

**What we did – Svy Units based in SOUTH AUSTRALIA**

Contributors: CS – Clem Sargent; NS – Noel Sproles; PL – Percy Long, PJ – Peter Jensen; BL – Barry Lutwyche

YEAR	UNIT	OPERATION/ PROJECT	DURATION	LOCATION	NATURE OF WORK UNDERTAKEN	PERSONS TAKING PART	OTHER INFORMATION
1946 CS	Det 5 Coy Adelaide		Oct-Dec	West and North SA incl Musgrave Ra	Preliminary recce of country for topo mapping of “Guided Projectile Range”	<b>Major</b> Lindsay Lockwood <b>Sapper</b> Col van Senden	p113 of AMM by CCC
1947 CS	Det 5 Coy Adelaide  AHQ Fd Svy Sect (4 MD Det)	Long Range Weapons Establishment (LRWE)		Pimba Area SA  Port August - Pimba	Recce for 4M and 1M mapping  Triangulation PA to Pimba 1M control Surveys for Pimba and Koolymilka maps	<b>OC Major</b> Lindsay Lockwood plus others  <b>OC Major</b> Wally Relf plus others	P114 of AMM by CCC
1948 CS	AHQ Fd Svy Sect (4 MD Det)  LRWE Survey Sect	LRWE		Port Augusta – Pimba - Koolymilka	Assumed as for 1947 with additional engineering survey tasks for range infrastructure at request of Dept of Works & Housing	<b>Maj</b> Wally Relf, <b>Sgts</b> Len Beadell, Frank Cohen, Howard Watts plus others	P114 Of AMM by CCC
1949 CS	LRWE Survey Sect  AHQ Fd Svy Sect (4MD Det)	LRWE	Sep – Dec  Feb - Dec	Woomera Village	Fixing position, heights and range infrastructure	<b>Lt</b> Spencer Snow (OC), <b>Cpls</b> Joe Hammond, Clem Sargent, <b>Sprs</b> Lofty Cannard, Bill Miller, Jim Reneker. Max Smith, Howard Smith.  <b>Maj</b> Wally Relf, <b>Sgt</b> Ken Cook, <b>Cpls</b> John Hillier, Don Ridge, <b>Sprs</b> Laurie Arnold, Alan Chapman, Blue Gow, Dick Laming, Blue Hunter, Shorty Read, Howard Smith, Max Smith, Dave White	

1950 CS PL	WRWE Svy Sect  AHQ Fd Svy Sect (4 MD Det)	Woomera Rocket Range	Feb - Jul	Woomera Village	Fixing position, heights, Range installations	<b>Lt</b> Spencer Snow (OC), <b>Cpls</b> Joe Hammond, Clem Sargent, <b>Sprs</b> Lofty Cannard, Bill Miller, Jim Reneker, Howard Smith, Max Smith.  <b>Maj</b> Wally Relf, <b>Sgt</b> Ken Cook, <b>Cpls</b> John Hillier, Don Ridge, Robin Wilson, <b>Sprs</b> Laurie Arnold Max Cain, Dave Carr, Blue Gow, Malachy Hayes, Blue Hunter, Dick Laming, Percy Long, George Nolan, Shorty Read, Howard Smith, Max Smith
1950 CS	WRWE Svy Sect & C Comd Fd Svy Sect	Woomera Rocket Range	Aug - Sept	Koolymilka camp	1 <sup>st</sup> order base line measurement	<b>Col</b> L Fitzgerald <b>OBE</b> , <b>Maj</b> Wally Relf, <b>Lt</b> Spencer Snow, <b>Sgt</b> Ken Cook, <b>Cpls</b> Blue Gow, Joe Hammond, John Hillier, Don Ridge, Clem Sargent, <b>Sprs</b> Laurie Arnold, Max Cain, Lofty Cannard, Dave Carr, Brian Dalton, Dick Laming, Bill Miller, Shorty Reid, Jim Reneker, Howard Smith, Max Smith, Norm Vaughan, Dave White
1950 CS	AHQ Fd Svy Sect 4 MD Det	Woomera Rocket Range	Sep - Dec	Koolymilka camp	1 <sup>st</sup> order trig, Port Augusta – Mt Eba	<b>Maj</b> Wally Relf, <b>Capt</b> Ted Stewart, <b>Sgt</b> Ken Cook, <b>Cpl</b> Clem Sargent, <b>Sprs</b> Laurie Arnold, Max Cain, George Greenwood, Dick Laming, Shorty Reid, Howard Smith, Dave White, Jim Williams. plus?
1951 CS	AHQ Fd Svy Sect  4 MD Det	Woomera Rocket Range	Feb - Apr	Mt Eba aerodrome	Mt Eba 1/25,000 special -- 5 ft contours.	<b>Maj</b> Wally Relf, <b>Capt</b> Ted Stewart, <b>Sgts</b> John Hillier, Don Ridge, Robin Wilson, Ken Cook, Clem Sargent, <b>Cpl</b> George Nolan, <b>Sprs</b> Max Cain, Dave Carr, George Greenwood, Malachy Hayes, Percy Long,

