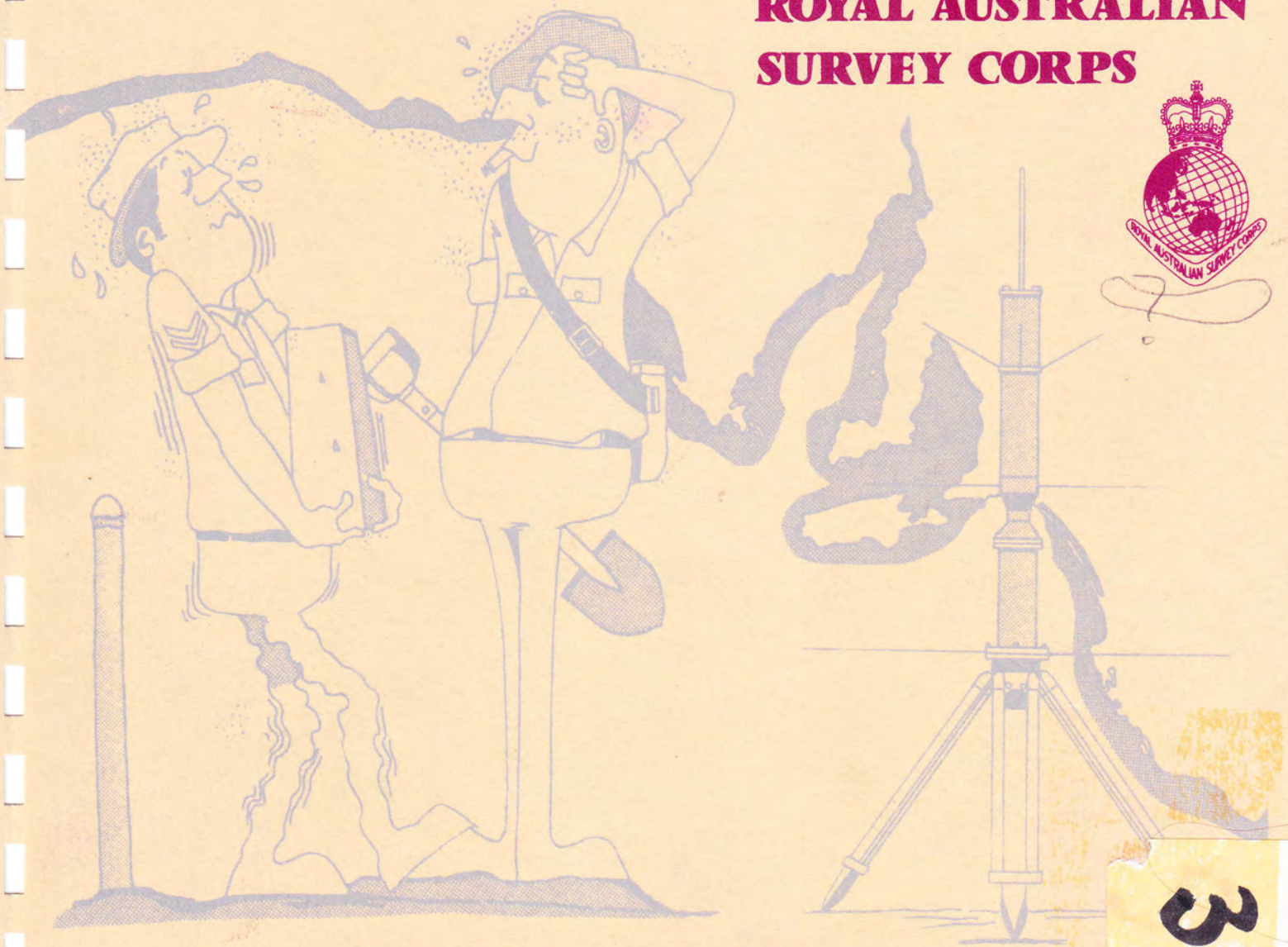


OPERATION DESERT WALK

1979

ROYAL AUSTRALIAN SURVEY CORPS



4 FIELD SURVEY SQUADRON

34

ROYAL AUSTRALIAN SURVEY CORPS

4 FD SVY SQN

OPERATION DESERT WALK 1979

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AMENDMENT SHEET

OP DESERT WALK

FEB-MAR 79

4 FD SVY SQN

Amdt No.	Amdt Entered	Amdt No.	Amdt Entered

PROJECT REPORT
OPERATION DESERT WALK

1979

- References: A. Dept of Defence (AO) A474/1/48 dated 8 Aug 78
B. 4 FF Gp Mounting Instr 788/2S/32 dated 12 Dec 78

General

1. Operation DESERT WALK was mounted by 4 Fd Svy Sqn during the period 24 Feb 79 to 24 Mar 79. The aim of the Op was to establish additional horizontal and vertical control and identify existing control points for the production of 1:100,000 maps in the following 1:250,000 map areas:

- a. SH-52-8 MAURICE
- b. SH-52-12 OOLDEA
- c. SH-53-5 TALLARINGA
- d. SH-53-9 BARTON

Tasking

2. The tasks to be carried out were:

- a. Establishment of 20 control stations by AN/PR - 14 Geociever.
- b. Panelling and spot photography of the established and some existing control stations.

