

**GEOCHEMICAL TESTING ON GEOPHYSICAL
ANOMALIES**

LYELL E.Z. EXPLORATIONS

57 – 168

LYELL - E.Z. - EXPLORATIONS

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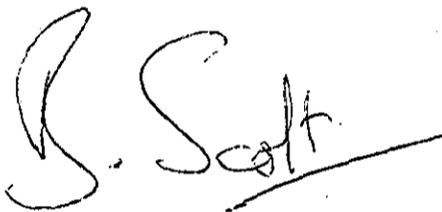
Memorandum to

5th June, 1957

Mr. G. F. Hudspeth,
Manager,
Lyell - E.Z. Explorations.

MICROFILMED

Attached is a list of requirements which would be required by the geochemical laboratory. If the Control Committee agree to this expenditure I suggest that D. Sampey is allowed to spend 2 - 3 days in Melbourne in order to find out what amount of this equipment is readily available in Australia. He could easily do this at the end of his annual leave - the period 15-17 July, arriving back on the West Coast on the 18th.



Geologist-in-Charge.

4th June,

7

Dr. B. Scott,
Geologist-in-Charge,
Lyell - E.Z. Explorations.

Geochemical Testing of Geophysical Anomalies

There follows a list of suggested requirements and method of attack for geochemical testing of anomalies for field season 1957-1958.

A. Collection of Samples

Samples will be collected in a grid pattern over the anomaly at 25 ft. intervals in traverses 50-100 ft. apart.

For this work the total number of samples will need to be of the order of 1000 per anomaly.

There are two approaches to the collection of samples and which one of these is used depends on relative costs which are worked out on each individual anomaly.

1. The whole anomaly is gridded 25' x 50' and then the samples are forwarded to the laboratory. The orientation testing for maximum spacing of samples is then carried out and only samples at this spacing are tested. This means that a lot of possibly unnecessary samples are collected.
2. The sampling is split into two stages.
 - (a) Two or three traverses with sample spacing of 25' and traverses spaced at convenient distances apart, are collected and forwarded to the laboratory.
 - (b) The maximum sample spacing is determined in the laboratory and then the rest of the sampling is carried out at this spacing.

This is only the most economical method when other work, such as geological mapping, is available to be done near the same camp site while the laboratory results are awaited.

B. Assaying of samples

Using one laboratory assistant and all equipment in attached lists approximately 800-1300 assays can be carried out per week.

If automatic dispensers of the type specified are not available an extra laboratory assistant would be required. If compressed air is not available another extra assistant would be required 3-4 days per week.

This is assuming a 12-day fortnight.

Total Personnel Required

- (a) One (1) Geologist (D. Sampey)
- (b) Two (2) Samplers
- (c) One (1) Laboratory Assistant
- (d) Varying number of bushmen depending on conditions.

Suggested Duties of Geologist (D. Sampey)

1. Inspect anomalies and lay out where traverse lines are to go.
2. Decide on depth and technique of sampling.
3. Supervise laboratory assistant and carry out assays.
4. Prepare reports.

In most cases this will involve one visit to the anomaly but in those of any geochemical significance a second visit would be essential.

The cost of geochemically testing each anomaly would be not greater than £140 excluding cost of transport, food and laboratory equipment which must be written off.

The total cost for a 20 week field season would be approximately £3,800 excluding transport and keep for personnel.

Equipment costs are listed below with details in appendices.

1.	Field Equipment	- Appendix 1.	£ 140
2.	Seiving room equipment	- Appendix 2.	£ 200
3.	Laboratory equipment	- Appendix 3.	£ 290
4.	Benches etc. in laboratory	(spec. 17)	£ 60
5.	Chemicals	- Appendix 4.	£ 410
			£1100

The need for holding such large stocks of spares and chemicals is due to long delays in delivery to the West Coast (up to 8 months)

These quotes are the best available and where there is doubt a tendency to over-estimate has been aimed at.

D. Sampey

D. Sampey.

APPENDIX 1.FIELD EQUIPMENT

		<u>No.</u>	<u>Total Cost</u>
1.	Field Books (Specification 1)	4	£ 1
2.	Loose Leaves for field books (Spec.2)	500	£ 2
3.	Small Trenching Shovels	6	£ 6
4.	4" diam. Post Hole Diggers	6	£ 9
5.	Sampling Tubes and Spikes (Spec.3)	6	£ 5
6.	3-4 lb. Gympie Hammers	4	£ 4
7.	Rope Tapes	10	£ 5
8.	Special Sample Bags (£5 per 1,000)	20,000	£100
9.	Ball Point Pens	4	£ 2
10.	Rubber Bands - No. 4	3 lb.	£ 3
11.	Plastic Covers for Fracture Boxes (Spec.4)	24	£ 3
12.	Fracture Boxes for storing samples	?	N/C
			<hr/>
			£140
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APPENDIX 2.SEIVING ROOM EQUIPMENT

