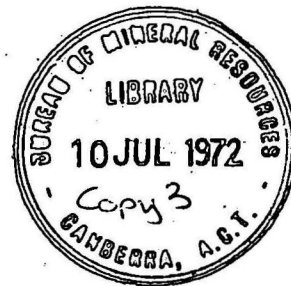


COMMONWEALTH OF AUSTRALIA

DEPARTMENT OF
NATIONAL DEVELOPMENT
BUREAU OF MINERAL
RESOURCES, GEOLOGY
AND GEOPHYSICS



Record No. 1972/41

**BMR
1972 PROGRAM**

Compiled by

R. Thieme

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**BMR
Record
1972/41
c.3**

Record No. 1972/41

**BMR
1972 PROGRAM**

Compiled by

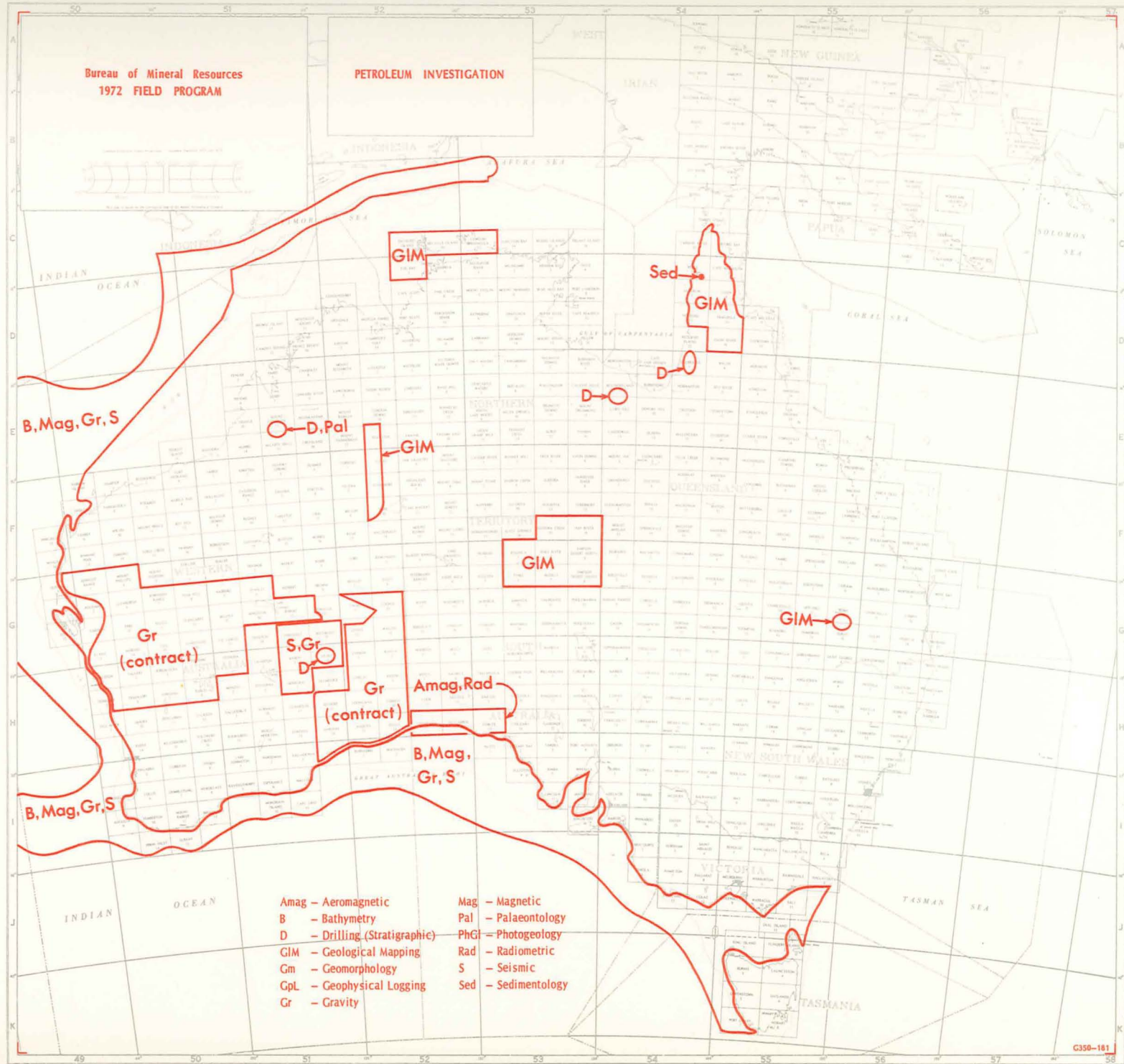
R. Thieme

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NOTES

1. The program does not list the preparation of BMR Records (unpublished) on the results of current projects; however, it can generally be assumed that such Records will be prepared for most projects. A list of Records released on Open File is brought out regularly by BMR.
2. Publications in preparation (BMR Bulletins, Reports, etc) are listed at the end of each Section and not under individual projects. A list of publications released is brought out regularly by BMR.
3. The dates given in brackets after each field operation refer to the time actually spent in the field. In most cases office work on the project continues to the end of the current year or early in the following year.
4. Geological Survey of Papua New Guinea: The Geological Survey Division of the Papua New Guinea Department of Lands, Surveys and Mines was created by determination of the Minister for External Territories on 22 October 1970. Professional staff for the survey is provided by BMR, while supporting staff belong to the Papua New Guinea Public Service.



PETROLEUM INVESTIGATION

PROJECT

NATURE OF WORK

Carpentaria Basin,
Qld.

Geological mapping of Holroyd, Aurukun, Weipa, Hann River, Jardine River, Orford Bay and parts of Ebagoola, Coen, Cape Weymouth and Torres Strait 1:250 000 Sheet areas - part of long term program to complete geological coverage of Australia at 1:250 000 scale; combined survey with GSQ. (June-Aug, Nov-Dec).

Stratigraphic drilling, 12 holes with average depth of 600' - to provide information on Cainozoic and Mesozoic stratigraphy. (May-June, Sept-Nov).

Sedimentological study of the Bulimba Formation.

Completion of progress and drilling Records on previous year's work.

Western Eromanga Basin,
Qld and N.T.

Field checking of problem areas, around the northern and eastern margins of the Simpson Desert, resulting from 1971 geological mapping - part of long term program to complete geological coverage of Australia at 1:250 000 scale. (Aug-Oct).

Revision of 1:1 000 000 map; preparation of Records on 1971 mapping and drilling.

Re-interpretation of geophysical data.

Roma Shelf, Qld.

Preparation of report on 1967/68 seismic survey.

Hydrogeological Study of
the Great Artesian Basin,
Qld, N.S.W., S.A., N.T.

Collation and review of all hydrogeological data from the basin - to develop an understanding of the groundwater resources, including recharge, hydraulics and chemistry, of the basin; TCUW nominated BMR as the co-ordinating body for this study which will draw on data held by BMR and the relevant State Water Authorities and Mines Departments.

Technical supervision of contract water bore logging in Qld and N.T.

Continuation of logging water bores which the contractor could not undertake for various technical reasons. (Mar-May).

Galilee Basin, Qld.

Preparation of a combined seismic/gravity report on the results of the 1971 geophysical survey aimed at defining the nature of the eastern margin of the basin.

Reconnaissance Helicopter Gravity Survey, N.S.W., Vic., Tas.

Preparation of tender specifications, operational plans and preview report for the 1973 contract survey - part of long term program to provide gravity coverage of Australia at a station density of one station per 50 sq. miles or better.

Eucla Basin, S.A.

Aeromagnetic and radiometric survey of Coompana (part) Nullarbor (part) and Fowler 1:250 000 Sheet areas at 1.5 km line spacing - part of long term program to provide regional aeromagnetic coverage of Australia.

Officer Basin, W.A.

Field checking of problem areas resulting from 1971 geological mapping - part of long term program to complete geological coverage of Australia at 1:250 000 scale; combined survey with GSWA. (Apr-Aug).

Shallow stratigraphic drilling, about 10 holes with average depth of 500' - to confirm stratigraphic succession, provide samples for palynological and isotopic dating, and to study the Quaternary deep weathering profile; in addition, a check on the groundwater potential has been requested by GSWA. (Apr-Aug).

Reconnaissance seismic reflection/refraction survey across the southwestern Officer Basin from the southern end of Lake Throssel to Warburton Mission - to provide information on the subsurface configuration of the basin and to enable correlation across the basin. (July-Nov).

Detailed gravity survey along seismic traverses and elsewhere as appropriate - in conjunction with the above seismic survey. (Aug-Oct).

**Northeast Canning Basin,
W.A.**

Re-interpretation of existing seismic and aeromagnetic data.

Geological mapping of Canning Basin outcrops on Billiluna, Lucas, Stansmore and possibly Webb 1:250 000 Sheet areas - start of program to complete coverage of Canning Basin at 1:250 000 scale; part of this work will include revision of existing 1:250 000 maps compiled as a result of reconnaissance geological mapping in the 1950's; combined survey with GSWA. (May-Sept).