3. Acquisition of additional vertical control by the Airborne Profile Recorder (APR) has been scheduled for Feb/Mar 1980.

Operational Results

4. Control by AN/PR- 4G-geociever. Total of 20 stations were observed by Geociever, comprising:

- a. 13 new stations
- b. 5 existing astronomical stations, and
- c. 2 stations in unclosed traverses established by SA Dept of Lands.

A detailed report on this aspect of operations is contained at Annex "C".

5. Targeting and Photography. Total of 49 stations were targeted and photographed with RC 10 camera, comprising identification of 13 new and 36 existing stations. Only one out of 49 targets could not be seen on the imagery however existing low level identification photo obtained from Dept of Lands SA will allow transfer of the control point on to aerotrig diapositive. A detailed report on this aspect of operation is contained at Annex "D".

6. Terrain Profiles for the Control of APR Net

- a. Total of 30 terrain profiles were established. These are 100 metre long lines, 2 per station at approx right angles to each other, centred or radiating from the ground mark in N-S and E-W directions or over the terrain of least gradient. Along the lines at 20 m intervals or less, elevation differences in relation to the ground mark have been measured; because of the flatness of terrain ht value for any point on the line can be determined by interpolation.
- b. By intersecting control profile with a laser profile elevation value for the intersection point can easily be obtained, thus eliminating necessity for visiting station to effect level connection between the datum and the APR line. Annex E.

Operational Support

7. Aircraft Support

a. LOH - 171 Command & Liaison Sqn

- (1) One acft and 40 task hrs were allocated for the operation, of which 39 have been flown. The aircraft was used for the following tasks:
 - (a) Reconnaissance for the Geociever ground stations;
 - (b) panelling of control stations for ident photography;
 - (c) establishing of Terrain Profiles for the control of APR net;
 - (d) resupply and deliveries; and
 - (e) ferrying of RAEME technicians for the maintenance and repair of Geociever equipment in the field.
- (2) The aircraft fulfilled its role satisfactorily. Total unserviceability amounted to 4 days and was due to a faulty battery and the delay in delivery of a new one from Oakey. The AOG had no adverse effect on the operation.
- (3) The LOH crew comprised 1 pilot and 1 acft mech. Their commendable co-operation, interest and involvement in technical aspects of the operation contributed greatly to the successful completion of the tasks.

b. UH - 9 Sqn RAAF

- (1) One acft and 60 task hrs were allocated for the operation of which 56.6 have been flown. The acft was used for the following tasks:
 - (a) Positioning of Geceiver parties on ground stations
 - (b) Positioning of AVTUR in areas not accessible by road tpt.
- (2) The aircraft performed extremely well; total unserviceability amounted to 6 hrs. The ability of the UH to transport a complete Geceiver party in one lift minimized expenditure of flying hrs and allowed completion of the operation in a very short time.
- (3) The Iriquois crew comprised 2 pilots and 3 ground crewmen. The entire RAAF element under the command of FLGOFF Coulson must be commended for their co-operation and excellent support.

c. Queenair - Civil Charter Acft. The acft was fitted with the WILD RC10 SWA camera and its task was the acquisition of ident photography of targeted ground control stations. Of the 30 flying hours allotted 25.5 were used, this included 8.2 hrs ferry time from Brisbane to Maralinga. Photography achieved is shown at Appendix 1 to Annex D.

Administration & Logistics

8. Manning. The outline organization of 4 Fd Svy Sqn (-) is shown in Annex "A", and a roll of all personnel employed on the operation is contained in Annex "B".

9. Co-operation and performance of the attached personnel was good.

10. Visits. During the operation the following visited Main Base:

MAJ D. Rowe - SO2 (OPS) 4 FF Gp 13 Mar 79

CAPT H.R. Lenard - SO3 (OPS) 4 FF Gp 13 Mar 79

11. Rations

a. Generally rationing system functioned very well. An allowance of \$3.40 per day per man proved quite adequate. Initial stock was brought from Adelaide, subsequent supplies were bought from Austrail Retailer, Port Augusta, a division of Australian National Railways, and delivered by rail to Watson. Orders phoned through by Wednesday would be delivered on the following Saturday. The resupply train, commonly known as "Tea and Sugar" train, services all settlements along the railway line and apart from bulk orders carries good range of groceries and meats in its two shop carriages.

