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# 1964 PROGRAMME

BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS  
CANBERRA ACT.

1964 PROGRAMME

Bureau of Mineral Resources, Geology and Geophysics

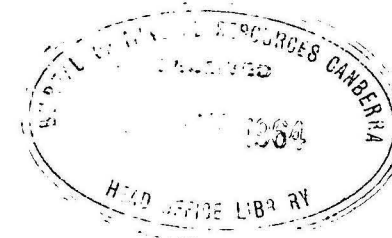
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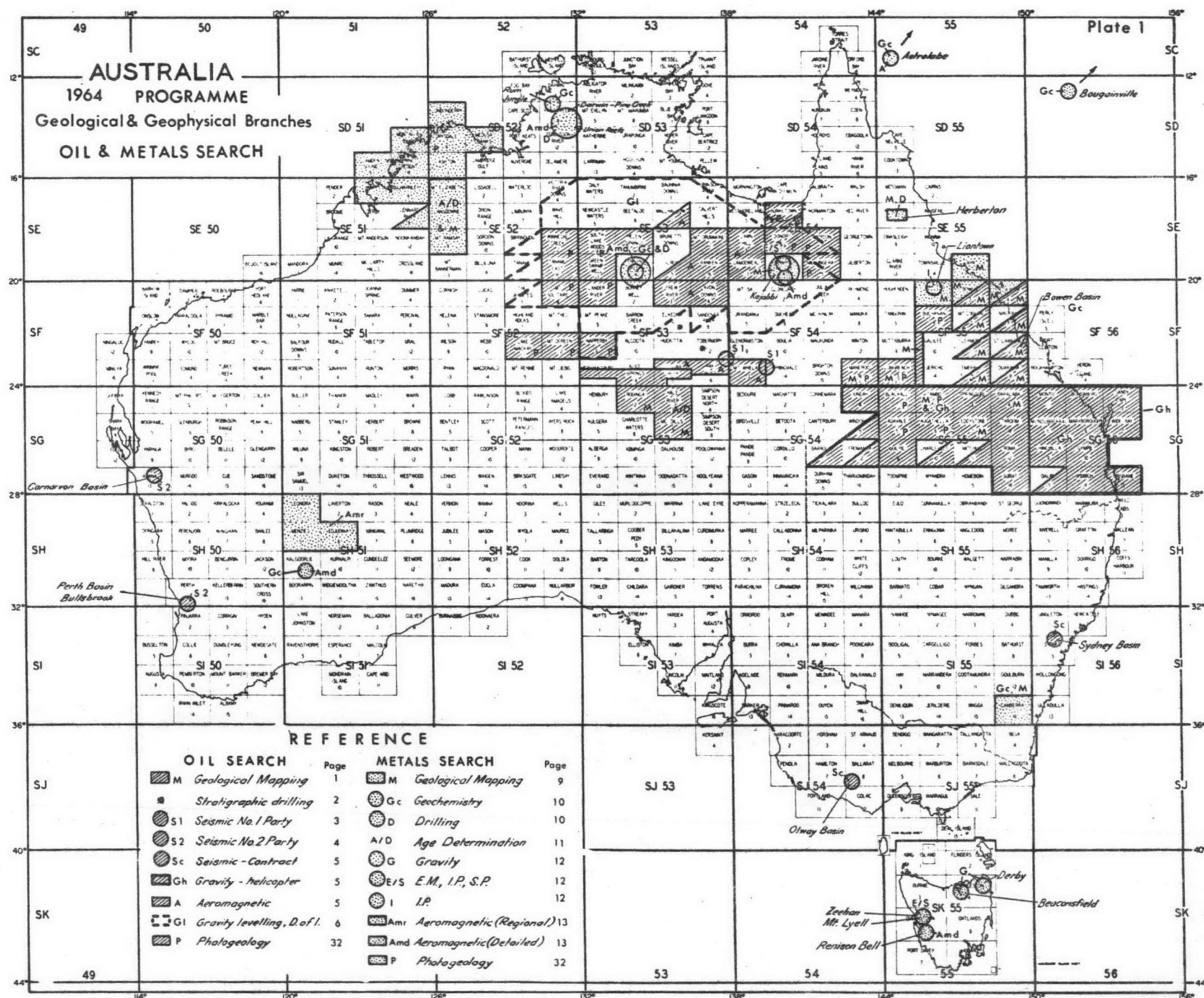
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1964 Publications Programme : See separate attachment.

PLATE 1

Map of Australia showing areas programmed  
for surveys in search for oil and metals  
(Geological and Geophysical Branches) 1964.





## OIL SEARCH

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## GEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
Rodinga N.T. 6018 64/702	Amadeus Basin Regional geology of Rodinga 1:250,000 area. Helicopter survey in August for 7 days in conjunction with Hale River and Alice Springs parties.	Early May to end Sept.	<u>L. Ranford</u> P. Cook  (J. Tomlinson) (C. Gatehouse) (A. Fehr) (T. Quinlan) Part time	Cook Mechanic 2 F/Assts. (Draftsman) Part time	1 Bedford 3 ton. 3 L/R (Short wheel base) 1 office caravan 1 L/R trailer (All ex Adelaide) 3 transceivers, normal camp equip- ment, contract helicopter.	Photo-interpretation completed by I.F.P. Base maps and photos available. Reports 1963 field season to be completed by mid- April 1964.
Hale River N.T. 60E018 64/703	Amadeus Basin. Regional geology of southern 1/3 of Alice Springs S.W. corner Illogwa Creek 2/3 of Hale River and all of McDills 1:250,000 areas. Helicopter survey in August for 10 days in conjunction with Rodinga and Alice Springs parties.	Mid May to end Sept.	<u>A.T. Wells</u> A. Stewart J. R. Shaw (J. Tomlinson) (C. Gatehouse) (K. Crook) (T. Quinlan ) Part time	Cook Mechanic 2 F/Assts. (Draftsman) Part time	1 Bedford 3 ton. 3 L/R (Short wheel base) 1 office caravan 1 water trailer 1 L/R trailer (All ex Adelaide except probably caravan) 3 transceivers, normal camp equip- ment, contract helicopter.	Photo-interpretation completed by I.F.P. Base maps and photos available. Reports 1963 field season to be completed by mid-April, 1964.
Alice Springs N.T. 6019 64/704	Amadeus Basin. Regional geology of central 1/3 of Hermannsburg, Alice Springs, Illogwa Creek and part of Hale River 1:250,000 areas. Helicopter survey in August for 10 days in conjunction with Rodinga and Hale River Parties.	End April to mid Sept.	<u>D.J. Forman</u> <u>E. Milligan</u>  (P. Leggo) Part time  (A.E.D.L.) (Petrologist) Part time	Cook Mechanic 2 F/Assts.	1 Bedford 1-30 cwt. (L/R truck if available) 3 L/R 1 L/R trailer (All ex Adelaide) 3 transceivers, normal camp equip- ment, contract helicopter Tote Gote Motor Scooter	Photo-interpretation completed by I.F.P. Base maps and photos available. Reports 1963 field season to be completed early April 1964. Visits from metalliferous section expected.
Eddystone Q'ld. 60E019 64/705	Bowen Basin. Regional geology of Eddystone and N.E. part Tambo 1:250,000 areas. Contract core drilling for 10 days in August and helicopter contract for 7 days in August. Further check on Tertiary Volcanics in nearby areas.	End May to end Sept.	<u>G. Mollan</u> <u>N. Exon</u>  (A.G. Kirkegaard) ( V. Forbes ) Q.G.S. part time  (E.J. Malone ) (J.M. Dickins ) (L. Bastian ) (P.R. Evans ) Part time (A. Fehr ) Part time	Cook Mechanic 2 F/Assts. 1 draftsman	1 Bedford 4 L/R 1 L/R trailer 1 4-wheel trailer 1 office caravan 1 Water Trailer (All ex Brisbane) 1 transceiver, normal camp equip- ment, contract helicopter and core drilling.	Completed Bowen Basin mapping. Photo-interpretation. Eddystone completed and Tambo underway. Photos and base maps available. Reports 1963 season to be completed by end April 1964



