APPENDIX C

Simpson Desert 1985

Satellite Navigation Report

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Our Reference Your Reference



SURVEY CONTROL FOR 1986 SEISMIC SURVEY IN OP.184

Introduction

Geomeasure Australia was retained by Beach Petroleum N.L. through Western Geophysical to establish 10 Doppler points in its Simpson Desert lease OP.184 for the control of their 1986 Seismic Survey program.

Field Observations

This work was conducted during the period 10 - 15 January, 1986 by Jon Currell and David Rose.

Three Magnavox MX1502 satellite receivers were used in the translocation mode. Approximately 10 - 14 matching translocation passes were recorded at each site.

The order of occupation and base stations used is shown below:-

Base Station

T1/495

Remote Station

D.E.F.G

Station F

H, I, J, K, B/B1

Poeppel Corner Trig Stn.

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Processing

Observations were recorded on the WGS 72 datum. The data was then post-processed using the on board Magnavox processing facilities to determine the co-ordinates of the required stations in WGS 72 co-ordinates. Base station co-ordinates and computed values of observed stations were transformed from WGS 72 to AGD 66 and vice verca using data supplied by National Mapping. Heights were entered on the AHD and the translocated values were adjusted using the onboard spheroid seperation values and those supplied by National Mapping.

Results

**

Attached are the base station summaries, station summaries and seismic map showing the stations established and base stations used.



BASE STATIONS

Station Number and Name:

T1/495

Man Name: Simpson Desert South Original Station Established by: S.A. Dept of Lands Date: Aug 1963 SG 53-8 Scale 1: 250,000 Map Number: Australian Geodetic Datum, 1966 Existing Station Marked by: Reference Books: S.A. Lands Dept Clarke summary. RECTANGULAR COORDINATES: Australian Map Grid: In Metres NM10653,NM10959, HEIGHTS: in Motres on the Australian Height Datus GRID BEARING = ADJ AZIMUTH + CONVERGENCE.

Cadastral Location:

Country/District

Parish/Hundred

Allotment/Section/Portion

Access and Locality Sketch:

Particulars of station marking and beacon:

Station Mark : G.I. socket 9" above surface level screwed to 14ft

of ½"G.I. pipe driven into sand.

Beacon

:Nil.

Reference Marks: 4'6" star pickets with top 9" above natural surface and 14ft of 2"G.I. pipe 1 metre in line 7ft below

and 7ft above ground level for identification

purposes.

Access

:From Dalhousie Ruins follow track in Northerly direction to fork at 4.5mls. Take right hand track in an ENE direction to Mt Dare Outstation. From here follow track made by Seismic Coy. in an ENE direction for 150mls to a salt lake. Turn in a Northerly direction for 6mls. Station is on a sandridge.

Light aircraft can land at several places in the

Desert, close to the Seismic Line.

`∆*T//495*

con bond here Airstrip-

Dalhousie Ruins

Note: Access should always be made from the West. Sandhills are very steep on the Eastern side, making access from the East extremely difficult. To travel Westward would take thrice the time, fuel and mileage. Petrol and supplies available at Oodnadatta and Birdsville. Drinking water available Mt Dare Outstation, West side of Desert and Eyre Creek (muddy water) East side of the desert. Water was not found during the crossing of Desert. A bulldozed Seismic Line runs close

The latest coordinates and adjustments appear on NMC Geodetic Data Base info summaries obtainable from Division of National Mapping, CANBERRA

Bearings are true. Distances in metres below

±"G.I. pipe 1/6446-a 12' diameter ring was dug around RM2. Ring is 4.68metres below G.M.

Station Number and Name:

POEPPEL CORNER

Original Station Established by:

SA DEPT OF LANDS

Date:

Existing Station Marked by:

SA DEPT OF LANDS

Date: AUG 1968

Reference Books:

TFS 2602. HAP 1059. VAP 1386.1625. TP 2359. BP 929.

Cadastral Location:

Parish/Hundred

State BOIINDARY N.T. S.A. QLD.