**Canning Basin Palaeontology,
W.A.**

Sampling of Late Devonian rocks for conodonts in the Bugle Gap to Oscar Range area (Lennard Shelf) - to elucidate age of initial reef growth, age of Fairfield/Laurel Formations and phylogeny of selected genera; combined survey with GSWA. (May-July).

Shallow stratigraphic drilling consisting of 5-7 holes with average depth of 500'. (May-July).

**Reconnaissance Helicopter
Gravity Survey, W.A.**

Gravity coverage of the remainder of W.A., viz. Carnarvon, Eucla and Officer Basins and Precambrian Shield - part of long term program to provide gravity coverage of Australia at a station density of one station per 50 sq. miles or better.

**Melville Island - Cobourg
Peninsula, N.T.**

Geological mapping of Bathurst Is., Melville Is., Cobourg Peninsula and Fog Bay 1:250 000 Sheet areas - part of long term program to complete geological coverage of Australia at 1:250 000 scale. (June-Oct).

Interpretation of marine geophysical data.

Ngalia Basin, N.T.

Completion of Record on stratigraphic (evaporite) drilling.

**Crustal Structure Survey,
Central Australia.**

Preparation and preview report for this 1973 survey - to investigate structures in the crust and upper mantle and their relationships to surface features in central Australia, viz. basins, basin margins, thrusts and nappes.

Review of interpretation of geological/geophysical data in central Australia.

Continuing investigation of deep crustal reflection techniques and checking out of magneto-telluric equipment.

Continental Margin Survey

Supervision, analysis and reporting of the marine geophysical survey of the Australian continental margin; the survey involves bathymetric, seismic, gravity and magnetic recording on lines 20 miles apart between the 20 m and 4 000 m isobaths - to determine, on a reconnaissance basis, the bathymetric and geological nature, and extent, of the Australian continental margin. (Jan-Dec).

Continuous assessment of digital plots and analogue records of raw data from 1970, 1971, 1972 field programs.

Production of non-contractual maps, e.g. seismic horizons, free-air gravity and multiple profile maps.

Reformat 1965, 1967, 1968 magnetic and gravity data from the N.W. Shelf for merging with data from current survey.

**Gulf of Papua and Bismarck
Sea Survey, 1970**

Preparation of Records and papers on survey and on interpretation of results from Bismarck Sea, Gulf of Papua and Eastern Papua.

**Magnetic Survey of
Continental Shelf**

Placement and operation of magnetometer on National Mapping Bathymetric survey ship.

**Development of Field and
Playback Techniques for
Marine Surveys.**

Continuing development of C.D.P. stacking and "Midas" program, data acquisition system, marine playback facilities, and on-line deconvolution.

Possible introduction of air gun refraction source.

Development of Techniques
for Analysis and Presentation
of Results.

Continuation of development of methods
for presentation of horizon information,
model interpretation programs, model
system designs etc.

Specialized programming to maximize efficiency
of use of flat-bed plotting system for plotting
and contouring of marine data.

Marine Progress Map

Collation of marine traverses in the
Australasian area.

Petroleum Subsidy

Administration of the Petroleum Search
Subsidy Act - process applications, follow
progress of operations, inspect operations,
assess final reports, check cost statements,
prepare reports for publication.

Inspection of operations for Northern
Territory Adjacent Area under Petroleum
(Submerged Lands) Act.

Oil Advisory Committee
Reports

Preparation of critical comments on seismic
and gravity reports, N.T. and P.N.G.
submitted to O.A.C.

Sedimentary Basins Study

Completion of structure contour and isopach
maps, and structure, geological history, and
economic geology chapters of Sydney Basin
Review.

Reduction of seismic sections from Canning
and Carnarvon Basins; establishment of
basin-wide stratigraphic correlation; and
continuation of Canning Basin Study.

Reduction of seismic sections from Officer
Basin.

Maintenance of a current assessment of the
progress of petroleum exploration and of the
prospectiveness of the sedimentary basins
of Australia and Papua New Guinea.

Establishment of well data storage and
retrieval system.

Gravity Map of Australia

Compilation and computation of existing gravity data for coloured anomaly maps of Australia at 1:2 500 000 scale and Australia and Oceania 1:5 000 000 scale; Bouguer Anomalies will be shown on land while separate maps will show Bouguer and Free Air Anomalies over the sea.

Preparation of small scale anomaly maps (Kodachrome slide) of Australia and Papua New Guinea.

Continuing updating of dyeline transparency Bouguer Anomaly maps of Australia and Papua New Guinea at 1:2 534 000 scale.

Density Project

Collection of density measurements on rock samples for use in gravity calculations.

Seismic Digital Recording System

Investigation of seismic digital recording systems and assessment of requirements for a system for BMR.

Seismic Data Processing

Production of seismic record sections and processing of experimental work for the current seismic program and for review work including that of the Sedimentary Basins Study Group.

Laser-Scan processing of seismic cross-sections investigation of application of Laser-Scanning in other geophysical and geological fields.

Digitizing of seismic data and well and other logs and processing of the data through available computers.

Digital processing of seismic data.

Computer Programming

Development, review and documentation of programs relating to the analysis and interpretation of gravity and seismic data.

PETROLEUM INVESTIGATION - PUBLICATIONS IN PREPARATION

SUBJECT	AUTHOR	WRITING COMPLETE
BULLETINS		
Ngalia Basin, N.T.	A.T. Wells, F.J. Moss	Mid 1973
Central Eromanga Basin	B.R. Senior	Mid 1972
Triassic Sedimentology, Bowen Basin	A.R. Jensen	Mid 1972
Carboniferous Geology of Hunter Valley	B.S. Oversby, J. Roberts (Uni. N.S.W.)	End 1972
Hydrology of S.E. Georgina Basin	M. Randal (G.S.Q.)	Mid 1972
Northern Eromanga Basin	R.R. Vine	1973
Gosses Bluff	D.J. Milton (USGS), F.J. Moss, B.C. Barlow, A.R. Brown	End 1972
Sydney Basin Review	A.L. Bigg-Wither, S.J. Mayne, E. Nicholas, M. Raine	June
REPORTS		
Geotraverse, W.A.	S.P. Mathur, F.J. Moss, et al	Sept
Roma Shelf Seismic	F.J. Moss et al	End 1972
PSSA REPORTS		
8 Subsidy Reports	(Reports on the more important subsidized operations will be selected for publication during the year, including Scott Reef No. 1 well and North Rankin No. 1 well.)	
EXPLANATORY NOTES AND 1:250 000 MAPS		
Hughenden	R.R. Vine	Aug

Jericho	D. Senior	Jan
Normanton	C.J. Simpson	Feb
Red River	J. Smart	Dec
Walsh	K. Grimes (GSQ)	Nov
Browne	M.J. Jackson	Oct
Warri	W.J.E. van der Graaff (GSWA)	Oct
Cobb	W.J.E. van der Graaff (GSWA)	Oct
Herbert	P. Kennewell	Dec
Simpson Desert North	A. Mond	Aug
Simpson Desert South	A. Yeates	June