## OIL SEARCH

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## GEOLOGICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
Bowen Basin Q'ld. 60E020 64/706	Bowen Basin. Investigation of problems arising out of age determination. Anakie Metamorphics, position some Permian units, covering parts of areas mapped in previous years. Contract helicopter for 10 days in Aug. and core drilling for 2 weeks in August.	Early June to mid- Oct.	<u>F. Olgers</u> (A.G. Kirkegaard ) (V. Forbes ) Q.G.S. part time (E.J. Malone ) (J.M. Dickins ) (C. Gregory ) (R. Jensen) Part time	Cook Mechanic 2 F/Assts.	1 Bedford 3 Landrovers 1 L/R Trailer 1 water trailer (All ex Brisbane) 1 transceiver, normal camp equip- ment, contract helicopter and core drilling.	Clean up problems in Bowen Basin before Bulletin is written.  Reports 1963 season to be com- pleted by mid-May. R. Jensen will complete his 1963 report and help in preparation of Explanatory Notes for Bowen Basin.  Helicopter hire - 20 days (46 flying hours) - estimated cost £2,450.
Artesian Basin Q'ld. 6020 64/707	Great Artesian Basin. Regional geology of Longreach Maneroo and western margin of Galilee, Jericho and Tambo 1:250,000 areas. Contract core drilling for 2 weeks in September.	End May to end Sept.	<u>R. Vine</u> 1 other B.M.R. D. Casey (Q.G.S.) W. Jauncey	Cook Mechanic 3 F/Assts. Draftsman.	1 Bedford 3 ton 4 Landrovers 1 L/R truck 1 water trailer 1 4-wheel trailer (All ex Brisbane) normal camp equip- ment, 2 trans- ceivers, contract core hole drilling. 1 office caravan.	Photos and base maps available. Reports 1963 field season to be completed end April 1964  M.A. Reynolds to field supervise.  W.J. Perry to visit field to check on Photointerpretation.
Georgina Stratigraphic Drilling 6E0SD1 64/708	Georgina Basin. Well site work and reports on B.M.R. 11 (Cattle Creek), B.M.R. 12 (Cockroach) and B.M.R. 13 (Sandover River).	In pro- gress to May	<u>N. Johnson</u> R. Nicholls A. Lloyd (with B.M.R. Petroleum Technologist).	Nil W. Sides & Son Contractor	1-30 cwt. Inter. 1 Landrover 1 transceiver camp equipment 1 office caravan ex Amadeus until May, then ex Brisbane.	Drilling started in July B.M.R. 11 completed. B.M.R. 13 to be drilled next, then B.M.R. 12. Results needed by Seismic No. 1 Party before September 1964. Super- vision given by K.G. Smith.
Bonaparte Gulf W.A. & N.T. 64/709	Examine material (lithology and fossils) collected in 1963. No further field work until 1965 because of the extremely large and important collections made in 1963.	Continu- ous	<u>J.J. Veevers</u> J. Roberts (P. Jones ) Part time	Nil	None required	A detailed investigation of the fauna collected is necessary before answers to the strati- graphic problems in this area can be given.
Georgina Basin N.T. 64/710	Complete reports on 1963 season; pre- pare explanatory and final maps for eight 1:250,000 areas; prepare a report on geology of part of the Georgina Basin. Smith to visit area west of Tennant Creek for 3 weeks in July to reconnoitre area of proposed survey in 1965.	Continu- ous	<u>K.G. Smith</u> (M. Randal ) (E. Milligan) (R. Nichols ) Part time	Nil	None required	The explanatory notes are for the 1:250,000 sheets of Tobermory, Sandover River, Elkedra, Frew River, Avon Downs, Rankin, Alroy, Brunette Downs.

## OIL SEARCH

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## GEOPHYSICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
S.E. Georgina Seismic No. 1 Q'ld. 70S10 64/711	Georgina Basin. (a) Complete the reconnaissance reflection and refraction traverse (commenced in 1963) from Canary No. 1 Bore to the Upper Proterozoic outcrops at Watchie Hut (head of Sylvester Creek) and south-west across the Toko Syncline. Carry out experimental work on the Nimaroo Group and neighbouring formations east of Herbert Downs, and shoot either a reflection or refraction reconnaissance-type traverse from these Lower Palaeozoic outcrops to the Marion Downs gravity low to tie with Traverse A (1963). 80% Reconnaissance 20% Experimental. Experimental could increase and problem could require continuous information both of which could considerably increase the duration from 3-6 months with 50% chance within the 3 months.	4 months April- July	P. Jones G. Allen P. Montecchi 2 Surveyors C.S. Robertson C. Channon (for Experimental)	G. Jennings Rossendell Clark 5 Drillers Cherry Mechanic Cook Cook's Offsider Max. 14 Field Assistants	800 HSJ Geophones D.S.-7 Magnetic Recorder FM-Magnetic Recorder HTL 7000-B Amp- lifiers ER-66 Oscillo- graph 3 FM-Pye Trans- ceivers 2 TM-2 Traeger Transceivers 2 Mayhew 1000 Drills 1 Carey Drill 2 Inter. 1 ton 8 Bedford 5 ton, 4 x 4 2 Inter. 5 ton, 4 x 4 4 L/R 1 Bombardier 1 Office Caravan 1 Kitchen 5 4-wheel trailers	Although the section of this traverse from Canary Bore to Watchie Hut was not on the 1963 programme, work was done on it while the party was held up due to floods. It is considered most desirable to finish it. In view of the good results obtained in 1963, most of the objectives of the 1963 survey have been reached, the exceptions being the extensions south and south-east into the Great Artesian Basin. The work of the F.P.C. has covered this sufficiently for the time being. The Herbert Downs-Marion Downs Traverse has been added in order to make a better stratigraphic correlation along the Canary-Watchie Hut Traverse.
64/711	(b) Experimental Shooting: Multiple elimination on Traverse F of 1963	1½ months August- September	As above plus E.R. Smith	As above	As above, but may require hire of extra drill.	
S. Georgina - Tobermory Seismic No. 1 N.T. 70S11 64/712	Georgina Basin. (a) Experimental shooting on the Lower Palaeozoic carbonate rocks. (b) Reconnaissance reflection and refraction traversing in vicinity of Cockroach W.H. Marqua structures and north-west Toko Syncline, and also possibly Tarlton Range. 50% experimental, 50% reconnaissance. (May be confined to experimental in 1965)	2½ months September to November Continuing through 1965	J. Davies G. Allen P. Montecchi 2 Surveyors	As above	As for (a) above	The stratigraphic drilling programme was intended to provide a basis for a follow up seismic programme. Because of the drilling delays a programme on the Huckitta sheet, in an area of low gravity coinciding with the Dulcie Syncline, was suggested at the Supervisor's Conference. Mr. Casey has since suggested a programme in the Tobermory area. This appears to be more satisfactory as the area is more accessible and it will tie with stratigraphic bore, B.M.R. 12 (Cockroach).

## OIL SEARCH

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## GEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
Perth Seismic No. 2 W.A. 70SE08 64/713	Perth Basin. Bullsbrook or Rockingham Area. (a) Experimental shooting on coastal limestone. (b) Traverses across Basin to investigate structure associated with faulting suggested in previous Rockingham survey. 50% experimental, 50% semi detailed - Reconnaissance.	3 months March to May	<u>D. Walker</u> J. Raitt B. Jones 2 Surveyors C. Chanon (for experimental)	R. Krege Walker McIntosh 5 Drillers Wood W.H. Mechanics W.H. Cook W.H. Cook's Offsider Max. 14 Field Assistants	900 EVS Geophones DS-7 Magnetic Recorder TI-8000 Amplifiers TRO-6 Oscillograph 3 FM-Pye Trans- ceivers 2 TM-2 Traeger Transceivers 1 Mayhew 1000 Drill 2 Carey Drills 2 Inter 1 ton 9 Bedford 5 ton 4 x 4 1 Inter 5 ton 4 x 4 4 L/R 1 Office Caravan 5 4-wheel trailers	The W.A. Mines Dept. are very keen to see this work done as an aid to their hydrological programme. Although the original plan was to work at Rockingham, the Mines Dept. will be drilling a series of holes (2000 feet deep) along a line through Bullsbrook, and this may be a more satisfactory line for the seismic work.
S. Carnarvon Seismic No. 2 W.A. 70SE09 64/714	Carnarvon Basin. (a) Traverse from Gascoyne Junction west for 40 miles to investigate southern extension of Wandagee Ridge. Regional structure. (b) 25-mile traverse through Pelican Hill Bore to investigate stratigraphic and structural position of Devonian sediments. (c) Experimental reflection shooting in Coburn and Butcher's track areas. Some continuous profiling if practical. (d) Complete any unfinished or indecisive work from 1963. (e) Reconnaissance traverse across Coolcalalaya Basin at latitude of Ajana. 30% Experimental 70% Regional Reconnaissance.	6 months June to November	<u>A. Turpie</u> J. Valentine J. Raitt B. Jones 2 Surveyors	R. Krege Walker McIntosh 5 Drillers Wood Mechanics Cook Cook's Offsider Max. 14 F/Assts.	900 EVS Geophones DS-7 Magnetic Recorder TI-8000 Amplifiers TRO-6 Oscillograph 3 FM-Pye Trans- ceivers 2 TM-2 Traeger Transceivers 1 Mayhew 1000 Drill 2 Carey Drills 2 Inter. 1 ton 9 Bedford 5 ton 4 x 4 1 Inter. 5 ton 4 x 4 4 L/R 1 Office Caravan 5 4-wheel trailers	This is essentially the remainder of the programme set down at beginning of 1963. The experimental reflection shooting is suggested because of the very poor reflection results obtained in 1963.
Seismic Playback Centre 64/7 70S12	Assistance to parties as required.		<u>J. Moss</u> C. Chanon	Anderson Grace.		