Country/District

Allotment/Section/Portion

Access and Locality Sketch:

Particulars of station marking and beacon:

Ground Mark consists of a concrete pipe.2m long.0.5m diam.with a brass plaque(Vide DR 430/68) let into the top, standing 1.10m above natural surface.

Sub Surface Marks are:-

A 2m ½" G.I. Pipe 1.30m below natural surface

2) An iron pin set in a concrete block 0.90m below natural surface.

R.M.s 4.37m Star pickets, 0.22m above nat surf and 4.0m of 3" G.I. Pipe, 1.0m in line, 2.0m below and 2.0m above nat surf.

Note Access is best made from the West.Sandhills are ory steep on their Eastern sides, making access from the East wery difficult. To travel Westward would take thrice the time, Onel and mileage. Petrol and supplies are available at OODNADATTA ETROSVILLE. Drinking water is available at Mt Dare outstation Toring hut). West side of Desert and EYRE CREEK (muddy). East the of Desert. Water was not found during the crossing of the chert. A Bulldozed Seismic line runs close by the station. This ine should remain visible between the ridges for many years (Not visible in places 1968). Light aircraft can land at several places in the Desert close to the Seismic Line.

From DALHOUSIE Ruins follow track North to fork

Take right hand track in ENE direction to MT DARE

From MT DARE OS follow Seismic track in ENE direction

for approx 167 miles to LAKE POEPFEL then turn NE

for 0.8% to the station

Mitemațiive <u>Access</u>

MO.00 From BIPDSVILLE travel South for approx 8 miles

08.0% Turn West and travel along Border fence

Border fence turns N. Keep on travelling in

Westerly direction

114.0M POEPPEL CORNER OODNADATTA W.A.C. Map Number:

3343

Scale 1:1,000,00

Australian Geodetic Datum. 1966

LAR COORDINATES

Australian Map Grid: In Metres

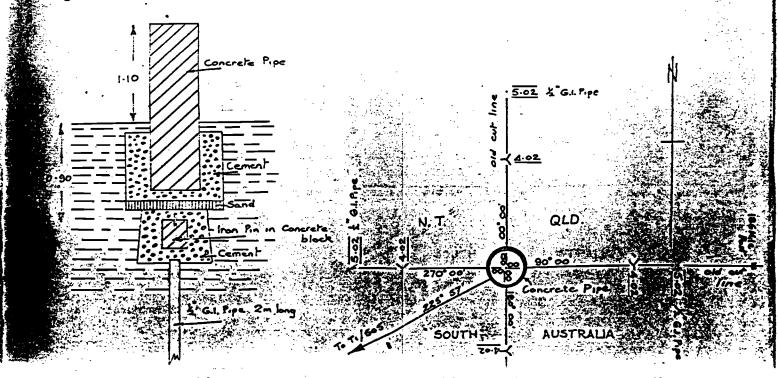
HEIGHTS: In Metres on the Australian Height Datum All Barries Spirite services and the second

ARING = ADJ AZIMUTH + CONVERGENCE

latest coordinates and adjustments appear on Geodetic Data Base info summaries obtainable from Division of National Mapping, CANBERRA

1970 3rd Order Level Connection

Trig is 3.720ft above BM 6872.



Produced by National Mapping from the NATIONAL GEODETIC HORIZONTAL CONTROL DATA BASE on behalf of the National Mapping Council

Wed Oct 9, 1985

JOB FOR GOEMEASURE AUSTRALIA Values are on AGD66

15 points qualify Sort order:

Page 1 of

Station No	ames	Order	Latitude	Longitude	Zone	Easting	Northing	Height	Vord	State	Misc	Rest
6345/1001	T1/504	1	26 6 33.3926	137 2 10.7134	53	703627.358	7110611.601	81.60	12	469	30168	11726
6345/1002	1/6345	4	26 6 32.7350	137 2 8.7371	53	703572.764	7110632.697	79.50	12	469	30068	10840
6345/1003	T2/504	1	26 5 2.0463	137 11 27.4103	53	719142,688	7113171.690	78.00	12	469	31170	11727
6345/1004	T3/504	1	26 3 23.8180	137 20 40.2680	5.3	734562.730	7115927.463	71.50	12	469	30163	11728
6345/1005	T4/504	1	26 6 48.8761	137 26 1.6632	53	743379.898	7109452.070	66.60	12	469	31170	11729
6445/00000	T2/6445	2	25 59 54.8673	137 30 23.4020	53	750898.285	7122057.440	45.20	12	649	30068	10843
6445/1001	2/6445	2	26 0 45.7840	137 58 49.5872	53	798327.891	7119492.767	72.090	11	461	30069	8320
6445/1002	4/6445	4	26 22 2.8777	137 59 36.6810	5 3	798730.507	7080142.514	45.80	12	461	30069	8358
6445/1003	T3/6445	2	26 22 2.1886	137 59 38.2937	53	798775.729	7080162.692	50.80	12	461	30069	8357
. 6445/1004	T1/505	1	26 0 46.5337	137 58 52.1095	5 3	798397.534	¥119468.083	75.247	1.1	461	30169	8319
6445/11111	3/6445	4	25 59 54.6850	137 30 24.3647	53	750925.17	122062.537	42.10	12	649	30068	10844
6446/00000	T1/495	111	25 58 54,1049	137 35 43.7650	53	759846.938	1123753.775	78.40	12	641	31170	11730
6446/11111	1/6446	4	25 58 52.6486	137 35 45.0637	53	759883.960	7123797.885	73.70	12	641	30070	10841
POEPPEL CORNER		1	25 59 54.0980	137 59 52.0790	53	800102.947	7121044.281	24.64	12	641	30184	11732
• T2/495		1	25 58 1.6703	137 49 38.3834	53	783103.520	7124886.210	66.70	12	641	31170	11731

SAT Co-orns 25° 58' 48 976" 137° 35' 47 486



OBSERVED STATIONS

Serial No

SATELLITE STATION B/Bl Station Number and Name: Order: Doppler S.P.S. 1984 Original Station Established by: Date: **OODNADATTA** Map Number: SG-53 Scale 1: 1000000 Map Name: GEOMEASURE AUSTRALIA January, 1986 Existing Station Marked by: Date: DATUM: Australian Geodetic Datum 1966 Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum SOUTH LATITUDE EAST LONGITUDE EASTING CONVERGENCE HEIGHT NORTHING State Northern Territory County/District Cadastral Location: 25⁰19'20.9490" 137⁰50 '40.9530" +1⁰13' 3.17" 7196290.971 786381.145 56.50 Parish/Hundred Allotment/Section/Portion Doppler AHD Der. ADJ AZIMUTH ADJ LENGTH Access and Locality Sketch: Particulars of station marking and beacon: For access see Seismic Map Main Mark: Star picket driven into sand Doppler Satellite observation, January 1986 by Geomeasure Australia. Translocated from Satellite Station F. Uncertainty of Co-ordinates - 3 metres. with tag "BEACH SPS SITE 2" for area. Witness Post: Red/White star picket with tag "SAT STN B" Seismic PM Star Picket Witness Post S SD 84-39 D VP 952 U EOL Star Picket End of Seismic Line Station B/B1-SD 84-39 Photo Identification: Certified free of transcription errors:

Serial	No		
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SATELLITE STATION C Station Number and Name: Order: Doppler Poeppel Corner Crismo Station Established by: Date: 1880 Scale 1: 1000000 S.A. Department of Lands Map Number: Map Name: GEOMEASURE AUSTRALIA Existing Station Marked by: January, 1986. Date: **DATUM: Australian Geodetic Datum 1966** Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum SOUTH LATITUDE EAST LONGITUDE EASTING NORTHING CONVERGENCE State Northern Territory County/District HEIGHT Cadastral Location: 25⁰56 '26.7740" 137⁰57' 0.4111" +1⁰17'29.19" 53 795470.663 7127536.028 38.49 Parish/Hundred Allotment/Section/Portion Doppler AHD Der ADJ AZIMUTH ADJ LENGTH Access and Locality Sketch: Particulars of station marking and beacon: Deep driven star picket in loose concrete For access see Seismic Map Doppler Satellite observation, January, 1986 by Geomeasure Australia. collar with red/white star picket witness of area. Translocated from Satellite Station F Uncertainty of Co-ordinates - 3 metres. post tagged: " SD85-57 Sat C" Star Picket Witness Post --0.2 入Star Picket Station C SD 85.57 Photo Identification: Certified free of transcription errors:

Serial No

SATELLITE STATION D Station Number and Name: Order: Doppler T] /495 Station Established by: S.A. Department of Lands August, 1963 **CODNADATTA** SG-53 Scale 1: 1000000 Map Name: Map Number: December, 1985 Existing Station Marked by: Western Geophysical DATUM: Australian Geodetic Datum 1966 Date: Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum SOUTH LATITUDE EAST LONGITUDE EASTING NORTHING CONVERGENCE HEIGHT State Northern Territory County/District Cadastral Location: 25⁰57'58.2520" 137⁰37'32.1960" +1⁰9'.93" 53 762898.198 7125412.793 31.80 Allotment/Section / Portion Parish/Hundred Doppler AHD der. Particulars of station marking and beacon: ADJ AZIMUTH ADJ LENGTH Access and Locality Sketch: Doppler Satellite observation, January, 1986 by Geomeasure Australia. Translocated from 1st Order Station 6446/000. T1/495. Uncertainty of Co-ordinates - 3 metres. SEISMIC P.M.: Star picket in concrete For access see Seismic map beside star picket witness post tagged: for area. "INT SD85-69 SD79-19 SAT D " Star picket Witness post Star picket in conc. Station D S 85-69 Photo Identification: Certified free of transcription errors: DET /1094 Date:

Serial	No	
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SATELLITE STATION E Order: Doppler Station Number and Name: T] /495 Grigmal Station Established by: Scale 1: 1000000 Date: August, 1963 CODNADATTA SG-53 S.A. Department of Lands Map Number: Map Name: December, 1985 Western Geophysical DATUM: Australian Geodetic Datum 1966 **Existing Station Marked by:** Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum SOUTH LATITUDE EAST LONGITUDE **EASTING** NORTHING CONVERGENCE HEIGHT ZONE State Northern TerritoryCounty/District Cadastral Location: +1°2' 8.97" 137⁰22 '18.7590" 25⁰52 '52.0478" 53 737653.528 7135322.882 51.93 Allotment/Section/Portion Parish/Hunored Doppler AHD Der. ADJ AZIMUTH ADJ LENGTH Access and Locality Sketch: Particulars of station marking and beacon: SEISMIC P.M. Star Picket in concrete For access see Seismic Map Doppler Satellite observation, January 1986 by Geomeasure Australia. beside star picket witness post tagged: Translocated from 1st Order Station 6446/000. T1/495. Uncertainty of Co-ordinates - 3 metres. for area. "INT SD85-62 VP132+2 SD85-81 and VP156+5 180° 0′ Mag o Star Picket Witness Post Star Picket in conc. SD 85-81 85-62 SD Photo Identification: Certified free of transcription errors:

Approved the service of the service

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Serial No	
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Date:

Station Number and Name: SATELLITE STATION F Order: Doppler T1 /495 Ongmal Station Established by: Date: August, 1963 S.A. Department of Lands CODNADATTA SG-53 Scale 1: 1000000 Map Number: Map Name: Western Geophysical December, 1985 Existing Station Marked by: DATUM: Australian Geodetic Datum 1966 Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum EAST LONGITUDE SOUTH LATITUDE EASTING NORTHING CONVERGENCE HEIGHT State Northern Territory County/District Cadastral Location: 25°41'25.7460" 137°40'49.1950" +1°9' 45.54" 7155853.442 53 769003.021 57.47 Allotment/Section/Portion Parish/Hundred Doppler AHD Der. ADJ AZIMUTH ADJ LENGTH Particulars of station marking and beacon: Access and Locality Sketch: SEISMIC P.M.: Star picket in concrete Doppler Satellite observation, January, 1986, by Geomeasure Australia. For access see Seismic Map beside star picket witness post tagged: Translocated from 1st Order Station 6446/000. T1/495. Uncertainty of Co-ordinates - 3 metres. for area. "INT SD85-59 SD85-60 SAT F " Photo Identification: Certified free of transcription errors: Date:

Approved by:

DET 1094

Serial No

		Station	Number and Name:	SATEPPT	TE STATION G	·	Order: Doppl	<u>er</u>
T1/495 One mail Station Established by: S.A. Department of L	ands Date: August, 1963	Map Name: CODNAD	ATTA	Map Number:	SG-53		Scale 1: 1000000	
Existing Station Marked by: Western Geophysical	Date: December, 1985	DATUM: Australian Geode	tic Datum 1966					
Reference Books:		RECTANGULAR COORDIN	ATES: Australia	n Map Grid: In Me	etreș			
·		GRID BEARING = ADJ A	ZIMUTH + CONVERGENCE			HEIGHTS: In Metres o	n the Australian Height	Datum
Cadastral Location: State Northern Territor	Y County/District	SOUTH LATITUDE	EAST LONGITUDE	ZONE	EASTING	NORTHING	CONVERGENCE	HEIGHT
Parish/Hundred	Allotment/Section/Portion	25 [°] 37' 9.6910"	137 ⁰ 19' 7.9130"	53 7	732850.248	7164420.748	+1° 0' 11.19"	77.46 Doppler AHD Der
Access and Locality Sketch:	Particulars of station marking and beacon:	То		ADJ AZIMUTH		ADJ LENGTH		
For access see Seismic Map for area.	SEISMIC P.M. Star Picket in concrete beside star picket witness post tagged: "SD85-59" VP76	Doppler Satelli Translocated fr Uncertainty of	te observation, Janu om 1st Order Station Co-ordinates [±] 3 met	uary, 1986 n 6446/000. tres.	by Geomeasu T1/495.	re Australia.		
Start of Line: SD 85-59 96 0' Mag. Star Picket in conc. Star Picket Witness Post								
		Cadastral Connections & Reference Marks. Certified free of transcript	on errors.				Date:	

Serial No	
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Authority	·	Station I	Number and Name:	SATELLITE STATION	Н	Order: Dopp	oler
Sat Stn.F GEOMEASURE AUSTRA	ALIA Date: January, 1986.	Map Name: OODNA	DATTA	Map Number: SG-53		Scale 1: 100000)0
Existing Station Marked by: GEOMEASURE AUSTRA	ALIA Date: January, 1986.	DATUM: Australian Geodeti	c Datum 1966	·			
Reference Books:		RECTANGULAR COORDINA	TES: Australia	n Map Grid: In Metres			
		GRID BEARING = ADJ AZI	MUTH + CONVERGENCE		HEIGHTS: In Metres	on the Australian Height	Datum
Cadastral Location: State Northern Territory	? County/District	SOUTH LATITUDE	EAST LONGITUDE	ZONE EASTING	NORTHING	CONVERGENCE	HEIGHT
Parish/Hundred	Allotment/Section/Portion	25 ⁰ 32'35.7760"	137 ⁰ 49'42.9950"	53 784240.367	7171857.640	+1 ⁰ 13' 13.78"	53.84 Doppler AHD Der
Access and Locality Sketch:	Particulars of station marking and beacon:	То		ADJ AZIMUTH	ADJ LENGTH	4	
For access see Seismic Map for area.	Deep driven star picket in loose concrete collar with red/white star picket witness post tagged: "Sat Stn. H"	Translocated from	e observation, Janu m Satellite Station p-ordinates - 3 met	ary, 1986 by Geomea F. res.	asure Australia.		
Station H (Star Picket)		Cadastral Connections & Reference Marks.					
		Photo Identification:					
		Certified free of transcription	in errors.		•	Date	

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NATIONAL MAPPING COUNCIL OF AUSTRALIA