						Howard Smith, Dave White, Jim Williams	
1951 CS PL	C Comd Fd Svy Sect OC Maj Wally Relf	Woomera Rocket Range	May - Dec	Koolymilka/ Mt Eba	1 <sup>st</sup> order triangulation – Woomera –Mt Eba	as above, plus <b>Lt</b> Jim Stedman <b>Cpl</b> Robin Wilson; less <b>Spr</b> Jim Williams,	Only braced Quad fully observed on towers – windmill tower inner and Cyclone outer tower
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		21 Jan	South Australia	Triangulation Sta recovery; Koolymilka	<b>Sprs</b> Perc Long, George Nolan,	(PL:Bris – Woomera via Bourke)
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		12 Feb	SA – Largs Bay Hampstead	Mobilong 63,360, annotation	<b>Capt</b> Stewart, <b>Sprs</b> Perc Long, Malachy Hayes, Shorty Read, Dave Carr, Ken,	P Long spent some time in Adelaide on Mobilong compilation
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		May		Mobilong - heighting	<b>Capt</b> Stewart, George Greenwood	
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		June		Base Line measurement, plane-tabling	<b>Maj</b> Wally Relf, <b>Capt</b> Stewart	
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		Jul -Sep	South Australia – Murray Bridge, Lake Alexandra, Langhorne Ck, Wellington	Triangulation – recon, station recovery; Barometer traverse for 1:63,360 mapping, levelling, contouring	<b>Cpls</b> PH (Percy) Long, Dave Carr, <b>Sprs</b> Norm Vaughan, Marcel Orion, Jim Stokes, Ivan Chilton, Ernie ?, Robin, Jack Murray,	Sta visited: Wilunga, Inman Hill, N Clayton, , ANGAS, Langhorne, Giles HillMorphett Hill (1.7.52),Burslems Hill, Gemmell Hill, Strathalbyn Hill, Milang,Finiss, Sandergrove, etc
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		Oct	Meningie	Plane tabling, levelling	<b>Cpls</b> Percy Long, Dave Carr, <b>Sprs</b> Marcel Orion, Norm Vaughan	
1952 PL	C Comd Fd Svy Sect OC Maj Wally Relf		Dec	Hampstead			Lt Hillier arrived; P Long posted to N Comd Fd Svy Sect – went on leave, got married
1953		LRWE work ends					Dept of Interior takes over LRWE work.

