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FIELD AREA REPORT

ON A

SEISMIC REFLECTION SURVEY

CONDUCTED IN

OP-179/175 AND OP-189

FOR

MAGELLAN PETROLEUM AUSTRALIA LIMITED

BY

SEISMOGRAPH SERVICE LIMITED

PARTY 179

DURING THE PERIOD

31ST DECEMBER 1981 TO 25TH FEBRUARY 1982

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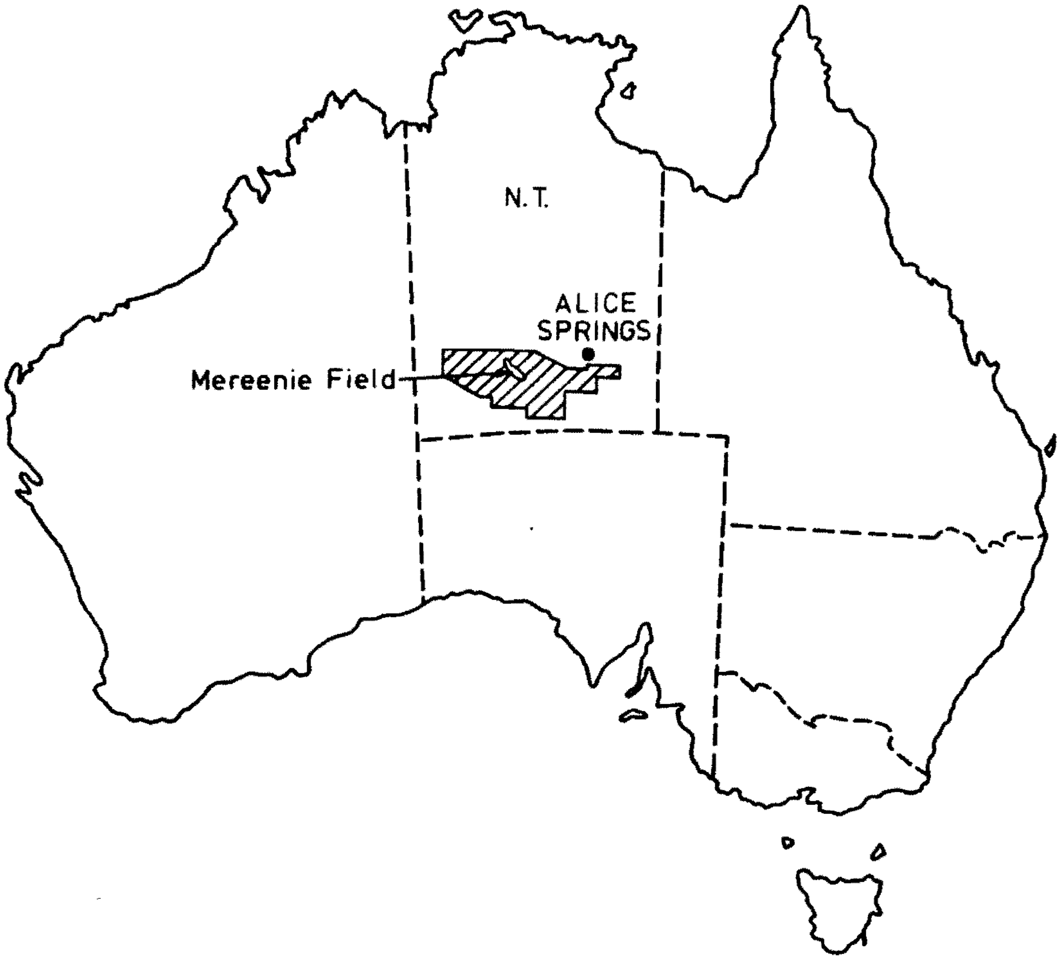
MAP

SHOWING PROSPECT LOCATION

DEC. 1981 - FEB. 1982
SSL CON 179



Permits 178/175

PR 82/76.

SYNOPSIS

Magellan Petroleum Australia Limited contracted Seismograph Service Limited to conduct a Vibroseis reflection survey in the Mereenie and Ooraminna prospect areas of OP-175/179 and 189 between 31st December, 1981 and 25th February, 1982.

Much of the work was designed to pin point faults bisecting the area and to further delinate known hydrocarbon bearing structures.

Data quality was fair to good and a reasonable rate of progress was achieved. Substantial and prolonged rains delayed the completion of the Ooraminna survey.

INTRODUCTION

The Mereenie prospect area lies within the Amadeus Basin approximately 230 kilometres W.S.W. of Alice Springs. Mobilisation to the field camp location was undertaken on the 19th December from Alice Springs. Numerous washouts along the track leading to the camp site at West Mereenie No. 2 Well delayed the mobilisation. After a break for the Christmas holidays, an experimental programme was started on Line 08 on the 31st December. this was supervised by the Client's Representative Mr. G. Gibson and Mr. J. Earle. Production recording commenced on the 1st January and continued at a satisfactory rate of progress. 186.3 kilometres of surface coverage was recorded.

A further 19.3 kilometres was recorded on the Ooraminna prospect, 50 kilometres south of Alice Springs. This programme was split into eastern and western portions, both being extensions to previous seismic surveys. The crew was placed on standby for 10 days during a period of unusually severe rain.

TERRAIN AND LOGISTICS

The Mereenie portion of the survey was conducted from a single location comprising camp equipment listed in Appendix 2, located at drill site WM-2 (See Enclosure 1). Access was by dirt road to Alice Springs which was upgraded due to the mobilisation of a drilling rig into the immediate area. Vehicle travel time was usually 3 to 4 hours.

The seismic lines ran in the valley between two steeply sided bluffs and terrain in the valley floor consisted of smaller, undulating sand dunes and sandstone outcrops. Spinifex, coarse mulga grasses and occasional white and ironwoods were the typical vegetation found in both prospect areas.

Fuel was ordered through the crew Administrator who had an office in the Magellan premises in Alice Springs. Diesel was supplied in bulk form and stored in an overhead tank. Super grade petrol was supplied and stored in drums.

Food was purchased in Alice Springs on a weekly basis and transported by S.S.L. Load Carrier. All other mechanical and recording supplies were ordered from Alice Springs and Adelaide.

Explosives for the weathering crew were obtained from Centralian Industries and delivered to the crew by Mr. C. Freer of Alice Springs.

