deposit	Springvale/ Warra Creek	5.55	4.29	0.82	n.d.	45.90	3.32	1.02	0.41	0.10	0.03	0.07	33.16	n.d.	0.49	38.50	100.50
1589 Evaporite	Machattie/ L.Machattie 4-m. sheet Old tank N.side of Lake.	10.74	3.38	1.03	n.d.	24.02	0.87	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.	35.16. 16.91		7.59	99.72
GILIA Limestone	Millungera/Wombat Springs.4-mile Sheet.5 m. S.of Pelham Montara Br.	15.96	5.01	3.00	n.d.	38.82	1.20	0,71	0.34	0.26	0.13	0.13	27.60	n.d.	1.32	32.62	99.50
ROM4 Clay coarse fraction	Roma/Gingerboy 1.m.sheet. 22. m.N.of Roma	55.26	17.85	2.52	0.18	1.61	1.94	0.90	0.40	0.52	0.02	0.01	n.d.	n.d.	12.08	6.53	99.82
ROM4 Clay	" "	51.09	21.94	2.13	0.21	1.69	1.80	0.88	0.59	0.28	0.04	0.02	n.d.	n.d.	10.50	8.19	99.36

n.d. = not determined. Note: loss at 1000^oC includes CO_2; therefore CO_2 figure is not included in total.

Report No.27

5th April. 1960.
78G/1

ANALYSIS OF SOIL SAMPLES FROM RABAUL.

by

A. McClure

The following results are for analysis of soil samples, submitted by J. Barrie from Rabaul.

Location of samples - Mandres Plantation - Tevalue River Area, New Guinea. Airphotos Nos. 42, 43 & 44 of Missionn576.
(Refer to map attached to Barrie's minute of 16th December, 1959, File 78G.1.)
Lab. Nos. 60/884 - 60/908;

Sample No.		SiO_2	Al_2O_3	Fe_2O_3	CaO	MgO	Loss 105°	Loss 1000°	Total.
60/884	B11	50.60	17.02	6.65	2.80	1.30	5.82	12.32	96.51
885	B12	50.70	16.44	7.05	3.03	1.24	7.06	11.34	96.86
886	B13	61.55	16.38	6.44	3.49	1.72	1.32	3.72	94.62
887	B14	52.95	18.98	7.94	2.98	1.05	6.51	6.87	97.28
889	B15	63.10	16.04	5.58	3.09	1.41	1.30	3.92	94.44
60/890	B16	60.50	17.00	5.72	2.72	1.35	2.36	5.70	95.35
891	B17	58.68	17.18	7.82	3.52	1.67	2.25	4.10	95.22
892	B18	51.55	18.96	6.56	2.88	1.19	6.94	9.51	97.59
893	B19	55.55	17.29	9.45	3.53	1.81	3.82	5.94	97.39
894	B20	56.20	17.34	7.54	2.82	1.45	5.55	6.89	97.79
895	B22	60.75	15.71	7.11	3.33	1.43	2,91	4.34	95.58
896	B23	58.15	16.74	8.34	2.85	1.71	3.94	5.96	97.69
897	B24	56.12	16.59	10.83	2.43	1.94	3.61	6.07	97.59
898	B25	50,00	18.25	12.33	2.48	2.23	5.56	7.22	98.07
899	B26	52.53	16.38	11.50	3.18	1.55	5.40	6.30	96.84
60/900	B27	52.61	18.45	10.83	2.11	1.88	4.57	7.61	98.06
901	B28	53.30	17.80	9.18	2.70	1.97	6.95	7.06	98.96
902	B29	54.88	16.44	11.36	2.79	1.97	1.92	8.98	98.34
903	B30A	52.58	19.31	10.43	1.88	1.93	6.22	7.52	99.87
904	B30B	63.09	16.46	5.74	3.75	1.47	1.04	3.32	94.87
905	B30C	52.58	17.56	9.94	2.13	1.65	6.59	7.32	97.77
906	B31	51.63	17.98	9.22	2.12	1.32	6.00	9.16	97.43
907	B32A	53.50	18.56	10.31	1.73	1.63	5.87	7.12	98.72
908	B32B	53.64	17.74	9.26	2.42	1.72	6.34	7.35	98.47

Report No.28 6th April, 1960.

ANALYSIS OF TEN WATER SAMPLES

by

D.A.Anderson

The following results are for water analysis carried out on samples from the following locations, submitted by M.C. Konecki.

Sample

1. From Betoota 1 DST No.1 3542' - 3563'
2. From last tank filled before well shut in at 12.30 a.m. 6/1/60 DST No.4 5656' - 5666' Port Campbell No.1.
3. From Port Campbell No.1 at 7.30; 3/1/60
4. From DST No.3 5695' - 5701' fluid sample from 2421 feet.
5. From just above Packer 5681 feet at DST No.3.
6. From 4780' Packed at 5681' DST No.3 5695' - 5701'.
7. From 1010' Packed at 5681' DST No.3 5695' - 5701'.
8. From flare line at 2.45 p.m. DST No.4.
9. From flare line at 1.30 p.m. 2/1/60, DST 4, Mines Department.
10. From Betoota No.1 Queensland. DST 3, 4779' - 4801'.

Sample No.	1		2		3		4		5	
	ppm-	me/litre	ppm-	me/litre.	ppm-	me/litre	ppm-	m/litre	ppm-	me/litre.
Na^+	1420	62.0	4200	183.0	8000	348.0	6100	265.0	6370	277.0
K^+	38	1.0	73	1.9	130	3.4	126	3.2	130	3.4
Ca^{++}	15	0.8	45	2.3	70	3.5	63	3.2	70	3.5
Mg^{++}	5	0.4	70	5.8	60	5.0	55	4.6	65	5.4
Total$^+$	-	64.2		193.0		359.9		276.0		289.3
Cl^-	1300	36.6	5486	154	8678	245.0	7442	210.0	7864	221.0
$SO^=_4$	55	1.1	46	1	122	2.6	95	2.0	85	1.8
$CO_3^=$	-	-	-	-	-	-	-	-	-	-
HCO_3	1620	26.5	2820	46	6700	111.0	4100	67.5	4130	67.5
Total$^-$		64.2		201		358.6		279.5		290.3
Conductivity at 24°C	5900 micromho		17900 microhmo		27000m/mho		24000mho		24000mho.	
pH at 24°C	8.3		7.8		7.85		8.00		7.85	
Total solids at 180°C	4090		11,828		18,000 ppm		16,320 ppm		17,151 ppm	

Sample No.	6		7		8		9		10	
	ppm-me/litre.		ppm-me/ltr.		ppm/me/ltre.		ppm-me/ltre.		ppm-me/ltre.	
Na^+	4300	196.0	6000	261.0	860	37.5	380	16.5	1440	62.6
K^+	106	2.7	134	3.5	41	1.0	25	0.6	30	0.8
Ca^{++}	35	1.8	13	0.7	35	1.8	95	4.8	20	1.0
Mg^{++}	55	4.6	53	4.4	12	1.0	17	1.4	4	0.3
Total$^+$	-	205.1	-	269.6	-	41.3	-	23.3	-	64.7
Cl^-	4919	138	7814	220.0	610	17.1	469	13.3	1630	46.0
$SO^=_4$	241	5.1	95	2.0	83	1.7	86	1.8	56	1.2
$CO^=_3$	-	-	-	-	-	-	-	-	-	-
HCO^-_3	4350	71.5	4310	71.0	1710	28.0	840	13.8	1043	17.2
Total		214.6	-	293.0	-	46.8	-	28.9	-	64.4
Conductivity at 24°C	17,300 mho		26.100 mho		4340 mho		3200 mho		6400 mho	
pH at 24°C	7.7		7.83		7.65		7.1		7.75	
Total Solids at 180°	12,950 ppm		17,216ppm		3330 ppm		1664 ppm		4326 ppm.	

mho = micromho.

Report No.29. 7th April, 1960.

ANALYSIS OF A BORE WATER SAMPLE FROM BORE 3. THE VALLEY, BUNGENDORE.

by

A. McClure

The following results are for the heavy metals content of a bore water sample submitted by G. Burton.

Location: Bore 3 of Mr. F.N. Braund, The Valley, Bungendore. N.S.W.

Sample No.L7.	Copper	0.03 ppm.
	Zinc	0.5 "
	Lead	Not detected.

Report No.30 9th May, 1960.

SULPHUR ASSAY ON A PYRITIC AGGREGATE

by

S. Baker

A sample of pyritic aggregate (7/8") from A.B.M. Quarry, Federal Highway, submitted by Mr. W. West, was analysed for sulphur with the following results.

Total sulphur 0.47%

(Calculated as FeS_2 0.89%).

Lab. No.60/920.

Report No.31.

REPORT ON BRINE AND OTHER SAMPLES FROM ANTARCTICA.

by

A.D. Haldane.

The following samples collected in Antarctica were submitted for analysis:

Lake Dingle, Vestfold Hills, 5 samples of brine collected over the period 19/4/57 to 23/12/58.
Lake Stinear, Vestfold Hills, 5 samples of brine collected over the period 14/3/57 to 23/12/58.
Club Lake, Vestfold Hills - 2 samples of brine collected over the period 28/9/57 to 2/1/58.
Deep Lake, Vestfold Hills - 5 samples of brine collected over the period 19/4/57 to 30/1/58.
Davis Station Anchorage - seawater sample, 17/2/59.
Beaver Lake, Prince Charles Mountains - 2 samples of water welling up through rafted zone and 2 samples of ice (as water) collected on 24/10/58 and 2/11/58.
Deep Lake, Vestfold Hills - soil sample taken 20 feet above the lake level.