MISCELLANEOUS MAPS

1:1 000 000 map of Southern
Carpentaria Basin

H.F. Douth

Petroleum Exploration
and Development Titles
Map & Key

Jan-Feb
July-Aug

MISCELLANEOUS PUBLICATIONS

The Petroleum Newsletter

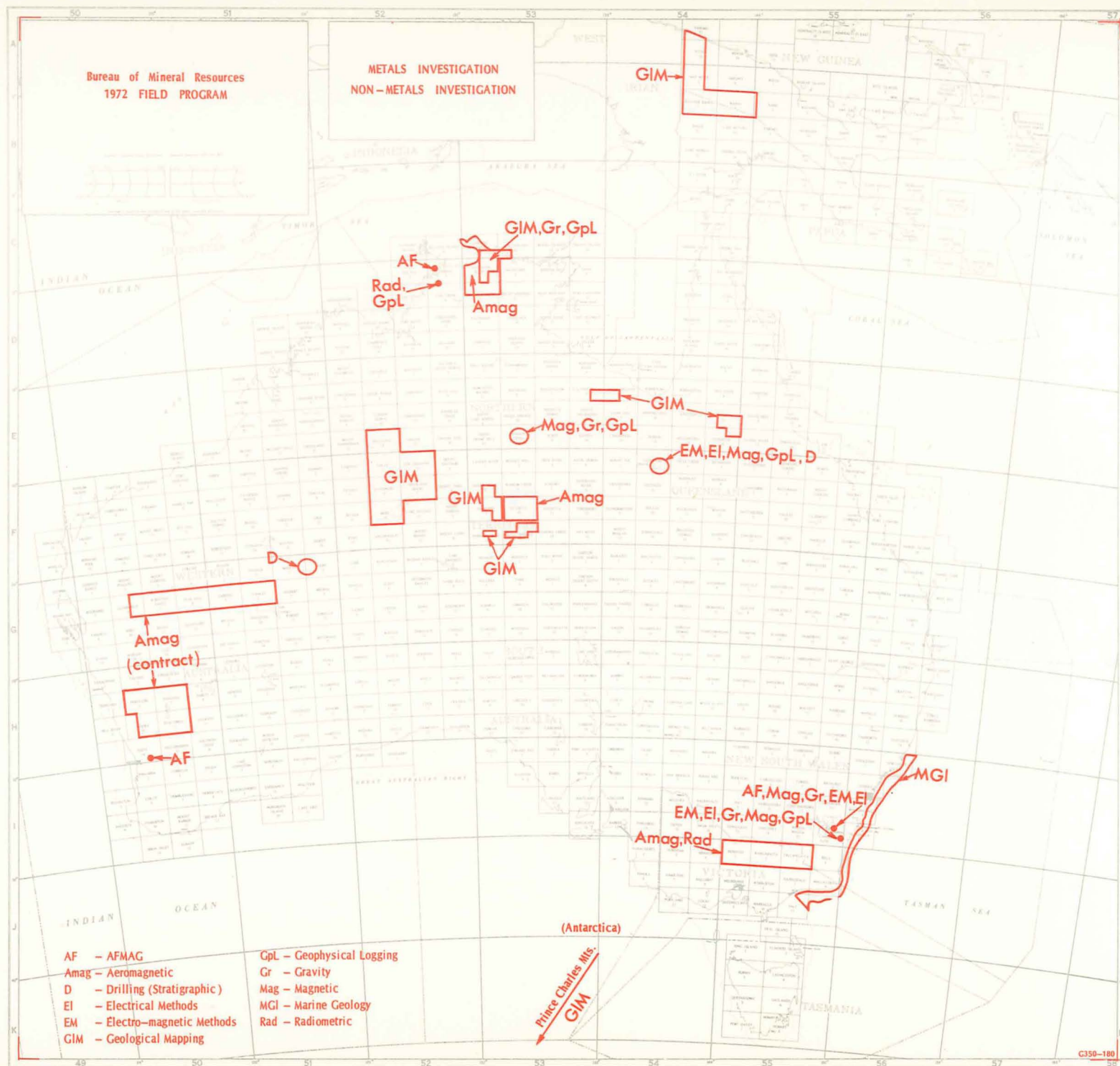
Jan
Apr
July
Oct

Petroleum Exploration
Contractors, Service
Companies and Consultants

June
Dec

Petroleum Exploration and
Development Companies

Jan
June



METALS INVESTIGATION

PROJECT

NATURE OF WORK

Cloncurry - Mt Isa, Qld.

Compilation and writing up of previous geological field work in Marraba, Mary Kathleen, Mt Isa and Cloncurry 1:100 000 Sheet areas; completion of Record on 1970 detailed aeromagnetic and radiometric survey.

Experimental geophysical survey to establish new techniques for finding orebodies in the area and for mapping Precambrian rocks buried under younger sediments; study of exploration problems in areas of deep leaching; attempt at producing a conductivity map of the Cloncurry Sheet area. (June-Aug)

Completion of Record on detailed aeromagnetic and radiometric survey of selected areas.

Preparation of publication on geochemical study of basic volcanics in the region; mineralogical study of scapolites.

Geochronology of rock units by Rb/Sr method in the Cloncurry-Mount Isa area, Eastern Succession and granites mainly.

Interpretation of multispectral photography and thermal infrared imagery; in collaboration with Bedford College (London) personnel.

Westmoreland, Qld.

Geological mapping of Precambrian rocks in the Westmoreland 1:250 000 Sheet area; detailed mapping of uranium bearing rocks in Hedleys Creek and Seigal 1:100 000 Sheet areas; geochemical sampling - part of long term program to study in detail geological provinces of economic potential; combined survey with GSQ. (June-Oct)

Collection of samples of Carpentarian rocks for isotopic dating.

Georgetown, Qld.

Reconnaissance geological mapping and familiarization with Georgetown Inlier; soil, stream and rock sampling for element dispersion study

Geochemical investigation of
Australian granites, Qld.

for background geochemical data - part
of long term program to study in detail
geological provinces of economic potential;
combined survey with GSQ. (July-Oct)

Bowen Geochemical, Qld.

Petrographic study, XRF analyses and age
determinations of north Queensland granites -
to determine relationships between the
granites and their associated mineralization.

Northeast Victoria
Aeromagnetic Survey

Preparation of Record on geochemistry of
eastern half of Bowen 1:250 000 Sheet area.

Contract Aeromagnetic
Survey, W.A.

Aeromagnetic and radiometric survey of
Wangaratta, Tallangatta and Bendigo 1:250 000
Sheet areas at 1.5 km line spacing - part of
long term program to provide regional
aeromagnetic coverage of Australia. (Feb-May)

Remote Sensing Project
(1970), W.A.

Aeromagnetic survey of Ninghan, Bencubbin
Perenjori (part), Moora (part), Glenburgh (part),
Robinson Range, Peak Hill, Nabberu, and
Stanley 1:250 000 Sheet areas - part of long
term program to provide regional aeromagnetic
coverage of Australia. (Jan-Sept). Also Perth
(part), Kellerberrin, Pinjarra (part) and
Corrigin. (late 1972-1973).

West Kimberley, W.A.

Interpretation of experimental colour and
colour infrared 70 mm air-photography of
selected "hard" rock areas.

Completion of record on detailed aeromagnetic,
radiometric and multispectral photography.

Preparation of Records on texture and genesis
of the Narlarla lead-zinc ores; chromite-
bearing ultramafic rocks from near Egans
Bore, Mount Ramsay 1:250 000 Sheet area;
younger Precambrian geology of the Lennard
River and Lansdowne Sheet areas; reconnaissance
geochemistry of the Whitewater Volcanics,
Lansdowne 1:250 000 Sheet area.

Granites-Tanami, W.A./N.T.

Geological mapping of Precambrian rocks in The Granites, Highland Rocks, Billiluna, Lucas and Stansmore 1:250 000 Sheet areas - part of long term program to complete geological coverage of Australia at 1:250 000 scale; combined survey with GSWA. (May-Sept)

Collection of samples for isotopic dating.

Shallow stratigraphic drilling, up to 100 holes with average depth of 50' - to provide sub-surface information (bottom-hole cores) in areas of no outcrop. (Sept-Nov)

Antrim Plateau Volcanics Project, W.A., N.T. and Qld.

Measurement of sections in W.A., and examination of Colless Volcanics in Queensland; sampling of cuttings from water bores in basalt underlying black soil areas in N.T. (July-Sept)

Alice Springs, N.T.

Continuation of detailed and semi-detailed geological mapping of Riddock, Laughlen, Undoolya (part) and Alice Springs (part) 1:100 000 Sheet areas - to provide geological coverage of areas of the Arunta Complex previously covered by reconnaissance mapping only and, in conjunction with post-graduate students and staff from Uni. of Qld and ANU, to examine in detail the nature and evolution of the Carboniferous nappe complex and deformed zones within the Arunta Complex. (June-Oct)

Shallow stratigraphic drilling between Reynolds Range and Strangways Range, about 25 holes with average depth of 50' to 100' - to provide sub-surface information in areas of no outcrop.

Detailed mapping in Ormiston Gorge area (Hermannsburg 1:250 000 Sheet area).

Collection of samples for isotopic dating.

Preparation of progress report (Record) and map of mineral deposits of the Arunta Complex - part of sub-project to produce a regional metallogenic map of the Arunta Complex.

Preparation of Record on Arltunga Nappe Complex and on Arunta Complex, Alice Springs 1:250 000 Sheet area.

Napperby, N.T.

Completion of semi-detailed mapping of Reynolds Range, Aileron, and Tea Tree 1:100 000 Sheet areas; further mapping in Mount Peake 1:100 000 Sheet area; if time permits, map Mount Theo and NW part of Mount Peake 1:250 000 Sheet areas - objectives as for Alice Springs Project.

Collection of samples for isotopic dating.

Examination of mineralized areas on Napperby, Mount Doreen, Mount Peake and Barrow Creek 1:250 000 Sheet areas - for regional metallogenic map of Arunta Complex.

Prepare Record on Reynolds Range, Aileron, and Tea Tree 1:100 000 Sheet areas.

Alcoota, N.T.

Stratigraphic drilling, 3 holes to max. 400'; to include 600' coring to provide fresh samples for dating. If time permits, about 5 rotary drill holes and 5' coring south of Mt Skinner H.S.

Aeromagnetic and radiometric survey of Alcoota 1:250 000 Sheet area; detailed survey of selected areas - part of long term program to provide regional aeromagnetic coverage of Australia; detailed work to assist BMR geological mapping in the area. (Aug.-Oct)

Tennant Ck, N.T.

Study and evaluate results of analyses carried out on samples of Warramunga Group sediments collected during 1971; undertake sampling of ironstones and barren Warramunga sediments (July-Sept); reassessment of geophysical interpretations and some field work mainly of a regional nature (June-July) - study of geological and geophysical problems associated with Tennant Creek mineralization.

Darwin Uranium Group, N.T.

Completion of compilation and writing up of all work in the Rum Jungle area; revision of Rum Jungle Special Map with field checks where necessary.

Alligator River, N.T.

Laboratory services, assaying and investigations using gamma-ray spectrometer, logging, field surveys.