OIL SEARCH

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GEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicle, Equipment	Remarks
Contract Seismic Vic., S.A., N.S.W. 7EOSC2 63/515	1. Otway and Sydney Basins - Vibroseis Survey. (a) Experiment with the Vibroseis in poor record areas of the Otway Basin, such as basalt covered areas, lime- stone areas, sand-dune areas, and also in areas of multiple interference. (b) Experiment with the Vibroseis on the Hawksbury Sandstone of the Sydney Basin and also in heavily built-up areas.	April to August	J. Moss E. Schwing	-	1 Land Rover	? Limited conventional comparison work by S.A. Mines Department. If necessary B.M.R. to provide equipment and personnel to obtain weathering information on the volcanics. Hire of drill for 6 weeks required for this work.
VH - MIN Georgina Q'ld. 7OAF9 64/717	Georgina Basin. Aeromagnetic Survey, 2 mile spacing of Wallhallow (part) Mt. Drummond, Alroy (part Ranken, Camooweal, Frew River, Mt. Whelan, Avon Downs, Lawn Hill, Huckitta; and 5 mile spacing of Northern Halves of Illogwa Creek and Hay River Sheet Areas.	Mid- March to Mid- August	A. Spence initially then R. Wells D. Tipper	P. Turner C. Braybrook K. Mort D. Park 1 Draftsman	1 Mobile darkroom 1 Station Wagon, 4 x 2 2 1-ton Pick-up trucks, 4 x 4	Continuation of 1963 aeromagnetic survey of Georgina Basin.
Contract Helicopter Gravity Q'ld. 7OG20 64/719	Great Artesian and Bowen Basins. Helicopter gravity Barrolka (part) Jundah, Windorah (pt), Eromanga (pt), Quilpie, Adavale, Blackall, Tambo (pt), Augathella (pt), Charleville (pt) Mitchell (pt), Eddystone (pt), Springsure, Baralaba, Taroom, Roma, Surat, Dalby (pt), Chinchilla, Munduberra, Monto, Bundaberg, Maryborough, Gympie, Ipswich, Brisbane, Wide Bay, Sandy Cape 1:250,000 areas.	April- Sept.	R.A. Gibb		1 L/R	Contract awarded to Wongela Company (£94,000).

OIL SEARCHGEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicle, Equipment	Remarks
Dept. of Interior Levelling N.T. 62/634	Georgina Basin and Wiso Plateau. Levelling required for 1965 helicopter gravity survey. Victoria River Downs (part), Daly Waters, Tanumbirini, Bauhinia Downs, Robinson River (pt), Normanton (pt), Westmoreland (pt), Calvert Hills, Wallhallow, Beetaloo, Newcastle Waters, Wave Hill, Birrindudu (pt), Winnecke Creek, South Lake Woods, Helen Springs, Brunette Downs, Mt. Drummond, Lawn Hill, Donors Hill, Croydon (pt), Millungera (pt), Julia Creek (pt), Dobbryn, Camooweal, Ranken, Alroy, Tennant Creek, Green Swamp Well, Tanami East, Tanami (pt), The Granites (pt), Mt. Solitaire, Lander River, Bonney Well, Frew River, Avon Downs, Mt. Isa, Cloncurry, Duchess (pt), Urandagi, Sandover River (pt), Elkedra (pt), Barrow Creek, Mt. Peake, Napperby 1:250,000 Sheet areas.	April- November	7 Surveyors	?	?	About 30 of these sheets will be covered by contract helicopter gravity in 1965, remainder in 1966.
Contract Detail Gravity Q'ld. & N.S.W. 70G21 64/720	Detailed gravity readings along sub- sidized seismic traverses.	April- Nov.	F. Darby	New recruit (TA/2) 1 WH / driver	2 L/R 1 Gravity Meter 2 microbarometer 1 TM2 Radio .	Expected total traversing is 800 miles to cost about £5,000.
Water bores Q'ld. 70G19 64/721	Great Artesian Basin ) Logging water bores ) Other logging as required)	5 months	Jesson Radeski		Loggers	

## OIL SEARCH

## PETROLEUM EXPLORATION BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
<u>Subsidy Section</u>						
Drilling Group	Process application, inspect operations, edit reports of drilling operations.	Continuous	Greenham Hubley Lepine Chase Young (Mrs.)	Hodgins	Short term vehicle hire as required.	Visits to State Mines Departments and Company offices and field operations.
Geology Group	Deal with geological aspects of applications, operations and all final reports.	Continuous	Marchant Hays		"	"
Geophysics Group	Assess applications, inspect operations, and edit final reports of geophysical operations.	Continuous	Watson Forsyth Brown		"	"
Editing	Formal editing of Subsidy reports and of Sedimentary Basin Group reports. Prepare drawings as required.	Continuous	Stinear	Matveev Carpenter Petkovic (Mrs.) Burrows		
<u>Subsurface Section</u>						
Sedimentary Basins Study Group	Collect, catalogue, index, collate, compile and review all data on the following basins:	Continuous	Drummond Stanley Lodwick Bigg-Wither Wilson Pitt	Short term vehicle	Short term vehicle hire as required.	Visits to State Mines Departments and Company offices.
110EO1	1. Otway Basin 2. Papua Basin	Jan-Nov. Jan-Nov.				
	Data recording in all basins.	Continuous				
Core & Cuttings Laboratory	Receive and store core and cuttings. Examine material from selected bores.	Continuous	Bryan Hawkins	Stevenson Brown Kraitsoawitz	Panel Van Cuttings washer. Lab. equipment.	
110EO2						

## OIL SEARCH

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## MINERAL RESOURCES BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
<u>Petroleum Technology Section</u>						
Stratigraphic Drilling Contract 6ECSD1	1. Drill B.M.R. 12 (Cockroach) strat. hole to 3500'  2. Drill B.M.R. 13 (Sandover River) strat. hole to 4000'.	In pro- gress since July 1963. To be completed in June 1964.	Petroleum Technologist on site most of the time.  (M.D. Bell or B. Mackay)	Nil W.L. Sides & Son are contractors.	1 L/R for Petroleum Tech- nologist.	B.M.R. 13 to be drilled before B.M.R. 12. Results of B.M.R. 12 required by Seismic No. 1 before September, 1964
Seismic Party No.1 1. S.E. Georgina 2. S. Georgina- Tobermory 80S5	Seismic shothole drilling	April- November	Drilling Superintendent (intermittently)	Boring Supervisor (intermittently) 1 Driller Grade 2 1 Driller Grade 1 1 Driller Grade 1 2 Drill Assistants	1 L/R 1 Carey Drill 2 Mayhew 1000	? Extra Mayhew drill required for contract hire for 3 months.
Seismic Party No.2 1. Perth 2. S. Carnarvon 80SE05	Seismic shothole drilling	March- November	As above	Boring Supervisor (intermittently) 1 Driller Grade 2 1 Driller Grade 1 1 Driller Grade 1 2 Drill Assistants	1 L/R 1 Mayhew 1000 Drill 2 Carey Drills	? Extra Mayhew drill required for contract hire for 3 months.
Stratigraphic Drilling Moreton Basin Q'ld. 63/519	One hole max. 3000 feet near Lowood Q'ld.	?				Requested by the Q'ld. Mines Department and supported by Phillips Petroleum who hold the leases. More information required for discussion between B.M.R., Q.M.D., & P.P. Possible case for subsidy or funds made available in 1964/65 estimates for contract drilling. Awaiting reply from U/Sec. Mines re suitable date for meeting.