/b. The cash

- b. The cash advance of \$2223.60 was deposited in cheque account with the Commonwealth Bank under the name of 4 Fd Svy Sqn Ration Account, and all the purchases were paid by cheques. The Ration Ledger was subjected to weekly internal audits and after final reconciliation cheque account was closed and surplus funds returned to cash office.
- c. The method of rationing based on ration allowance and self management is considered ideal for survey operations, it allows greater flexibility in choice of commodities to suit climatic and working conditions and to satisfy requirements of small field parties.

12. Main Base

- a. Main Base was established at Maralinga Village, a settlement of much activity some years ago, but now almost completely dismantled, and the few remaining buildings and facilities are under the control of the Yalata Aboriginal Community. The only inhabitants were several Commonwealth Policemen supervising restricted areas in the vicinity of Maralinga, two Europeans and several aboriginals engaged in dismantling the remaining buildings for sale to private contractors.
- b. With the concurrence of Yalata management, one of the remaining buildings was used for base accommodation. It provided adequate facilities for the base personnel.
- c. Members of the Commonwealth Police occupying adjacent buildings were very co-operative and helpful throughout the operation, especially SGT Brian Oakley who was in charge of the Force.

13. Health and Morale

- a. No medical orderly was taken on the operation. The nearest medical centre was at Cook (130 km by air); there is a hospital with limited facilities staffed by two sisters, no doctor. Full medical care was available at Woomera Hospital (approx 450 km) and in emergency, the Flying Doctor Service based at Port Augusta.
- b. Generally health was very good; few minor gastric complaints have been reported from field parties and one at the Base, all were treated with medicine from the First Aid Kits, and caused no problems. One member with minor eye infection required treatment at the Cook Hospital.

/c. Despite

- c. Despite extremely adverse climatic and environmental conditions endured during the entire period of operation, morale remained high. Some Geceiver stations situated on the fringe of Nullarbor Plain and without natural cover, experienced temperatures within the tents in excess of 50^oC. Swarms of bush flies added to the discomfort.

14. Discipline. No situation arose where disciplinary action was required.

15. Pay and Allowances

- a. Pay. Members received pay in advance for the full period of operation.

- b. Allowances. The following allowances were paid:

- (1) Locality allowance - \$1.31 per day
- (2) Separation allowance - \$1.00 per day to all married members after 15 day qualifying period.

16. Public Relations. With the exception of the members of the Commonwealth Police with whom good working and social relationship was maintained, no contact was made with the public throughout the operation.

17. Serviceability of Equipment. Generally all equipment gave good service. Several breakdowns which occurred had no adverse effect on the operation. The main ones were:

- a. Geceiver. One unit became totally unserviceable and was replaced with a spare unit delivered from Sydney. Jamming of the paper punch was the most common problem, however, it can be easily rectified by the operator with the aid of an Allan key and some cleaning fluid such as CRC Contact cleaner (Not CRC 26 which contains lubricant). Those two items should always accompany the equipment, which unfortunately was not the case when the Geceivers were received in this unit. A more detailed account of the equipment's performance is contained at Annex "E".
- b. Generator 500W. An item of equipment which is of vital importance to the Geceiver operation in the field and especially in remote areas, away from a base battery charging facility. Success of operation depends on its capability to provide a reliable source of power supply to Geceiver equipment over long periods of time and under all climatic conditions. Generator 500 Watts which was used on Op Desert Walk did not fulfil these requirements. Continuous breakdowns would have jeopardized the whole operation if 100% back-up support had not been available in the Base. Failure ranged from broken starter mechanism to complete seizure of the motor. It is strongly recommended that procurement of a more reliable power generating unit for Geceiver operations be investigated.

18. Vehicles

a. Operation was supported by:

(1) 2 x Truck Carryall GS $\frac{3}{4}$ ton Series III

(2) 1 x Truck Cargo $2\frac{1}{2}$ ton GS Int Mk III

b. All vehicles performed well.

19. Fuel

a. Positioning. 8 Tpt Sqn (ARES) was responsible for positioning of fuel at Maralinga. The full requirement of drummed fuel was positioned prior to the commencement of Op.

b. Usage

(1) MT - 5,400 l

(2) AVTUR - 30,200 l

(3) AVGAS - 3,400 l

(4) LP Gas - 320 kg

20. Use of Rail Facility. Rail Terminal facilities were available at Watson, 36 km south of Maralinga. To minimize use of road transport during the extraction phase of the Op, 2 x BMSS Type "B" of stores and some 200 empty drums were consigned to Adelaide. Consignment was scheduled to reach Adelaide in 4 days. However, due to industrial dispute train arrived in Adelaide two weeks later.