1954	C Comd Fd Svy Sect						
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1958 AH	C Comd Fd Svy Sect		May to Oct	NT – 150k south of Darwin	Control Survey for 1: 50,000 mapping, minor triangulation, chain traversing, barometric heighting	Unit personnel	4x4 jeeps and trailers plus 6x6 GMCs and Studebakers
1959 AH	C Comd Fd Svy Sect		May to Oct	NT – 150k south of Darwin. Tumbling Waters	Control Survey for 1: 50,000 mapping, minor triangulation, chain traversing, barometric heighting		
1959 AH	C Comd Fd Svy Sect		May – Oct	NT 15 deg Lat – east of Hwy	Do plus Control Survey 1:250000 mapping - plus geodetic traverse joining to AHQ Svy Regt work SW corner of Gulf of Carpentaria north to vicinity of Round Hill Island	Unit pers with other Corps attachments – veh spt SWB Landrover, GMC/Studebaker, folding boat catamaran plus joined aluminium bridging punts (mousemaran)	
1960 AH	C Comd Fd Svy Sect		May – Oct	NT 15 deg Lat – east of Hwy	Control Survey 1:250000 mapping - tellurometer traversing plus astro fix – continuation of geodetic traverse Round Hill Is to vicinity of Elcho Island	do plus HMAS Gascoyne plus TAA Hel plus civil Cessna plus RAAF DC3 plus 2 x f/g 4m Bell Boy boats/trailers	Based Yirrkala and Mainoru
1961 AH	C Comd Fd Svy Unit		May – Oct	NT 15 deg Lat – east of Hwy	Control Survey 1:250000 mapping - tellurometer traversing plus astro fix – continuation of geodetic traverse Round Hill Is to vicinity of Elcho Island plus completion of geodetic traverse to Darwin	AAAvn plus civil hel plus Cessna plus RAAF DC3/C130	Milingimbi/ Oenpelli
1962 AH	C Comd Fd Svy Sect		Apr – Aug	SA – WRE	Control Survey 1:50000 mapping – tellurometer traverse, baro and level traverse, annotation	Unit Vehs plus some air spt from WRE by RAAF Otter	Parakylia, Mt Eba

1963 <i>AH</i>	C Comd Fd Svy Sect		May – Oct	SA – WRE	Control Survey 1:250000 mapping – astro, baro heighting, annotation – geodetic traverse connecting to Natmap work W of Emu to vicinity Mabel Creek	Unit vehs, civil charter Hel plus attached other Corps pers	Tallaringa Well
1964							
1965							
1966							
1967 <i>AH</i>	C Comd Fd Svy Sect		May – Oct	NT 15 deg Lat – East of Hwy	Control Survey 1:100000 mapping by tellurometer and aerodist, baro heighting	Unit pers, vehs plus attached pers, civil and AAAvn hel and Lt acft plus aerodist acft plus RAAF C130 plus CC08	Numbulwar, Yirrkala and Mainoru
1968 <i>AH</i>	C Comd Fd Svy Sect		May – Oct	Remainder of area N 15 deg Lat	Control Survey 1:100000 mapping by tellurometer and aerodist, baro heighting	Unit pers, vehs plus attached pers, civil and AAAvn hel and Lt acft plus aerodist acft plus RAAF C130 plus CC08	Mainoru, Darwin, Daly River
1969 <i>NS</i>	4 Fd Svy Sqn				Establishing control and recover and panel control Cultana Training Area for 1:25 000 / 1:50 000 mapping	<b>Capt</b> Noel Sproles, <b>WO1</b> Pat Woods	
1969 <i>NS</i>	4 Fd Svy Sqn				Kangaroo Island 1:100 000 mapping (conversion of Lands Dept work)	<b>Capt</b> Noel Sproles	
1970	4 Fd Svy Sqn		May – Jul	Port Lincoln area	Control Survey offshore island groups for 1:100000 mapping by tellurometer trilateration – field checking	Unit pers and vehs – HMAS Banks in spt plus civ charter Lt acft	Port Lincoln
1971							
1972 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Wineglass		West TPNG based at Goroka	Survey control for 1:100,000 mapping by Tellurometer, Aerodist. Also Barometric heighting.	<b>OC Maj</b> George Ricketts	Aerodist MRB3
1973 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Plastic Flagon		TPNG western area based at Goroka	Survey control for 1:100,000 mapping Tellurometer, Aerodist, Geociever. Also Barometric heighting.	<b>OC Maj</b> George Ricketts	Aerodist MRB3
1974 <i>AH</i> <i>PJ</i>	4 Fd Svy Sqn	OP Sea King	Jul – Nov	TPNG Goroka	Survey control for 1:100,000 mapping with ties to PNG-Irian Jaya border.	<b>OC Maj</b> George Ricketts	