Analyses for the major constituents were made by S. Baker, W.J.Thomas and A. McClure. The results obtained are shown in Table 1. The difference resulting from the ionic balance of anions and cations has been attributed entirely to errors in the determination of sodium and is shown in Table 1 as "Na correction". The values for the concentrations of the various ions are those actually determined. The "Na correction" is given to avoid residuals in calculations based on the original data and with the exception of one sample from Lake Dingle is less than 1% of the total. That is, the sum of the analytical errors of all determinations is less than 1% of the sum of the ions determined. The average composition of seawater was given by Dittmar is included for comparison.

Table 2 shows the composition of the samples calculated as a percentage of the total dissolved solids and gives a direct comparison of all samples independent of the concentration. In these and all other calculations the corrected value for sodium is used.

Considering the brine samples from Lake Dingle, Lake Stinear, Club Lake, and Deep Lake, it will be seen that although there is some variation in the concentration of the brines from a given lake, the composition is remarkably constant. Further Lake Dingle and Lake Stinear show a marked similarity in composition as do Club Lake and Deep Lake. However, the two groups are quite distinct in respect to both concentration and composition. This grouping is further demonstrated by the bromide concentration and Cl/Br ratio shown in Table 3.

It is possible that there is some seasonal variation in concentration of the brines. However, the data available are insufficient to clearly establish any such trends.

The seawater sample from Davis shows close agreement with Dittmar's average composition of seawater. The slightly higher percentage of sulphate and correspondingly lower chloride is in accord with the view that seawater in the arctic zones is enriched in sulphate.

From the data in Tables 2 and 3 for the two samples from Beaver Lake it is obvious that both these are diluted seawater. The dilution ratios are 31.1 for the sample collected on 24/10/58 and 22.7 for that of 2/11/58 assuming pure water as diluent. The analyses of the water obtained from the ice samples taken at Deep Lake show an extremely low salt content, because of this no significance can be attached to the results for the individual ions.

Analysis of the water soluble salts obtained from the soil sample taken above Deep Lake shows a composition closely approximating that of the Deep Lake brine, while the high total soluble salt content of 12.2% indicates saturation of the soils with brine at some time. It is also evicent that no leaching has taken place subsequent to exposure of the brine saturated soil. Water percolating through a soil such as this would rapidly become saturated with sodium chloride, the major component of the soluble salts, while remaining unsaturated with respect to the more readily soluble magnesium salts. This would lead to differential solution of the components giving a product depleted in magnesium. At the same time the relatively insoluble calcium sulphate would remain as a residue so that the soluble salts would become enriched in calcium. The observed results do not support this.

It is impossible for the present soluble salt content to be the result of the accumulation of salts from the evaporation of sea spray as these would then have the same percentage composition as sea water. Further, leaching of a saline deposit formed in this way would give a residue containing sodium chloride with a high proportion of calcium sulphate and practically no magnesium. This not in accord with the analytical results.

In order to compare the composition of the brines with that of seawater the individual results for each source have been averaged and are shown in Table 4.

In the concentration of sea water by evaporation bromide does not appear in the salts separating out before the final stages of the evaporation. In brine samples it is possible to assume that there has been no loss of the bromide ion, Potassium behaves similarly but may appear as complex salts in the solid phase before the final stages of concentration depending largely on the temperature of evaporation.

Assuming then that there is no loss of bromide ion it is possible to calculate the factor by which sea water has been concentrated to produce the present brines and at the same time determine the nature of the salts which have been deposited in the process. This has been done in Table 4. The concentrations of the ions are given in milli-equivalents/litre so that combination of anions and cations can be made directly.

The main feature of Table 4 relating to concentration and salt deposition are as follows:

	Concentration Ratio.	Deposited	Amount g/litre of brine.
Lake Dingle	6.8	Na_2SO_4	44
Lake Stinear	7.8	Na_2SO_4	53
Club Lake	11.0	Na_2SO_4	67
		NaCl	74
Deep Lake	11.0	Na_2SO_4	70
		NaCl	73

The amount above is the quantity deposited when a volume of sea water equal to the concentration ratio in litres is reduced to 1 litre.

In addition to the salts shown above small amounts of calcium carbonate and sulphate have been deposited. The approximate values are calcium carbonate 0.8 to 1.5 g/litre and calcium sulphate (as gypsum) 2 -8 g/litre of brine.

The agreement between the determined concentration of potassium in the brine and the expected value calculated from seawater is good, giving further support to the calculation of the concentration ratios as reasonably accurate estimates.

The determined values for magnesium in the brines are consistently higher than the calculated values suggesting that the calculated concentration ratios are too low. However, magnesium is one of the less satisfactory determinations in the presence of large excess of sodium and an error of 6% in the determination of magnesium would fully account for the differences. In view of this and that the calculations are not claimed to have a high order of accuracy but are average values, the concentration ratios based on bromine are retained. Equating the magnesium values would increase the concentration ratios by only 6%, if the possibility of systematic analytical errors is ignored.

It is concluded that the present brines have arisen by the evaporation of water from seawater with sodium sulphate alone or with sodium chloride being deposited in the process.

TABLE 1. Analysis of water samples and brines - concentrations of ions in g/litre.

Sample	Date	Ca, Sr	Mg	Na	K	HCO_3	SO_4	Cl, Br.	Na Corr.	Total	T.S.S. 120°C	T.S.S. 180°C
Brine, ex	19/4/57	2.1	10.0	68.8	2.2.	0.3	2.9	138.0	-0.3	224.0	-	-
Lake Dingle	27/6/57	2.1	9.9	70.8	2.2	0.3	2.8	138.0	-2.3	223.8	-	-
Vestfield Hills	28/9/57	1.9	8.9	55.1	1.9	0.3	2.5	109.8	-2.8	177.6	-	-
	4/1/58	2.4	9.7	62.9	2.2	0.4	2.9	140.1	+7.1	227.7	-	-
	23/12/58	2.0	8.7	62.1	2.0	0.2	2.9	124.2	nil	202.1	217.1	202.6
Brine ex -	14/3/57	2.1	10.5	74.8	2.3	0.3	2.8	152.2	+1.7	246.7	-	-
Lake Stinear	26/6/57	2.0	9.8	74.8	2.4	0.4	2.6	150.0	+1.8	243.8	-	-
Vestfold Hills	28/9/57	2.0	10.6	72.8	1.9	0.4	2.7	149.3	+2.0	241.7	-	-
	2/1/58	2.1	10.8	68.9	2.4	0.4	2.8	142.1	+3/4.6	230.1	-	-
	23/12/58	2.2	10.1	72.6	2.4	0.3	2.9	146.5	+0.7	237.7	255.9	239.3
Brine ex Club	28/9/57	2.0	14.6	74.8	3.7	0.4	2.7	163.5	+0.6	262.2	-	-
Lake, Vest.Hills.	2/1/58	1.9	14.9	78.7	3.8	0.3	2.9	167.0	-1.4	268.1	3/8	-
Brine ex -	19/4/57	2.1	15.4	76.9	3.9	0.3	2.7	170.0	+0.9	272.2	-	-
Deep Lake	28/9/57	2.2	15.3	72.8	3.8	0.4	2.9	164.0	+1.5	262.9	-	-
Vestfold Hills	2/1/58	3.0	14.8	74.7	3.7	0.4	2.8	162.0	-1.7	259.7	-	-
	23/12/58	2.3	14.0	74.5	3.8	0.3	3.2	161.6	+0.5	260.2	283.6	262.1
	30/1/59	2.2	14.8	76.4	3.9	0.3	3.1	167.0	+0.7	268.4	291.3	269.9
Seawater, Davis	17/2/59	0.40	1.28	10.67	0 34	0.19	2.73	19.08	+0.02	34.71	36.75	35.13
Seawater average.	Dittmar	0.41	1.30	10.81	0.39	0.14	2.71	19.47	nil	35.23	-	35.31
Water ex Beaver L.	24/10/58	0.012	0.032	0.343	0.010	0.006	0.086	0.626	nil	1.115	-	-
Prince Charles Mt.	2/11/58	0.016	0.044	0.470	0.010	0.008	0.130	0.850	nil	1.528	-	-
Ice ex	Normal	-0.1 ppm		0.003	0.002	nil	0.004	0.004	-	-	-	-
Beaver Lake	"Blue"	-0.1 ppm		0.002	0.001	nil	0.004	0.002	-	-	-	-

T.S.S. 120°C, T.S.S. 180°C - Total soluble salts dried at 120°C and 180°C.
Na Correction - Difference of Σ anions and Σ cations.

Analysis of Water Soluble Salts in soil from Deep Lake, Vestfold Hills. -

	Ca, Sr	Mg	Na	K	HCO_3	SO_4	Cl, Br.		Total	12.19.
%(air dry)	0.12	0.83	3.29	0.12	0.17	0.19	7.47	=		

TABLE 2. Percentage composition of soluble salts as % of the sum of the ions.