	<u>Total Required</u>	<u>On Hand</u>	<u>Additional Cost</u>
1. Set of Seives	4	2	£20
2. 1" Paint Brush	2	2	-
3. Wooden Block (Spec. 5a)	1	-	10/-
4. Wooden Mallet (Spec. 5b)	1	-	20/-
5. Ball Point Pen	2	-	20/-
6. Glossy Paper		-	10/-
7. Sample Boxes (Spec. 6)	12	-	20/-
8. Sample Bags	40,000	-	£20
9. Rubber Stamp - serial No. (Spec. 7)			40/-
10. Ink Pad - Black	1	-	10/-
11. Ink Pad Ink - Black	1	-	10/-
12. Drying Cupboard (Spec. 8)	1	-	£50
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			£97
13. Compressed Air - Estimate			£100
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			£197
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LABORATORY EQUIPMENT

	<u>Size</u>	<u>Total Required</u>	<u>On Hand</u>	<u>Still Needed</u>	<u>Total Additional Cost</u>
1.	Still with electric heating mantle	1	1	-	-
2.	Additional Still Head	1	-	1	15/-
3.	Spare Flasks for Still	3	1	2	40/-
4.	Spare Condenser for Still	1	-	1	50/-
5.	Spare Thermometer for Still	1	-	1	52/-
6.	Fractionating Column	1	-	1	60/-
7.	Separatory Funnels	3	1	2	60/-
8.	Separatory Funnels	5	5	-	-
9.	Resin Demineralizer	2	1	1	200/-
10.	Polythene Storage Bottles	18	6	12	60/-
11.	Polythene Storage Bottles	36	12	24	72/-
12.	Polythene Storage Bottles	36	15	21	22/-
13.	Polythene Storage Bottles	24	12	12	13/3
14.	Polythene Wash Bottles	18	6	12	15/6
15.	Polythene Oil Cans for use as Bottles	24	12	12	12/-
16.	Polythene Water Storage Tank (Spec. 9)	1	-	1	100/-
17.	Polythene Tubing	20 yds.	-	20 yds.	35/-
18.	Polythene Tubing	20 yds.	-	20 yds.	60/-
19.	Polythene Tubing	5 yds.	-	5 yds.	5/-
20.	Polythene Stoppers	36	-	36	45/-
21.	Polythene Stoppers	36	-	36	45/-
22.	Polythene Stoppers	36	-	36	45/-

		<u>Size</u>	<u>Total Required</u>	<u>On Hand</u>	<u>Still Needed</u>	<u>Total Additional Cost</u>
	23.	Polythene Stoppers	4	36	-	36 45/-
	24.	Polythene Stoppers	5	12	-	12 18/-
	25.	Polythene Stoppers	6	12	-	12 12/-
	26.	Polythene Stoppers	7	12	-	12 28/-
	27.	Polythene Stoppers	8	12	-	12 28/-
	28.	Burette		2	2	- -
1.x	29.	Burette Stand		1	1	- 10/-
	30.	Pipettes, micro serological	0.1 ml.	2	-	2 22/-
	31.	Pipettes, micro serological	1.0 ml.	3	-	3 12/-
	32.	Pipettes, serological	10 ml.	2	2	- -
	33.	Pipettes, automatic Dispensing (Spec.10) 5 ml.		3	-	3 600/-
	34.	Pipettes, automatic transfer	0.7 ml.	3	-	3 150/-
	35.	Extra Bulb for 34		3	-	3 7/6
	36.	Extra Pipette for 34	3 ml.	6	-	6 15/-
	37.	Pipettes, automatic transfer	0.7 ml.	2	-	2 100/-
	38.	Extra Bulbe for 37		2	-	2 5/-
	39.	Extra Pipette for 37	0.7 ml.	3	-	3 7/6
	40.	Extra Pipette for 37	0.2 ml.	1	-	1 7/6
	41.	Pipette Stand		2	1	1 10/-
	42.	Test Tubes - Pyrex	150 x 18 mm.	4 gross	-	4 gr. 122/-
	43.	Test Tubes - Pyrex	150 x 13 mm.	6 doz.	-	6 doz. 21/-
	44.	Test Tube Racks		12	-	12 20/-
2.x	45.	Anti bump tubes (Spec.11)		200	-	200 -

1.x 10/- for alteration.

2.x Made by D. Sampey.