Detailed geological mapping and geophysical investigations in Jim Jim, Mundogie, East Alligator River, Cahill, Wellington Range, Murgarella, Junction Bay and Oenpelli 1:100 000 Sheet areas - to investigate the geological environment of uranium deposits and to study their genesis.

Systematic study of the unconformity surface at the base of the Kombolgie Formation.

Up to 600' of core drilling to obtain samples for isotopic dating.

Preparation of Record on Cahill and East Alligator 1:100 000 Sheet areas.

Aeromagnetic and radiometric survey of Mt Evelyn (part), Alligator River and Cobourg Peninsula 1:250 000 Sheet areas at 1.5 km spacing - part of long term program to provide regional aeromagnetic coverage of Australia and to assist BMR geological investigations in the area.

Mary River, N.T.

Geophysical work to locate possible drilling targets in Gov. Mining Res. No. 275 - requested by N.T. Mines Branch.

McArthur River, N.T.

Preparation of Record on the Proterozoic Barney Creek Formation and H.Y.C. Lead Zinc deposit, and some associated carbonate units, McArthur Group.

West Sepik (Torricelli),
P.N.G.

Follow-up of 1971 West Sepik field season in Wabag and May River 1:250 000 Sheet areas; commencement of mapping in western part of Aitape 1:250 000 Sheet area and reconnaissance of Torricelli Mountains - part of long term program to provide geological coverage of P.N.G. at 1:250 000 scale; in co-operation with Geol. Surv. of P.N.G. (July-Sept)

Collection of samples for isotopic age determination.

P.N.G. miscellaneous

Preparation of Records on Baiyer-Jimi reconnaissance survey, porphyry copper mineralization, metamorphic rocks Garaina - Tapini area, geochemistry of Papuan Ultramafic Belt, and 1971 Helicopter Gravity Survey.

Prince Charles Mountains,
Antarctica

Regional geological mapping in southern Prince Charles Mountains, plus areas in northern Prince Charles Mountains not wholly covered in 1971.

3rd order magnetic spot measurements.

Gravity measurements as opportunity arises.

Investigation of Logging
Methods

Development of I.P. logging techniques to continue; radio shading, gamma-ray spectrometer and E.M. logging techniques to be developed and tested.

Investigation of E.M. Methods

Study literature on Melos and field testing of time domain E.M. equipment MPPO-1. Field tests in areas close to Canberra.

METALS INVESTIGATION - PUBLICATIONS IN PREPARATION

SUBJECT	AUTHOR	WRITING COMPLETE
BULLETINS		
Geochronology of the East Kimberley region, W.A.	Bofinger, V.M. ¹	Indefinite
Precambrian Geology of the Kimberley Region, W.A. - The Kimberley Basin	Plumb, K.A.	1973
Precambrian Geology of the Kimberley Region, W.A. - The West Kimberley	Gellatly, D.C. ¹ , Sofoulis, J. ² , Derrick, G.M.	Late 1972
Antrim Plateau Volcanics and their equivalents in N.T., W.A., and Qld	Bultitude, R.J.	April 1973
Strangways Range Carbonatite, N.T.	Gellatly, D.C. ¹	Indefinite
Geology of the Tennant Creek 1:250 000 Sheet area, N.T.	Mendum, J.R. ¹	Sept
Geology of the Carpentaria Proterozoic Province, Arnhem Land, N.T.	Roberts, H.G., ¹ Plumb, K.A.	Sept
Geology of the Carpentaria Proterozoic Province, N.T.; Roper River to the Queensland border	Dunn, P.R., ¹ Roberts, H.G., ¹ Smith, J.W., ¹ Plumb, K.A.	Indefinite
Geology of the Victoria River Basin, N.T.	Sweet, I.P.	Jan 1973
Geology of the Cloncurry - Mt Isa area, Qld	Derrick, G.M., et al	Dec 1973
Geochemistry of basic rocks, Cloncurry - Mt Isa area, Qld	Glikson, A.Y.	September
Geology of Western Central Ranges, P.N.G.	Davies, H.L., Ryburn, R.J., Hutchison, D.S., Norvick, M.	May 1973
Geology of New Britain, P.N.G.	Ryburn, R.J., Mackenzie, D.E.	October

Geology of southeastern Papua Smith, I.E., Davies, H.L., Sept
Belford, D.J.

REPORTS

Geology of May River 1:250 000 Sheet area, P.N.G.	Davies, H.L., et al.)	
)	
Geology of Wabag 1:250 000 Sheet area, P.N.G.	")	First draft
)	February 1973
Geology of Blucher Range 1:250 000 Sheet area P.N.G.	")	
)	
Geology of Tufi 1:250 000 Sheet area, P.N.G.	")	
)	
Geology of Buna 1:250 000 Sheet area, P.N.G.	")	First draft
)	October 1973
Geology of Salamaua 1:250 000 Sheet area, P.N.G.	")	
)	
Geology of Marraba 1:100 000 Sheet area, Qld	Derrick, G.M., et. al.		First draft June
Geology of Cloncurry 1:100 000 Sheet area, Qld	"		First draft October
Geology of Mary Kathleen 1:100 000 Sheet area, Qld	"		First draft June 1973
Geology of Mt Isa 1:100 000 Sheet area, Qld	"		First draft June 1973
Petrography of the igneous and metamorphic rocks of Arnhem Land, N.T.	Plumb, K.A.		Indefinite
Compilation of geological and chemical information from the Hundred of Goyder, Rum Jungle district, N.T.	Miezitis, Y. ¹		Mid 1972
The geology of the northern part of the Victoria River Basin, N.T.	Morgan, C.M. ¹ Sweet, I.P., Pontifex, I.R., ¹ Mendum, J.R. ¹		March
The geology of the southern part of the Victoria River Basin, N.T.	Sweet, I.P., Mendum, J.R., ¹ Bultitude, R.J., Morgan, C.M. ¹		Mid 1972

Geology of the eastern side
of the Prydz Bay, Antarctica

Bain, J.H.C., McLeod, I.R., Indefinite
Grainger, D.J.,

EXPLANATORY NOTES AND 1:250 000 MAPS

Rockhampton)	G.S.Q.	Late 1972
Port Clinton)		
Victoria River Downs	Sweet, I.P.,	April
Waterloo	Sweet, I.P.,	March
Tennant Creek	Mendum, J.R., ¹	End 1972
Tanami)	Blake, D.H., Hodgson, I.M.,	March 1973
Birrindudu)	Smith, P.A.,	
Alcoota	Warren, R.G.,	April 1973
Wabag	Norvick, M., et al.	December
Ramu)	Bain, J.H.C.,	Mid 1972
Karimui)	Mackenzie, D.E.,	
Wau	Dow, D.B., Smit, J.A.J., ¹	Late 1972
	Page, R.W.,	
Tufi	Davies, H.L., Smith, I.E., ¹	Late 1972
Abau)	Smith, I.E., ¹	March
Samarai)		
Salamaua)	Davies, H.L.,	October ?
Buna)		
Pomio)	Ryburn, R.J.,	October
Talasea-Gasmata)		
Cape Raoult-Arawe)		
Ambunti	Dow, D.B., Hutchison, D.S.,	End 1972
May River	Davies, H.L., et al.	December
Blucher Range	Davies, H.L., Hutchison, D.S.,	December
Stinear Nunataks)	Tingey, R.J.,	October
Crohn Massif)		
Beaver Lake)		
Mount Hicks)		
Fisher Massif)		

MISCELLANEOUS MAPS

1:100 000 Scale

Tennant Creek (special)	Mendum, J.R., ¹	End 1972
Cloncurry	Derrick, G.M., et al.	June
Mary Kathleen	Derrick, G.M., et al.	June
Marraba	Derrick, G.M., et al.	April
Mount Isa	Derrick, G.M., et al.	March 1973

1:250 000 Scale

Cloncurry - Mt Isa area	Derrick, G.M., et al.	1973
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1:500 000 Scale

New Britain	Ryburn, R.J.,	October
West Kimberley	Derrick, G.M.,	Late 1972
Burdekin River Region	Paine, A.G.L., ¹ Levington, K.R., ²	Indefinite
Kimberley Basin	Plumb, K.A.,	June 1973
Victoria River	Sweet, I.P.,	January 1973

1:1 000 000 Scale

Metamorphic Map of Central Australia and accompanying notes	Forman, D.J., Shaw, R.D.,	June
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1. Formerly with BMR
2. With or formerly with State geological survey
3. University or other institution