					Tellurometer, Aerodist, Geociever, barometric heighting, APR		
1975	4 Fd Svy Sqn	Op Short Walk	10-27 Mar	SA	Mapping control		
1975	4 Fd Svy Sqn	Op Hot land	2 Sep-8 Oct	WA	Mapping control		
1976	4 Fd Svy Sqn	Op Brass Key	28 Apr-1 Aug	NT	Mapping control traverse		
1977 AH PJ	4 Fd Svy Sqn	Op Short Walk II	24 May-24 Jun	SA – Woomera area	Field completion 20 x 1:50,000 maps		
1978 AH PJ	4 Fd Svy Sqn	Op Short Walk III	21 Aug-26 Sep	SA – Billa Kalina & Kingoonya	Field Completion		
1978 PJ	4 Fd Svy Sqn	OP Tropic Shores	May to Jun	Northern Territory	Field completion	<b>OIC Lt Tony Stephens</b>	
1979	4 Fd Svy Sqn	Op Desert Walk	27 Feb-23 Mar	SA – Maralinga area	Mapping control with geociever		
1979 AH PJ	4 Fd Svy Sqn	Op Brass Key 79	25 May-2 Aug	NT Tactical Mapping Area	Field completion 1: 50,000		
1980 AH PJ	4 Fd Svy Sqn	Desert Walk 80	27 Feb-31 Mar	SA – Maralinga area	Vertical control with Airbourne Profile Recorder	In conjunction with Division of National mapping	
1980 AH PJ	4 Fd Svy Sqn	Short Walk 80	8 May-6 Jun	SA – Coober Pedy - Tarcoola	Field completion of 48 x 1:50,000 maps		
1981 thru 1985 PJ	do		1981 - 1985	SA – Smithfield (DSTO)	Established, operated and managed in conjunction with the US Defense Mapping Agency one of the five worldwide test sites for the Global Positioning System (GPS). Data from the site was also used to establish a capability to compute precise ephemerides for high earth orbit satellites (20,000 kms) and to precisely model	Aust Manager <b>Lt Peter Jensen</b> US Manager Mr Brian Tallman	The site was co-located with Trannet 545 operated by DSTO as part of the global network for precise ephemerides for the US satellite TRANSIT Navigation System. Data was transmitted to USDMA at Brookmont Maryland Maryland viacommunication

					the Earth's gravity field at that height.		satellites for processing and contributed to a capability of precise point positioning by GPS and GPS navigation broadcast ephemerides.
1981 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Curdimurka	24 – 29 April	SA – Curdimurka area	Vertical control by APR of Curdimurka 1:250.000 map area		This project has been picked away at from 1970 by 'non-regular' survey units and RE Survey.
1981 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Cunthia	14 May – 8 Apr	NT – Alice Springs – Kulgera area	Estb Survey control by Geoceiver and photo ident of new and existing points		
1981 <i>AH</i>	4 Fd Svy Sqn	OP Notarial I	3 – 22 Jul	SA	Field completion		
1982 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Notarial II	11 Nov – 6 Dec	SA – Coober Pedy area	Field check 1:50,000 OPMs		
1982 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Nervoise	15 Jul – 23 Sep	NT – Arnhem Land	Estb Survey control by MX1502 Doppler Satellite Eceiver and panel and photograph existing survey points for 1:50,000 mapping	<b>OC Maj</b> Rene Va den Tol	
1983 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Notarial IV	Sep - Oct	SA-NT border area	Field completion of 72x1:50,000 OPMs and Coober Pedy 1:10,000 urban OPM		
1983 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Neuration	21 Mar – 12 Jun	NT-WA border to Tennant Creek to Qld border	Estb Survey control by MX 1502 Doppler Satellite receiver. Panel and pohotograph existing survey points for 1:50,000 mapping of primary road communication routes.	<b>OC Capt</b> Peter Jensen	
1983 <i>PJ</i> <i>AH</i>	4Fd Svy Sqn	OP Notarial III	18 – 30 Apr	NT – Alice Springs area	Field completion of 1:50,000 OPMs of main roads communication routes		