Communications

21. No RA Sig support was available for this Op. All comms requirements were managed by RA Svy personnel. Following facilities were available:

a. Rear Link. All traffic was processed by the Defence Telex at DRS Woomera. Messages were passed to, and received from Woomera via the telephone made available by the Commonwealth Police stationed at Maralinga.

b. Forward Net. Unit equipment, AN PRC 10 and PRC 25 radio sets were used for survey net and limited flight following service. All equipment performed very well and apart from occasional atmospheric interference there were no problems with comms.


(J. GRUSZKA)
OC

4 Fd Svy Sqn

4 Oct 79

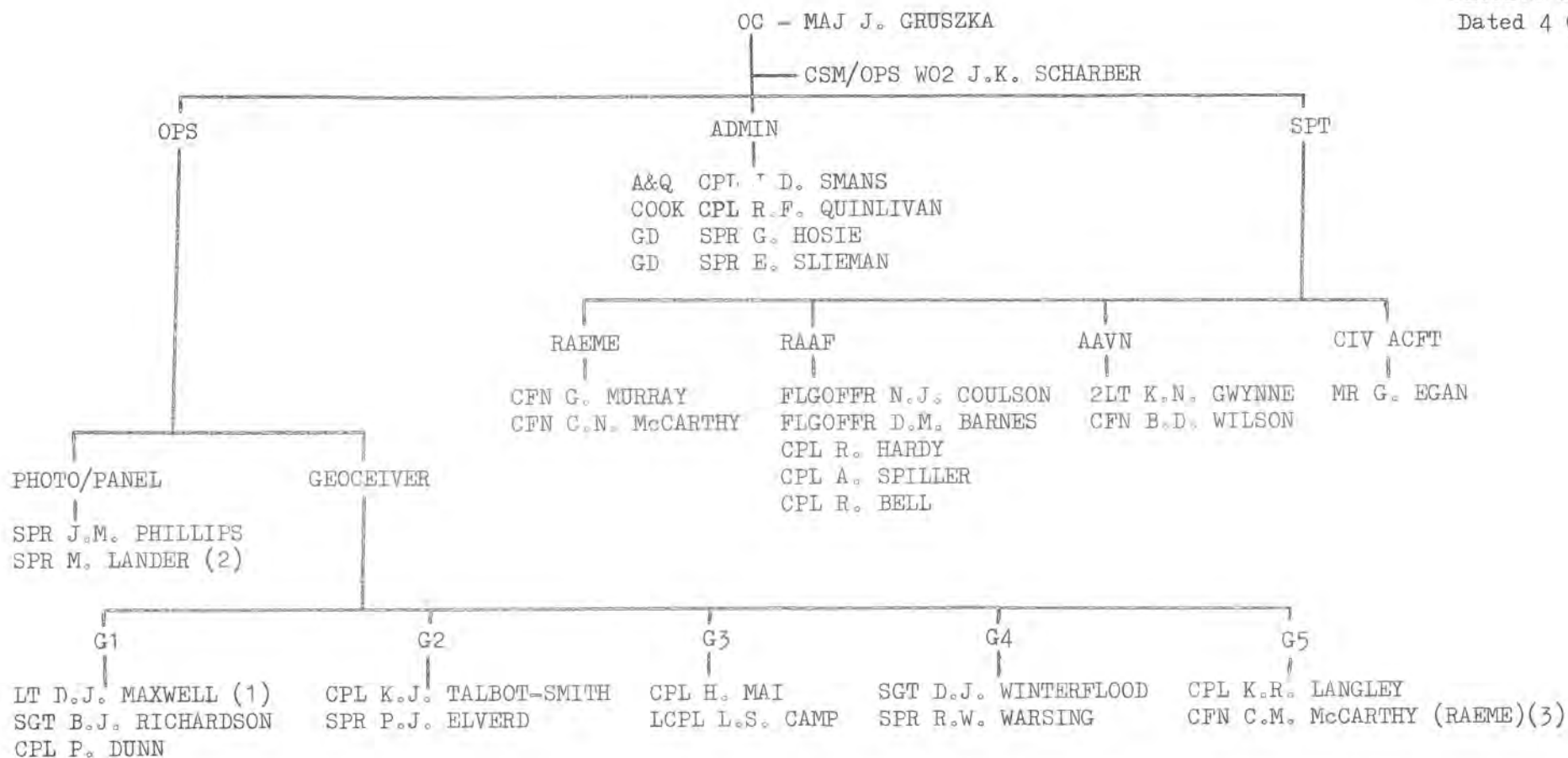
/Distribution:

Distribution

		Reg No
Department of Defence (Army Office)	(5)	1-5
- (Incl 3 for D Svy)		
Field Force Command	(3)	6-8
- (Incl 1 for SO1 Svy)		
4 Field Force Group	(2)	9-10
Army Survey Regt	(2)	11-12
School of Military Survey	(2)	13-14
1 Fd Svy Sqn	(1)	15
2 Fd Svy Sqn	(1)	16
5 Fd Svy Sqn	(1)	17
8 Fd Svy Sqn	(1)	18
171 Command and Liaison Sqn	(1)	19
9 Sqn (RAAF)	(1)	20

Internal

OC 4 Fd Svy Sqn	(1)	21
4 Fd Svy Sqn Library	(6)	22-27



(1) RTU 11 MAR 79 - Replaced by CPL DUNN

(2) PANELLING ONLY

(3) Also GEOCEIVER MECH

ANNEX B TO
OP DESERT WALK
PROJECT REPORT

NOMINAL ROLL OF PERS
INVOLVED IN OP DESERT WALK

4 Fd Svy Sqn

1.	MAJ	J.	Gruszka	27 Feb	-	23 Mar	79
2.	LT	D.J.	Maxwell	27 Feb	-	11 Mar	79
3.	WO2	J.K.	Scharber	27 Feb	-	23 Mar	79
4.	WO2	H.R.	Broadbent	18 Mar	-	24 Mar	79
5.	SSGT	R.M.	Skuse	24 Feb	-	27 Feb	79
				23 Mar	-	24 Mar	79
6.	SGT	B.J.	Richardson	27 Feb	-	23 Mar	79
7.	SGT	D.J.	Winterflood	24 Feb	-	24 Mar	79
8.	CPL	P.	Dunn	13 Mar	-	24 Mar	79
9.	CPL	K.R.	Langley	27 Feb	-	23 Mar	79
10.	CPL	H.P.	Mai	27 Feb	-	23 Mar	79
11.	CPL	R.F.	Quinlivan	24 Feb	-	24 Mar	79
12.	CPL	J.D.	Smans	24 Feb	-	23 Mar	79
13.	CPL	K.J.	Talbot-Smith	24 Feb	-	23 Mar	79
14.	LCPL	L.S.	Camp	27 Feb	-	23 Mar	79
15.	SPR	P.J.	Elverd	27 Feb	-	23 Mar	79
16.	SPR	J.M.	Phillips	27 Feb	-	24 Mar	79
17.	SPR	M.	Lander	13 Mar	-	23 Mar	79
18.	SPR	R.W.	Warsing	27 Feb	-	23 Mar	79

9 Sqn RAAF

1.	Flg Offr	N.J.	Coulson	27 Feb	-	22 Mar	79
2.	Flg Offr	D.M.	Barnes	27 Feb	-	22 Mar	79
3.	CPL	R.	Hardy	27 Feb	-	22 Mar	79
4.	CPL	A.	Spiller	27 Feb	-	22 Mar	79
5.	CPL	R.	Bell	27 Feb	-	22 Mar	79

171 Command and Liaison Sqn

1.	2LT	K.N.	Gwynne	27 Feb	-	23 Mar	79
2.	CPL	J.D.	Koch	18 Mar	-	23 Mar	79
3.	CFN	B.D.	Wilson	27 Feb	-	23 Mar	79

17 Const Sqn

1.	SPR	G.	Hosie	24 Feb	-	23 Mar	79
2.	SPR	E.	Slieman	24 Feb	-	23 Mar	79

Syd Wksp Coy

1.	CFN	G.	Murray	27 Feb	-	23 Mar	79
2.	CFN	C.N.	McCarthy	27 Feb	-	23 Mar	79

1 ATSR

1.	CPL	O.	McDonald	27 Feb	-	28 Feb	79
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AN/PRR-14 GEOCEIVER

Introduction

1. Geceiver observations were commenced on 28 Feb 79, and completed on 21 Mar 79. During this period a total of twenty stations were occupied, consisting of thirteen new stations, five astro stations and two established South Australian Lands Department stations on unclosed traverses. A diagram showing stations observed is contained at Appendix 1 to this Annex.

Specifications

2. Specifications for geceiver observations were as laid down in Provisional Standard Operating Procedure for Geceiver AN/PRR-14 issued 1976 and as amended. A total of twenty-five satellite passes were required per station.

Organization

3. Five geceiver parties were employed simultaneously throughout the operation and each party consisted of two personnel with the senior member in charge. Parties were deployed by UH and resupplied from MARALINGA on movement to a new station. Daily radio schedules were conducted at 0800 hrs, 1200 hrs and 1700 hrs and Main Base radio remained open between approximately 0800 hrs and 1800 hrs (usually dependant upon aircraft movements).