Sample	Date	Ca, Sr	Mg	Na	K	HCO_3	SO_4	Cl, Br.	Ions g/litre	S.G. $^{20}/_{30}$	Sp. Cond.
Brine ex	19/4/57	0.9	4.5	30.6	1.0	0.1	1.3	61.6	224.0		
Lake Dingle	27/6/57	0.9	4.4	30.6	1.0	0.1	1.3	61.7	223.8		
Vestfold Hills	28/9/57	1.1	5.0	29.4	1.1	0.2	1.4	61.8	177.6		
	4/1/58	1.0	4.3	30.7	1.0	0.2	1.3	61.5	227.7		
	23/12/58	1.0	4.3	30.7	1.0	0.1	1.4	61.5	202.1	1.136	1.60×10^5
Brine ex	14/3/57	0.9	4.3	31.0	0.9	0.1	1.1	61.7	246.7		
Lake Stinear	26/6/57	0.8	4.0	31.4	1.0	0.2	1.1	61.5	243.8		
Vestfold Hills	28/9/57	0.8	4.4	30.9	0.8	0.2	1.1	61.8	241.7		
	2/1/58	0.9	4.7	30.2	1.0	0.2	1.2	61.8	230.1		
	23/12/58	0.9	4.3	30.9	1.0	0.1	1.2	61.6	237.7	1.167	1.75×10^5
Brine ex Club L.	28/9/57	0.8	5.6	28.7	1.4	0.2	1.0	62.3	262.2		
Vestfold Hills	2/1/58	0.7	5.6	28.8	1.4	0.1	1.1	62.3	268.1		
Brine ex	19/4/57	0.8	5.7	28.6	1.4	0.1	1.0	62.4	272.2		
Deep Lake	28/9/57	0.8	5.8	28.3	1.4	0.1	1.1	62.4	262.9		
Vestfold Hills	2/1/58	1.2	5.7	28.1	1.4	0.1	1.1	62.4	259.7		
	23/12/58	0.9	5.4	28.8	1.5	0.1	1.2	62.1	260.2	1.171	1.72×10^5
	30/1/59	0.8	5.5	28.8	1.4	0.1	1.2	62.2	268.4	1.174	1.72×10^5
Seawater Davis	17/2/59	1.1	3.7	30.7	1.0	0.5	7.9	55.0	34.71	1.021	4.25×10^4
" average	Dittmar	1.1	3.7	30.7	1.1	0.4	7.7	55.3	35.23	1.024	
Water ex Beaver L.	24/10/58	1.1	2.9	30.7	0.9	0.6	7.7	56.1	1.115		1.83×10^3
Prince Charles Mt.	2/11/58	1.0	2.9	30.8	0.7	0.5	8.5	55.6	1.528		2.45×10^3
Ice ex Beaver L.	Normal	Calculation of % composition not warranted									31
	"Blue"										26
Soil, Deep Lake	-	1.0	6.8	27.0	1.0	1.4	1.6	61.2	12.2%		

Sp. Cond. - Specific conductivity in micro-mho at 20°C.

TABLE 3. Bromide Content and Cl/Br Ratio of Brines.

Sample		Br. g/l	Cl/Br g/l
Lake Dingle	23/12/58	0.44	283
Lake Stinear	23/12/58	0.52	284
Deep Lake	23/12/58	0.72	223
"	30/1/59	0.80	219
Seawater	17/2/59	0.67	282

TABLE 4. Average composition of brines and concentration ratio.

Sample		Ca Sr	Mg	Na	K	HCO_3	SO_4	Cl Br	Total	Br corr^d	Conc^n ratio
Lake Dingle	g/litre	2.10	9.44	64.28	2.10	0.30	2.80	130.03	211.05	0.46	
Vestfold Hills	m.e./litre	105	776	2795	54	5	58	3675		5.75	
	Seawater x 6.81	135	717	3160	59	21	388	3664		5.75	6.81
	Excess m.e./litre	35	-ve	365	5	16	330	11		nil	
Lake Stinear	g/litre	2.08	10.36	74.14	2.28	0.36	2.76	148.02	240.00	0.53	
Vestfold Hills	m.e./litre	104	853	3224	58	6	57	4163		6.59	
	Seawater x 7.80	154	821	3620	68	24	444	4197		6.59	7.80
	Excess m.e./litre	50	-ve	404	10	18	387	34		nil	
Club Lake	g/litre	1.95	14.75	76.25	3.75	0.35	2.80	165.25	265.10	n.d.	
Vestfold Hills	m.e./litre	98	1213	3316	96	6	58	4661			
	Seawater x 11.0	218	1159	5106	96	34	623	5919			11.0
	Excess m.e./litre	210	-ve	1790	nil	28	565	1258			
Deep Lake	g/litre	2.36	14.86	75.44	3.80	0.34	2.94	164.92	264.66	0.74	
Vestfold Hills	m.e./litre	118	1222	3280	97	6	61	4652		9.27	
	Seawater x 10.97	217	1156	5090	95	34	624	5903		9.27	10.97
	Excess m.e./litre	99	-ve	1810	-	28	563	1251		nil	
Seawater ex	g/litre	0.40	1.28	10.69	0.34	0.19	2.73	19.08	34.71	0.067	-
Davis	m.e./litre	19.8	105.2	464.4	8.7	3.1	56.9	538.1		0.845	

n.d. : not determined. -ve : negative.

Br corr^d : Br by analysis corrected to mean total of the ions.

m.e./litre : Milli-equivalents per litre.

Report No.32. 16th May, 1960.
1980/2.

ANALYSIS OF A CORDIERITE CONCENTRATE

by

A.McClure

The analysis of a Cordierite concentrate gave the following results. The analysis was done at the request of E.K. Carter.

Field No. 3772. Location, Cloncurry, Run 11A. Photo 5016, pt.7.

Quad C, X - 0.35, Y - 0.03, Diag. 0.35.

Lab.No.921.

SiO_2	64.80%
Al_2O_3	17.67
FeO	4.97
CaO	0.00
MgO	7.95
Na_2O	0.87
K_2O	1.05
Loss 100^o	0.00
Loss 1000^o	2.91
Total	100.22

Notes: 1. All the iron is calculated as ferrous oxide.

2. Concentrate was prepared by Dr.K. Walker, as follows:
   (a) handpicked crystals of cordierite.
   (b) crushed to pass 150 mesh,
   (c) magnetite removed with a hand magnet,
   (d) concentration of cordierite by three flotations with bromaform and centrifuging.

Estimated impurities less than 1%.

Lab. No.60/921.

Report No.33. 13th May, 1960.
106W/4.

ANALYSIS OF A SPECIMEN OF JARASITE ROCK.

by

A. McClure.

Analysis of a specimen of Jarasite gave the following results; analysis was requested by W. Dallwitz, and the rock was collected by M.A.Condon.

Sample No. G234. Location, Moogooree, W.A., Pt.C27, Photo 147, Run 2.

Coyrie Formation 3- 5 feet above base.

SiO_2	14.82%
Al_2O_3	14.67
Fe_2O_3	24.63
CaO	0.00
MgO	0.41
Na_2O	0.60
K_2O	7.16
SO_3	24.42
Loss 105^o	0.78
Loss 1000^o	36.40
Total	99.47

The summation does not include the SO_3 figure.

Lab. No.922.

Report No.34. May, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following results are for Sample No. E55/6/1, submitted by C. Branch, October, 1958.
Locality: Innisfail, Queensland. Run 3, Photo 5149. Quad C x 1.95, Y 1.16, Diag. 2.80.

SiO_2	71.60
Al_2O_3	15.43
Fe_2O_3	0.75
FeO	2.00
MgO	1.00
CaO	2.58
Na_2O	3.92
K_2O	1.26
H_2O (105°)	0.07
H_2O +	0.54
TiO_2	0.09
P_2O_5	0.05
MnO	0.16
Total	99.45

Lab. No.60/933.

Report No.35. May 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

S. Baker

The following results are for sample No.E55/5/12, submitted by C.Branch, October, 1958.
Locality: Atherton, Queensland, Run 6, Photo 5169. Quad.B. x 1.14 y 0.40. Diag. 1.20.

SiO_2	75.20
Al_2O_3	12.73
Fe_2O_3	0.07
FeO	1.48
MgO	0.60
CaO	1.34
Na_2O	3.39
K_2O	4.42
H_2O (105°)	0.05
H_2O +	0.44
TiO_2	0.05
P_2O_5	0.10
MnO	0.04
Total	99.91.

Lab.No.60/928.

Report No. 36 May 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

S. Baker

The following analysis is for sample No.E/55/5/9 submitted by C. Branch, in October, 1958. Locality, Atherton Queensland, Run 3. Photo 5123, Quda.C. x 1.41 Y 1.87. Diag. 2.35.

SiO_2	65.34
Al_2O_3	16.94
Fe_2O_3	1.50
FeO	3.85
MgO	2.40
CaO	2.35
Na_2O	3.60
K_2O	2.02
H_2O (105°)	0.08
H_2O +	1.03
TiO_2	0.11
P_2O_5	0.03
MnO	0.16
Total	99.41.

Lab. No. 60/935.

Report No.37. May 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

S. Baker

The following analysis is for Sample E55/1/2 submitted by C. Branch, September, 1958. Locality Mossman, Queensland. 4,-mile sheet. (Near Mareeba township two miles west of township in Granite Creek near Dimbulah/Mareeba Road Crossing).

SiO_2	73.02
Al_2O_3	14.32
Fe_2O_3	0.41
FeO	1.81
MgO	0.80
CaO	2.02
Na_2O	2.76
K_2O	3.92
H_2O (105°)	nil
H_2O +	0.67
TiO_2	0.11
P_2O_5	0.07
MnO	0.08
Total	99.99

Lab. No.60/926.