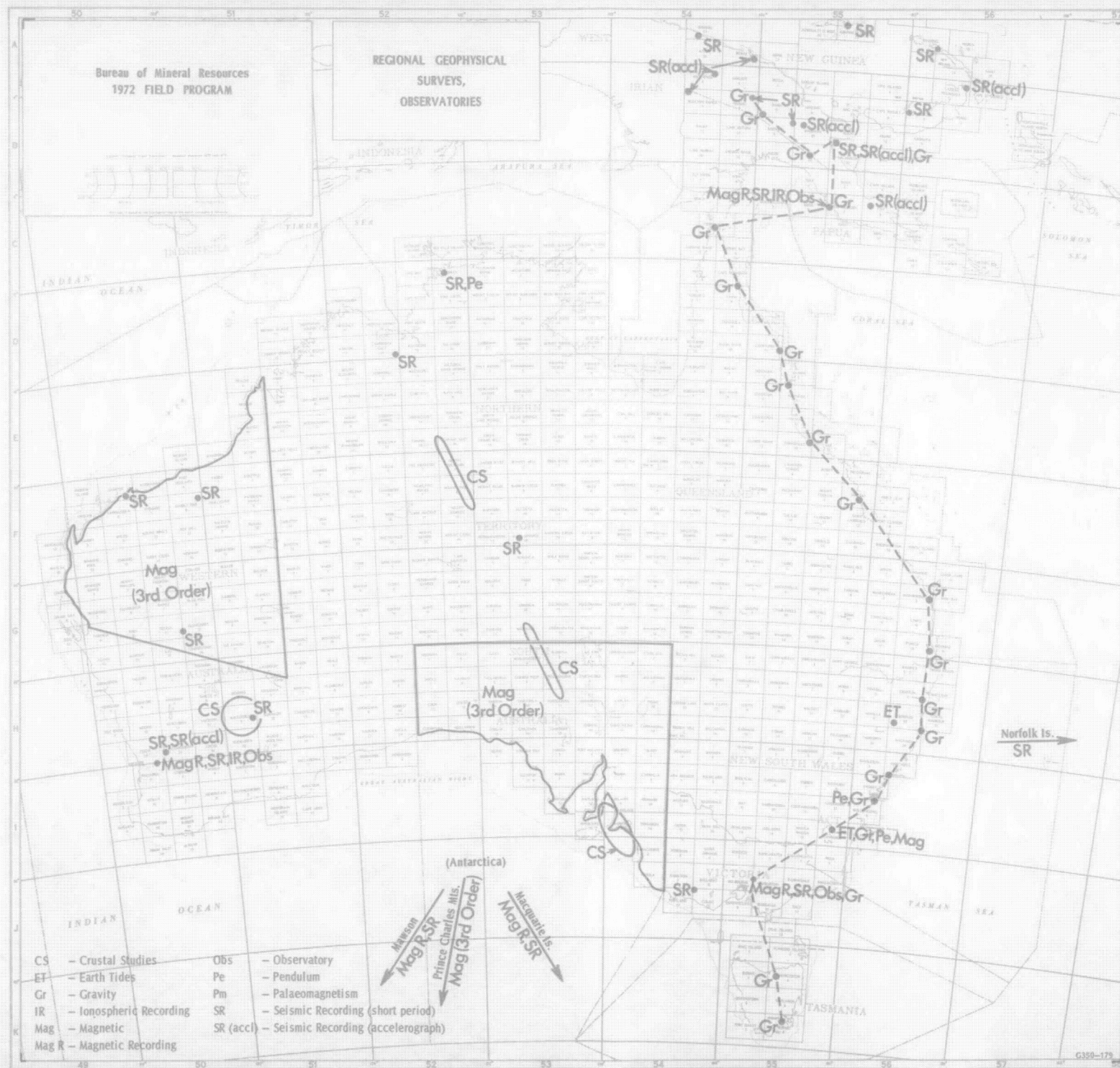
NON METALS INVESTIGATION

PROJECT	NATURE OF WORK
Moura Coalfield, Qld.	Continuous magnetic and gravity traversing to fill in gaps from 1970 survey and to check improved method of interpretation.
Bowen Basin, Qld.	Completion of Record and preparation of Report on environmental study of coal deposits in the Bowen Basin. Interpretation of imagery from Bowen Basin Thermal Infrared survey and preparation of Record on results.
Heat Flow, Great Artesian Basin, Qld.	Continuation of abstraction of data from bore logs for heat flow maps. Laboratory work on rock cores may commence.
Estuary Study, Qld. and Vic.	Continuation of analysis of field data and writing up results of work done at Broad Sound (Qld) and Mallacoota Inlet (Vic); the latter is a co-operative project with ANU. General mineralogy, clay, and carbonate content determinations of recent sediments; determination of lattice characteristics of phosphates and clay minerals. Study of metal concentrations and mineralogy of sediments from Mallacoota Inlet.
Tasman Geosyncline Phosphate	Evaluation of phosphate potential of selected areas; short field investigations.
Marine Geology	Reconnaissance survey of the southeastern shelf and Bass Strait; assistance to Univ. of N.S.W. study of Tasmanid sea mounts and to National Museum of Victoria study of benthic faunas in Bass Strait will be provided if opportunity offers - part of program aimed at providing geological coverage of superficial sediments on a 10 mile grid, and shallow seismic profiling on 10 mile line spacing, of the continental margin out to the 500 m isobath.

Evaporite Study

Preparation of publication on Australia-wide evaporite occurrences including results of all evaporite drilling.

Drilling of evaporite-bearing diapirs in Officer Basin (W.A.), 3 holes with max. depth of 1 000' (Aug-Nov).



REGIONAL GEOPHYSICAL SURVEYS

PROJECT	NATURE OF WORK
Gosses Bluff	Interpretation of existing gravity data on Gosses Bluff and report writing - joint BMR/USGS study.
Canberra Gravity	Interpretation of results and report writing.
GSI Pendulum Tests	GSI Pendulum tests in Canberra and over Canberra-Darwin gravity interval.
Russian Gravity Tie Sydney-Moscow	Gravity tie Sydney-Moscow by Russians using Russian pendulums - project recommended by IGC, IUGG. (Sept-Oct).
Australian Calibration Line	Gravity measurements along the A.C.L. using Russian and BMR gravity meters. (Sept-Oct).
Interpretation of Gravity Maps of Australia	Interpretation of free air and Bouguer anomaly maps of the continent of Australia - overall investigation of crustal thickness and and continental tectonics as indicated by gravity.
Isogal Project	Analysis of network results and preparation of report; follow-up work at base stations.
Earth Tides - Deflections of the Vertical	Continuous recording of solid earth tides using horizontal pendulum apparatus; equipment set up in mine tunnel near Armidale; joint project with Univ. of New England.
Earth Tides - Variation in Intensity	Development of recording gravity meters; continuous recording of gravity at Canberra, Armidale and other sites - to determine amplitude phase lag and earth elastic constants.
South Australia Deep Seismic Refraction Survey No. 1	Deployment of up to 20 mobile seismic stations to record large explosions in SE South Australia - primary aim to reverse shooting line of 1970/71 Ord River Blasts; also testing of seismic recording equipment prior to use in PNG in 1973 (Aug-Sept).

W.A. Deep Seismic
Refraction Survey

Use of large explosions in Kalgoorlie region to investigate deep structure by seismic refraction methods. (Aug-Sept)

New Britain/New Ireland
Crustal Study

Interpretation of 1967 and 1969 seismic refraction data and associated gravity data.

Papuan Crustal Survey, 1973

Selection of suitable sites for seismic recording stations; in collaboration with Geological Survey of PNG. (Oct-Nov).
Review E. Papua gravity data.

Palaeomagnetic Survey
Preview

Selection of targets for future surveys - examination of proposals for survey work in conjunction with geological surveys.

Third-order Magnetic
Survey of Australia

Measurements at 15 km intervals in northwest Australia and South Australia.

OBSERVATORIES

PROJECT	NATURE OF WORK
CANBERRA	
Geomagnetism - Data and Reductions	Scaling and conversion of magnetograms; preparation and distribution of "Geophysical Observatory Report"; maintenance of Australian Magnetic Standards; and maintenance of Australian MHV file.
Conjugate point project	3 component rapid-run variograph recording at Kowen test site (A.C.T.)
Digital magnetic recorders	Development and testing of BMR digital variograph; evaluation of 'Elsec' automatic observatory; development of digital F magnetograph.
Canberra magnetic observatory	Testing and selection of site; modification of conventional variograph for analogue system.
Seismology - Data and Reduction	Preparation of ISC phase and epicentre data tapes; development of regional earthquake data file; production of monthly bulletins (Toolangi, Norfolk Island, Darwin, Macquarie Island, Mawson and Alice Springs).
Strong Motion Studies	Maintenance of strong motion data centre (digitization and analysis of accelerograms); supervision of BMR network of accelerographs; field studies of felt or damaging events (N.T., N.S.W.).
Special Studies	Investigation of regional earthquakes and determination of travel-times.
MACQUARIE ISLAND	Geomagnetic and seismic recordings and analyses; installation of telemetry seismic system; operation of tide gauge and micro-pulsation recorders.

MAWSON

Geomagnetic and seismic recording and analyses; installation of SP-Z seismometer in underground chamber.

DARWIN/MANTON DAM

Seismic recording and analyses; installation of telemetry system; telemetry recording and analyses.

ALICE SPRINGS

Seismic recording.

NORFOLK ISLAND

Seismic recording.

TOOLANGI OBSERVATORY

Routine Operations

Geomagnetic and seismic recordings and analyses; analyses of seismograms from Alice Springs, Manton Dam and Norfolk Island; standardization of magnetometers.

Micro pulsation Study

Analysis of Antarctic data.

Regional Seismology

Establishment of Western Victorian station; field studies of felt or damaging earthquakes; aftershock recordings.