1984 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Long Walkabout	June	SA – Port Keates and Ferguson River areas	Field completion of 1 1:50,000 line maps		
1984 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Algum	1 Jul – 30 Sep	SW Pacific - Vanuatu	Assistance for 1:50,000 mapping. Estb survey control for baselines for Exclusive Economic Zone.		
1984 <i>PJ</i>	4 Fd Svy Sqn	OP Nervose	Jun to Sep	NT – Arnhem Land	Verical control by APR for 1:50,000 mapping		
1984 <i>PJ</i> <i>AH</i>	4 Fd Svy Sqn	OP Notarial V	May to Jun	SA/NT border	Fiel completion of 64 x 1: 50,000 OPMs.		
1985 <i>AH</i>	4 Fd Svy Sqn	Algum 85	15 Jun-29 Sep	Vanuatu	Mapping control; Air Photography		
1985 <i>AH</i>	4 Fd Svy Sqn	Cynthia 85	29 Aug-30 Oct	NT	Field annotation		
1986 <i>AH</i>	4 Fd Svy Sqn	Wet Stranger	20 Jan-5 Mar	Vic	Field annotation		
1986 <i>AH</i>	4 Fd Svy Sqn	Cartaret 86	10 Mar-16 Mar	SA	Mapping control		
1986 <i>AH</i>	4 Fd Svy Sqn	Short Walk 86	19 May-3 Jun	SA	Mapping control; field completion		
1986 <i>AH</i>	4 Fd Svy Sqn	Algum 86	22 Jun 14 Nov	Vanuatu	Mapping control; air photography		
1987							
1988 <i>AH</i>	4 Fd Svy Sqn	Opal Warrior 88	18 Apr-18 May	SA	Mapping control		
1988 <i>AH</i>	4 Fd Svy Sqn	Nervose 88	23 Aug- 14 Sep	NT	Field completion		
1989 <i>AH</i>	4 Fd Svy Sqn	Nervose 89	11 Apr-30 May	NT/WA	Field completion		
1989 <i>AH</i> <i>BL</i>	4 Fd Svy Sqn	Neright 89	12 Sep-22 Oct	Qld/NT	Mapping control;field completion	<b>WO1</b> Barry Lutwyche, Sgt Derek Stanmore, others	
1990 <i>AH</i> <i>Mizmaze</i> <i>90 Op</i> <i>Report.</i>	4 Fd Svy Sqn	Mizmaze 90	5 Sep-8 Oct	WA Op base at Halls Creek	Mapping control; estb 7 Hor con. Field completion of 48 x 1:50,000 maps within the fol 1:250,000 map sheets:	<b>OC Maj</b> AL Newton, <b>Capt</b> BP Mc Donald, <b>WO2s</b> VA Applebee, ID (Rock) Thiselton, AB Van Leeuwin. <b>SSgts</b> Derek Stanmore, KG Talbot-Smith,	Assistance given to 7MGI (Darwin) in compiling a data base of natural and artificial features and conditions