Report No.38

May 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following analysis is for sample No.E55/1/1, which was submitted by C. Branch, in September, 1958. Locality, Mossman 4-mile Sheet, at Mount Carbine.

SiO_2	73.64
Al_2O_3	14.40
Fe_2O_3	0.48
FeO	0.40
MgO	0.90
CaO	0.45
Na_2O	4.56
K_2O	3.79
H_2O (105°)	nil
H_2O +	0.84
TiO_2	0.03
P_2O_5	0.07
MnO	0.10
Total	99.66

Lab. No.60/931.

Report No.39.

May 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following results are for Sample E55/9/2, which was submitted by C. Branch, September, 1958. Locality, Einasleigh, Queensland. Run 5, Photo 5225, Quad A, x 0.50, Y 1.04, Diag. 1.16.

SiO_2	74.30
Al_2O_3	14.88
Fe_2O_3	0.37
FeO	0.07
MgO	1.20
CaO	0.33
Na_2O	3.52
K_2O	4.42
H_2O (105°)	0.08
H_2O +	0.51
TiO_2	0.04
P_2O_5	0.03
MnO	0.04
Total	100.19

Lab.No.60/932

Report No.40. May 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

S.Baker

The following analysis is for Sample No. E55/13/6, which was submitted by C. Branch, September 1958. Locality - Clarke River, Queensland. Run 10, Photo 5139.

SiO_2	69.14
Al_2O_3	16.11
Fe_2O_3	0.94
FeO	0.98
MgO	1.00
CaO	2.46
Na_2O	5.09
K_2O	2.53
H_2O (105°)	0.04
H_2O +	0.95
TiO_2	0.06
P_2O_5	0.09
MnO	0.09
Total	99.48

Lab. No.60/929.

Report No.41. May 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

S. Baker

The following analysis is for sample No.F54/6/2, which was submitted by E.K.Carter, August, 1958. Locality Duchess, Queensland. Run 4A, Photo 5214. Quad A, x 1.45 Y 1.6, Diag. 2.175.

SiO_2	72.50
Al_2O_3	13.26
Fe_2O_3	1.04
FeO	2.24
MgO	1.00
CaO	0.67
Na_2O	2.97
K_2O	5.33
H_2O (105°)	0.03
H_2O +	0.45
TiO_2	0.10
P_2O_5	0.06
MnO	0.15
Total	99.80

Lab.No. 60/930

Note: This is the third sample with the same sample number, received for analysis. The above analysis was undertaken on a small hand specimen.

Report No.42 May 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

S. Baker

The following analysis is for sample No.K55/7/1, which was submitted by the Mines staff of Aberfoyle Mine, Tasmania.

SiO_2	72.88
Al_2O_3	14.69
Fe_2O_3	0.95
FeO	0.78
MgO	1.40
CaO	0.45
Na_2O	1.58
K_2O	2.40
H_2O (105°)	1.12
H_2O +	2.71
TiO_2	0.04
P_2O_5	0.04
MnO	0.37
Total	99.41

Lab. No. 60/934.

Report No.43 18th May,1960

ANALYSIS OF A WATER SAMPLE FROM THANGOO

by

D.A. Anderson

The following results are for the analysis of a water sample sumbitted by M.C.Konecki, from Thangoo 1A DST 1A 340 - 3672.

Bottle No.1.	ppm	me/litre
Na	3720	162
K^+	85	2
Ca^{++}	535	27
Mg^{++}	88	7
		198
Cl^-	6460	182
$SO_4^=$	360	8
$CO_3^=$	nil	-
HCO_3^-	274	5
Total	11,522	195.

Conductivity at 20°C = 15,500 micro mhuo.
pH at 20°C = 7.18
Total salts at 180°C = 11.800 ppm.

Report No. 44.

18th May, 1960.
45ACT/1

ANALYSIS OF A WATER SAMPLE FROM MANTON GARAGE. YASS. N.S.W.

by

D.A. Anderson

The following results are for the analysis of a water sample submitted by Mr.G. Burton, and taken from Manton Garage, Yass, by Pacific Boring Co.Pty.Ltd.

	ppm	Me/litre
Na^+	58	2.5
K^+	1	-
Ca^{++}	194	9.7
Mg^{++}	70	5.8
		18.0
Cl^-	133	3.8
$SO^=_4$	320	6.7
$CO^=_3$	nil	-
HCO_3	474	7.8
Total	1259	18.3

Conductivity at 20°C = 1360 micro mhuo
pH at 20°C = 6.3
Total salts at 180°C = 1,140 ppm.

Hardness -		
	Temporary	384
	Permanent	391
	Total	775.

Report No.45

2nd June, 1960
64G/1

ANALYSIS OF PHOSPHATE SAMPLES FROM TUVUCA ISLAND. FIJI

by

A. McClure

The following are the results of Phosphate Analysis on samples submitted by O. Warin. Sample location: Tuvuca Island - Fiji.

Field No.	Auger Hole	Depth	P_2O_5%	Field No.	Auger hole	Depth	P_2O_5%
23	M1	8-20'	15.9	41	M8d	0 -4'	5.9
24	M1	2'	19.9	42	M8d	4'-8'	7.6
25	M1	20-24'	15.5	43	M8d	8 -16'	7.8
26	M1	24-28'	14.1	44	M8d	16-18'	7.9
27	M1	28-32'	2.1	45	M8e	0 - 12'	8.7
28	M1a	0 -20'	14.3	46	M7	0 -16'	6.9
29	M2	0 - 12'	20.6	47	M7b	0 - 16'	4.9
30	M2a	8 - 20'	22.9	48	M7c	0 - 4'	5.5
31	ST2	6'	3.9	49	M6	0 - 4'	8.0
32	ST3	4'	9.7	50	M6	4'- 8'	7.8
33	ST4	4'	12.4	51	M6	8 -12'	8.2
34	ST5	4'	9.5	52	M6	12 -16'	8.3
35	ST6	4'	3.4	53	M6	16 -19'	8.3
36	ST7	4'	2.3	54	M6b	0 - 3'	5.7
37	M8C	0 - 16'	10.5	55	N2)	Southern	0.4
38	M8f	0 - 9'	0.6	56	N3)		0.1
39	M8	0 - 20'	10.9	57	N4)	Basin	0.5
40	M8d	0 - 18'	10.3				

Lab.No.924. The results are calculated on an oven dried (105°) basis.

Report No 46. 14th June, 1960

ANALYSIS OF A SULPHIDE SAMPLE FROM AUSTRALIAN BLUE METAL QUARRY, A.C.T.

by

A. McClure

A sukphide determonation on a sample of three-eighths ($\frac{3}{8}$") of an inch Australian Blue Metal screenings from Mr. West, Department of Works Testing Laboratory, Barton, gave the following result:

Sulphide 0.73%

Sample location: Australian Blue Metal Quarry, A.C.T., Federal Highway, ten miles north of Canberra.

Lab. No.936.

Report No.47. 14th June, 1960.
64G/1

MANGANESE ANALYSIS OF NODULES FROM TUVUCA ISLAND. FIJI.

by

A. McClure

The following is the result of a manganese analysis on nodules submitted by O. Warin.

Sample Location: Tuvuca Island, Fiji. (see Records 1960/60)

Field No.	Auger Hole	MnO_2%
58	M	7.05

Sample dried at 105°.

Lab.No.925.

Report No.48 14th June, 1960

ANALYSIS OF A WATER SAMPLE FROM A WATER WELL. EYRE No.1.

by

D.A.Anderson

The following are the results of a water analysis carried out on a sample submitted by M.C.Konecki from a Water Well, Eyre No.1.

Stratigraphy: 0 - 40' Pleistocene Shelly Limestone
40- 90' Wilson Bluff Limestone
Sample obtained from pump set at 80 feet in Wilson Bluff Limestone.

Analysis	p.p.m.	me/litre
Na^+	15,000	652
$K+$	600	15
Ca^{++}	718	36
Mg^{++}	1,840	153
		856
Cl^-	28,100	790
SO_4	3,710	77
CO_3	-	-
HCO_3	250	4
	50,218	871

Conductivity at 20°C = 52500 micro mhuo
pH at 20°C = 7.5
Total salts at 180°C = 50400 p.p.m.

Report No. 49 June, 1960.

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

The following analysis is for sample E54/12/1, which was submitted by C. Branch in September, 1958. The locality is Georgetown, Queensland, Run 13, Photo 5129. Quad A, X 040 Y1.05, Diag. 1.12.

SiO_2	76.36
Al_2O_3	13.41
Fe_2O_3	0.27
FeO	0.83
MgO	0.05
CaO	0.88
Na_2O	3.34
K_2O	5.21
H_2O (105°)	0.00
H_2O +	0.46
TiO_2	0.03
P_2O_5	0.03
MnO	0.05
Total	100.92

Lab.No.60/809.

Report No. 50. June, 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

The following analysis is for sample E54/12/6, submitted by C. Branch, September, 1958. Locality: Georgetown, Queensland, Run 5, Photo 5193, Quad B, X 1.66, Y 0.84. Diag. 1.85.

SiO_2	74.80
Al_2O_3	13.61
Fe_2O_3	0.09
FeO	1.30
MgO	0.53
CaO	1.67
Na_2O	2.62
K_2O	4.95
H_2O (105°)	0.09
H_2O +	0.70
TiO_2	0.09
P_2O_5	0.14
MnO	0.02
Total	100.61

Lab. No.60/810

Report No.51. June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A.McClure

The following analysis is for sample E54/12/10, submitted by C. Branch, in September, 1960. Location; Georgetown, Queensland. Run 3, Photo 5099. Quad C. X 3.86. Y 2.11, Diag. 4.40.