Personnel

4. The following personnel were employed on geceiver observations during the operation.

<u>Geo 1</u>	<u>Geo 2</u>	<u>Geo 3</u>
SGT B.J. Richardson	CPL K.J. Talbot-Smith	CPL H.P. Mai
LT D.J. Maxwell (1)	SPR P.J. Elverd	LCPL L.S. Camp
CPL P. Dunn (2)		
<u>Geo 4</u>	<u>Geo 5</u>	
SGT D.J. Winterflood	CPL K.R. Langley	
SPR R.W. Warsing	CFN C.N. McCarthy (RAEME)	
<u>Main Base</u>		
CFN G. Murray (RAEME)		
(1)	From 28 Feb 79 to 11 Mar 79	
(2)	From 13 Mar 79 to 19 Mar 79	

Operation

5. a. All objectives of the operation were achieved. The ability of the UH to move a complete geociever party in one lift ensured that the minimum of time was lost when two or more parties were ready to move at the same time.
- b. Members of parties had to endure extremely hot and dusty conditions on stations. Resupplies of fresh meat could not be guaranteed to last more than 2-3 days, as refrigerators were extremely inefficient above 30° c.
- c. A number of equipment malfunctions caused delays in acquisition of data. These malfunctions are outlined in para 6.
- d. Because of long distances to stations on the extremities of the operation area and the limited endurance of the UH, some AVTUR had to be pre-positioned by the UH.
- e. RAAF personnel co-operated well so as to allow all movements to go smoothly.
- f. All geociever parties panelled stations prior to movement and in addition established Terrain Profiles to aid in connection to proposed APR profiles.