	<u>Size</u>	<u>Total Required</u>	<u>On Hand</u>	<u>Still Needed</u>	<u>Total Additional Cost</u>
46.	Glass Tubing	Assorted	20 lb.	-	20 lb. 200/-
47.	Pyrex "T" Pieces	1/4" I.D.	12	-	12 24/-
48.	Pyrex Beakers	250 ml.	24	-	24 -
49.	Pyrex Beakers	500 ml.	6	-	6 36/-
50.	Pyrex Beakers	1 lt.	3	1	2 20/-
51.	Pyrex Beakers	3 lt.	2	-	2 28/-
52.	Graduated cylinders	1000 ml.	2	1	1 28/-
53.	Graduated cylinders	100 ml.	3	1	2 40/-
54.	Graduated cylinders	25 ml.	1	-	1 14/-
55.	Graduated cylinders	5 ml.	3	3	- -
56.	Graduated cylinders - stoppered	25 ml.	6	6	- -
57.	Mullite mortar and pestle	100 mm.	1	-	1 200/-
58.	Porcelaine mortar and pestle	5 mm.	1	-	1 50/-
59.	Hot Plate (Spec.12)		1	-	1 100/-
60.	Fusion Machine (Spec.13)		2	-	2 £70-100
61.	Water Bath (Spec.14)		1	-	1 30/-
62.	Thermos flasks	small	2	2	- -
63.	Glass-Blowing Blow Lamp (Special)		1	-	1 20/-
64.	Glass-Blowing Pliers		1	-	1 20/-
65.	Pliers		1	1	- -
66.	Screw Driver		1	1	- -
67.	Slim Taper File	4"	3	-	3 6/-
68.	Indicator Papers		12	12	- -
69.	Soil pH Tester		1	-	1 40/-
70.	Re-fills for 69		4	-	4 80/-

Appendix 3. (Contd.)

	<u>Size</u>	<u>Total Required</u>	<u>On Hand</u>	<u>Still Needed</u>	<u>Total Additional Cost</u>
71.	Gelatine Capsules	No. 5 500	500	-	-
72.	Tea Towels	2	2	-	-
73.	Stockingette	1 roll	-	1	100/-
74.	Gummed Labels	1200	-	1200	15/-
75.	Paint Brush	1" 2	-	2	12/-
76.	Spatulas	assorted 12	3	9	30/-
77.	Crucible Tongs Pt. Tipped	2	-	2	40/-
78.	Crucible Tongs Plane	2	-	2	12/-
79.	Evaporating Dish	5" 2	-	2	40/-
80.	Blotting Paper		-		6/-
81.	Cotton Wool	large 3	-	3	12/-
82.	Kleenex Tissues	large 3	-	3	6/-
83.	Visual Comparator (Spec.15)	1	-	1	40/-
84.	Mechanical Shaker (Spec.16)	1	-	1	80/-
85.	Bottle Brushes	3	-	3	12/-
86.	Laboratory Record Books	12	-	12	18/-
87.	Ball Point Pens	2	-	2	20/-
88.	Solid Reagent Containers - Plastic assorted	24	-	24	50/-

 £ 290

APPENDIX 4.CHEMICALS

		<u>Quantity</u>	<u>Cost</u> <u>shillings</u>
1.	Carbon tetra chloride	100 lb.	1175
2.	Chloroform	30 lb.	750
3.	Absolute alcohol	100 lb.	150
4.	Nitric acid	60 lb.	60
5.	Hydrochloric acid	10 lb.	20
6.	Sulphuric acid	10 lb.	20
7.	Xylene	100 lb.	475
8.	Activated charcoal	50 lb.	200
9.	Sodium acetate	50 lb.	500
10.	Thymol blue	5 g.	20
11.	Hydroxylamine hydrochloride (Meik)	20 lb.	1600
12.	Ammonium citrate	15 lb.	490
13.	Sodium hydroxide	5 lb.	90
14.	Potassium hydroxide	5 lb.	94
15.	Potassium cyanide	4 lb.	80
16.	Potassium nitrite	1 lb.	60
17.	Methyl orange	5 g.	20
18.	Potassium bisulphate	20 lb.	240
19.	Potassium pyrosulphate	20 lb.	400
20.	Sodium thiosulphate	12 lb.	95
		C/Fwd.	<u>6539/-</u>

		<u>Quantity</u>	<u>Cost</u> <u>Shillings</u>
		B/Fwd.	6539/-
21.	Lime	90 lb.	40
22.	Acetic Acid	5 lb.	30
23.	Sodium Potassium Tartrate	20 lb.	330
24.	2-2' Biquinoline	5 g.	650
25.	Isocanyl Alcohol	40 lb.	400
26.	Dimethyl Dichlorosilane	4 oz.	100
27.	White Spirit	5 gal.	30
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		Total	8119/-
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