## METALS (INC. URANIUM) SEARCH

## GEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Mt. Ramsay W.A. 6M33 64/722	Regional geological mapping of Mt. Ramsay and part of Lennard River 1:250,000 areas. Additional work on parts of Gordon Downs and Dixon Range areas.	6 months April - October	H.G. Roberts D. Dow I. Gemuts (WAGS) R. Halligan (WAGS) (M. Bofinger) Part time	Cook Mechanic 4 F/Assts. 1 Draftsman	1-3 ton 4 x 4 truck 5 SWB L/R 1-4 wheel trailer 1 Office caravan 3 Jeep trailers 1 Water trailer 2 Transceivers 1-6 H.P. Tote Gote Motor Scooter 1 Cobra Drill	Continuation of regional geological mapping of Kimberley region in cooperation with W.A. Geological Survey. 30 hours helicopter hire. 10 hours light aircraft charter.
Lansdowne W.A. 6M34 64/723	Regional geological mapping of Lansdowne and Mt. Elizabeth 1:250,000 areas.	6 months April - October	K. Plumb D.C. Gellatly G. Derrick ? Allan (WAGS)	Cook Mechanic 4 F/Assts.	1-3 ton 4 x 4 truck 4 SWB L/R 1-4 wheel trailer 2 Jeep trailers 1 Water trailer 2 Transceivers	Continuation of regional geological mapping of Kimberly region in cooperation with W.A.G.S. 30 hours helicopter hire. 15 hours light aircraft charter.
Charters Towers Q'ld. 6M35 64/724	Regional geological mapping. Complete Charters Towers, Bowen (North), Ayr and Prosperpine 1:250,000 areas.	6 months April - October	D. Wyatt (QGS) A.G. Paine C. Gregory D.E. Clarke (QGS) (A. Webb) Part time (F. De Keyser) Part time	Cook Mechanic 4 F/Assts. 1 Draftsman (QGS)	1-3 ton 4 x 4 truck 4 SWB L/R 1 LWB L/R 2 Jeep trailers 1 Water trailer Transceiver 1 Cobra drill	Continuation of regional geological mapping of Burdekin River area in cooperation with Q.G.S. 10 hours light aircraft charter. 4 weeks launch charter. A.G. Paine to lead party for latter part of field season.
Herberton Q'ld. 6M36 64/725	One mile to one inch scale mapping of Herberton-Mt. Garnet area. Investigation of tin deposits.	6 months April - October	J. W. Smith Blake L. Cuttler (QGS)	Cook Mechanic 2 F/Assts. 2 F/Assts. Part time	1-3 ton 4 x 4 truck 3 SWB L/R 2 Jeep trailers 1 Water trailer Transceiver.	Continuation of investigation of Mt. Garnet - Herberton tin-bearing region. In cooperation with Q.G.S. investigation of tin mines, diamond drilling as required. Q.G.S. to supervise diamond drilling. 12 hours light aircraft charter. 15 hours helicopter charter. 100 hours bulldozer hire.
Kajabbi Q'ld. 6M37 64/726	Geochemical orientation studies and detailed mapping of selected areas in Dobbyn Kajabbi, Selwyn-Kuridala and Orphan mine areas.	4 weeks August	W. Dallwitz (A. Mather) Part time		1 Gemco drill unit part time	To assist in interpretation of geophysical results. Geologist attached to geophysical party. Collection of orientation samples in other areas.

METALS (INC. URANIUM) SEARCHGEOLOGICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Rum Jungle N.T. 6M38 64/727	Detailed mapping, diamond drilling, auger drill/geochemical sampling. Analysis and synthesis and plotting at uniform scale of all work done to date at Rum Jungle.	May - December	C. Prichard W. Dodson Brien (W. Oldershaw) Part time	3 F/A } 1 D/O } ex D.U.G. Contractor	3 L/R Microscopes and slide cutting equipment. 2 Jeep trailers (All D.U.G.)	Darwin Uranium Group project. 50,000 feet auger drilling by contract. Revision of part of Rum Jungle Special Sheet. 2,600 feet Diamond Drilling to be carried out by contract on E.M. anomaly north of Dolerite Ridge.
Union Reefs N.T. 6M32 64/728	Diamond drilling of Union Reefs gold deposits. Detailed geological mapping.	Continuous to June 1964.	J. Shields J. Ivanac	1 F/A Contractor	1 Jeep trailer 1 Water trailer	Continuation of 1963 programme. Part of Special Mineral Exploration Programme. Supervision by Darwin Uranium Group. Extension of programme beyond June 1964 dependent on results achieved.
Tennant Creek N.T. 6M39 64/729	Detailed geological mapping (Mt. Woodcock 1 mile area) and geochemical survey "Aeromagnetic Ridge" and Mary Lane areas. Structural analysis of Tennant Creek field. Waggon drilling (3,000') - Northern Star area. Diamond Drilling (2,000') - Eldorado Auger Drilling (60,000') - Aeromagnetic Ridge.	6 months April - October	D. Dunnett R. Harding (A. Mather) Part time	Cook 4 F/Assts. Contractors Mechanic (BMR Gemco) (operators) Part time	3 SWB L/R 1 4 x 4 truck 1 Water trailer 1 Jeep trailer BMR Gemco part time	In conjunction with Geophysical Branch and Resident staff. To assist in interpretation of magnetic anomaly patterns on Tennant Creek field. Diamond Drilling at Eldorado is unlikely to be carried out.
Manganese W.A. 6M40 64/730	Diamond drilling to test manganese deposits, Pilbara area, W.A.	?	W.A. Geological Survey	-	-	Supervision by W.A. Geological Survey. Suggested programme is for a total of 800 ft. of drilling on leases 268 (Woodie Woodie); and 532 (Mt. Sydney). Drilling to be carried out by W.A. Mines Dept. at £6 per foot.
Evaluation	Geochemical research, field projects.	?	P.R. Dunn			To take part in the investigations of the Wittenoom Gorge asbestos deposits, if required.
Geochemical Sampling QLD. & N.T. 6M43	Regional geochemical sampling. Preparation of geochemical maps and sample index. Townsville-Bowen Basin, Amadeus Basin areas Bougainville and other areas as required.	Continuous	A. Mather	7 F/Assts. (3 part time)	3 LWB L/R	Attached to required mapping parties.

METALS (INC. URANIUM) SEARCHGEOLOGICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Apporx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
Astrolabe P.N.G. 6M41 64/731	1. Detailed mapping and geochemical survey Astrolabe gold/copper field.  2. Reconnaissance mapping and stream sediment sampling, Vanapa River, Port Moresby - Aban area.	6 months May - November	K. Yates D. French R. de Ferranti (A. Mather) Part time	Cook 4 F/Assts. Native Labourers Mechanic	1 4 x 4 1 L.W.B. tabletop L/R 1 SWB L/R 1 LWB L/R 2 6 H.P. Tote Gote motor scooters 2 Jeep trailers Transceivers	Geochemical sampling by hand auger using native labour. Supervision by Senior Resident Geologist. Geological survey in conjunction with aeromagnetic survey. 200 hours bulldozer hire (£7.10.0./hour). 10 hours light aircraft hire. Air photographs and contouring Laloki-Dubuna area (contract for £5000 to be arranged by National Mapping).
Darwin Uranium Group 6UD 64/733	Quarterly inspection of uranium mines and inspection of uranium prospects as required; provision of staff for Rum Jungle investigations; general administration; preparation of records of uranium search and mining activity in the N.T. Supervision of drilling contracts as required including Union Reefs.	Continuous	C.E. Prichard W. Dodson Brien	as per establishment Contractors.	as per establishment 1-2 berth caravan 1 L.W.B. L/R 1 Water trailer for Gemco drill crew	
Age ~ Determinations Qld. N.T. W.A. 6M5 64/734	Collection, mineral separation and dating of rock samples, East Queensland, N.T., and Kimberley areas. Arunta Complex (Amadeus).	Continuous	A. Webb M. Bofinger M. Rhodes P. Leggo	3 F/Assts.	1 SWB L/R 2 Cobra drills	In conjunction with field parties and Department of Geophysics, A.N.U. (See Laboratory programme).
Canberra 6X3 64/735	Detailed mapping in some 1:50,000 areas of Canberra 1:250,000 Sheet. Geochemical stream sediment sampling in limited areas.	Summer 1963/4 and as opportunity offers.	J. Ivanac Students	2 F/Assts.	2 L/R	Continuation of part of last year's programme with emphasis on geochemical sampling.

GEOPHYSICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
Derby and Beaconsfield Tas. TMG21 63/589	Gravity survey	Feb.-March	A. Howland-Rose	N. Ashmore Surveyor & Chairman (D of I)	1 L/R 1 Gravity Meter	Investigation of deep leads requested by Tas. Mines Dept.
Mt. Lyell Tas. TMG20 63/584	EM, IP, SP surveys	Jan.-Feb.	J. Williams J. Haigh R. Andrews	2 F/Assts Surveyor & Chairman (D of I)	2 L/Rs	Surveys of Gormanston and Comstock Valley areas. Requested by Mt. Lyell M. & R. Coy.
Zeehan Tas. TMG20 62/650	EM, IP, SP surveys	March - April	J. Williams J. Haigh R. Andrews	2 F/Assts Surveyor and Chairman (D of I)	2 L/Rs	Extension of 1963 work in Oonah Mine area requested by Clutha Development.
Dobbyn Q'ld. TMG22 64/739	EM, IP, SP surveys	May - September	J. Gardener J. Haigh A. Howland-Rose R. Andrews	1 Mechanic 3 F/Assts 1 Cook Surveyor and Chairman (D of I)	1 3-ton truck 2 L/Rs	Continuation of 1963 investigation in Dobbyn area.
Liontown Q'ld. TMG22 64/740	IP tests	October	J. Haigh R. Andrews	3 F/Assts 1 Cook 1 Mechanic	1 3-ton truck 2 L/Rs	Tests of IP method over EM anomalies recorded in 1959 EMR survey and subsequently drilled by QLD. Dept. of Mines.
Darwin Uranium Group N.T. TUGD 64/741	Laboratory Services, logging, field surveys (Including Coronet Hill if staff available).	Continuous	J. Ashley 2 Geophysicists	R. Eastick B. Riley J. Zeroni Surveyor (D of I)	Vehicles listed under Darwin Uranium Group.	Field surveys to include programme agreed to by B.M.R., TEP and A.A.E.C. D of I surveyor required to lay out grids for geochemical (Geol. Branch) and geophysical work.