					Cambridge gulf, Lissadell, Lansdowne, Dixon Range, Mount Ramsay, Gordon Downs. Photographic Interpretation Guide (PIG) photography	<b>Sgts</b> EL Jacobs, HJ Mc Rae, SP Symonds, <b>Cpls</b> PJ Austine, TS Clarke, SA Ellis, JA Mathieson, SA Nokes, PR Tuddenham.  <b>Army Svy Regt: Capt</b> VM Grealy RE (Ex Longlook), <b>Lt</b> GC Addison, <b>Cpl</b> NJ Houston, <b>Sprs</b> SG Adrain, MM Fisher, DJ Percival.  <b>162 Recce Sqn: Capt</b> K Jorgenson, <b>Capt</b> R Emmett, <b>Lt</b> A Mc Nab.	within their AO. PIG photography taken with RC10 camera supplemented with 35 mm colour film.
1991 <i>AH</i> <i>Opal Warrior 91 Op Report</i>	4 Fd Svy Sqn	Opal Warrior 91	4 May-24 May	SA – Cooper Basin Region	Field completion of 1:250,000 map Strzelecki; Air Photo interpretation Guide (PIG) photography for 1:250,000 map Innamincka.	<b>WO2</b> ID (Rock) Thiselton, <b>SSgt</b> JJ Zuringer, <b>Sgts</b> MT Casey, PD Cutcliffe,, <b>Cpls</b> B Hogan, TC Lambert, GT Weatherell, <b>Sprs</b> WA McCarthy, AG Santo. <b>161 Recce Sqn: Leut</b> PJ Beasy (RAN), <b>Lt</b> AJ Langley, <b>Cpl</b> A Sutcliffe. <b>173 Gen Spt Sqn: Lt</b> S Stuart, <b>Cpl</b> KL Hopwood, <b>Pte</b> SJ Bailey	
1991 <i>AH</i>	4 Fd Svy Sqn	Aright 91	8 Jul-5 Sep	Qld/PNG	Mapping control – GPS		
1992	4 Fd Svy Sqn	Nervose 92	15 Jul-23 Aug	NT	Mapping control – GPS		
1992 <i>AH</i> <i>Mizmaze 92 Op Report</i>	4 Fd Svy Sqn	Mizmaze 93	1 May-18 Jun	WA – Kimberley region. Base camps at Wyndham, Halls Creek	Field completion of 46 x 1: 50,000 maps Control survey – 10 hor points using GPS. Mapping photography	<b>Det OC</b> Lt GC Addison, <b>WO2s</b> PW Hammer, ID Thiselton, V Applebee (QMS), <b>SSgt</b> LM Johnson (FC Pty), <b>Sgts</b> PG Baker, FL Downie, EL Jacobs, TM Purdey, <b>Cpls</b> AE Jackson, JA Mathieson (Cook), TP Tran, GT Weatherell <b>LCpl</b> SG Adrain.  <b>From Army Svy Regt: Lts</b> R Carpenter, R Gray, <b>Sgts</b> S Drummond, N Houston, <b>Spr</b> N	

						Pedler. <b>162 Recce Sqn: Capt P Hogan</b> (LOH), <b>Lts A Jones</b> (LOH), <b>D</b> <b>Percy</b> (LOH), <b>P Keys</b> (LOH)	
1993 <i>AH</i>	4 Fd Svy Sqn	Nasiko 93	30 May-17 Jun	Vanuatu	Air photography		
1993 <i>AH</i>	4 Fd Svy Sqn	Mizmaze 93	1 May-18 Jun	WA	Field completion		
1993 <i>AH</i>	4 Fd Svy Sqn	Nasiko 93	30 May-17 Jun	Vanuatu	Air photography		
1993 <i>AH</i>	4 Fd Svy Sqn	Kumil 93	8 Jul-27 Aug	PNG	Air photography		
1993 <i>AH</i>	4 Fd Svy Sqn	Nervose 93	21 Jul-7 Aug	NT	Mapping control – GPS		
1993 <i>AH</i>	4 Fd Svy Sqn	Belama 93	28 Aug-8 Oct	Solomon Islands/Vanuatu	Air photography		
1993 <i>AH</i>	4 Fd Svy Sqn	Alright 93	30 Aug-8 Oct	Qld	Field completion		
1993 <i>AH</i>	4 Fd Svy Sqn	Emu 93	8 Oct-22 Oct	SA	Aerial photography		
1994 <i>AH</i>	4 Fd Svy Sqn	Kumul 94	4 Jun-24 Oct	PNG	Aerial photography		
1994 <i>AH</i>	4 Fd Svy Sqn	Nervose 94	4 Jul-8 Aug	NT	Field completion		
1994 <i>AH</i>	4 Fd Svy Sqn	Belama 94	31 Jul-14 Sep	Solomon Islands/Vanuatu	Aerial photography		
1995 <i>AH</i>	4 Fd Svy Sqn	Mizmaze 95	10 May-15 Jun	WA/NT	Field completion		
1996							