Obtaining a regular camp water supply was difficult initially but once the bore supply to the drilling rig had been successfully connected no further problems ensued.

Accommodation, messing and office premises were available at the Oasis Motel, Alice Springs, during the Ooraminna survey.

Auxiliary staff were recruited in Alice Springs and worked continuously for 3 weeks before taking one week's leave. Chartair Proprietary Limited was subcontracted to provide air transport between Alice Springs and the camp airstrip. This service was provided twice weekly. The aircraft were also used to carry small items of freight and crew mail.

Staff also worked a rotational leave system and used Adelaide as their leave centre.

PERMITTING AND DAMAGES

Permitting was undertaken by Magellan prior to the crew's arrival. Since the prospects were within aboriginal lands, close liaison between the Surveyors and Central Lands Council (C.L.C.) advisors was necessary. All lines were set out before bulldozing commenced and approval was granted once it had been ascertained that no sites of significance to the aboriginal community were effected.

Magellan also produced an environmental report which detailed strict practices to which the survey had to comply. These were mainly concerned with minimising the damage done to natural vegetation and a rehabilitation programme is to be conducted once seismic operations are completed.

No damages were reported to S.S.L. staff during this year's survey.

SURVEYING

All lines were chained using a 100 metre steel wire rope which was checked against an Invar band. 18" white painted wooden pegs bearing line and station number marked in black indelible ink were placed at 50 metre intervals. Four foot steel fence posts, firmly driven into the ground and bearing a securely fixed, dye stamped tag were used as permanent markers (PM). Tags denoted line, year and PM position. PM's were placed at the ends of all lines, intersections and at 5 kilometre intervals. A list of these markers is given in Appendix 5.

CONTROL AND TECHNIQUE

186.35 kilometres of line was surveyed at Mereenie and a further 19.3 kilometres at Ooraminna.

Levelling was carried out by tacheometry. Due to the undulating terrain this took a considerable time as a large number of observations were reduced to a few hundred metres (horizontal). Traversing was between sunshots at end of lines and these were tied by observing included angles.

Control at Mereenie was provided by a "well block" located in the centre of the prospect. Heights were to Australian Mean Sea Level and co-ordinates were in the Australian Map Grid Zone 52.

Control at Ooraminna proved to be further distant than is usually practical but with the arrival of EDM equipment it was possible to traverse from a second order trig station 15 kilometres south of the prospect. Vertical control was taken from a bench mark located at Limestone Bore.

Control for Lines SO-1 and SO-2 was taken from a previous GSI PM located on the end of Line P80-14.

LINE CLEARING

Earthmoving was subcontracted by Magellan to GIG Favaro Equipment Proprietary Limited of Alice Springs. Initially one Komatsu D85A and one grader D12E were employed but the inexperience of the Operators often necessitated recutting of lines which were unsatisfactory and caused a generally slow progress rate. An extra machine (Caterpillar D9) was employed from United Mining and Construction Proprietary Limited to improve the cleared line laid. The more experienced new Operator dramatically improved both line quantity and quality.

The bulldozers worked throughout under the supervision of the Surveyors. Lines were set out by turned angle from existing lines and sun shots. Magnetic bearings were used on the short Lines 16, 18, 20, 22, and 24. Operators maintained straight lines by back sighting onto fence pickets placed in the centre of the track. The grader was used to make a final cut once tree felling and bulk earthmoving had been completed. The grader was not used on sand dunes.

For most of the prospect the machines operated independently. Only on the long east/west Line 11 did both machines combine.

The Ooraminna prospect gave no bulldozing problems. Poor access between Pinch Bore and Limestone Bore considerably increased travel time during the recording of the eastern lines (See Enclosure 2).

WEATHERING CONTROL

Weathering control specified by Magellan was continuous refraction surface coverage with a thousand metre split spread and moveup of 500 metres. A long offset to the nearest station was chosen by the Client and this meant that no shallow information was available by this method. Several short spreads were recorded to provide the necessary control. These tied well with uphole results.

Upholes were recorded at line intersections and at 5 kilometre intervals to provide control. For each uphole, a time limit of 1½ hours was imposed on the scout 250 rig supplied by Gorey and Cole of Alice Springs, as drilling was often difficult. The result was that only one third of the holes drilled were deeper than 15 metres. Shots were taken every 3 metres up the hole.

The rig was also used to drill shallow 3 metre holes for the refraction shots. 2 kilogrammes of Anzite Blue explosive were shot into the 24 SM-4 geophones connected individually along the spread. Dry write paper records were produced after filtering and amplification in the OYO recording instruments.

Eight, 6 takeout cables were normally used which meant that four cables could be moved whilst the remainder were used for recording.

This enabled the crew to record in excess of 10 kilometres per day.

COMPUTING

Graphs were plotted of the first arrival times at each geophone against distance to that geophone from the source. The slope of the resulting graph indicated velocities of propogation through the weathered layers. The first layer (Vo) was found to have a value of 700 metres per second at Mereenie and 900 metres per second at Ooraminna.

Depth of weathering was derived from the formulae:

$$Z = \frac{T}{2} \frac{V1Vo}{\sqrt{(V1)^2 - (Vo)^2}}$$

and

$$Z1 = \left\{ \frac{T1}{2} - Zo \sqrt{\frac{V2^2 - Vo^2}{V2Vo}} \right\} \frac{V2V1}{\sqrt{(V2)^2 - (V1)^2}}$$

where:

Z = Thickness of 1st Weathered Layer
Z1 = Thickness of 2nd Layer
Vo = Weathering Velocity
V1 = Sub Weatheing
V2 = Elevation Velocity
T = Intercept Time 1/V1 in milliseconds
T1 = Intercept Time 1/V2 in milliseconds

The thicknes of the first weathered layer (z) was typically 8 metres at Mereenie and Ooraminna north west and 18 metres at Ooraminna south east.

In both areas a second layer was detected having a velocity in the range 1500 to 2700 metres per second and thickness varying between 10 to 75 metres. Elevation velocity was consistently greater than 2800 metres per second.

Datum level was 650 metres at Mereenie, 440 metres at Ooraminna north west and 500 metres at Ooraminna south east. A listing of the calculator programme used in the computing of statics is given in Enclosure 4.