METALS (INC. URANIUM) SEARCHGEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
VH-MIN Western Australia 7MAF10 64/742	Aeromagnetic and radiometric survey, Menzies, Leonora and Edjudina at 1-mile spacing	Mid-Aug to Mid-Nov.	A. Drage D. Tipper	P. Turner C. Braybrook K. Mort D. Park 1 Draftsman	1 Mobile dark room 1 Station Wagon 4 x 2 2 1-ton Pick-up trucks 4 x 4	Requested by W.A. Mines Department.
VH-GEO Renison Bell Tas. 7MAF11 64/743	Detailed aeromagnetic survey	March	B. Dockery J. Milsom	S. Scherl 1 Draftsman 2 Geophys.Assts.	1 Station Wagon 4 x 2 1 1-ton truck, 4 x 4	Survey to cover area about 5 x 6 miles, including Federal and Dalcoath Creek Workings where ground surveys requested by Renison Ass. Tin Mines.
VH-GEO Kalgoorlie W.A. 7MAF12 64/744	Detailed aeromagnetic in Kalgoorlie- Ora Banda area.	April May	B. Dockery W. Finny	S. Scherl 1 Draftsman 2 Geophys.Assts.	1 Station Wagon, 4 x 2 1 1-ton truck, 4 x 4	Detailed investigation of DC3 anomalies.
VH-GEO Darwin-Pine Creek N.T. 7MAF13 64/745	Detailed aeromagnetic survey.	August- September	J. Milsom 1 Geophysicist (Class 1)	S. Scherl 1 Draftsman 2 Geophys.Assts.	1 Station Wagon 4 x 2 1 1-ton truck 4 x 4	Detailed survey of Mt. Bunday and other areas to be selected.
VH-GEO Dobbyn Q'ld. 7MAF14 64/746	Detailed aeromagnetic survey	October	B. Dockery 1 Geophysicist (Class 1)	S. Scherl 1 Draftsman 2 Geophys.Assts.	1 Station Wagon 4 x 2 1 1-ton truck 4 x 4	Extension of 1963 Cessna survey in Dobbyn area.
VH-GEO Tennant Creek N.T. 7MAF15 64/747	Detailed aeromagnetic surveys.	June July	J. Milsom W. Finny	S. Scherl 1 Draftsman 2 Geophys.Assts.	1 Station Wagon 4 x 2 1 1-ton truck 4 x 4	Detailed coverage of selected anomalous areas in Tennant Creek field.

METALS (INC. URANIUM) SEARCHGEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
Astrolabe Field P.N.G. 7MG23 64/748	Contract aeromagnetic survey.					Estimated cost of £5000.

MINERAL RESOURCES BRANCHMINING ENGINEERING SECTION

Tailings Survey W.A. & Q'ld. 9MB 64/749	Mineral Resources in Tailings	Q'ld. June- July W.A. Sept.- October	R.W.L. King	Short term vehicle hire.
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NON-METALS SEARCHGEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Phosphate Investigations 6X2 64/750	<u>Continental Sub-Group</u> Compilation and assessment of data bearing on the occurrence of sedimentary phosphate deposits with checking of existing bore cores and with possible investigations arising therefrom.  <u>Oceanographic Sub-Group</u> Compilation and assessment of Australian oceanographic data bearing on the occurrence of marine phosphate deposits. Marine sedimentary sampling from H.M.A.S. Gascoyne (July-Sept.) H.M.A.S. Diamantina (October).	Continuous	P. Pritchard J. Barrie A. Kaulback Specialist (Dr. Sheldon U.S.C.S.) August-onwards ? 1964  Specialist (from U.S.A.?) 1 Geologist	1 F/Asst.	1 L/R	Reviews by staff and specialist in both sub-groups are intended to provide firm programmes for 1965. Additional staff positions will probably be sought.



ENGINEERING INVESTIGATIONS & HYDROLOGYGEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Darwin River Dam Site N.T. 6S2 64/751	Geological mapping, drill logging.	Three months	D.F. Maggs	1 F/Asst.	1 L/R. 1 Trailer.	Detailed work at dam site and saddles and probably at Perry Springs. Logging and super- vising drilling.
Darwin Brick Deposits N.T. 6S2 64/790	Sampling of brick-making clay and shale deposits. Evaluation of size of the deposits.	6 weeks June- Aug.	D.E. Gardner	1 F/Asst.	1 L/R. (to be supplied from Darwin Office).	2,000 ft. of drilling with B.M.R. Gemco Drill.
Warangoi Hydro- Electric Scheme, New Britain. 6S3- 64/752	Geological mapping. Supervision of drilling.	Two months	E.J. Best			Geological mapping requested by Commonwealth Department of Works. No geophysical work likely to be required in 1964.
Upper Ramu Hydro- Electric Scheme, T.P.N.G. 6S3 64/753	Supervision of drilling	Two months +	P. McGregor (Resident) J.K. Hill (part time)			This will mainly be handled by resident geologist from Port Moresby, but it is thought that he will need some assistance while hydrological work is in progress in Markham valley, and detailed work is being done on Laloki River Hydro-Electric Scheme.
A.C.T. Engineering 6S1 64/754	Geological mapping, possible drill- ing and augering for pipe-line and tunnel, Upper Cotter Dam Site E to Mt. Stromlo, via Tidbinbilla Valley. Detailed mapping, Canberra area; foundation and drainage investig- ations of suburbs; engineering geology in Woden and Belconnen areas; construction materials (including testing of building stones); geological work on water main from Bendora Dam, and water main from Stromlo to O'Connor.	Continuous	E.K. Carter D.E. Gardner J.K. Hill E.J. Best D.F. Maggs  Sub- professionals	3 F/Assts.	1 Holden Utility 3 L/R	Also provide some assistance in engineering geology in N.T. and T.P.N.G. Technical assistant needed for routine work of a technical nature such as plane tabling and other types of survey work, for plotting of this work, and to help in laboratory testing of construction materials. Geophysics could be required for pipe line and tunnel work in 1964 or 1965, but it would possibly be carried out by C.D.W. Testing Laboratories Staff, if the invest- igation is proceeded with.

ENGINEERING INVESTIGATIONS & HYDROLOGYGEOLOGICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Miscellaneous Investigations, A.C.T. 6X1 64/755	(a) Hydrological investigations (i) Siting and testing of bores. (ii) Investigation of sub- surface drainage and proposed urban areas. (iii) Lake Burley Griffin environs, piezometric study. (iv) Routine measurements of water quality and water levels in A.C.T. bores. (b) Geological mapping detailed (as required for above and for engin- eering geology map.)	Continuous as required.	G.M. Burton E.G. Wilson and another if possible.	1 F/Asst.	1 L/R 1 Jeep trailer Sundry pumps etc.	Field assistant employed continuously. Technical assistant sought (submission made December 1962).
Commonwealth Centre Melbourne, Vic. 6S1 64/787	Testing of foundations. Investigation of sub-soil by bores. Assistance in preparation of bore sites and inter- pretation of results. Geophysical assistance also required (See Geophys- ical Branch).		? E.K. Carter			Requested by Commonwealth Dept. Works. Geologists to work in collaboration with Dr. H. Trollope, consulting engineer, Melb. Uni., and Mr. H.G. Wolfram, Chief Structural Engineer, C.D.W.