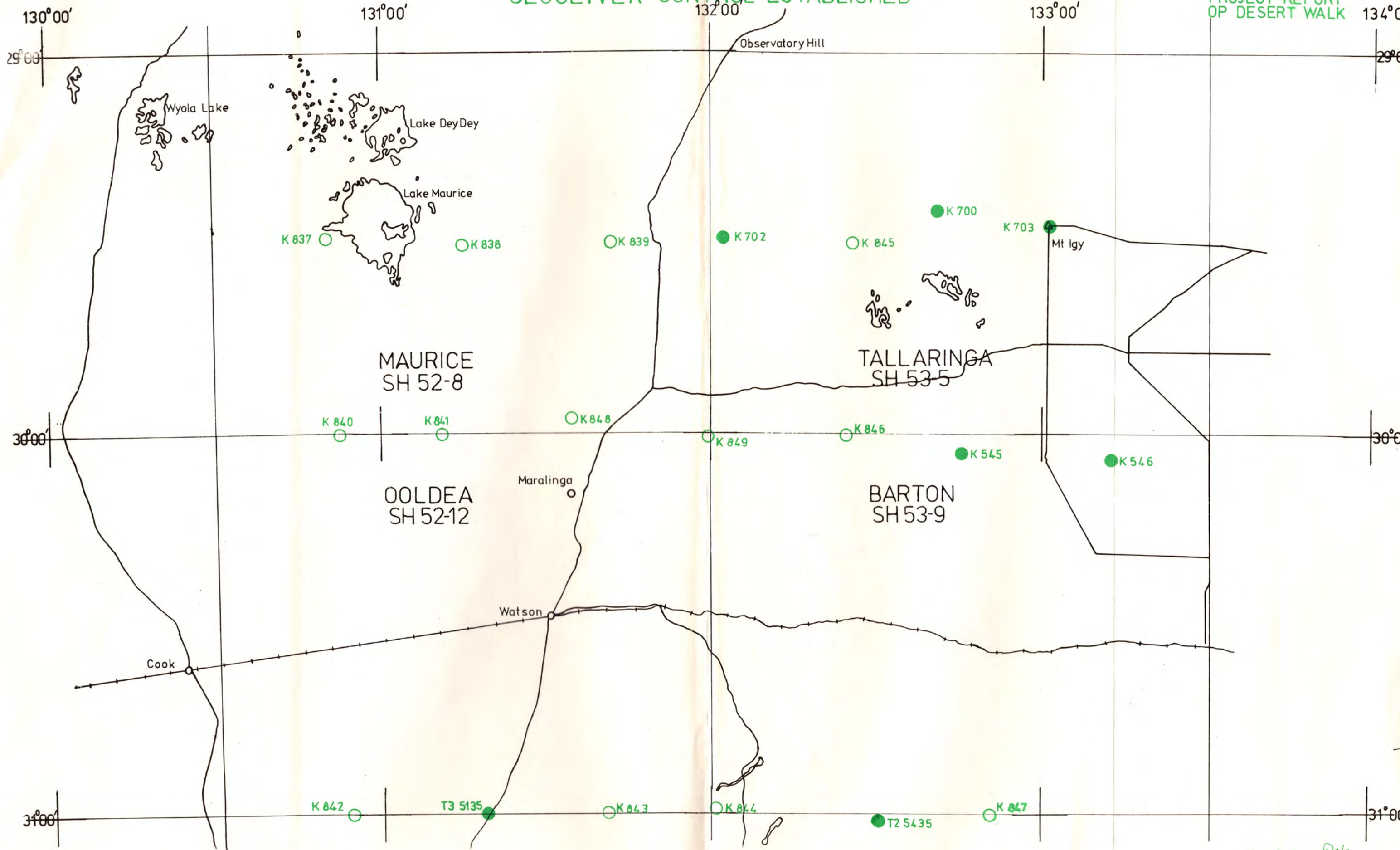
Equipment

6. a. Geociever
- (1) Once again the most common malfunction was jamming of the paper punch, however, after all stations were supplied with allan keys with which to dismantle the punch head, loss of data due to jamming was minimised. Because of the extremely dusty conditions, more than the usual daily maintenance and cleaning was necessary.
- (2) The majority of receiver malfunctions were repaired in the field, however, trouble in one equipment (DHQ 056) caused the loss of four days observations. The problem was eventually diagnosed by the RAEME technician, as a fault in the Reference Oscillator and unrepairable in the field. A new equipment (DHQ 058) was subsequently supplied from Syd Wksp Coy to enable observations to continue.
- b. Generator 500w
- (1) Despite checking and long running prior to the operation, generators continued to give trouble. Main troubles were with starting and in some cases broken pulley cables and assemblies.

SCALE : 1:1,000,000

OPERATION DESERT WALK GEOCEIVER CONTROL ESTABLISHED

APPENDIX 1 TO
ANNEX C TO
PROJECT REPORT
OP DESERT WALK



● GEOCEIVER (EXISTING STATION)

○ GEOCEIVER (NEW STATION)

Compiled: *J. K. Scherber*
(J. K. Scherber)
Checked: *J. K. Scherber*
J. K. SCHERBER

ANNEX D TO
OP DESERT WALK
PROJECT REPORT

PANELLING/AERIAL PHOTOGRAPHY

General

1. The panelling phase of the operation was conducted between 3 Mar and 20 Mar 79. In that period, four days were lost due to unserviceability of the LOH. Aerial photography, using WILD RC10, SWA camera mounted in Beechcraft, Queenair Aircraft on charter from Island Air, was carried out in the period 19-22 Mar 79'.

Results

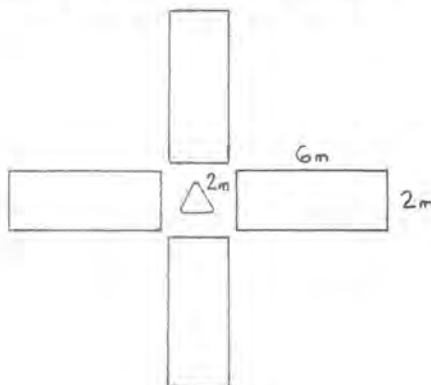
2. Forty-nine stations were panelled and photographed. This total number comprised of twenty Geociever stations established during the operation, and twenty-nine previously fixed horizontal and vertical control points. Only one ident was unsuccessful due to inadequate photo coverage, however, a satisfactory ident is held by the SA Land's Department.

Specifications

3. The following criteria were laid down for panelling and photography:

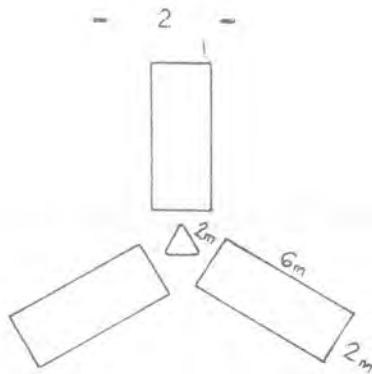
a. Panelling

- (1) Panels - white plastic.
- (2) Dimensions - Arms to be 2 m wide and 6 m long. Arms to start 2 m from the GM, and to be oriented N-S, E-W (where cross configuration is used).
- (3) Configurations - the following to be used in order of preference.
 - (a) Open cross - standard layout.

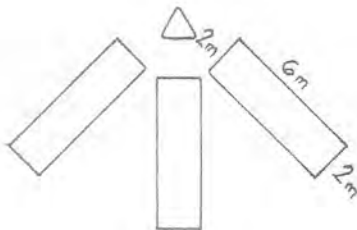


- (b) Open Y - used where standard configuration is not possible.

