

FINAL REPORT
OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.
PROJECT 1385

FOR
ESSO AUSTRALIA LTD.
WELL LOCATION PIPIPA #1

TASMANIA, AUSTRALIA

MAY 1982

OR_349A

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I. INTRODUCTION

Offshore Navigation (Australia) Pty. Ltd. (ONA), under contract to ESSO Australia Ltd. (ESSO), provided a Maxiran Radiopositioning System to a well location survey that was conducted off the coast of Tasmania, Australia, in the Bass Strait. The position surveyed was located approximately 55 miles north of Wynyard, Tasmania, and was designated by ESSO as:

Well Location PIPIPA #1

The ONA base of operation for this survey was established at Devonport, Tasmania on 23 April 1982. The ONA base of operation was moved to Somerset, Tasmania on 1 May 1982, at the commencement of operations.

II. FIELD OPERATIONS RECAP

All ONA personnel necessary for this survey arrived in Latrobe on 20 April 1982. The Maxiran system, stored in Latrobe on completion of a previous survey, was calibrated on 22 April. For this calibration, the Maxiran

II. FIELD OPERATIONS RECAP (continued)

mobile equipment was transported to Station Point Sorell, and the Maxiran base station equipment was transported to Station Doctors Rocks (SPM 430). The Maxiran system was calibrated over a computed Stations Point Sorell/Doctors Rocks (SPM 430) range of 63.753 kilometers. See "Maxiran Calibration" of this report for details.

On completion of the Maxiran calibration, one Maxiran base station installation remained at Station Doctors Rocks (SPM 430), and the two remaining installations were transported to Stations Point Sorell and The Nut. The three stations were erected, manned, and operational by 23 April 1982.

The ONA mobile operator and the Maxiran mobile equipment were transported to Warnambool, and transported from Warnambool to the Drilling Vessel (D/V) SOUTHERN CROSS via helicopter. All Maxiran equipment and the operator were on board the rig by 1530 hours 24 April 1982. Installation of the Maxiran tower and cabling were delayed

II. FIELD OPERATIONS RECAP (continued)

on the rig due to weather conditions. The ONA mobile operator and the Maxiran equipment were transferred to the M/V SOUTHERN TIDE at 1145 hours 28 April 1982. The Maxiran equipment was installed on board this vessel while it was utilized to pick up the rig anchors to shift to the new location.

The D/V SOUTHERN CROSS was under tow to Well Location PIPIPA #1 at 0630 hours 1 May 1982. The M/V SOUTHERN TIDE proceeded to the location, and set the buoy pattern between 1346 and 1605 hours 2 May. The rig entered the buoy pattern at 1730 hours, and began anchor operations. The ONA mobile operator transferred to the D/V SOUTHERN CROSS at 0230 hours 3 May, and completed erecting the Shoran tower on board the rig. The Maxiran system was operational on board the rig at 0712 hours that same date, and Maxiran ranges were recorded periodically from that time through 0018 hours 4 May 1982, at which time the final Maxiran ranges were recorded.

II. FIELD OPERATIONS RECAP (continued)

The Maxiran system remained on standby after recording the final readings for the 20-inch casing to be set. This operation was completed, and the system was released at 1000 hours 5 May 1982. See Appendix A of this report for details of operations.

Dismantling of the Maxiran base stations was accomplished on 5 May 1982. Dismantling of the Maxiran equipment on board the D/V SOUTHERN CROSS began 5 May, and was completed on 6 May. The ONA mobile operator transferred to the M/V SOUTHERN TIDE on 7 May, and dismantling of the Maxiran mobile equipment on this vessel was completed 8 May. The equipment and mobile operator was transferred to the D/V SOUTHERN CROSS at 1100 hours that date. All Maxiran mobile equipment and the ONA mobile operator were transported to Wynyard by helicopter, with the last helicopter flight arriving at Wynyard at 1445 hours 8 May 1982.

II. FIELD OPERATIONS RECAP (continued)

One Maxiran mobile station, and two base stations were stored at Straman on 9 May 1982. One base station was shipped to the ONA office in Perth on 6 May, and one mobile station was shipped to Perth on 10 May 1982.

All ONA personnel were released from this survey on 11 May 1982, and departed the area.

III. GENERAL INFORMATION

A. Maxiran frequencies used were:

Mobile Transmitter	441 MHz
Base Transmitter	429 MHz

B. Satisfactory radiotelephone communications between all Maxiran installations were maintained on the frequencies of 4637.5 and 7640.0 (SSB) kilocycles.

C. The Maxiran field data accumulated during this survey was turned over to the ONA office in Perth, W.A. on 6 May 1982. The final Maxiran ranges recorded were transmitted to ONA's parent company, Offshore Navigation, Inc. (ONI) in New Orleans, Louisiana for final computation.

D. Three Maxiran base station installations were provided by ONA for this survey.

III. GENERAL INFORMATION (continued)

E. Three Maxiran base station sites were occupied during this operation. They were:

STATION DOCTORS ROCKS (SPM 430)

STATION POINT SORELL (ST 517)

STATION THE NUT (ST 674)

F. The maximum range observed by the Maxiran system during this survey was 110 kilometers.

G. The Maxiran mobile equipment was checked daily for a proper delay setting of 4889 meters, as determined by the Maxiran calibration of 22 April 1982.