Serial No	
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STATION SUMMARY SATELLITE STATION I Station Number and Name: Order: Doppler Sat Stn.F. Established by: GEOMEASURE AUSTRALIA January, 1986 CODNADATTA SG-53 Scale 1: 1000000 Map Number: Map Name: GEOMEASURE AUSTRALIA January, 1986 Existing Station Marked by: DATUM: Australian Geodetic Datum 1966 Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum EAST LONGITUDE 138⁰ 0' 9.8280" SOUTH LATITUDE CONVERGENCE ZONE EASTING NORTHING HEIGHT State Northern TerritoryCounty/District Cadastral Location. 25⁰23' 9.3180" -1⁰17' 9.39" 198409.243 7188924.939 56.39 Parish/Hundred Allotment/Section/Portion Doppler AHD Der. ADJ AZIMUTH ADJ LENGTH Access and Locality Sketch: Particulars of station marking and beacon: SEISMIC P.M. Star Picket in concrete For access see Seismic Map Doppler Satellite observation January, 1986 by Geomeasure Australia. with red/white star picket witness post Translocated from Satellite Station F. Uncertainty of Co-ordinates - 3 metres. for area. tagged: "SD85-53" VP1390 E.O.L. Sat Stn.I

Star Picket Witness Post

Star Picket Witnes

Cadastral Connections & Reference Marks

Photo Identification:

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Date:

Station Number and Name: SATELLITE STATION J Order: Doppler Sat Stn. F. Established by: GEOMEASURE AUSTRALIA **CODNADATTA** SG-53 Date: January, 1986 Scale 1: 1000000 Map Number: Map Name: **Existing Station Marked by:** DATUM: Australian Geodetic Datum 1966 GEOMEASURE AUSTRALIA January, 1986. Reference Books: RECTANGULAR COORDINATES: Australian Map Grid: In Metres GRID BEARING = ADJ AZIMUTH + CONVERGENCE HEIGHTS: In Metres on the Australian Height Datum SOUTH LATITUDE EAST LONGITUDE EASTING NORTHING CONVERGENCE ZONE HEIGHT State Northern TerritoryCounty/District Cadastral Location: +1° 7'43.22" 25⁰26 '32.7170" 137⁰37'32.5660" 53 764062.925 7183451.774 62.30 Allotment/Section/Portion Parish/Hundred Doppler AHD Der. ADJ LENGTH ADJ AZIMUTH Particulars of station marking and beacon: Access and Locality Sketch: SEISMIC P.M. wooden peg in concrete For access see Seismic Map Doppler Satellite observation January, 1986 by Geomeasure Australia. Translocated from Satellite Station F. Uncertainty of Co-ordinates - 3 metres. beside red/white star picket witness for area. post tagged: "INT SD85-51 SD84-44 SAT J" Station J Photo Identification: Certified free of transcription errors: Date:

Approved by:

DET/1094

Authority			Station Nun	ber and Name:	SATELLIT	E STATION K		Order: Dop	pler
Sat. Stn. F. GEOMEASURE AUSTRALIA	Date: January, 1986	Map Name:	CODNADAT	TA	Map Number	: SG-53		Scale 1: 1000	000
Existing Station Marked by: GEOMEASURE AUSTRALIA	Date: January, 1986	DATUM: Austral	ian Geodetic Da	itum 1966				•	
Reference Books:	RECTANGULAR COORDINATES: Australian Map Grid: In Metres								
·		GRID BEARING	= ADJ AZIMU	TH + CONVERGENCE			HEIGHTS: In Metres o	on the Australian He	ight Datum
Cadastral Location: State Northern Territory County/District Parish/Hundred Allotment/Section/Portion	on	SOUTH LATIT 25 ⁰ 10 ' 33		EAST LONGITUDE 137 ⁰ 37 '37.3130"	ZONE 53	EASTING 764774 • 566	northing 7212965.695	convergence +1 ⁰ 07' 5.50	HEIO 70.3 Dopp AHD
for area collar with re	narking and beacon: ar picket in loose concrete d/white star picket witness `SD 85-54 STATION K'	Transloca	ted from	observation, Jan Satellite Statior ordinates ± 3 met	n F.		ADJLENGTH re Australia.		

End of Seismic Star Picket Witness Post

Photo Identification:

Date:

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KEY MAP