MUNDARING OBSERVATORY

Routine Operations

Geomagnetic, seismic and ionospheric recordings and analyses; training of recruits for Antarctica 1973; testing of Mundaring area for possible re-location of magnetic observatory.

Regional Seismology

Short-period recording at Kalgoorlie, Meekatharra, Karratha and Kununurra; installation of SP high gain stations at Marble Bar; establishment of SP station in Swan View Tunnel; recording and analyses of microtremors SW seismic zone; short term recording on and near Shield; 4 months recording at Meckering, Mt Barker, Wagin to detect weaker events; accelerograph recordings at Meckering; field studies of felt or damaging earthquakes, including aftershock recording.

AFMAG

Operation of recorder for BMR Metals group.

PORT MORESBY

Routine Operations

Geomagnetic, seismic and ionospheric recordings and analyses.

Regional Seismology

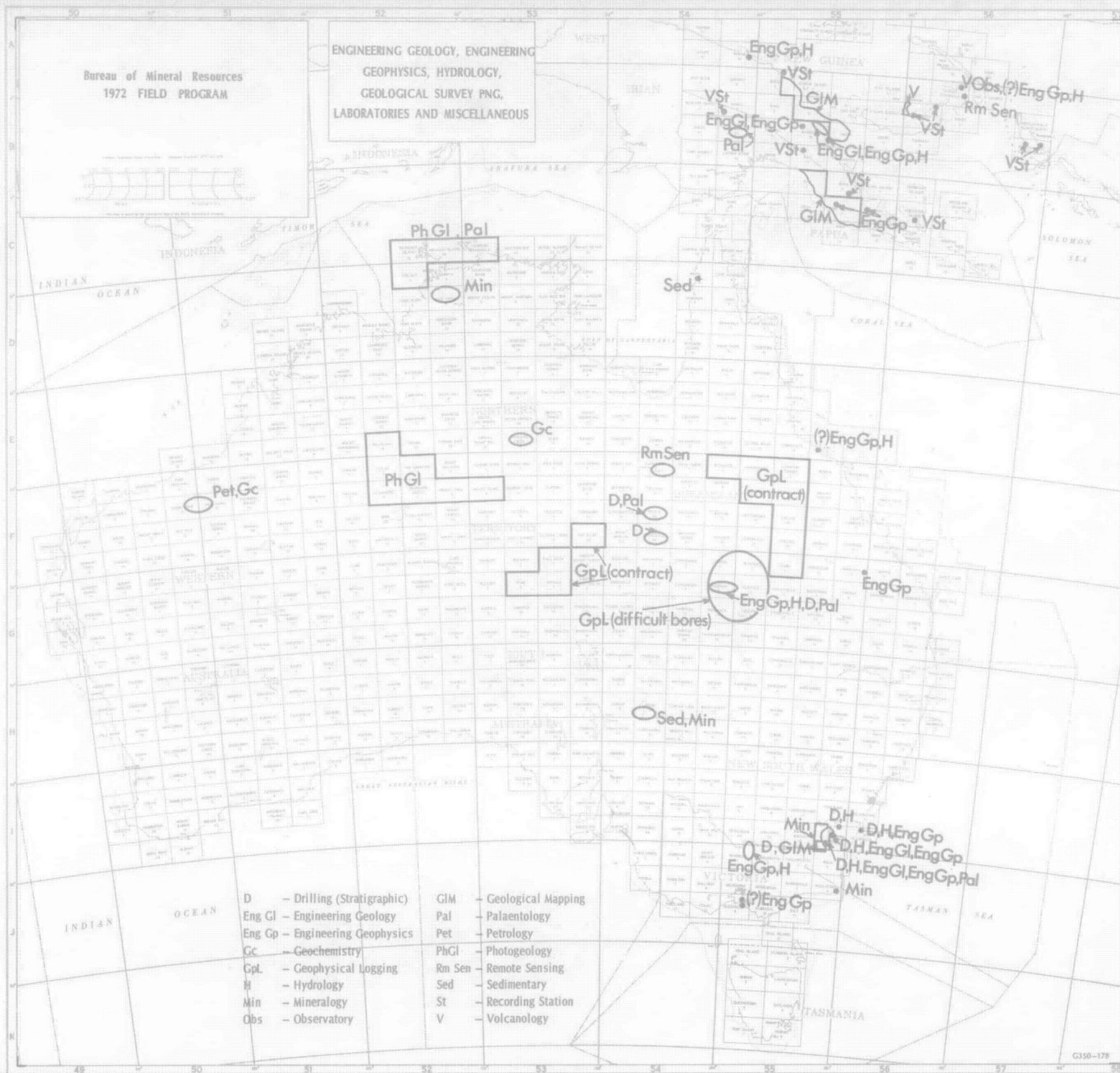
Short-period seismic recording at Wabag, Lae, Goroka, Talasea, Kavieng, Vanimo and Momote; noise tests of Star Mountains area; installation and maintenance of accelerographs at Lae, Ramu, Wewak, Rabaul, Frieda River, Star Mountains and Musa; maintain PNG seismicity file and issue annual report; determination of hypocentres of local events and focal mechanisms; field studies of major events and aftershock recordings; studies of P-residuals and local travel-times.

OBSERVATORIES - PUBLICATIONS IN PREPARATION

SUBJECT	AUTHOR	WRITING COMPLETE
REPORTS		
WA Seismicity 1965.5-1970.5	I. Everingham	June
PNG Seismicity 1969	W. Byrne, J. Everingham	Apr
" " 1970	W. Byrne, I. Ripper	Aug
Focal mechanisms in PNG	I. Ripper	Apr
Madang earthquake 1970	I. Everingham	June
PNG Seismicity 1966-68	D. Denham	Feb
MHV REPORTS		
Gnangara 1957-64 (4 reports)	P. McGregor	Written
Port Moresby 1957-62 (3 reports)	J.R. Wilkie	"

Bureau of Mineral Resources
1972 FIELD PROGRAM

ENGINEERING GEOLOGY, ENGINEERING
GEOPHYSICS, HYDROLOGY,
GEOLOGICAL SURVEY PNG,
LABORATORIES AND MISCELLANEOUS



ENGINEERING AND HYDROLOGY

PROJECT	NATURE OF WORK
A.C.T. AND ENVIRONS	
Googong Damsite, Queanbeyan River & associated works	Completion of current detailed geological and geophysical studies.
Water Treatment Augmentation Plant, Mt Stromlo	Investigation of foundation and excavation conditions - mapping, seismic augering.
Reservoir sites: Hughes; O'Malley; Weetangera; Gungahlin	As above.
Water main routes; Tuggeranong Offtake - Village Creek; Northeast Bulk Supply Main	As above.
Belconnen Lake	Mapping and engineering geology advice; groundwater studies prior to filling of lake.
Lower Molonglo Water Quality Control Centre	Detailed investigation of foundation and excavation conditions. Mapping, seismic, augering and drilling.
Molonglo Valley Outfall Sewer	As above; also full geological support during construction.
Tuggeranong-Weston Creek Sewer Tunnel	Full geological support during construction; study of the effects of tunnelling on the groundwater regime of fractured rocks; prediction of groundwater inflow into tunnels and dewatering of soil profile; systematic monitoring of vibrations due to blasting during construction.
Road Materials	Search for road construction materials for "Country Roads" Program; augering, drilling, seismic and some backhoe pits; soil studies; possibly stability studies of cut slopes in rock.
Roadworks: Molonglo, Eastern and Tuggeranong Freeways; Ginninderra and Isabella Plains Arterials; Monash Drive; Canberra Avenue.	Provision of geological and geophysical advice and services.

Hydrology Miscellaneous

Maintenance and study of observation bores and relevant surface hydrology observations; extension of network of observation bores.

Siting and testing of bores for rural landholders and A.C.T. government and other organizations; give advice on groundwater supply problems.

Groundwater movement study from L. Windermere, Jervis Bay.

General hydrological advice to National Development and other bodies, participation in AWRC projects. (Maps, Representative Basins, and Unconsolidated Sediments, etc).

Continue surveillance of Corin Dam.

Orroral Valley Representative Basin Studies.

Lake George (including preliminary palaeogeographical and palaeontological studies).

Hydrogeology of the Tuggeranong Urban-Development Area, Compilation of Hydrogeological Map of A.C.T. (initial stages).

Examination of proposed urban development areas for potential drainage problems.

General Miscellaneous

Geological and geophysical investigation of district refuse disposal site at Tuggeranong.

Conduct geological and geophysical surveys, soil studies, etc, of urban development areas, building sites, etc, as requested by NCDC, CDW.

Collaboration with CSIRO Geomechanics Division in terrain evaluation; 1 000 sq. miles around Canberra.

Location, testing and advising on sand, gravel and building stone resources, and quarry sites.

Undertake Gunning-Collector survey for laser survey stations for study of possible fault movement.

Maintenance and index of building stones in use in ACT; testing of important samples.

Preparation and introduction of system for charting, storing and retrieving ACT engineering geological data.

SURVEYS OUTSIDE A.C.T.

Papua New Guinea

See individual items under Geological Survey of P.N.G.