RECORDING

Three sets of recording parameter experiments were conducted during the survey, two at Mereenie and one at Ooraminna.

The first noise spread consisting of 24 patches of 12 bunched geophones at 4.17 metre separation was laid on Line 08 between pegs 1002 and 04 on the 31st December, 1981. A single vibrator sweeping 60-10 Hz in 16s was used to vibrate at 15 separate stations from 1004 to 1032. The correlated 24 trace paper records were taken by the Client who performed the noise analysis.

Two geophone patterns were laid alongside each other for purposes of comparing attenuation of the main noise events. These patterns were:-

(a) No. 1-24 weighted 111112233221111l, 5.8 metres between geophones, 87 metres pattern.

(b) No: 25-48 linear, 3.9 metres between geophones (89.7 metres pattern).

Three vibrators were then used with the following variations:

1. After vibrator spacing (11, 15, 20, 30, 40 metres) keep moveups constant (7.5 metres).

2. Increase number of sweeps to 16, keep to 30 metre spacing, vary moveups (1, 2, 3.7, 6 metres).

3. Keeping moveups and spacing constant, change sweep to 50-16 Hz.

The above comparisons were conducted at station 1030, Line 08. Moving to station 1040, the 'best looking' parameters resulting from the previous comparisons were recorded into both geophone arrays.

On the visual evidence of the correlated paper records, it was decided the non weighted pattern gave overall better results.

At the Client's request Line 08 was recorded 2400% fold coverage from stations 1000-1060 and the field tapes were despatched immediately to Brisbane for processing.

A further noise spread was recorded on the 2nd January on Line 10. This followed the same format as that previously recorded on Line 8. 24 patches of 12 bunched geophones were laid between stations 1048 and 1050 and a single vibrator was used to sweep 50-16 Hz every 100 metres from 1050 to 1068. The noise record analysis was performed by the Client. A list of line by line parameters is given in Appendix 4 for both prospects.

A steady increase in the rate of production was achieved during January. Geophones were moved by 3 Toyota pickups, manned by 9 workers and a further 3 men moved cables by Bedford truck.

Instrument and vibrator similarity tests were performed daily to ensure correct performance of the recording equipment. An oscilloscope was used continuously to monitor summing and noise cancellation functions. 24 traces of each recorded VP were displayed on dry write paper in correlated form. Incoming raw data was amplified and digitised by the Sercel 338 HR summed in the Addit III and then dumped at the end of each VP back into the Sercel for formatting and recording onto ½" magnetic tapes in SEG B phase encoded form.

Line recording order was originally determined by the Client but once initial priorities were complete a more logistical approach was made to minimise travel times. Rain during the latter half of January caused minor delays, but the considerably heavier rain during February forced the closure of the recording section for 10 days.

Recording on the Ooraminna prospect was completed on the 25th February.

PROCESSING

Field recorded magnetic tapes were despatched twice weekly by air from the field camp to the Administrator's Office in Alice Springs. From here they were despatched to the Petty Ray Geophysical Company at 91 Edward Street, Brisbane by airfreight courier service.

RECOMMENDATIONS AND COMMENTS

The difference between experienced and non experienced bulldozer operators was markedly demonstrated during the survey. More care is needed when choosing a subcontractor who should be able to supply and maintain equipment and personnel suitable for seismic line clearing.

If many of this year's survey control problems are to be overcome, additional control should be established at regular intervals throughout the prospect area. This will lead to an overall increase in survey accuracy and decrease in the time spent 'bringing in' distant control stations.

P.M. Farrell
Party Chief

K.A. Potts
Supervisor Australia

M.5216
MWC/JH
11th May, 1982.

DISTRIBUTION

Magellan Petroleum Australia Limited	10 Copies
Seismograph Service Limited, Holwood	1 Copy
Seismograph Service Limited, Australia	1 Copy

LIST OF APPENDICES AND ENCLOSURES

Appendix 1

LIST OF PERSONNEL

Technical Staff: (includes leave reliefs and replacements)

Party Chief	P.M. Farrell
Computer/Deputy Party Chief	S. Mathis
Computers	I. Donnelly A. Oldham
Assistant Computer	T. Perrin
Senior Observer	K. Filer
Observers	M.T. Jenkins D.J. Lewis I. Heathfield
Assistant Observers	P. Spragg A. Colquhoun P. Doogan
Technical Assistant	P.C. Harris
Mechanics	R. Provis H.D. Jacobs F.B. Vitnell
Surveyors	D.T. Armstrong G.D. Leith C.W. Butler D. Howe
Administrators	R.K. Algie A. Bauer

Auxiliary Staff:

Cooks	2	
Cook's Assistant	2	
Vibrators Operators	5	
Drivers	6	
Utility Workers	12	
Survey Labour	4	
Refraction Crew	6	(4 Additional to Contract)
Mechanic's Assistant	1	

Additional to Contract at no charge to Client:

Survey Technical Assistant T. Jackson (9-18 January)

EQUIPMENT

4	Failing Y900 Vibrators on International 6 x 6 Paystar 5000's
1	Bedford 4 x 4 Recording Truck
2	Bedford 4 x 4 Workshop Trucks
2	Bedford 4 x 4 Water Trucks
2	Bedford 4 x 4 Load Carriers
1	Bedford 4 x 4 Load Carrier and Mobile Crane
2	Toyota 4 x 4 Hard-top Vehicles (1 Additional to Contract)
10	Toyota 4 x 4 Pick-ups (2 Additional to Contract)
1	Toyota 4 x 4 L.V.L. Recording Truck
1	Car (for Administrator)
1	Stores Trailer
1	Mess Trailer
1	Kitchen Trailer
2	Shower Trailers
2	Office Trailers
2	Toilet Trailers
2	Static Water Tank Trailers
1	Observer's Workshop Trailer
1	Mess/Kitchen Trailer
2	10 Man Accommodation Bunkhouses (Additional to Contract)
1	Sercel 338 HR Digital Recording System 48 Trace
1	Input/Output Rotalong Switch
1	SDW 400 Electrostatic Oscilograph 48 Trace
1	Addit III Digital Compositor
1	Quantum Correlator 24 Trace
1	Pelton Sweep Encoder
5	Pelton Advance I Mk. IV Vibrator Electronics
14	VHF Radios (2 Additional to Contract)
25	110 Conductor CDP Cables 48 Trace, 100 metre intervals
2304	Geophones in Strings of 12, SM4, 10 Hz
1	OYO Refraction Amplifier/Blaster/Oscillograph System 24 Trace
8	Spread Cables, 12 Trace (Property of International Oil)
2	Wild T1-A Theodolites
6	SSB Radios (2 Additional to Contract)
1	Complete Set Electronic Test Equipment