SiO_2	70.48
Al_2O_3	15.45
Fe_2O_3	0.80
FeO	1.73
MgO	0.85
CaO	2.64
Na_2O	4.58
K_2O	2.52
H_2O (105°)	0.04
H_2O +	0.98
TiO_2	0.15
P_2O_5	0.21
MnO	0.06
Total	100.49

Lab.No.60/811

Report No.52 June, 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure

The following analysis is for sample E55/5/13 which was submitted by C. Branch, in October, 1958. Location: Atherton, Queensland. Run 6, Photo 5167, Quad. C. X 4.12 Y 0.78. Diag 1.36.

SiO_2	75.56
Al_2O_3	12.89
Fe_2O_3	0.37
FeO	1.60
MgO	0.29
CaO	0.88
Na_2O	2.76
K_2O	4.95
H_2O (105°)	0.19
H_2O +	0.53
TiO_2	0.12
P_2O_5	0.07
MnO	0.01
Total	100.22

Lab. No.937

Report No.53 June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

The following analysis is for Sample E55/9/13, submitted by C. Branch, in September, 1958. Locality: Einasleigh, Queensland, Run 4, Photo 5153, Quad. A, X 2.30. Y 1.46. Diag. 2.75.

SiO_2	76.19
Al_2O_3	13.28
Fe_2O_3	0.57
FeO	0.50
MgO	0;05
CaO	0.40
Na_2O	3.93
K_2O	4.85
H_2O (105°)	0.13
H_2O +	0.58
TiO_2	0.02
P_2O_5	0.03
MnO	0.03
Total	100.56

Lab. No.941.

Report No.54 June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

By

A.McClure

The following analasis is for sample No.E55/9/11, submitted by C. Branch, September, 1958. Location: Einasleigh, Queensland. Run 3, Photo 5097, Quad. B. X 0.58, Y.0.85. Diag. 1.02.

	SiO_2	78.18
	Al_2O_3	12.74
	Fe_2O_3	0.51
*	MgO FeO	0.03 0.27
	CaO	0.38
	Na_2O	3.52
	K_2O	4.40
	H_2O (105°)	0.07
	H_2O +	0.52
	TiO_2	0.04
	P_2O_5	0.05
*	~~MnO~~	~~0.02~~
	Total	100.73

Lab. No. 60/814

Report No.55. June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

The following analysis is for sample No.E55/5/7, submitted by C. Branch in October, 1958. Location: Atherton, Queensland. Run 6, Photo 5185. Quad D. X 1.19. Y 0.08. Diag. 1.20.

SiO_2	73.84
Al_2O_3	13.72
Fe_2O_3	0.83
FeO	1.49
MgO	0.56
CaO	1.58
Na_2O	3.50
K_2O	4.26
H_2O (105°)	0.11
H_2O +	0.32
TiO_2	0.15
P_2O_5	0.14
MnO	0.06
Total	100.56

Lab. No.939

Report No. 56. June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

The following analysis isfor sample No.E55/5/6, submitted by C. Branch, in October 1958. Locality: Atherton, Queensland. Run 6. Photo 5185. Quad.D. X 3.44. Y 2.08. Diag. 4.02.

SiO_2	66.76
Al_2O_3	15.32
Fe_2O_3	1.36
FeO	2.92
MgO	2.02
CaO	4.23
Na_2O	3.11
K_2O	3.22
H_2O (105°)	0.11
H_2O +	0.80
TiO_2	0.29
P_2O_5	0.17
MnO	0.10
Total	100.41

Lab.No.60/940

Report No.57 June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A. McClure

The following analysis is for sample No.E.55/5/1 submitted by C. Branch, in October, 1958. Locality: Atherton, Queensland. Run 5, Photo 5145. Quad C. X 1.16. Y 2.79. Diag. 3.02.

SiO_2	78.36
Al_2O_3	12.18
Fe_2O_3	0.60
FeO	0.37
MgO	0.00
CaO	0.44
Na_2O	2.95
K_2O	4.92
H_2O (105°)	0.13
H_2O +	0.62
TiO_2	0.02
P_2O_5	0.06
MnO	0.07
Total	100.72

Lab.60/942

Report No.58 June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure

The following analysis is for sample No.E55/9/4, submitted by C.Branch in September, 1958. Locality: Einasleigh, Queensland. Run 9, Photo 5149. Quad. D. X 1.94 Y 2.44. Diag. 3.10.

SiO_2	70.48
Al_2O_3	14.86
Fe_2O_3	1.03
FeO	2.12
MgO	1.13
CaO	2.90
Na_2O	3.14
K_2O	3.40
H_2O (105°)	0.07
H_2O +	0.81
TiO_2	0.21
P_2O_5	0.19
MnO	0.06
Total	100.40

Lab. No.60/813

Report No.59 June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

A.McClure

The following analysis is for sample No.E55/9/3, submitted by C. Branch, September, 1958. Locality: Einasleigh, Queensland. Run 1, Photo 5079. Quad A. X 2.55, Y. 1.78. Diag. 3.10.

SiO_2	77.47
Al_2O_3	12.38
Fe_2O_3	0.92
FeO	0.67
MgO	0.03
CaO	0.36
Na_2O	3.25
K_2O	4.61
H_2O (105°)	0.09
H_2O +	0.52
TiO_2	0.03
P_2O_5	0.03
MnO	0.02
Total	100.38

Lab. No.60/812

Report No. 60. June 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION.

by

A. McClure

The following is for analysis of sample No.E55/9/12, submitted by C. Branch, September, 1958. Locality; Einasleigh, Queensland. Run 1, Photo 5171.

SiO_2	71.09
Al_2O_3	15.06
Fe_2O_3	0.86
FeO	2.07
MgO	0.64
CaO	2.40
Na_2O	4.02
K_2O	3.05
H_2O (105°)	0.11
H_2O +	0.32
TiO_2	0.22
P_2O_5	0.19
MnO	0.07
Total	100.10

Lab.No.60/938.

Report No.61 24th June. 1960.

ANALYSIS OF A SAMPLE OF TEPHROITE FROM WILKES STATION. ANTARCTICA.

by

S. Baker

Following are the results of an analysis of a sample of Tephroite from Wilkes Station, Antarctica, submitted by I. McLeod.

Sample No.	Iron (as Fe)	Manganese (as Mn)
Mc.19	1.91%	39.1%

Lab.No.60/943.

Report No.62

13th July, 1960.
87PNG/1

PARTIAL ANALYSIS OF ALUMINOUS CLAY SAMPLES

by

S. Baker

Following are the results for the partial analysis of aluminous clay samples from New Hanover, submitted by J.E.Thompson. Results refer to the samples dried at 105°C.

Sample No.	SiO_2	Fe_2O_3	Al_2O_3	TiO_2	Ni
1	24.2	14.4	40.7	0.3	0.14
2	33.7	17.3	30.3	0.3	0.08
4a	38.1	13.1	30.8	0.25	0.15
4b	20.0	18.5	38.7	0.4	0.09
7	23.5	19.8	36.5	1.0	0.10
8a	21.3	24.6	34.6	1.0	0.14
8b	20.0	22.7	37.4	0.9	0.12
10	31.3	21.4	32.3	1.1	0.13

Lab. No.60/945.

ReportNo.63

13th July. 1960.
50 NT/1

ANALYSIS FOR COPPER OF THREE SAMPLES FROM PINE CREEK. N.T.

by

S. Baker

Following are the results for the estimation of copper on three samples from Pine Creek,Northern Territory, submitted by T. Quinlan.

Sample No.	percent Cu	Locality.
A	21.3	Cullen Creek, 23 miles south of Pine Creek,
B	26.8	
C	1.12	

Lab. No.60/944.

Report No.64 14th July. 1960.
50Q/1

ANALYSIS FOR COPPER OF A SAMPLE FROM MARY KATHLEEN.

by

S. Baker

Following is the result for the determination of copper in a sample submitted by Mary Kathleen Uranium Ltd., Queensland.

Sample No.	per cent Copper
11191	6.35

Lab. No.60/951

Report No.65 July 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following results are for analysis of Sample No/E55/13/5 submitted by C. Branch, September, 1958. Locality: Clarke River, Queensland. Run 15. Photo 5023. Quad D. X 1.35, Y 3.57. Diag. 3.84.

SiO_2	66.18
Al_2O_3	18.04
Fe_2O_3	1.02
FeO	2.53
MgO	1.02
CaO	2.88
Na_2O	5.44
K_2O	2.28
H_2O (105°)	0.02
H_2O +	0.75
TiO_2	0.15
P_2O_5	0.09
MnO	0.04
Total	100.44

Lab. No.60/927

Report No. 66. July, 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following analysis is for sample E53/8/1, submitted by E.K. Carter, July 1958. Locality: Calvert Hills, Northern Territory, Run 12, Photo K 5283, Quad C, X 2.1 Y 0.97, Diag. 2.32.

SiO_2	67.90
Al_2O_3	14.93
Fe_2O_3	1.63
FeO	2.58
MgO	0.76
CaO	2.44
Na_2O	4.08
K_2O	4.30
H_2O (105°)	0.05
H_2O +	0.79
TiO_2	0.17
P_2O_5	0.11
Mno	0.06
Total	99.80

Lab. No.60/948

Report 67 July 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following analysis is for sample No.F54/2/7, submitted by E.K. Carter, 7th August, 1958. Locality: Cloncurry, Queensland. Run 14. Photo 5093, Quad B, X 3.075. Y 0.3 Diag 3.1.