Canaway Ridge, Qld

Experimental seismic, resistivity, gravity and magnetic survey-to locate shallow aquifers (to 1 000 ft) and determine quality of water. (July-Aug)

Murray-Goulburn area, Vic.

Experimental survey utilising gravity, seismic, possibly airborne magnetic, and shallow seismic profiling (along selected irrigation channels) techniques - to attempt to map the base of alluvium and distribution of prior streams; in co-operation with Victorian Mines Department and Victorian State Rivers and Water Supply Commission.

Drilling of deep holes and logging by Mines Department, possibly with some instrumental assistance from BMR.

CSIRO, WA - Groundwater study

Assistance to the Land Research Division CSIRO - mainly consultation and advice.

Christmas Island
Groundwater Supply

Investigation for water for British Phosphate Commission - office work on data supplied by B.P.C.

Landslides

Investigation of possibilities of contributing to landslide studies by geophysical means - data required before Musa Gorge survey (P.N.G.).

Seismic absorption technique

Determination of rock parameters between two or three bores.

LABORATORIES AND WORKSHOPS

(Laboratory and workshop projects also included under Petroleum, Metals, Non-metals, Regional Geophysical and Observatories)

PROJECT

NATURE OF WORK

Micropalaeontology

Systematic study of foraminifera from New Guinea, particularly from Wabag area and Asaro River.

Examination of samples from West Sepik, Port Moresby and Markham areas collected in the course of regional geological mapping.

Study of Jurassic foraminifera from W.A.

Systematic palaeontology of Lower Carboniferous ostracods from the Bonaparte Gulf and Canning Basins.

Palynology of marine Rolling Downs Group and Winton Formation, Great Artesian Basin, Qld; Cretaceous palynology of Melville-Coburg area; fluorescence palynology of Recent pollen grains; palynology of Galilee Basin, Qld.

Continue study of Silurian conodonts of the A.C.T. and Yass area.

Description of Permian fossils from Warwick 1:250 000 Sheet area, Qld; examination and description of Upper Palaeozoic fossils, especially Permian molluscs; preparation of review on Australian Permian palaeogeography and palaeoclimate.

Studies on Ordovician trilobites for systematic description and assessment of stratigraphic and palaeogeographic significance.

Preparation and systematic palaeontology of Mid-Upper Devonian antiarch fishes from Antarctica; preparation and systematic palaeontology of Lower Devonian arthrodires from Taemas/Wee Jasper; stratigraphic and geographic distribution of Devonian vertebrates in Australian and Antarctica.

Study and description of the palaeontology and stratigraphy of the Palaeozoic sedimentary rocks of the A.C.T. and surrounding areas.

Study of the taxonomy and stratigraphic distribution of the Late Ordovician to Middle Devonian corals, trilobites and brachiopods of the Tasman Geosynclinal Zone, with emphasis on their relationships to the faunas of the Canberra region.

Systematic palaeontology of Middle Tertiary vertebrates, Bullock Creek, N.T.; early to Middle Tertiary vertebrates, Riversleigh, Qld; Late Tertiary/Pleistocene vertebrates from PNG.

Establishment of comprehensive reference collection of Australian & N.G. Tertiary/Pleistocene fossil mammals.

Sedimentology

Study of chemistry and sedimentology of recent sediments in the Lake Frome basin, S.A. - part of field studies of natural sedimentary environments; in conjunction with Baas Beeking Lab.

Study of heavy mineral beach sand accumulations and survey of sedimentological problems.

Study of sand fabric in relation to interpretation of environments - follow on from work on Bowen Basin Mimosa Group.

Petrology, Mineralogy and Mineragraphy

Study of chromite-bearing ultrabasic rocks near Egan's bore, Mount Ramsay 1:250 000 Sheet area.

Study of progressive metamorphism of amphibolites from the Soldiers Cap area, Qld, and the Petermann Ranges, N.T.

Preparation of a progress Record on geology and petrology of the Reynolds Range. N.T.

Preparation of Record on Hart Dolerite - part of petrological study of basic intrusives.

Investigation of amphibolite granulite facies rocks in the Moore Pyramid area, Antarctica.

Preparation of XRD charts of museum minerals to verify identification, and obtain additional reference charts to supplement cards in ASTM index.

Geochemistry

Investigation and development of methods of Hg detection, and utilization of these for geochemical applications in Australian conditions.

Preparation of Records on trace-element assemblages in carbonate sequences of McArthur River; results of geochemical investigation in Styx River catchment area, Qld; Papuan Ultramafic Belt - Stream sediment geochemical reconnaissance; the solubility of apatite and the synthesis of hydroxy and carbonate apatites; zinc pollution in the Molonglo River System, A.C.T.

Geostatistics

Development of computer programs for the storage/retrieval, analysis, and automatic plotting of geological data.

Baas Becking Geobiological Research Laboratory, Biological Group

Continuation of work on concentration of metal sulphides by bacteria; extraction and mobilization of metals by algae; physiology, taxonomy, and ecology of sulphate-reducing bacteria; effects of metals, pressure, and temperature on micro-organisms; biological extraction of manganese; isolation of chemical components of sulphate-reducing bacteria; fractionation of stable sulphur isotopes; design and construction of experimental sedimentary system.

Baas Becking Geobiological Research Laboratory, Mineralogical Group

As part of the investigation into the genesis of base-metal occurrences, determine environment of deposition of mineralized sediments in western part of Canberra 1:250 000 Sheet area; carry out petrological and geochemical study of stratigraphic succession in Rum Jungle area, N.T. to determine environment of deposition of mineralized sediments; carry out petrological and geochemical study of H.Y.C. member of Barney Creek Formation, McArthur River area, N.T.

Completion of study of the behaviour of base metal ions in brines; additional work on the physical chemistry of brines as required for the interpretation of field work, probably mainly solubility relations of evaporite minerals.

Investigation into crystal growth of carbonate minerals from aqueous solutions; co-precipitation of heavy metal ions with calcium/magnesium carbonates.

Investigation of organo-metallic complexes and their possible role in ore transport. Progress Record.

Continuation of experimental studies of diagenetic and low-grade metamorphic reactions relevant to stratiform ores.

Geochronology

Preparation of Records on dating of New Britain plutonic rocks; evaluation of isotopic data on metamorphic and igneous rocks from Cape York Peninsula, Qld; age of uranium mineralization at Nabarlek, N.T.; a physical time-scale for the Neogene Data from the Australian region.

Volcanology

Continuation of study of rocks of outer volcanic arc, New Ireland.

Investigation of tiltmeter results from Manam; development of telemetered water tube tiltmeter for Rabaul.

Infra-red scanning of Blanche Bay, New Britain, to pin-point all thermal areas.

Preparation of Records on Doma Peaks volcano; Bamus, Lake Hargy area, and the Sulu Range, New Britain; volcanic geology and petrology of Willaumez Pa., and Cape Hoskins and Cape Reilnitz areas, New Britain; Karkar Island; geology and petrology of Quaternary volcanic islands off the north coast of P.N.G.; volcanic geology and petrology of St Andrew Strait islands, P.N.G.; volcanic geology and petrology of Witu Islands, P.N.G.; distribution and petrography of volcanic

rocks in the D'Entrecasteaux Islands, Egum Atoll, and the Lusancay Islands; petrology of Pleistocene volcanoes, P.N.G. Highlands.

Photogeology

Photogeological interpretation of 1:250 000 Sheet areas: Granites, Highland Rocks, Mt Theo, Mt Peake, Billiluna, Stansmore, Lucas, Bathurst I., Melville I., Coburg Penin., Officer Basin if required. Interpretation of radar imagery of PNG if required.

Remote Sensing

Continuing study of equipment for remote sensing for geological and geophysical surveys. Research on the application of remote sensing techniques.

Evaluation of satellite imagery for ERTS Project; interpretation of multispectral photography and IR imagery of Canberra area (ACERTS); preparation of proposals for data from ERTS "B" satellite.

Instrument Development

MFS7 Fluxgate Magnetometer Prototype, first production model including installation of 9 term compensator (modified ASQ10 Magnetometer)

TAM 5 Seismic Amplifiers; modulators for Akai Tape Recorders; low Power Digital Clocks NCE 1; low Speed Tape Recorder XTA 1; tape Playback System XTB 1; - all for Crustal Study Projects.

Construction of marine seismic clocks; proton magnetometers S/N 2.

Systems Development

Testing and documentation of long period seismometers.

Completion of development, construction, testing, and documentation of GSI pendulum equipment.

Equipment construction, system assembly and initial testing of tidal gravity equipment.

Analogue/digital converter to be designed, constructed and tested for digital recording observatory; testing of servo system for magnetic variometer.

System design for digital data acquisition system for Aero-Commander aircraft.

Investigation into construction of seismic camera modifications to facilitate reduction of records in length and width - preliminary investigation to establish feasibility of project and cost.

Workshops

Construction, testing and maintenance of electrical, electronic and mechanical instruments.

Rock Measurements

Improvement of sensitivity of spinner magnetometer from 10^{-5} to 10^{-6} cgs units.