Appendix 3

STATISTICS

	Mereenie	Oorammena
Survey Dates (Chaining only)	21.12.81 to 20.1.82	3.2.82 to 6.2.82
L.V.L./Uphole Dates	31.12.81 to 23.1.82	6.2.82 to 9.2.82
Recording Dates	31.12.81 to 4.2.82	8.2.82 to 26.2.82
Kilometres Chained	186.35	19.3
Kilometres Recorded	186.3	19.3
Sweeps Recorded	26540	3696
V.P.'s Recorded	1986	231
L.V.L. Spreads Recorded	378	50
Upholes Recorded	36	3
Days Mobilisation	1	1
Demobilisation	2	
Days Recording Production	33½	7½
Hours Recording	322.15	62.50
Hours Travel	31.35	30.40
Total Hours (Contract)	373.50	103.30
Kilometres per Recording Day	5.56	2.57
V.P.'s per Recording Day	59.3	30.80
Standby Dates (Reduced Fee)		11/2 to 20/2
Damage Payments	Nil	Nil

MEREENIE PROSPECT

Appendix 4

Line	Stations	Coverage	Fold%	Interval	Geophone Pattern	Spread Details	Vibrator Pattern	Dates
M82-08	1000-1008	0.4	2400	50 m	A	A	A	1st January 1982
	1008-1060	2.6	2400	50 m	A	B	A	
M82-08	1060-1170	5.5	1200	50 m	A	B	A	1st- 2nd January
M82-10	1000-1090	4.5	1200	50 m	A	B	A	3rd- 4th January
M82-13	1000-1200	10.0	1200	50 m	A	B	A	4th- 6th January
M82-15	1014-1290	13.8	1200	50 m	A	B	A	6th- 9th January
M82-14	1001-1075	3.7	1200	50 m	A	B	A	9th January
M82-09	1163-1007	7.8	1200	50 m	A	B	A	10th-11th January
M82-07	1250-1024	11.3	1200	50 m	A	B	A	12th-14th January
M82-12	1097-1001	4.8	1200	50 m	A	B	B	14th-15th January
M82-05	1120- 974	7.3	1200	50 m	A	B	B	15th-16th January
M82-03	1082-1002	4.0	1200	50 m	A	B	B	16th-17th January
M82-01B	1185-1001	9.2	1200	50 m	A	B	B	17th-18th January
M82-20	1169-1001	8.4	1200	50 m	A	B	B	18th-19th January
M82-04	1000-1150	7.5	1200	50 m	A	B	B	19th-20th January
M82-22	1165-1001	8.2	1200	50 m	A	B	B	21st-22nd January
M82-02	1000-1166	8.3	1200	50 m	A	B	B	22nd-23rd January
M82-1A	1290-1000	14.5	1200	50 m	A	B	B	23rd-25th January
M82-24	1149-1001	7.4	1200	50 m	A	B	B	27th-28th January
M82-11	1510-1004	25.3	1200	50 m	A	B	B	28th- 1st February
M82-6	1006-1180	8.7	1200	50 m	A	B	B	1st- 2nd February

Line	Stations	Coverage	Fold%	Interval	Geophone Pattern	Spread Details	Vibrator Pattern	Dates
M82-10 Ext.	1013- 928	4.25	1200	50 m	A	B	B	2nd- 3rd February
M82-16	1000-1086	4.3	1200	50 m	A	B	B	3rd- 4th February
M82-18	1096-1001	4.75	1200	50 m	A	B	B	4th February

Geophone Pattern:

A = 24 x SM4 geophones 2 strings of 12 in series connected in parallel linear over 90 metres, 3.9 metre separation.

Spread Details:

A = 1400-250-0-250-1400 metres

B = 1300-150-0-150-1300 metres

Vibrator Pattern:

A = 3 x Y900's, 30 metre pad to pad, 1 metre moveup, centred on peg, 16 sweeps, 50-16 Hz/16 seconds, 75 metres pattern length.

B = 3 x Y900's, 30 metre pad to pad, 1 metre moveup, centred on peg.
12 sweeps per VP, 71 metres pattern length.

OORAMINNA PROSPECT

Line	Stations	Coverage	Fold%	Interval	Geophone Pattern	Spread Details	Vibrator Pattern	Dates
01	1004-1100	4.8	12	50	A	A	A	8th-10th
02	1000-1100	5.0	12	50	A	A	A	10th-21st
03	1040-1000	2.0	24	50	A	A	B	22nd
S01	1000-1025	1.25	24	50	A	B	B	23rd
S02	1000-1125	6.25	12	50	A	A	A	23rd-25th

Geophone Pattern:

A = 24 x SM4 geophones. 2 Strings of 12 in series connected in parallel laid in a linear pattern, 5 metres separation, 115 metres pattern length.

Spread Details:

B = No gap - whole line live

A = 1400-250-0-250-1400 metres

Vibrator Pattern:

A = 3 x Y900 vibrators 14 metres pad to pad, 6.5 metres moveup, 125.5 metre pattern length, centred on peg, 16 sweeps, 50-16 Hz/16 seconds.

B = as A except 3.25 metre moveup, 77 metre pattern length.