ENGINEERING INVESTIGATIONS & HYDROLOGYGEOPHYSICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Cotter R., damsite E A.C.T. 7S15 64/756	Seismic, resistivity and magnetic. Investigation for dam foundations. Borrow pits area and the leakage between Kangaroo Creek and White Sands Creek.	Feb.- March	Polak Kevi	Pigott 4 F/Assts.		
Lake George A.C.T. 7S15 64/756	Seismic, resistivity and magnetic. Investigation of the thickness of lake sediments.	March	"	"		
Bendora Dam Pipe Line A.C.T. 7S15 64/756	Seismic resistivity and magnetic.	March	"	"	Seismic truck Resistivity meter Magnetometer	4 assistants and camp equipment possibly 1 L/R to be supplied by B.M.R. Canberra. Bendora Dam Pipe Line survey is uncertain. Depends on requirements of Geolog- ical Branch.
Building sites A.C.T. 7S15 64/756	"		"	"	1 extra L/R from Canberra?	
Murray Valley Vic. 7S17 64/757	E.M. Magnetic and resistivity survey for Underground water.	July Sept.	Mann	4 F/Assts. 1 Foreman	Resistivity meter E.M. Magnetometer L/R	For State Rivers and Water Supply Commission. Foreman to be supplied by I.W.S.C. Salt water problem.
Markham Valley T.P.N.G. 7S18 64/758	Gravity magnetic resistivity survey for Underground water.	May October	Andrew Wainwright	5 F/Assts.	Gravity meter Resistivity meter Magnetometer Barometers 2 L/R's from Admin.	Field assistants to be supplied by Administration. Topographic Survey to be organised.
Burdekin Delta Q'ld. 7S14 64/759	Salt water Resistivity	2 weeks July- August	Polak	Pigott 1 Driller 5 F/Assts.		Repeat resistivity to check on underground salt water movement from sea. 4 F/Assts to be supplied by I.W.S.C., QCS (2).

ENGINEERING INVESTIGATIONS & HYDROLOGYGEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Stradbroke Is. Qld. 7S18 64/760	Resistivity survey for Undergroud water.	6 weeks July- August	Polak	Pigott 1 Driller 5 F/Assts.		For Q.G.S.
Vibration Tests 7S18 64/761		As required				Vibration tests to be diverted to contractors wherever possible.
Commonwealth Centre Melbourne, Vic. 7S18 64/787	Testing of foundations. Tests also required for location of an under-ground soilway system to cross the site of the Centre.					Requested by Commonwealth Dept. of Works.

REGIONAL GEOPHYSICAL SURVEYSGEOPHYSICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
N.E. Victoria 7RG4 64/762	Regional gravity traverses N.E. Vic.	April	J. van Son	1 F/Asst.	2 L/R 1 gravimeter 2 microbarometers	
Isogal Regional Gravity Survey 7RG11 64/763	E-W gravity ties across Australia between pendulums using chartered aircraft.	April - Oct.	B.C. Barlow for 3-4 weeks	1 F/Asst. W. Lowndes	1 L/R 1 gravimeter 2 microbarometers	About 11 E-W Runs, approx. 75,000 miles. Aircraft charter total cost about £13,000.
Pendulum Gravity 7RG11 64/764	Pendulum measurement Melbourne, East Coast Chain and Port Moresby Adelaide- Darwin.	May- Oct.	Shirley	1 F/Asst.	1 - 1 ton Inter. 1 - 2 wheel trailer Pendulum equipment	W. Langron for first 4-6 weeks.
Gravimeter Tests 7RG11 64/764	Gravimeter performance tests and calibration.	As required	W.J. Langron and B.C. Barlow	1 - 2 Students during Jan.-Feb. period.	1 Sedan or other	
Earth Tide 7RG11 64/764	Earth tide recording, development, etc.	Jan-Dec.	Replacement for L.M. Hastie		Occasional use of 1-1 ton vehicle when shifting equipment.	
Computing 7RG11 64/764	Automatic Computing Procedures	Jan-Dec.	Replacement for L.M. Hastie J.H. van Son	D. Townsend V. Belcher		
Gravity Map 7RG11 64/764	Gravity map of Aust.	Continuing	As available			
Gravity N.S.W. & QLD. 7RG11 64/785	Gravity readings along 3rd-order levelling traverses of National Mapping		Darby	1 Tech/Asst. (Gd II)	1 L/R	3-4,000 miles of traversing. Area mainly confined to northern part of N.S.W. and to lesser extent southern Qld.

## REGIONAL GEOPHYSICAL SURVEY

## GEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Isogonic Map 7RG11 64/765	Regional magnetic completion of 1965 isogonic map.	Jan.- March	J. van der Linden		1 Station Sedan ex Melbourne	Detailed Survey of Tasmania to be included.
Declination N.S.W. & Q'ld. & Tas. 7RM9 64/765	Regional magnetic Coasts of N.S.W. and Q'ld., Central Q'ld.	Mar.- April	J. van der Linden	1 F/Asst.	One Station Sedan on hire from Dept. of Supply Melb. Declinometer 320 Watts Theodolite Philips Portable radio and allied equipment.	Tas. declination stations at an interval of 5 miles along all main roads in Tasmania.
Re-occupation 7RM10 64/765	Regional magnetic Cocos, Direction, Christmas, Nauru, Ocean and Lord Howe, Willis, Islands etc.		J. Van der Linden			
Variograph 7RM8 64/765	Development of fluxgate variograph involving testing survey to Darwin?		J. van der Linden			
Ice Thickness Wilkes 7RM8 64/766	Semi-detailed investigation of high accumulation area and ice dome south- east of Wilkes. Gravity, magnetic, seismic.		Whitworth (Resident at Wilkes)		Gravity meter Magnetometer 700 OB 12 channel seismic equipment.	

OBSERVATORIESGEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
Rabaul T.P.N.G. 6GR 64/767	Maintenance of Vulcanological Observatories at Rabaul and Manam et al. Setting up of seismic stations (3) in Blanche Bay.	Continuous	C. Branch J. D'Addario			

GEOPHYSICAL BRANCH

Melbourne Observatory Vic. 7RO2 64/768	Tidal gravity, modification of instrument. Tidal gravity, scaling and analysis Remote seismic recording (to Melbourne office)	Jan, Feb. Feb. June continuous after installation	Cook Cook Cook	Toy Mrs. Bodo Toy	Heiland gravity meter Speedomay recorder ditto Sprengnether vertical Helicorder.	
Headquarters Vic. 7RO10 64/768	Magnetic data processing	continuous	van der Waal Cook	3 computing assistants Miss Stewart	Modified telereader etc.	
Toolangi Vic. 7RO1 64/768	Magnetic recording  Seismic recording	continuous  continuous	van Erkelens Branson	Toy (Biggs) Part time	Lacour magnetograph QEM, BMZ, proton mag.  Benioff L. & S. period Press-Ewing long period	
Mundaring W.A. 7RO4 64/769	Magnetic recording (macrofield)  Micropulsation Seismic recording Field seismology Ionospheric recording	continuous  continuous continuous continuous	McGregor Everingham Carrard	Parkes Word 1 Typiste 1 Groundsman	Eschenhagen magnetograph QEM, BMZ, declinometer Equipment being developed in B.M.R. Vela seismographs Benioff & Vilmore seismographs Cossor ionosonde	



OBSERVATORIESGEOPHYSICAL BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
Port Moresby T.P.N.G. 7R05 64/770	Magnetic Recording	continuous	Brooks Cookson Wilkie Ripper	Jones Ciszek Noah	La cour magnetograph, normal and rapid run QHM, BMZ etc.	
	Seismic recording	continuous		3 Assistants	Vela seismographs	
	Field seismology	continuous			Equipment being made by United geomasurements.	To be installed about mid- 1964.
	Ionospheric recording	continuous			Ionospheric Prediction service.	
	Radio scintillation recording	continuous			Received and tape recorder in conjunct- ion with R.R.B.	
Macquarie I. 7R06 64/771	Magnetic recording	continuous	Lodwick Gregson (reporting)		La cour normal and rapid run QHM, BMZ etc.	
	Seismic recording	continuous			Vertical Benioff	
Mawson 7R07 64/771	Magnetic and Seismic recording	continuous	Cooke Black (reporting)		La cour normal run Bar fluxmeter Benioff L & S period	
Wilkes 7R08 64/771	Magnetic and Seismic recording	continuous	Small Whitworth		Ruska normal and rapid run Press Ewing long period seismic. Grenet short period vertical.	Report deferred to 1965.
Darwin N.T. 7R09 64/772	Seismic recording	continuous	Ashley & Others		Willmore seismograph	
	Investigation &/or supervision of new installation	possibly 2 weeks during year	van der Waal or Cook			