Development of shear velocity measurement facility for ultrasonic rock testing apparatus.

Petroleum Technology

Determination of physical properties of cores, cuttings and outcrop rock samples (porosity, permeability, density, fluid content, overburden pressure, sand size analyses, etc.)

Investigations of primary and secondary hydrocarbon recovery, fluid distribution and flow properties of reservoir rocks, including relative permeability, water flooding, capillary pressure, pore size distribution, formation damage etc.

Evaluation of native clays, barytes, and imported and domestic proprietary clays and additives for use in rotary drilling operations.

Study of the effects of diagenesis on organic material in the N.W. Shelf area. Co-operative studies with Baas Becking Geobiological Laboratory on bacterial cell constituents (continuing). A detailed geochemical study of Australian carbonate sequences.

Analyses, testing, and evaluation of oil, gas, condensate and water from bores and seepages in Australia and PNG; results used in investigation of possible sources of hydrocarbons in some Australian oilfields. Classification of Australian oils.

LABORATORIES AND WORKSHOPS - PUBLICATIONS IN PREPARATION

SUBJECT	AUTHOR	WRITING COMPLETE
BULLETINS		
Middle Cambrian agnostids of Australia (Stratigraphy, taxonomy and palaeogeography).	A.A. Opik	"
Cambrian fossils at Mount Wright, New South Wales.	A.A. Opik	"
The Australian Middle Cambrian polymerid trilobites with Asian affinities.	A.A. Opik	"
Upper Devonian conodont faunas from the Bugle Gap area, Canning Basin.	E. Druce	Nov
Ordovician trilobites of northern Australia. 1. Dikelocephalinidae.	J.G. Tomlinson	Dec
Late Cambrian and early Ordovician trilobites from western Queensland.	J.H. Shergold	Dec
Eastern Papua Foraminifera (part of E. Papua Bulletin)	D.J. Belford	Jan
Palynology of the marine Rolling Downs Group, Great Artesian Basin, Qld.	D. Burger	Aug
Palynology of the Cenomanian of Bathurst Island, N.T.	D. Burger, M. Norvick	Aug
Palaeontological Papers		
- Foraminifera from the Nassau Range, West Irian.	D.J. Belford	March
- Review of genus Neohelos	M. Plane	Dec
- A new species of Thylacleo from Bullock Creek, N.T.	M. Plane	Dec
- Devonian Antiarch fishes from Antarctica	G.C. Young	June

- Description of part of Taemas/Wee Jasper vertebrate fauna.	G.C. Young	Dec
Late Cainozoic volcanoes of the southern Bismarck Sea	R.W. Johnson, G.A.M. Taylor, R.A. Davies	Uncertain
Ulawun: Part 1 Geology and eruptive history 1915-67. Part II The 1970 eruption Part III Petrology	R.W. Johnson R.A. Davies R.W. Johnson A.J.R. White R.A. Davies	Jan
Eruptions of Manam Volcano, P.N.G.	G.A.M. Taylor	Sept
MISCELLANEOUS PAPERS		
Foraminiferal biostrati- graphy of the Oligocene/Miocene limestone of Christmas Is.	D.J. Belford	Mid 1972
Distinction between para- and ortho-amphibolites of the Precambrian of N.W. Queensland	A.Y. Glikson, R.N. England, K.R. Walker.	Late 1972

OFFICE AND MISCELLANEOUS

PROJECT

NATURE OF WORK

Deep weathering, Qld

Studies of deep weathering profiles and possible economic implications. Shallow stratigraphic drilling through profiles in Windorah, Boulia, and Springvale 1:250 000 Sheet areas. (late 1972)

Tantangara, A.C.T./N.S.W.

Complete mapping of Tantangara 1:100 000 Sheet area - to assist in elucidation of local (A.C.T.) geology; also part of program to remap in detail, in conjunction with the NSW Geol. Survey, the Canberra 1:250 000 Sheet area. (Jan-Apr, Oct-Dec)

Shallow stratigraphic drilling for chemical analysis and age determinations.

Planning and Co-ordination

Review, investigation and recommendation of short and long term program proposals in terms of co-ordinating inter-related projects, priorities, man-power and financial resources, and cost-benefit.

Preparation of Record on 1972 BMR Program.

Information

Preparation and dissemination of information to industry, press and public.

Preparation of Pictorial Index, List of Publications, List of Maps, Open File circulars, List of coming events, BMR Annual Report.

Design and co-ordination of information storage and retrieval systems.

Preparation of indexing system for material received under offshore petroleum legislation and co-ordination of indexing.

Editing

Editing of BMR publications and papers for various journals.

Indexes

Maintenance of technical files and index to Australian mineral deposits.

Maintenance of stratigraphic index; complete preparation of Volume 5H (Australia, General) of the International Stratigraphic Lexicon; preparation of bibliography of Australian Geology.

Map Compilation

Compilation of miscellaneous maps:

Geology of Northern Territory 1:2 500 ,000

Geology of Papua and New Guinea, 1:1 000 000

Metallogenic Map of Australia 1:5 000 000

Tectonic Map of Australia 1:5 000 000

Geological history map of Australia 1:12 000 000

Sketch tectonic map of Australia 1:12 000 000

Lithological maps of Australia 1:10 000 000

Mineral deposits map of Papua New Guinea
1:2 500 000

Geological Map of Australia & Papua New
Guinea 1:2 500 000

Mining Engineering

Preparation of reports on operations of mines receiving assistance under the Gold Mining Industry Assistance Act.

Preparation of codes of safe mining practice; representation on Conference Chief Inspectors of Mines.

Economic Studies of
the Mineral Industry

Collection of information on mining and treatment costs; examinations of the effects of wage increases, interest rates and inflation on mineral production; study relationships between cut-off grade, price, ore reserves and relative concentration of metals in the earth's crust; investigation of the behaviour of base metal markets by analysis of time series data on prices, consumption, production and stocks.

Mineral Economics

Preparation of advice on international commodity problems relating to lead, zinc, silver, copper, tin, tungsten, sulphur, uranium, salt, coal and fertilizers (nitrogen, phosphorus and potassium), mineral sands, and fluorspar.

Commodity studies of the Australian mineral industry including field inspections, visits to plant, and discussions with company representatives.

Investigations of long-range production and consumption trends in metals and minerals; new techniques in mineral extraction, processing, and utilization; cost factors.

Assessment of Australian resources of tin, iron ore and mineral sands.

Investigation of mineral processing in Australia of selected mineral commodities.

Petroleum Technology

Estimation of petroleum reserves and resources; petroleum prospects and field valuation; petroleum economics; provision of petroleum engineering services for Bureau operations and other Departments upon request.

Provision of Secretary/Convenor for the Oil Advisory Committee.

Drilling Engineering

Provision of drilling services for Bureau operations.

GEOLOGICAL SURVEY OF PAPUA NEW GUINEA

PROJECT

NATURE OF WORK

Regional Mapping

Completion of map compilation and writing of Explanatory Notes of Port Moresby 1:250 000 Sheet area, with land areas on adjacent Kalo and Aroa Sheets.

Completion of field work, map compilation and Explanatory Notes of Yule, Huon, Madang and Bogia (part) 1:250 000 Sheet areas.

Completion of draft publication on Markham 1:250 000 Sheet area.

Completion of work on fossils collected during 1971 West Sepik Party (BMR) and make additional collection.

Other Regional Studies

Collection of fossils from Kuta Limestone; completion of joint paper with BMR Canberra staff on Owen Stanley Metamorphics.

Mineral Investigations

Continuation of mineral resources assessment of PNG; commencement of offshore mineral investigation.

Hydro-electric Schemes and Projects; Ramu; Rouna; Sogeri; Musa; Kikori-Erave; and Wahgi-Tua Rivers.

Provision of geological services from preliminary assessment through to construction stages, as required. BMR Canberra staff to carry out any associated geophysical investigations.

District Water Supplies

Survey of Eastern Highlands, Manus and Western Highlands; drilling program in Central District, East Sepik and New Ireland.

Regional Engineering Geology, Lae.

Completion of groundwater, construction materials, and engineering geology investigations; geophysical bedrock profiling required by BMR Canberra staff.

Roads and Airports

Geological advice on design and on construction materials.

Construction Materials

Review of existing and potential aggregate sources in Madang, Sepik Districts, Western and Southern Highlands Districts.

Routine Volcanological Activities

Volcanic data processing and compilation of source files; seismic data processing; temperature variation analysis; tiltmeter data analysis; gas condensate collection and analysis.

Installation of new equipment at Manam and Rabaul; installation of equipment in new Volcanic Surveillance Stations.

Investigations of Volcanic Areas: Willaumez Peninsula and L. Dakataua; Mount Balbi; Mount Bamus; Hermit Is. and adjacent islands.

Volcanological studies of these areas; study of L. Dakataua will include gravity survey.

Seismic Investigations

Preparation of Catalogue of regional seismicity; research into trends in seismicity related to volcanism; improvement of epicentre determinations from Rabaul harbour network; extension of hyperbolic method of epicentre determination; regional and local structure interpretation; magnitude studies.

In collaboration with staff of Port Moresby Geophysical Observatory wherever appropriate.