Appendix 5

MEREENIE
PERMANENT MARKER LIST

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-1A				
1000	S.O.L.	701.49	740 171	7 355 749
1020		722.58	741 026	7 355 232
1081	PM for INT. 1A/24	730	743 653	7 353 683
1100		730.93	744 472	7 353 201
1144 + 380 m	INT. 1A/2	737.14	746 401	7 352 067
1200	PM by INT. 1A/22	740.75	748 782	7 350 667
1251	PM for INT. 1A/4	753.55	750 978	7 349 372
1270	PM for INT. 1A/1B	759.10	751 796	7 348 888
1290	PM at E.O.L.	761.47	752 657	7 348 378
Line M-82-1B				
1000	S.O.L.	754.25	750 894	7 349 319
1020	PM for INT. 1B/1A	759.10	751 794	7 348 883
1061 + 11M	PM for INT. 1B/20	752.00	753 651	7 347 990
1100		776.92	755 395	7 347 141
1106 + 30	PM for INT. 1B/6	777.43	755 691	7 346 996
1165	PM for INT 1B/3	767.90	758 315	7 345 716
1185	E.O.L.	759.68	759 214	7 345 276
Line M-82-2				
1000	S.O.L.	715.12	743 764	7 346 805
1051 + 48M	PM for INT. 2/11	741.51	744 922	7 349 130
1066	AT. INT. G.S.I. LINE LGE/4A (1981) *COMMON P.M.	751.88	745 241	7 349 756

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-2 (Continued)				
1100		733.48	746 008	7 351 274
1117 + 33	PM for INT. 2/1A	737.14	746 403	7 352 066
1167	E.O.L.	750.55	747 490	7 354 279
Line M-82-3				
1002	S.O.L.	770.93	757 589	7 345 997
1020	PM for INT. 3/1B and tie to Well WM2	768.11	758 425	7 345 663
1038 + 46	PM for INT. 3/8	758.89	759 299	7 345 307
1062	PM for INT. 3/5	748.73	760 387	7 344 920
1082	E.O.L.	739.18	761 326	7 344 574
Line M-82-4				
1000	S.O.L.	723.34	747 927	7 344 917
1052	INT. 4/11	757.29	749 409	7 347 052
1100		757.03	750 784	7 349 002
1108	INT. 4/1A	753.53	750 955	7 349 249
1150	E.O.L.	753.67	752 215	7 351 052
Line M-82-6				
1006	S.O.L.	749.16	753 269	7 342 473
1056 + 5M	PM at INT. 6/11	755.81	754 447	7 344 683
1090	PM beside M-1	784.04	755 247	7 346 117
1108 + 31M	PM at INT. 6/1B	777.43	755 693	7 346 995
1159 + 40M	PM at INT. 6/8	759.28	756 917	7 349 239
1180	E.O.L.	759.39	757 399	7 350 129

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-5				
974	S.O.L.	756.78	759 520	7 345 423
994	PM for INT. 5/3	748.73	760 384	7 344 920
1000		745.82	760 643	7 344 769
1100		724.66	764 974	7 342 272
1107	PM for INT. 5/7	725.00	765 280	7 342 102
1120	E.O.L.	727.64	765 848	7 341 786
Line M-82-7				
1023	S.O.L.	722.55	764.587	7 342 618
1041	PM for INT. 7/5	725.58	765 311	7 342 084
1067	PM for Bend	724.34	766 357	7 341 312
1100		712.12	767 623	7 340 255
1149	PM for Bend	716.81	769 507	7 338 690
1200		699.89	771 618	7 337 257
1231	PM for INT. 7/9	695.10	772 902	7 336 389
1250	E.O.L.	687.69	773 686	7 335 857
Line M-82-8				
1000	S.O.L.	758.64	756 182	7 350 434
1028 + 2M	PM for INT. 8/6	759.28		
1100		769.98	758 789	7 346 163
1120	PM for INT. 8/3	758.89	759 299	7 345 302
1165 + 25	PM for INT. 8/10	769.92	760 458	7 343 344
1170	E.O.L.	773.96	760 573	7 343 146

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-9				
1006	S.O.L.	696.31	772 354	7 336 829
1019 + 18.6	PM at INT. 9/7		772 873.5	7 336 407
1039 + 13	PM at INT. 9/14	687.28	773 644	7 335 781
1100		692.07	775 999	7 333 866
1163	E.O.L.	663.96	778 453	7 331 891
Line M-82-10				
928	S.O.L.	737.33	756 450	7 336 894
1000		776.38	758 352	7 339 950
1049 + 29M	PM for INT. 10/11/13	767.66	759 661	7 342 055
1079 + 46M	PM for INT. 10/8	769.93	760 457	7 343 346
1090	E.O.L.	766.12	760 713	7 343 780
Line M-82-11				
1005	S.O.L.	770.28	760 324	7 341 708
1020	PM for INT. 11/10/13	767.66	759 660	7 342 056
1100		757.49	756 094	7 343 867
1136 + 38.5	PM for INT. 11/6	755.81	754 448	7 344 682
1187 + 11	PM for INT. 11/20	755.95	752 168	7 345 761
1200		752.39	751 589	7 346 033
1248 + 8M	PM at INT. 11/4	757.29	749 412	7 347 053
1300		761.45	747 063	7 348 149
1302 + 11	PM at INT. 11/22	758.56	746 962	7 348 196
1347 + 8M	PM at INT. 11/21	741.51	744 921	7 349 133
1400		706.69	742 504	7 350 197

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-11 (Continued)				
1408	PM at INT. 11/24	705.29	742 137	7 350 356
1493	INT. L11/G SI L8		738 236	7 352 043
1500		693.96	737 916	7 352 182
1510	E.O.L.	699.42	737 457	7 352 380
Line M-82-12				
1000	S.O.L.	734.08	766 085	7 337 241
1042 + 41	INT. 12/15	714.15	767 092	7 339 130
1046 + 45	INT. 12/13	712.32	767 188	7 339 310
1062 + 34	BESIDE EM-4		767 559	7 340 006
1068	INT. 12/7	710.93	767 684	7 340 240
1097	E.O.L.	700.37	768 379	7 341 512
Line M-82-13				
1000	S.O.L.	765.69	758 730	7 342 418
1020	INT. 10/11/13	767.66	759 661	7 342 053
1100		740.57	763 407	7 340 654
1169 + 5	INT. 13/15	714.34	766 662	7 339 497
1180 + 14	INT. 13/12	712.39	767 189	7 339 312
1200	E.O.L.	715.08	768 124	7 338 998
Line M-82-14				
1000	S.O.L.	704.28	711 644	7 333 412
1029 + 12	INT. 14/15	692.15	772 586.1	7 334 529
1061 + 46	INT. 14/9	687.23	773 641	7 335 774
1076	E.O.L.	683.00	774 094	7 336 318