RESIDENT GEOLOGICAL STAFFGEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
Darwin N.T.	(a) Oil Search. attend P.A.B., advice	As required	<u>P.W. Crohn</u>			
6GD	(b) Metals:	"	<u>J. Barclay</u>			
64/773	Examination of Mines & Mineral deposits. Supervise Mines Branch Drilling Programme					
	(c) Non-metals:	"	<u>P. Rix</u>			D.E. Gardner (ex Canberra) will spend 6 weeks (June-Aug.) sampling brick-making clays shale deposits to evaluate size of deposits. 2000 ft. of drilling with HIR Gemco Auger is required.
	Investigation of clay, sand and lime deposits.					
	(d) Engineering Geology	"	<u>J. Shields</u>			
	(e) Water Supply:	"	<u>A. Van der Plank</u>			
	Darwin River Damsite (detailed mapping). Selection of Bore sites.					
	(f) General, geological duties.	"				
Tennant Creek N.T.	(a) Metals, examination of mines and mineral deposits, supervi- sion of Mines Dept. drilling.	"	<u>S. Yeaman</u>			
6GT	(b) Water Supply; Cabbage Gum and Seven-Mile areas.					
64/773						
Alice Springs N.T.	(a) Metals; examination of mines and mineral deposits	"	<u>D. Wooley</u>			
6GA	(b) Engineering	"	<u>I. Youles</u>			
64/773	(c) Water Supply		<u>R. Morton</u>			
			<u>I. Faulks</u>			
Port Moresby T.P.N.G.	Services to Administration; supervision of drilling advice to prospectors;	Continuous	<u>J.G. Best</u>			
6GMO	Port Moresby Hydro-Electric Scheme;		<u>C.H. Brouxhon</u>			
64/774	Ramu Hydro Electric, Geo-hydrology, Markham Valley and Rabaul, assistance in Laloki Metals Survey and reconnaissance at Hau River.		<u>D. French</u> ( <u>R. de Ferranti</u> ) Part time			
Wau T.P.N.G.	Services to Administration;	Continuous	<u>R.G. Horne</u>			
6GW	Supervision of drilling, assistance to prospectors etc.		<u>J.A.J. Smit</u>			
64/774						

## LABORATORY AND WORKSHOPS

## GEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional Staff	Vehicles, Equipment	Remarks
<u>PALAEONTOLOGICAL LABORATORIES</u>						
Macrofossils 6LMA 64/775	Examine, describe and identify macrofossils. Some visits to field parties.	Continuous	A.A. Opik J.C. Tomlinson J.M. Dickins S. Skwarko C. Gatehouse	A. Miniotas H. Doyle	Nil	
Microfossils 6LMI 64/775	Examine, describe and identify microfossils; some visits to field necessary.	Continuous	G.R.J. Terpetra D.J. Belford P.R. Evans P. Jones A. Lloyd E. Hodgson	F. Hadzel C. Mundy A. Jaatinan H. McKenzie	Nil	Much material from oil wells throughout Australia and New Guinea is examined following company requests.
Specialists Contracts S248	Continue with preparation of catalogue of type specimens in Australia. New South Wales to be done in 1964. Study of Permian fossils.	Continuous in her own time.	Dr. I. Crespin	-	-	Catalogues on Tasmanian and Western Australian material completed in 1963.
S249	Palaeobotanical examination and identification of flora submitted by field parties and from subsidised wells.	As occasion arises.	M.E. White (Sydney)	-	-	Limit of £700 for calendar years 1963 and 1964, at rate of £1 per hour.
60E05	Petrological study of outcrop samples and cores and cuttings from selected wells.	Continuous to at least June 1964	Dr. A. Fehr (I.F.P.)	2 T/Assts (I.F.P.)	-	Necessary for field visits to Bowen and Amadeus basins if contract extended beyond June 1964.
S278	Sedimentary petrology of selected measured sections in Amadeus Basin.	Dec.- April	Dr. K. Crook (ANU)	At University laboratory	-	Funds provided on estimates for such specialist employment during University vacation.
S283	Development of atomic adsorption spectrometry.	June- August	To be selected	C. Rand (A.N.U.)	-	-

## LABORATORY AND WORKSHOPS

## GEOLOGICAL BRANCH(Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional Staff	Vehicles, Equipment	Remarks
Petrological and Chemical Laboratory 6LP 6LC 64/776.	Petrological and Age Determination: Routine petrological work as required. Consultation with field geologists on petrological problems. Setting up of testing facilities for building stone investigations. Completion of investigation of Tennant Creek porphyries and of granitic rocks from the southern margin of the Amadeus Basin. General organisation of the age determination programme and associated petrological work. Completion of report on investigation of the Rum Jungle Complex. Organisation of Data processing and information retrieval for petrological information. Studies on P.N.G. volcanic rocks.	Continuous	W.E. Morgan W. Oldershaw A. Webb J.H. Rhodes P. Leggo M. Bofinger  G. Taylor	(1 T/A) 1 Punched card Operator	1 Bedford Combi Van.	Visits to field parties as required.          Visits to P.N.G. as required. Light aircraft charter 20 hrs.
Petrological and Chemical Laborat- ories 6LP	Mineragraphy - X-Ray Spectroscopy: Routine mineragraphic investigations as required. Investigation of selected ore deposits in conjunction with syngenetic ore research. Studies of low temperature synthesis of sulphides and associated textures. Installation of automatic X-Ray spect- rograph and calibration of this instrument for use in geochemical and petrological programme. Continuation of investigation of analytical methods by the Manual X-Ray spectrograph. Rb/Sr analyses on age determination samples, and other analyses as required.	Continuous	W.M.B. Roberts S.C. Goadby I. Pontifex			Visits to field parties as required.
Palaeomagnetic studies of Australian rocks. 6LP 64/789	Collection of oriented samples from Bowen Basin, other areas as required. Laboratory studies.	Continuous	F. de Keyser	1 F/Asst.	1 LWB L/R 1 portable drill 1 water trailer	In association with A.N.U.



LABORATORY AND WORKSHOPSGEOPHYSICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
<u>Development Group</u>						
Terrella Project 7LX4 64/777	Continuation of investigation of electromagnetic induction in the oceans by model experiments in geomagnetism.	As opport- unity occurs.	Parkinson			
Fluxgate variograph 7LX4 64/777	Development of and testing variograph for measuring magnetic field. Required for first order absolute magnetic surveys.	As avail- able	Seers van der Linden			Local and field trips for testing.
Magnetometers 7LX4 64/777	Complete in construction and testing of 4 airborne proton magnetometers. (MNSI). Investigate use of new magnetometer with observatory "vector" coils for Z and H measurements.		Seers			
Clocks and Timers 7LX4 64/777	Complete construction and testing of crystal clocks. Other devices requiring precise timing.		Seers			
Rock Testing 7LX4 64/777	Further development of inductive means of measuring rock conductivity. Investigate simple apparatus for measuring remanent magnetism.		Phan			
Induced Polarization 7LX5 64/777	Investigation into sand-clay-water mixtures.	April- December	Kevi Laboratory Staff			

LABORATORY AND WORKSHOPSGEOPHYSICAL BRANCH(Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
Others 7LX5 64/777	Various jobs as required					
<u>Maintenance Group</u>						
Seismic Playback Group 7LX5 64/778	Installation and development of operating procedures of seismic playback system.	Continuous	Barlow Spence			
Logging Equipment 7LX5 64/778	Evaluation, co-ordination and overhaul of Branch's deep logging equipment including C.V.L.		Jesson Barlow Radeski K. Reine W. Wiebanga	1 Workshop staff		Testing C.V.L. equipment at Childers Cove, between Port Campbell and Warrambool Vic. (20/1/64 to 24/1/64)
Seismic Equipment 7LX5 64/778	Integration of new seismic equipment.					
Other 7LX5 64/778	Other maintenance as required.					
<u>Mechanical Design</u> 7W	Design of mechanical devices and equipment as required.					
<u>Workshop</u> 7W	Construction, maintenance and repairs of equipment as required.					



LABORATORY AND WORKSHOPSMINERAL RESOURCES BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
<u>Mining Engineering Section</u>						
Manganese Benefication 6LC	Induced radioactivity sorting of manganese ore.		A.M.D.L.			
<u>Petroleum Technology Section</u>						
Laboratory 8LX	Laboratory investigations (a) Determination of physical characteristics of core and outcrop rock samples (porosity, permeability density, fluid content) (b) Analysis of reservoir fluids (water, gas, oil) (c) Standard oil testing (d) Drilling fluid investigations (evaluation of mud materials, chemicals and other additives and drilling muds produced therefrom, drilling and mechanics). (e) Other reservoir engineering investigations (f) Investigation of oil well cements. (Evaluation of technical specifications, chemical control etc.)	Continuous	Pet.Tech.Class 111 Pet.Tech.Class 11 Pet.Tech.Class 1V (Intermittent general supervision)	Technical Assistant	Full compliment of suitable labor- atory equipment including high- temperature gas chromatagraph	(f) Cement investigations. It is proposed to commence this work in the financial year 1963/64. Suitable laboratory equipment will have to be acquired first.
<u>PETROLEUM EXPLORATION BRANCH</u>						
Specialist Contract S248	Revising fossil lists of Sepik District, P.N.G.	Canberra in own time	D.I. Crespin			