SiO_2	59.56
Al_2O_3	20.20
Fe_2O_3	2.68
FeO	2.99
MgO	2.20
CaO	4.87
Na_2O	5.30
K_2O	1.87
H_2O (105°)	0.09
H_2O +	0.58
TiO_2	0.25
P_2O_5	0.07
MnO	0.03
Total	100.69

Lab.No.60/950

Report No. 68 July 1960

CHEMICAL ANAKYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following analysis is for sample No. F54/1/4 submitted by E.K. Carter, 20th August, 1958. Locality: Mount Isa . Run 13, Photo 5425, Quad D X=0.50 Y-0.20. Diag. 0.60.

SiO_2	60.28
Al_2O_3	18.06
Fe_2O_3	2.39
FeO	3.91
MgO	1.83
CaO	3.46
Na_2O	4.75
K_2O	4.04
H_2O (105°)	0.07
H_2O +	0.63
TiO_2	0.30
P_2O_5	0.10
MnO	0.07
Total	99.89

Lab. No.60/949

Report No.69 July 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

The following analysis is for sample No.F54/6/1 submitted by E.K. Carter, August, 1958. Locality: Duchess, Queensland. Run 2. Photo 5126, Quad. B. x 1.525 Y 1.975, Diag. 2.5.

SiO_2	69.46
Al_2O_3	14.61
Fe_2O_3	1.76
FeO	1.98
MgO	0.43
CaO	1.99
Na_2O	3.98
K_2O	4.77
H_2O (105°)	0.03
H_2O +	0.61
TiO_2	0.15
P_2O_5	0.07
MnO	0.05
Total	99.89

Lab.No.60/946

Report 70. July 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S.Baker

The following analysis is for sample No. F54/6/6 submitted by E.K.Carter, 9th August, 1958. Locality; Duchess, Queensland. Run 3, Photo 5087, Quad B, X-2.5, Y-0.2, Diag. 2.55.

SiO_2	72.92
Al_2O_3	15.00
Fe_2O_3	0.96
FeO	0.97
MgO	0.14
CaO	0.64
Na_2O	3.97
K_2O	4.42
H_2O (105°)	0.06
H_2O +	0.61
TiO_2	0.06
P_2O_5	0.08
MnO	0.02
Total	99.85

Lab. No.60/947

Report No.71 22nd July, 1960

ANALYSIS OF A BORE WATER SAMPLE FROM BELCONNEN 6.

by

D.A.Anderson

A water sample submitted by E.G.Wilson from Bore Belconnen 6 (C.S.I.R.O.) on24th May, after four hours pumping, gave the following analytical results:

	p.p.m.	Me/litre		p.p.m.	me/litre
Na^+	84	3.6	NO_3^-	2	-
K^+	2	-	Cl^-	180	5.1
Ca^{++}	8	0.4	SO_4^{--}	46	1.0
Mg^{++}	139	11.4	CO_3^{--}	-	-
			HCO_3^-	522	8.6
		15.4			14.7

Conductivity = 1175 /μmho at 20°C
pH at 20°C = 6.95
Total salts at 180°C = 800 p.p.m.

Report No 72. 22nd July, 1960

ANALYSIS OF A SAMPLE OF BORE WATER FROM BELCONNEN 6. A.C.T.

by

D.A.Anderson

A water sample submitted by E.G.Wilson from Bore Belconnen 6 (C.S.I.R.O.) on 24th May, after four hours pumping, gave the following analytical results:

	p.p.m.	me/litre		p.p.m.	me/litre
Na^+	84	3.6	NO^-_3	2	-
K^+	2	-	Cl^-	180	5.1
Ca^{++}	143	7.1	SO^-_4	46	1.0
Mg^{++}	58	4.8	$CO_3^{=}$	-	-
			HCO^-_3	522	8.6
		15.5			14.7

Conductivity = 1175 /^{u}mho at 20^{o}C
pH at 20^{o}C = 6.95
Total salts at 180^{o}C = 800 p.p.m.

Report No.73 9th August, 1960

ANALYSIS OF THREE BIOTITE CONCENTRATES

by

S. Baker

Following are the results for the analysis of three biotite concentrates, prepared for age-determination.

	E55/9/9	E55/9/5	F54/6/4
SiO_2	36.29	35.26	34.75
Al_2O_3	12.73	12.05	12.17
Fe_2O_3 (1)	27.54	28.48	36.83
MgO	8.52	9.71	2.87
CaO	0.59	0.27	1.17
Na_2O	0.67	0.46	0.55
K_2O	8.11	9.21	7.81
H_2O (105^{o})	nil	nil	nil
loss on ignition	2.84	2.19	1.42
TiO_2	2.12	1.81	1.96
MnO	0.96	1.14	0.97
P_2O_5	< 0.01	< 0.01	< 0.01
BaO	0.16	0.14	0.15

Note: (1) This represente the total Iron Content, irrespective of valency.

Locality:	E55/9/9	Einasleigh, Queensland.	60/952 A
	E55/9/5	Einasleigh, Queensland.	" B
	F54/6/4	Duchess, Queensland,	" C

Lab.No. 60/952 , A.B.C.

Report No.74

2nd September, 1960

CHEMICAL ANALYSIS OF A ROCK SAMPLE FOR AGE DETERMINATION

by

S. Baker

The following analysis is for sample H54/7/1, submitted by Phillips Petroleum Co.Ltd. on 2nd February, 1960. Locality: Half a mile south of Tibooburra town.

SiO_2	65.62
Al_2O_3	17.00
Fe_2O_3	1.74
FeO	2.71
MgO	2.00
CaO	2.45
Na_2O	4.14
K_2O	2.53
H_2O (105°)	0.02
H_2O +	0.98
TiO_2	0.25
P_2O_5	0.05
MnO	0.14
Total	99.63

Lab. 60/955

Report No.75

8th September, 1960

ANALYSIS OF A BORE WATER SAMPLE FROM WILLIAMSDALE 1.

by

S. Baker

Following are the results of an analysis of a sample of bore water taken on the property of M. Morrison, on August 5th, 1960. (Williamsdale I, Bottle No.L13.)

pH		7.5	
Conductivity /^{u}mho at 25°C		1226	
Total dissolved solids (T = 180°C)		832 ppm.	
Chloride (Cl)		132 "	(3.72)
Bicarbonate (HCO_3)		383 "	(6.27)
Sulphate (SO_u)		226 "	(4/69)
Calcium (Ca)		155 "	(7.73)
Magnesium (Mg)		65 "	(5.34)
Sodium (Na)		40 "	(1.74)
Potassium (K)		1 "	(0.02)
Strontium (Sr)		1 "	(0.02)
Fluoride (F)	less than	0.05 "	
Borate (B)	"	0.3 "	
Nitrate (NO_3)	not detected	-	

The figures in brackets refer to milliequivalents per litre.

Lab. No.60/953

Report No. 76

8th September, 1960

ANALYSIS OF A BORE WATER SAMPLE

by

S. Baker

Following are the results of an analysis of a sample of bore water, taken on the property of M.Southwell, A.C.T., on July 29th, 1960. (Jeir 3, Bottle L9.)

pH		7.16	
Conductivity /^{u}mho at 25^{o}C		1886	
Total dissolved solids (T = 180^{o}C)		1136 p.p.m.	
Chloride (Cl)		254 "	(7.16)
Bicarbonate (HCO_3)		970 "	(15.9)
Sulphate (SO_4)		28 "	(0.58)
Calcium (Ca)		215 "	(10.7)
Magnesium (Mg)		119 "	(9.79)
Sodium (Na)		79 "	(3.44)
Potassium (K)		4 "	(0.08)
Strontium (Sr)		1 "	(0.02)
Fluoride (F)	less than	0.5	
Borate (B)	"	0.3	
Nitrate (NO_3)	not detected		

The figures in brackets refer to milliequivalent per litre.

Lab. No.60/953

Report No.77.

2nd. September.1960

ANALYSIS OF A SAMPLE OF BORE WATER

by

S. Baker

Following are the results of an analysis of a sample of bore water (Lanyon No.4), taken at the property of M.Edlington, A.C.T. on July 14th, 1960. (Bottle No.1.)

pH		7.26	
Conductivity /^{u}mho at 25^{o}C		668	
Total dissolved solids (T = 1809)		406 p.p.m.	
Chloride (Cl)		104 "	(2.93)
Bicarbonate (HCO_3)		242 "	(3.94)
Sulphate (SO_4)		16 "	(0.33)
Calcium (Ca)		13 "	(1.62)
Magnesium (Mg)		28 "	(2.30)
Sodium (Na)		79 "	(3.43)
Potassium (K)		1 "	(0.02)
Strontium (Sr)		1 "	(0.02)
Fluoride (F)	less than	0.05 "	
Borate (B)		0.3 "	
Nitrate (NO_3)	not detected		

The figures in brackets refer to milliequivalents per litre.

Lab. No.60/953.

Report No.78 8th September 1960.