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-15				
1014	S.O.L.	721.02	766 052	7 340 012
1030	PM for INT. 15/13	714.34	766 662	7 339 495
1041 + 14	INT. 15/12	714.15	767 092	7 339 130
1100		716.14	769 333	7 337 238
1187 + 23M	BEND	692.48	772 695	7 334 439
1200		698.76	773 219	7 334 089
1290	E.O.L.	690.06	776 957	7 331 586
Line M-82-16				
1000	S.O.L.	707.69	774 097	7 332 021
1024	INT. 16/15	685.36	774 864	7 332 932
1052	INT. 16/9	694.05	775 774	7 334 006
1085	E.O.L.	677.16	776 837	7 335 268
Line M-82-18				
1000	S.O.L.	722.66	769 832	7 334 715
1032	PM for INT. 18/15	720.63	770 864	7 335 938
1062	PM for INT. 18/7	700.23	771 827	7 337 088
1096	E.O.L.	686.58	772 920	7 338 390
Line M-82-20				
1000	S.O.L.	735.37	750 500	7 343 267
1060	PM for INT. 20/11	755.95	752 168	7 345 761
1100		759.09	753 276	7 347 421
1113 + 30M	PM for INT. 20/1B	752.58	753 652	7 347 987
1169	E.O.L.	760.09	755 183	7 350 295

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line M-82-22				
1000	S.O.L.	720.61	745 188	7 345 775
1060	INT. 22/11	758.56	746 963	7 348 193
1100		741.02	748 149	7 349 804
1121 + 18	INT. 22/1A	740.75	748 783	7 350 664
1165	E.O.L.	750.76	758 077	7 352 420
Line M-82-24				
1000	S.O.L.	696.59	741 038	7 347 888
1054	PM at INT. 24/11	705.29	742 138	7 350 353
1100		737.89	743 100	7 352 444
1127	PM at INT. 24/1A	729.15	743 639	7 353 679
1150	E.O.L.	733.12	744 092	7 354 735

OORAMINNA

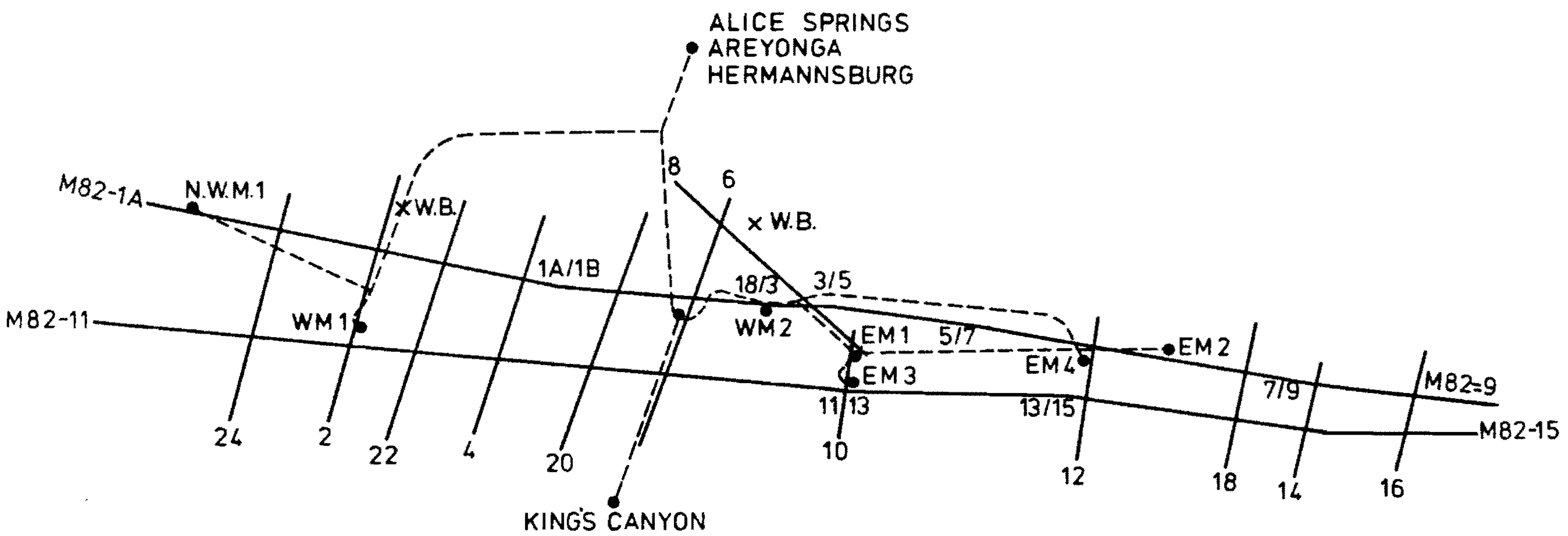
PERMANENT MARKER LIST

Corrected for S.P.'s 1020/1025

Peg No.	Description	Elevation (m.)	Co-ordinates E	N
Line 1				
1004	S.O.L.	441.89		
1090	INT. 1/2/3	446.85		
1100	E.O.L.	450.03		
Line 2				
1000	S.O.L.	449.06		
1100	E.O.L.	454.34		
Line 3				
1000	S.O.L.	444.29		
1040	E.O.L.	458.83		
Line SO-1				
1000	S.O.L.	501.73	402 769	7 332 005
1010 + 34	PM for INT. SO1/SO2	506.90	402 614	7 332 481
1020			402 458	7 332 956
1025	E.O.L.	510.05	402 380	7 333 193
Line SO-2				
1000	S.O.L.	505.01	401 643	7 332 224
1020	PM for INT. SO1/SO2	506.90	402 600	7 332 513
1100		502.79	406 421	7 333 696
1125	E.O.L.	497.36	407 615	7 334 066

Diagram Showing Lines at Mereenie Prospect

JAN-FEB 1982



KEY:

—— SEISMIC LINE

● WELL

× WATER BORE

- - - - - TRACK

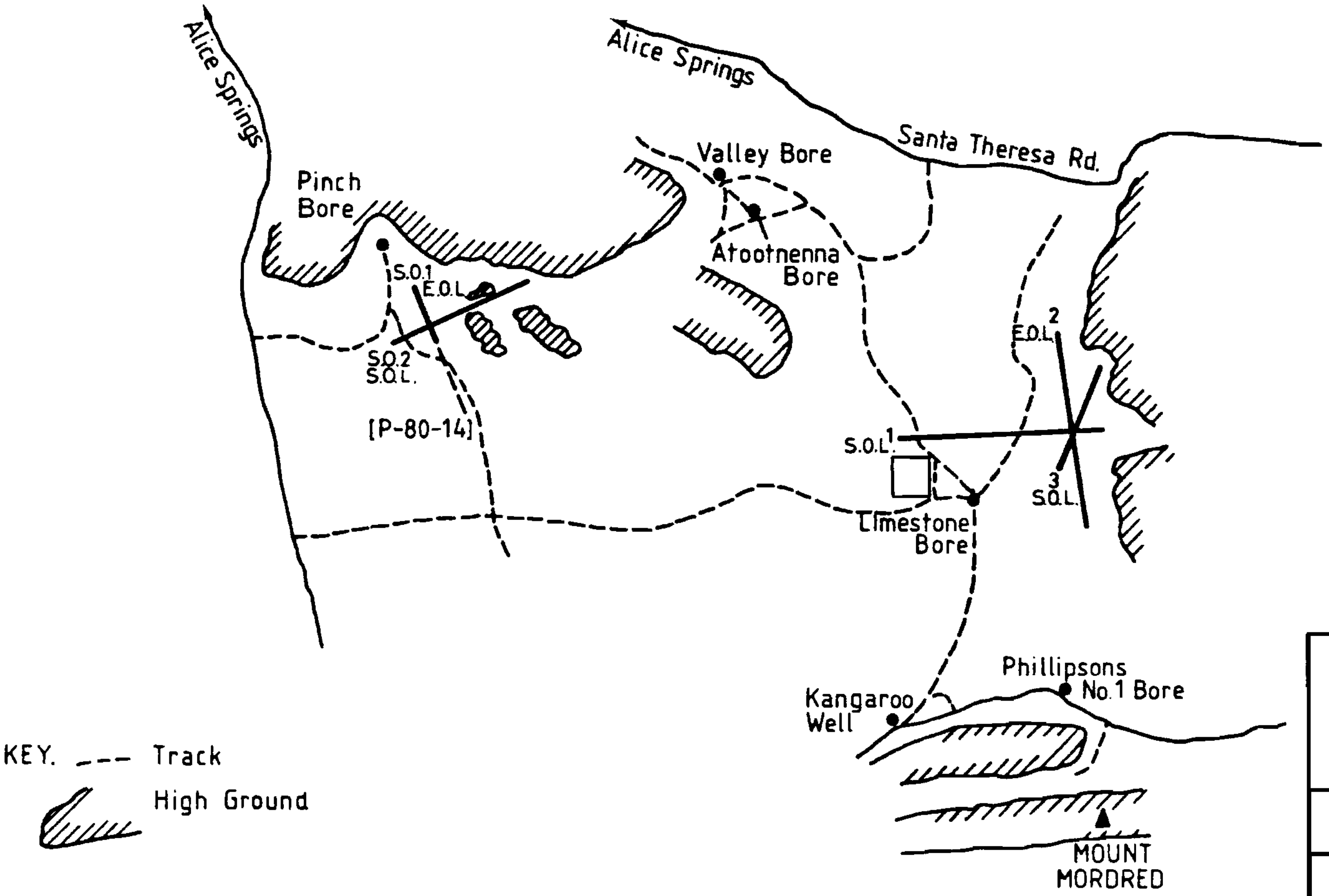
FIELD AREA REPORT

CON. 179 ENCL No. 1

PR 82/76.

Diagram Showing Lines at Ooraminna Prospect

FEB 1982



FIELD AREA REPORT

CON. 179 ENCL No. 2

PR 82/76.

Programme listing Static Computations Mereenie and Coraminna prospects Contract [illegible]

```
01*LBL "STATB"
02 CLRG
03 XEQ "INIT"
04 CLA
05 "1ST STN "
06 PROMPT
07 ARCL X
08 AVIEW
09 STO 00
10 CLA
11 "LAST STN "
12 PROMPT
13 ARCL X
14 AVIEW
15 ADV
16 STO 01
17*LBL 00
18 SF 00
19 RCL 01
20 CLA
21 "STN NO
22 PROMPT
23 ARCL X
24 AVIEW
25 STO IND 10
26 X<Y?
27 CF 00
28 CLA
29 900
30 ARCL X
31 AVIEW
32 STO IND 11
33 CLA
34 "V2 "
35 PROMPT
36 ARCL X
37 AVIEW
38 STO IND 12
39 CLA
40 "VE "
41 PROMPT
42 ARCL X
43 AVIEW
44 ADV
45 STO IND 13
46 ISG 10
47 ISG 11
48 ISG 12
49 ISG 13
50 FC? 00
51 GTO 00
52*LBL 01
53 SF 00
54 RCL 01
55 CLA
56 "STN NO "
57 PROMPT
58 ARCL X
59 AVIEW
60 STO IND 14
61 X<Y?
62 CF 00
63 CLA
64 "D1 "
65 PPOMPT
66 ARCL X
67 AVIEW
68 STO IND 15
69 CLA
70 "D2 "
71 PROMPT
72 ARCL X
73 AVIEW
74 ADV
75 STO IND 16
76 ISG 14
77 ISG 15
78 ISG 16
79 FC? 00
80 GTO 01
81*LBL 02
82 SF 00
83 RCL 01
84 CLA
85 "STN NO "
86 PROMPT
87 ARCL X
88 AVIEW
89 STO IND 17
90 X<Y?
91 CF 00
92 CLA
93 "ELEV "
94 PROMPT
95 ARCL X
96 AVIEW
97 ADV
98 STO IND 18
99 ISG 17
100 ISG 18
101 FC? 00
102 GTO 02
103 CLA
104 "DATUM "
105 PROMPT
106 ARCL X
107 AVIEW
108 ADV
109 STO 09
110 XEQ "INIT"
111 "  STN ELEV  D1 "
112 ACA
113 " D2  TD"
114 ACA
115 PRBUF
116 ADV
117*LBL "INTPL"
118 RCL 00
119 RCL IND 10
120 X<>Y
121 RCL IND 10
122 X<>Y
123 ISG 10
124 RCL IND 10
125 X<=Y?
126 SF 01
127 R↑
128 -
129 RDN
130 X<>Y
131 -
132 R↑
133 /
134 STO 02
135 RCL IND 11
136 ENTER↑
137 ENTER↑
138 ISG 11
139 RCL IND 11
140 X<>Y
141 -
142 RCL 02
143 *
144 +
145 STO 03
146 RCL IND 12
147 ENTER↑
148 ENTER↑
149 ISG 12
150 RCL IND 12
151 X<>Y
152 -          ENCLOSURE 4
153 RCL 02
154 *
155 +
156 STO 04
157 RCL IND 13
158 ENTER↑
159 ENTER↑
160 ISG 13
161 RCL IND 13
162 X<>Y
163 -
164 RCL 02
165 *
166 +
167 STO 05
168 RCL 00
169 RCL IND 14
170 X<>Y
171 RCL IND 14
172 X<>Y
173 ISG 14
174 RCL IND 14
175 X=Y?
176 SF 02
177 R↑
178 -
179 RDN
180 X<>Y
181 -
182 R↑
183 /
184 STO 02
185 RCL IND 15
186 ENTER↑
187 ENTER↑
188 ISG 15
189 RCL IND 15
190 X<>Y
191 -
192 RCL 02
193 *
194 +
195 STO 06
196 RCL IND 16
197 ENTER↑
198 ENTER↑
199 ISG 16
200 RCL IND 16
201 X<>Y
202 -
203 RCL 02
204 *
205 +
206 STO 07
207 RCL 00
208 RCL IND 17
209 X<>Y
210 RCL IND 17
211 X<>Y
212 ISG 17
213 RCL IND 17
214 X=Y?
215 SF 03
216 R↑
217 -
218 RDN
219 X<>Y
220 -
221 R↑
222 /
223 STO 02
224 RCL IND 18
225 ENTER↑
```