.../(c) Arrowhead -



(c) Arrowhead - used only where cross or Y cannot be used.



b. Aerial Photography

- (1) Flying height - 10,000 ft above MSL.
- (2) Exposures - three frames centred about the control point with 60% overlap.
- (3) Azimuth - preferably E-W but not essential.

Personnel

4. Following were involved in this phase of Operation:

a. Panelling

2 LT K.N. Gwynne - LOH Pilot.

SPR J.M. Phillips.

SPR M. Lander.

b. Photography

SPR J.M. Phillips - Camera operator.

Mr G. Egan - Acft pilot.


























Execution

- 5. a. Stations occupied by the Geociever were pannelled by observing party. Panelling of previously established stations was carried out by the panelling team supported by LOM.
- b. An attempt has been made to use UH on panelling tasks when acft was not required for positioning of Geociever parties. The idea was quickly abandoned, after targetting one station, as it proved impractical due to Iroquois' limited range and LZ requirements, and also uneconomical.

RESTRICTED

APPENDIX 2 TO
ANNEX D TO
OP DESERT WALK
PROJECT REPORT

SUMMARY OF HORIZONTAL CONTROL PHOTOGRAPHY

1:250 000	Control Point Number	CPE Film No	Photo Data Frames	Viewed Target Configuration	Remarks
SH 52-3 Noorina	T2 4940	28696	135, 136, 137		Panel Visible
SH 52-4 Wells	T1 5040	28696	132, 133, 134		"
	T2 5040	28696	129, 130, 131		"
	T1 5240	28696	120, 121, 122		"
SH 52-7 Wyola	NME 182	28696	78, 79, 80		"
	NME 184	28696	75, 76, 77		"
	T6 4938	28696	72, 73, 74		"
	T7 4938	28696	82, 83, 84		"
	T8 4938	28696	85, 86, 87		"
SH 52-8 Maurice	K 837	28696	88, 89, 90		"
	K 838	28696	91, 92, 93		"
	K 839	28696	94, 95, 96		"
	K 848	28696	63, 64, 65		"
	T3 5139	28696	126, 127, 128		"
	T1 5239	28696	123, 124, 125		"
SH 52-11 Cook	NME 190	28696	36, 37, 38		"
	NME 191	28696	30, 31, 32		"
	NME 205	28696	25, 26, 27		"
	T1 4936	28696	33, 34, 35		"
SH 52-12 Ooldea	K 840	28696	69, 70, 71		"
	K 841	28696	66, 67, 68		"
	K 842	28696	16, 17, 18		"
	K 843	28696	10, 11, 12		"
	K 849	28696	60, 61, 62		"
	NME 192	28696	39, 40, 41		"
	NME 194	28696	42, 43, 44		"
	NME 196	28696	45, 46, 47		"
	NME 198	28696	48, 49, 50		"
BATES	28697	100, 101, 102		"	

1:250 000	Control Point Number	CPE Film No	Photo Data Frames	Viewed Target Configuration	Remarks
SH 52-15 Coompana	NME 207	28696	22, 23, 24	+ X	Panel Visible
	T1 4935	28696	19, 20, 21		"
SH 52-16 Nullarbor	T3 5135	28696	13, 14, 15	+ +	"
SH 53-1 Giles	K 654	28696	114, 115, 116	+ +	"
SH 53-5 Tallaringa	K 656	28696	111, 112, 113	+ X	"
	K 700	28696	103, 104, 105		"
	K 702	28696	97, 98, 99	+ +	"
	K 703	28696	106, 107, 108, 109, 110	+ +	"
	K 845	28696	100, 101, 102	+ +	"
	T3 5339	28696	117, 118, 119	+ +	"
SH 53-9 Barton	K 545	28696	51, 52, 53	+ +	"
	K 546	28696	54, 55, 56	+ +	"
	K 844	28696	7, 8, 9	+ +	"
	K 846	28696	57, 58, 59	+ +	"
	K 847	28696	1, 2, 3	+ +	"
	Immarna	28697	103, 104, 105	+ +	"
	Telle	28697	94, 95, 96	+ X	"
		28697	91, 92, 93	+ +	"
	28697	88, 89, 90	+ +	"	

- NOTE: (1) Visibility of panels was determined by examination of proof copies only.
- (2) All idents flown at 10,000 ft above MSL using 88.06 mm focal length lens' cone.

Compiled: *J.M. Phillips*
(J.M. PHILLIPS) SPR

Checked: *L.J. Camp*
(L.J. CAMP) LCPL

SCALE : 1:1,000,000

OPERATION DESERT WALK TERRAIN PROFILES ESTABLISHED

ANNEX E TO
PROJECT REPORT
OP DESERT WALK