ANALYSIS OF A SAMPLE OF BORE WATER

by

S. Baker

Following are the results of an analysis of a sample of bore water, taken on the property of J. Southwell, A.C.T. on July 4th, 1960. (Belconnen 3, Bottle No.L8.)

pH		7.42		
Conductivity /μmho at 25°C		1066		
Total dissolved solids (T = 180°C)		624	p.p.m.	
Chloride (Cl)		107	"	(3.02)
Bicarbonate (HCO_3)		182	"	(2.98)
Sulphate (SO_4)		103	"	(2.14)
Calcium (Ca)		62	"	(3.09)
Magnesium (Mg)		47	"	(3.87)
Sodium (Na)		71	"	(3.09)
Potassium (K)		0.5	"	(0.01)
Strontium (Sr)		1.5	"	(0.03)
Fluoride (F)	less than	0.05		
Borate (B)	"	0.3		
Nitrate (NO_3)	not detected			

The figures in brackets refer to milliequivalents per litre.

Lab. No.60/953

Report No.79 8th September. 1960

ANALYSIS OF A BORE WATER SAMPLE

by

S. Baker

Following are the results of an analysis of a sample of Bore water, taken on the property of P. Moore, A.C.T. on August 5th 1960. (Queanbeyan No.1, Bottle L10).

pH		7.36		
Conductivity /μmho at 25°C		2370		
Total dissolved solids (T = 180°C)		1622	ppm.	
Chloride (Cl)		306	"	(8.63)
Bicarbonate (HCO_3)		987	"	(16.1)
Sulphate (SO_4)		70	"	(1.45)
Calcium (Ca)		245	"	(12.2)
Magnesium (Mg)		97	"	(7.97)
Sodium (Na)		130	"	(5.65)
Potassium (K)		3	"	(0.06)
Strontium (Sr)		3	"	(0.06)
Fluroide (F)	less than	0.05	"	
Borate (B)	"	0.3	"	
Nitrate (NO_3)	not detected			

The figures in brackets refer to milliequivaalent per litre.

Lab. No.60/953

Report No. 80 9th September, 1960

ANALYSIS OF A SAMPLE OF BORE WATER

by

S. Baker

Following are the results of an analysis of a sample of bore water, taken on the property of Mr.Thornleigh, A.C.T., on July 14th,1960. (Stromlo No.6, Bottle No.L6).

pH		7.22	
Conductivity /^{u}mho at 25^{o}C		526	
Total dissolved solids		308 p.p.m.	
Chloride (Cl)		34 "	(0.96)
Bicarbonate (HCO_3)		300 "	(4.92)
Sulphate (SO_4)		7 "	(0.14)
Calcium (Ca)		55 "	(2.74)
Magnesium (Mg)		21 "	(1.73)
Sodium (Ma)		40 "	(1.74)
Potassium (K)		0.5 "	(0.01)
Strontium (Sr)		0.7 "	(0.01)
Fluoride (F)	less than	0.05 "	
Borate (B)	"	0.3 "	
Nitrate (NO_3)	"	not detected	

The figures in brackets refer to milliequivalents per litre.

Lab. No.60/953.

Report No.81. 9th September, 1960

ANALYSIS OF A SAMPLE OF BORE WATER.

by

S. Baker

Following are the results of an analysis of a sample of bore water, taken on the property of E.Oldfield on July 14th. 1960. (Lanyon No.1, Bottle No.L5.)

pH		7.13	
Conductivity /^{u}mho at 25^{o}C		1840	
Total dissolved solids		1080 p.p.m.	
Chloride (Cl)		360 "	(10.16)
Bicarbonate (HCO_3)		600 "	(9.98)
Sulphate (SO_4)		19 "	(0.39)
Calcium (Ca)		155 "	(7.6)
Magnesium (Mg)		73 "	(6.0)
Sodium (Na)		161 "	(7.0)
Potassium (K)		3 "	(0.06)
Strontium (Sn)		2 "	(0.04)
Fluoride (F)	less than	0.05 "	
Borate (B)	"	0.3 "	
Nitrate (NO_3)		not detected	

The figures in brackets refer to milliequivalents per litre.

Lab. No.60/953

Report No. 82 9th September, 1960

ANALYSIS OF TWO SAMPLES OF BORE WATER

by

S. Baker

Following are the results of the analysis of two samples of bore water, taken on the property of R. Grace, A.C.T. on July 14th, 1960. (Bottle Nos. L3, L4.)

	Gungahlin 6.		Gungahlin 7.	
pH	7.16		7.0	
Conductivity /μmho at 25°C	1360		2100	
Total dissolved solids T = 180°C)	856	p.p.m	1560	p.p.m.
Chloride (Cl)	183	" (5.16)	320	" (9.03)
Bicarbonate (HCO_3)	500	" (8.19)	630	" (10.3)
Sulphate (SO_4)	110	" (2.28)	308	" (6.39)
Calcium (Ca)	101	" (4.95)	196	" (9.61)
Magnesium (Mg)	52	" (4.28)	110	" (9.05)
Sodium (Na)	157	" (6.83)	169	" (7.35)
Potassium (K)	1	" (0.02)	2	" (0.04)
Strontium (Sn)	2	" (0.04)	3	" (0.06)
Fluoride (F)	less than 0.05	"	less than 0.5	"
Borate (B)	" 0.3		" 0.3	"
Nitrate (NO_3)	not detected		not detected	

The figures in brackets refer to milliequivalents per litre.

Lab. No.60/953

Report No.83 9th September, 1960

ANALYSIS OF A SAMPLE OF BORE WATER

by

S [illegible]

Following are the results of an analysis of a sample of bore water, taken on the property of L. Blewitt, A.C.T. on August 5th, 1960. (Lanyon 3, Bottle L11).

pH	7.54		
Conductivity /μmho at 25°C	1205		
Total dissolved solids (T = 180°C)	740	p.p.m.	
Chloride (Cl)	142	"	(4.0)
Bicarbonate (HCO_3)	467	"	(7.65)
Sulphate (SO_4)	98	"	(2.03)
Calcium (Ca)	113	"	(5.64)
Magnesium (Mg)	54	"	(4.44)
Sodium (Na)	88	"	(3.83)
Potassium (K)	1	"	(0.02)
Strontium (Sr)	1	"	(0.02)
Fluoride (F)	less than 0.05		
Borate (B)	" 0.3		
Nitrate (NO_3)	not detected		

The figures in brackets refer to milliequivalent per litre.

Lab. No.60/953

Report No. 84 9th September, 1960.

ANALYSIS OF A SAMPLE OF BORE WATER

by

S. Baker

Following are the results of an analysis of a sample of bore water, taken on the property of J.Webb, A.C.T., on July 13th, 1960. (Uriarra No.1, Bottle No.L7).

pH	7.08		
Conductivity /μmho at 25°C	245		
Total dissolved solids (T = 180°C)	124	p.p.m.	
Chloride (Cl)	10	"	(0.28)
Bicarbonate (HCO_3)	130	"	(2.13.)
Sulphate (SO_4)	9	"	(0.19)
Calcium (Ca)	19	"	(0.95)
Magnesium (Mg)	12	"	(0.99)
Sodium (Na)	17	"	(0.74)
Potassium (K)	1	"	(0.02)
Strontium (Sr)	not detected		
Fluoride (F)	less than 0.05	p.p.m.	
Borate (B)	" 0.3	"	
Nitrate (NO_3)	not detected		

The figures in brackets refer to milliequivalents per litre.

Lab. No. 60/953.

Report No. 85. 14th September, 1960

ANALYSIS OF A SAMPLE OF CALCAREOUS CONGLOMERATE FROM MOUNT DATSON.

by

S. Baker

The following are results for the analysis of a sample of calcareous conglomerate from Mount Datson, Boulia (F54/10), submitted by G. Brown (B456).

SiO_2	12.56	percent
Fe_2O_3	1.14	"
CaO	46.70	"
K_2O	0.40	"
P_2O_5	0.65	"
Co_2	36.30	"
Combined water, organic matter	1.67	"
MnO	0.18	"
Total	99.60	"
Al_2O_3	less than 0.40	"
Na_2O	" 0.10	"
MgO	" 0.20	"

All results refer to the sample dried at 106°C.

Lab. No.G54/60.

Report No. 86. 23rd September, 1960

PARTIAL ANALYSIS OF TEN GOSSAN SAMPLES

by

S. Baker

Following are results for the partial analysis of ten gossan samples (Lake George, 128479) submitted by E.K. Carter.

Sample No.	Fe_2O_3	Cu	Zn	Pb
145114	94.5 %	4 p.p.m.	6 p.p.m.	3 p.p.m.
145115	76.6 %	5 "	8 "	7 "
145117	91.3 %	15 "	15 "	8 "
145118	82.4 %	5 "	4 "	4 "
145119	86.2 %	5 "	6 "	3 "
145120	87.5 %	9 "	20 "	6 "
145122	86.8 %	6 "	10 "	5 "
145123	77.9 %	7 "	7 "	4 "
145124	79.8 %	5 "	5 "	less than 3 ppm.
145125	82.4 %	4 "	5 "	" 3 ppm.

Lab. No.60/956

Report No.87 23rd September,1960

ANALYSIS OF TWO WATER SAMPLES

by

D.A. Anderson

The following results are for water analysis carried out on two samples submitted by E.G. Wilson from Stromlo 8, on the property of N. Love.