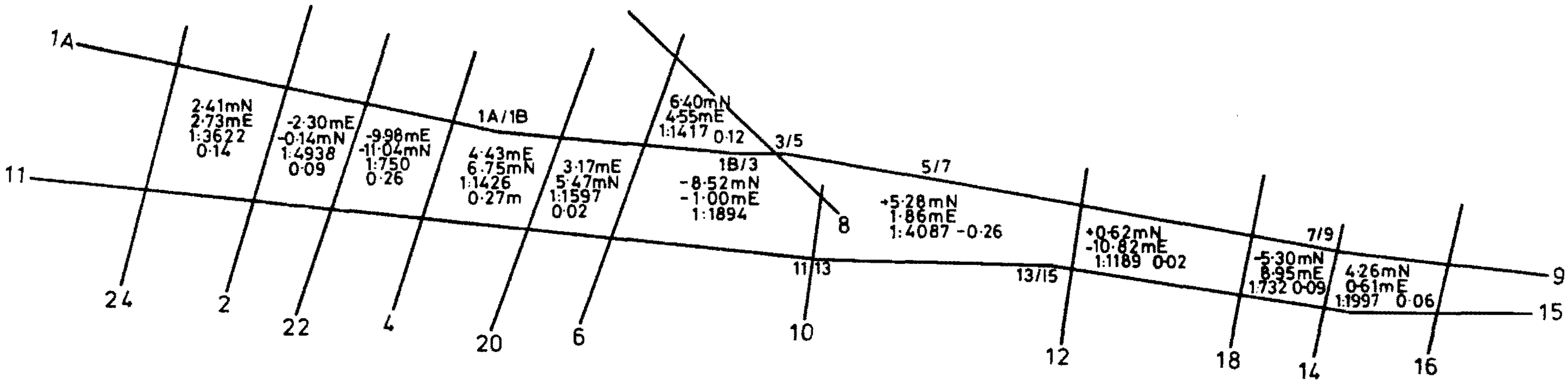
```
226 ENTER↑
227 ISG 18
228 RCL IND 18
229 X<>Y
230 -
231 RCL 02
232 *
233 +
234 STO 08
235 FS?C 01
236 GTO 03
237 1
238 ST- 10
239 ST- 11
240 ST- 12
241 ST- 13
242•LBL 03
243 FS?C 02
244 GTO 04
245 1
246 ST- 14
247 ST- 15
248 ST- 16
249•LBL 04
250 FS?C 03
251 GTO "COMPUTE"
252 1
253 ST- 17
254 ST- 18
255•LBL "COMPUTE"
256 RCL 00
257 XEQ 07
258 RDN
259 ACX
260 " "
261 ACA
262 RDN
263 RCL 09
264 RCL 08
265 ACX
266 " "
267 ACA
268 -
269 RCL 05
270 /
271 RCL 06
272 XEQ 05
273 RDN
274 ACX
275 " "
276 ACA
277 RDN
278 RCL 05
279 1/X
280 RCL 03
281 1/X
282 -
283 *
284 +
285 RCL 07
286 XEQ 05
287 RDN
288 ACX
289 " "
290 ACA
291 RDN
292 RCL 05
293 1/X
294 RCL 04
295 1/X
296 -
297 *
298 +
299 1 E3
300 *
301 XEQ 05
302 RDN
303 RDN
304 ACX
305 PRBUF
306 RCL 00
307 1
308 +
309 STO 00
310 RCL 01
311 X<Y?
312 STOP
313 GTO "INTPL"
314•LBL 05
315 ENTER↑
316 RND
317 ABS
318 10
319 X<=Y?
320 RTN
321 " "
322 ACA
323 RTN
324•LBL 06
325 ENTER↑
326 RND
327 100
328 X<=Y?
329 RTN
330 " "
331 ACA
332 RTN
333•LBL 07
334 ENTER↑
335 RND
336 1000
337 X<=Y?
338 RTN
339 " "
340 ACA
341 RTN
342•LBL "INIT"
343 FIX 0
344 SF 28
345 CF 29
346 20.02901
347 STO 10
348 30.03901
349 STO 11
350 40.04901
351 STO 12
352 50.05901
353 STO 13
354 60.06901
355 STO 14
356 70.07901
357 STO 15
358 80.08901
359 STO 16
360 90.09901
361 STO 17
362 100.10901
363 STO 18
364 RTN
365 END
```

FIELD AREA REPORT

CON. 179 ENCL No. 4

Horizontal & Vertical Loop Closure Diagram

Mereenie Prospect



All loops close clockwise.

Not to Scale.

FIELD AREA REPORT

CON. 179 ENCL No. 5

PR 82/76