OFFICE AND MISCELLANEOUSOPERATIONS BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
<u>Planning and Co-ordination Section</u>						
B.M.R. Programme	General study and preparation of programme. Advice to States and companies on programme. Co-ordination of B.M.R. activities and liaison with States. Examination of projects for programming. Secretariat of Technical Committee on Underground Water. Supervision of Pictorial Index, and Programme and Progress Maps.	Continuous	D.A. White G.F. Clarke R.W. Haynes W. Jauncey			Visits to field parties.
Microseismic 5X 63/573	Microseismic noise level survey Tennant Creek Mt. Isa, Duchess, Cloncurry.	17th Feb.- 26th March	G.F. Clarke J.F. Ivanac (Part time)	2 F/A	1 Bedford 4 x 4 3 ton 1 LWB Landrover and trailer 1 SWB Landrover and trailer 1 Water trailer 1 Gemco Drill 1 Seismic Timer	In cooperation with U.K.A.E.A. Van der Waal (Geophysical Branch) to replace G.F. Clarke on 7/3/64.
<u>Publication and Information Section</u>	1. Publications (a) Policy (b) Programme (c) Approval (d) Distribution	Continuous	K.M. Kennedy N.O. Jones A.J. Gourlay J.H. Herlihy P.M. Stott	Clerk Clerk (Library)		
	2. Press Statements and Technical Articles	As required				
	3. Technical Enquiries	Continuous				
	4. Records (a) Approval (b) Classification	Continuous				
	5. Past Technical Information Classification	Continuous				
	6. Open File Circular	Quarterly				
	7. H.O. Library					

## OFFICE AND MISCELLANEOUS

## GEOLOGICAL BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-Professional staff	Vehicles, Equipment	Remarks
Miscellaneous Transport 6X	Vehicles used to support field activities e.g. purchases, collection of parcels etc. in the A.C.T.					
Australia and Oceania	Compilation of 1:4,000,000 geological maps.	Continuous	B.K. Graham	1 Draftsman ?		
Stratigraphic Indexing & Lexicons.	Maintenance of stratigraphic index cards.	Continuous	F.I. Townsend C. Mitchell			
Sedimentary Petrology 60EO5	Continue sedimentary petrology of samples from Bowen-Surat Basin, and Georgina Basin.	Continuous	R. Nicols L. Bastian C. Gregory	T.A.'s provided by I.F.P.	-	Working and training under Dr. Fehr of I.F.P. Some visits to field necessary. Gregory engaged largely on igneous petrology of Bowen Basin.
Map Editing	Editing of geological maps for publication.	Continuous	G.M. Burton E.G. Wilson			See miscellaneous investigations.
Photogeological Group	Preparation of base maps (in some cases), photointerpretation and geological interpretation compilations for use by field parties. The areas will be in Bonaparte Gulf, Artesian, Bowen and Drummond Basins (for Sedimentary Section), and Kimberley Region for Metalliferous Section.	Continuous	W.J. Perry R. Jensen Field Party geologists (Part time)	3 Draftsmen 1 Photographer		Visits to field parties will be made during their mapping season. Field parties will help in photointerpretation of the areas they will be mapping.
Photogeological Contract 60EO5	Continue interpretation of Areas programmed to June 1964 in conjunction with B.M.R. programme; Areas concerned as above.		1 Photo- geologist from the I.F.P.	Draftsmen and Assistants.		After the contract finishes in June 1964, this group could continue work in areas that the Bureau is not mapping in 1964/65, but which will be wanted in the future, e.g. Gnalja Basin or area between Fergusson River and Tennant Creek or east part of Pilbara region.
Mineral Resources	Preparation of index to mineral deposits; mineral maps (Antarctica etc.).		I. McLeod Mizietis F.I. Townsend			

OFFICE AND MISCELLANEOUSGEOLOGICAL BRANCH(Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional Staff	Vehicles, Equipment	Remarks
General	Oil Advisory matters, company subsidy applications, and completion reports, current drilling information preparation of maps showing base exploration data, preparation punch cards of information.	Continuous as opportunity arises.	J.N. Casey J. Thompson D.J. Guppy M.A. Reynolds B. Graham	Clerk  (when available)	-	
	Editing	Part time	K. Townley (A. Jacobsen) (D. Trail) (M.A. Randal) Part time	-	-	3 officers working part time with K.A. Townley to catch up with back log of reports and notes for editing.
<u>GEOPHYSICAL BRANCH</u>						
Miscellaneous Activities	Cleaning repair testing field equipment, miscellaneous small projects and preparations for field activities.					
Miscellaneous Transport	Vehicles used to support field activities e.g. purchases, collection of equipment.					
Rock Magnetism	Study of rock magnetism to assist aeromagnetic interpretation.	Intermittent	As available from airborne Group.			
General	Editing		Oldham O'Connor			

## OFFICE AND MISCELLANEOUS

## MINERAL RESOURCES BRANCH

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional	Vehicles, Equipment	Remarks
<u>Mineral Economics Section</u>						
Commodity Studies	(1) Surveys of industry	9 man- months	As required		Short term vehicle hire as required.	
10X	(2) Survey to obtain material for Summary Reports Copper Limestone Silica	4 man- months	(?) Kalix Kalix		Short term vehicle hire as required.	
Regional Studies	Studies of world mineral industry	*	As required			* Depending on other commitments.
Basic Investi- gations	Investigations of (1) Long-range production and consumption trends.	*	Morgan Livingstone Other staff as available			
	(2) New techniques in mineral extract- ion, processing and utilisation.	*	Ward Kalix Other staff as available		Short term vehicle hire as required.	
	(3) Trends towards substitution	*	Staff as available			
International Commodity Problems	Preparation of briefs and reports Attendance at overseas conferences Lead and Zinc Tungsten Tin Copper (?)	5 man- months	Morgan			
A.M.I.R.	Preparation of Annual and Quarterly Reviews.	28 man- months	As required			
Summary Reports	Preparation of Summary Reports Copper Limestone Silica	6 man- months	(?) Kalix Kalix			
	Preparation of Australian Mineral Statistics volume.	2 man- months	As required.			

OFFICE AND MISCELLANEOUS  
MINERAL RESOURCES BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional Staff	Vehicles, Equipment	Remarks
<u>Mineral Resources Section (Ctd.)</u>						
General	Preparation of Ministerial papers, briefs, advices, etc. Preparation and circulation of information Dealing with enquiries.	16 man- months (will probably be ex- ceeded)	As required			
<u>Mining Engineering Section</u>						
Gold Mining	Report on operation of mines receiving subsidy under the Gold Mining Industry Assistance Act and on development programmes of mines receiving or applying for assistance under the Gold Mines Development Allowance Act (1962).	Continuous	G.F. Mead R.W.L. King			
Manganese Iron Export	Processing applications to export manganese ore and iron ore.	As required	G.F. Mead R.W.L. King			Field work is required to report on proposals to develop iron ore deposits.
Explosives	Liaison with State Mines Departments in preparation of a code of rules for the use of A.N.F.O. explosives in mines.	As required	G.F. Mead R.W.L. King			
Lode Tin Recovery, Qld.  6LC	Preparation of design specifications and pilot plant studies of compact 1-2 ton/hour capacity mill for small tin mines.		Queensland University.			£2000 available on 1963/64 estimates. Proposed tests on ore samples from battery and mill tailings.
<u>Petroleum Technology Section</u>						
Stratigraphic & shot-hole drilling	Supervision of drilling contracts; ordering, maintenance etc. of drilling equipment and materials;	Continuous	Drilling Superintendent Pet. Tech. Class III	Coring Supervisor	As required	This work includes visits to field operations.

OFFICE AND MISCELLANEOUS  
MINERAL RESOURCES BRANCH (Ctd.)

Party/Project Symbol File	Nature of Work	Approx. Timetable	Staff	Non-professional staff	Vehicles, Equipment	Remarks
<u>Petroleum Technology Section (Ctd.)</u>						
Statistics etc.	Preparation of the following: (a) Petroleum tenement map and schedule (Half yearly) (b) Petroleum Newsletter (quarterly) (c) Drilling & other exploration statistics (at least quarterly) (d) Drilling rig movement (monthly) (e) Record of drilling contractors, service etc. companies (f) List of names and addresses of operating exploration companies (g) Revision of BMR Report 41A	Continuous	Pet.Tech.Class II Pet.Tech.Class III (intermittently)  Pet.Tech.Class IV (intermittently)  Chief of Section (gen.supervision)	Clerk		
Petroleum Engineering	(a) Estimation of petroleum reserves & valuation work (b) Reports and papers on laboratory investigations in reservoir eng. etc. (c) Liaison with P.E. Branch on drilling and policy matters in connection with Petroleum Search Subsidy Act 1959-1961	Intermittent	Pet.Tech.Class IV (intermittent); Pet.Tech.Class III (intermittent); Pet.Tech.Class III (intermittent)			
Oil Advisory Committee	All matters of O.A.C. (Chief of Section is a member of the Committee and, also the Convener/Secretary)	Continuous	Chief of Section Pet.Tech.Class IV (intermittent)	Clerk (as required)		