	L.12		L.14	
	ppm.	me/litre	ppm	me/litre
Sodium (Na)	108	4.7	118	5.1
Potassium (K)	3	-	2	-
Calcium (Ca)	174	8.7	188	9.4
Magnesium (Mg)	117	9.7	139	11.5
Strontium (Sr)	- 1	-	- 1	-
		23.1		26.0
Chloride (Cl)	434	12.2	472	13.3
Sulphate (SO_4)	12	0.3	6	0.1
Carbonate (CO_3)	nil	-	nil	-
Bicarbonate (HCO_3)	651	10.7	680	11.2
Nitrate (NO_2)	0.8	-	nil	-
Nitrate(NO_3)	0.8	-	2	-
		23.2		24.6
Ph	6.9		6.9	
Total salts (180°)	1180 p.p.m.		1232 p.p.m	
Conductivity 25°C	2160 µmho		2450 µmho	

Note: L12 sampled 17/8/60.
L14 sampled 31/8/60, taken after pumping.
11000 gallons in 7½ hours.

Lab. No.60/957

Report No.88. 28th October, 1960

PARTIAL ANALYSIS OF SAMPLE FROM MOUNT ISA. QUEENSLAND.

by

S. Baker

Following are the results for the analysis of five crushed gossan samples from Northern Leases, Mount Isa, Queensland, submitted by D.O. Zimmerman, Royal School of Mines, London.

	5770	5773	5777	5787	5798
SiO_2 %	43.85	7.75	3.67	1.18	2.05
Fe_2O_3 %	32.37	38.65	79.30	64.14	66.21
Mn %	5.20	17.25	- 0.02	0.68	0.02
Cu %	0.16	0.59	0.49	0.40	0.21
Zn %	0.50	0.88	0.86	0.50	0.85
Pb %	3.20	7.74 (7.90)	0.22	1.78 (1.80)	0.57
Co %	0.03	0.12	0.02	0.03	0.005

Method of analysis

Silica: gravimetric as SiO_2
Irons: oxidation reduction titration
Manganese: Colorimetric method for samples 5777. 5787, 5798.
Pattison's method for samples 5770, 5773.
Copper, zinc: Polarographic analysis, figures in brackets, refer to gravimetric analysis as $PbSO_4$.
Cobalt: Colorimetric method.

Lab. No.60/958.

Report No.89. 7th November. 1960
94ACT/1

ANALYSIS OF A SAMPLE OF IRON ORE TAKEN NEAR PADDY'S RIVER. A.C.T.

by

S. Baker

Following are the results for the analysis of a sample of Iron ore, taken near Paddy's Creek, A.C.T., by A.D. Haldane.

SiO_2	4.63%
Iron (as Fe)	69.2 %
Gain on ignition	0.75 %

Lab. No.60/962.

Report No. 90 7th November, 1960

PARTIAL ANALYSIS OF A CORE SAMPLE FROM RUDDYGORE No.3 BORE, QUEENSLAND.

by

S. Baker

Following are the results for the partial analysis of a core sample from Ruddygore No.3 Bore (242 feet), Queensland, submitted by L.C. Noakes.

Copper, 0.40 percent. Lead: 0.15 percent.
Zinc. 1.62 percent.

Lab. No.60/978.

Report No. 91. 8th November, 1960
50ACT/1

ANALYSIS OF A SAMPLE OF COPPER ORE TAKEN NEAR PADDY'S RIVER. A.C.T.

by

S. Baker

The following result is for the assay of a sample of copper ore from Paddy's River, A.C.T., submitted by N.J. Canham, Braddon, A.C.T.

Copper 3.42 percent.

Lab. No.60/959.

Report No.92. 8th November, 1960

ANALYSIS OF A SAMPLE OF SALT FROM ANGUS DOWN STATION. N.T.

by

S.Baker

As requested, three layers of a sample of salt from a lake south of Angus Down Station, Northern Territory, (Longitude 132°15', Latitude 25°10'), submitted by Mr. H.F.King, Consolidated Zinc Company, were tested separately for carbonate, borate and potassium.

Potassium content in each layer is 0.01% (as K in sample dried at 105°C); carbonate and borate could not be detected.

Lab. No.60/979

Report No. 93

8th November, 1960
120Q/6

ANALYSIS OF A MANGANESE ORE FROM BAILEY'S CREEK. QUEENSLAND.

by

S. Baker

A sample of a manganese ore from Bailey's Creek, north of Daintree River, Queensland (E55/1) submitted by F.de Keyser, has been analysed with the following result.

Manganese (as Mn)	46.3 per cent.

Lab. No. 60/980.

Report No.94.

14th November, 1960
120NT/1

ANALYSIS OF THREE IRON ORE SAMPLES FROM THE HUNDRED OF GOYDER. N.T.

by

S. Baker

Following are the results for the analysis of three samples of an iron ore submitted by P.R.Dunn from Section 961 in the Hundred of Goyder.

Sample	1	2	3
SiO_2 %	2.39	1.79	5.07
Iron (as Fe) %	77.0	76.9	75.9
Loss on ignition %	0.40	1.40	0.67

Lab. No.60/983

Report No. 95. 22nd November, 1960
106W/5

COPPER ASSAY ON A SAMPLE OF SCHIST FROM WESTERN AUSTRALIA.

by

S. Baker

Following is the result for the estimation of copper in a sample of schist, submitted by A.T. Wells. (Scott, 1A/5835 , Field No.S4M), from two miles south easr of Kathleen Range, Western Australia. The copper occurs as malachite in a quartz-biotite schist in the Dean Range, Metamorphics of (?) Proterozoic age.

Copper 2.3%

Lab. No.60/1001.

Report No.96 30th November, 1960

ANALYSIS OF A SAMPLE OF IRON ORE

by

S. Baker

Following are the results for the analysis of a sample of an iron ore submitted by Mr.Anderson, through Dr. H.G. Raggatt.

Silica	(SiO_2)	8.2%
Iron	(Fe_2O_3)	79.2%
Loss on ignition		8.68%

W.M.B.Roberts identified the ore as goethite.

Lab. No.60/981.

Report No.97

30th November, 1960
120NT/1

ANALYSIS OF AN AQUEOUS SALINE MUD EXTRACT

by

S. Baker

An aqueous extract prepared from a saline mud (Ayers Rock 4-mile, photo No.29. Curtain Springs area), submitted by the Resident Geologist, Alice Springs, has been analysed with the following results:

Chloride	(as Cl^-)	21.1%
Sulphate	(as SO_4^{--})	17.9%
Calcium	(as CCa^{2+})	2.9%
Magnesium	(as Mg^{2+})	0.8%
Sodium	(as Na^+)	18.0%
Borates		not detected
Lithium		"
Nitrates		"
Potassium		"
Total water soluble salts.		60.7%

All results refer to the original sample dried to Constant Weight at +110°C.

The insoluble residue had the following qualitative composition - major components Si, Fe, Al, Ca, Mg, K and Na; trace elements Sr, Ba, Cr, V, Ti, Mn, Co, Ni. Cu and Sn.

Lab No.60/1007. Field No.13/5.

Report No.98

30th November,1960
106W/5.

ANALYSIS OF FIVE EVAPORITES FROM W.A.

by

S. Baker

Following are results for the analysis of the water soluble material of five samples of evaporites, submitted by A.T. Wells.

	R107	M65	M59A	M59B	M59C
Cl^- %	42.1	41.25	57.7	4.75	4.75
SO_4^{--} %	6.44	13.47	1.93	12.42	16.0
Ca^{2+} %	0.24	2.24	0.40	4.57	6.41
Mg^{2+} %	0.53	1.63	0.19	0.27	0.24
Na^+ %	30.0	28.0	36.8	2.95	3.35
Total	79.31	86.59	97.02	24.96	30.75

Results refer to samples dried at +110°C.

	Localities 4-mile Sheet	Run/Photo No.	
R107	Rawlinson	5/5672	W.A.
M65	Lake MacDonald	9/5425	W.A.
M59A	"	11/5324	W.A.
M59B	"	"	W.A
M59C	"	"	W.A.

Lab. No.60/1002-6.

Report No. 99.

13th December.1960
106G/13/62.

ANALYSIS OF A WATER SAMPLE

by

S. Baker

The following results are for a water analysis on a sample submitted by F.Henry, from Union Kern A.O.S., Cabawin No.1 fluid from JFT No.1.

	p.p.m.	me/litre	
Sodium	629	27.3	
Potassium	13	0.3	
Calcium	15	0.8	
Magnesium	4	0.3	28.7.
Chloride	138	3.9	
Sulphate	51	1.1	
Carbonate	-	-	
Bicarbonate	1360	22.3	27.3
Total dissolved salts at 180°		1604 p.p.m.	
Conductivity		2300 /umho	
Ph		7.9	

Lab. No.60/1010.

Report No.100

13th Decemner.1960
45ACT/1

ANALYSIS OF TWO WATER SAMPLES

by

S. Baker

The following are results of two analyses carried out on samples L8 and L13 collected and submitted by E.G.Wilson and G.Burton.

Sample L8 is from Lake George at Gearys Trig. in 18 inches.of water.
Sample L13 is from Lake Bathurst, southern end, 20 feet off-shore is 18 inches of water.

	L.8		L.13	
	p.p.m.	me/litre	p.p.m.	me/litre
Sodium	417	18.1	200	8.7
Potassium	5	0.1	18	0.5
Calcium	23	1.2	16	0.8
Magnesium	33	2.7	30	2.5
		22.1		12.5
Chloride	589	16.6	313	8.8
Sulphate	75	1.6	17	0.4
Carbonate	-	-	29	1.0
Bicarbonate	266	4.4	165	2.8
		22.6		13.0
Total salts at 180°			1286 p.p.m.	714 p.p.m.
Conductivity 25°C /umho			2270 /umho	1310 /umho
pH			8.6	9.3

Lab.No.60/1009/10.