IV. MAXIRAN CALIBRATION

The Maxiran system was calibrated on 22 April 1982. For this calibration, the Maxiran mobile equipment was erected to Station Point Sorell (ST 517). The Maxiran base station equipment was installed at a marker that was previously occupied and designated on Government descriptions as "Station Doctors Rocks (92/4)". A fence adjacent to the marker occupied has a sign on it which states "92/4". Coordinates for the 92/4 marker, obtained from the Lands and Surveys Department, were used to compute a range of 63.753 kilometers for the Stations Point Sorell (ST 517)/Doctors Rocks (92/4) baseline.

Maxiran three-way fixes recorded during the well location survey indicated a possible error in basic control, due to the severity of the three-way fix ties.

The local Government surveyor was again contacted, and the difficulty being experienced with Maxiran three-way fix mistakes explained. On further research of the Government surveyor, it was discovered that there were two

IV. MAXIRAN CALIBRATION

markers designated "Doctors Rocks", one being the 92/4 marker, whose coordinates were being used, and a second marker, "SPM 430". The Government description used by ONA personnel to initially recover this station was vague, and does not indicate that there were two markers in the vicinity. Due to the vagueness of the description, and the lack of any inscription on the marker recovered, it was found that ONA occupied the SPM 430 marker for this, as well as the past seismic survey that was conducted to produce the data for the drill position.

The Maxiran delay setting derived from the calibration is indicated on the following pages. It was retained during the operation, and a correction for the mis-calibration was used to derive the final position of the drill stem, as well as the geodetic location of the desired location. Coordinates of the SPM 430 marker are published in "Basic Control" of this report.

OFFSHORE NAVIGATION, INC.

379012

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION

BASE STATION

LOCATION: PORT SCORRELL

LOCATION: DOCTORS ROCKS (SPN-430)

OPERATOR: MOLLOY / CARTNER

OPERATOR: SMITH / CLARK

UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		009 CODE 1
INTERROGATOR	NTM 01	041	CONTROL BOX		083
AMPLIFIER	NTU 03	026	AMPLIFIER		023
AMPLIFIER P/S	NPU 03	020	AMPLIFIER P/S		028
PREAMP	SAU 12	004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT. STACK	20'		VERT. STACK	40'
INPUT VOLTAGE	115 V		INPUT VOLTAGE	115 V	
TX. FREQUENCY	441 MHz		TX. FREQUENCY	429 MHz	
RX. FREQUENCY	429 MHz		RX. FREQUENCY	441 MHz	
RX. GAIN SETTING	NOMINAL		RX. GAIN SETTING	NOMINAL	
WEATHER CONDITIONS	OVERCAST.		WEATHER CONDITIONS	OVERCAST	
20KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM

COMPUTED SLANT RANGE: ~~63.838~~ 63.753 KM

MOBILE ZERO SETTING IS: 4.889 KM

OBSERVED RANGE IN OPERATE: 63.838 KM

TIME: 1500

SIGNED:

K. J. Molloy

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

OFFSHORE NAVIGATION, INC.

379013

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION			BASE STATION		
LOCATION:	PORT SCRAEHL		LOCATION:	DOCTORS ROCKS (SPM-430)	
OPERATOR:	MULLOY / CARTNER		OPERATOR:	SMITH / CLARK	
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		010 CODE 1
INTERROGATOR	NTM 01	041	CONTROL BOX		083
AMPLIFIER	NTU 03	026	AMPLIFIER		023
AMPLIFIER P/S	NPU 03	020	AMPLIFIER P/S		028
PREAMP	SAU 12	004	PREAMP	SAU 12	145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT. STACK	20'		VERT. STACK	40'
INPUT VOLTAGE	115 V		INPUT VOLTAGE	115 V	
TX. FREQUENCY	441 MHz		TX. FREQUENCY	429 MHz	
RX. FREQUENCY	429 MHz		RX. FREQUENCY	441 MHz	
RX. GAIN SETTING	NOMINAL		RX. GAIN SETTING	NOMINAL	
WEATHER CONDITIONS	OVERCAST		WEATHER CONDITIONS	OVERCAST	
20 KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: ~~63.838~~ 63.753 KM
 MOBILE ZERO SETTING IS: 4.859 KM
 OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 1525

SIGNED: K. J. Molloy

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379014

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION			BASE STATION		
LOCATION:	PORT SORRELL		LOCATION:	DOCTORS ROCKS (SDM-430)	
OPERATOR:	MOLLOY / CARTNER		OPERATOR:	SMITH / CLARK	
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		014 CODE 3
INTERROGATOR	NTM 01	041	CONTROL BOX		083
AMPLIFIER	NTM 03	026	AMPLIFIER		023
AMPLIFIER P/S	NPM 03	020	AMPLIFIER P/S		028
PREAMP	SAU 12	004	PREAMP	SAU 12	145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT. STACK	20'		VERT. STACK	40'
INPUT VOLTAGE		115 V	INPUT VOLTAGE		115 V
TX. FREQUENCY		441 MHz	TX. FREQUENCY		429 MHz
RX. FREQUENCY		429 MHz	RX. FREQUENCY		441 MHz
RX. GAIN SETTING		NOMINAL	RX. GAIN SETTING		NOMINAL
WEATHER CONDITIONS		OVERCAST.	WEATHER CONDITIONS		OVERCAST.
20KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: ~~63.838~~ 63.753 KM
 MOBILE ZERO SETTING IS: 4889 KM
 OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 1600

SIGNED: K. J. Molloy

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2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
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OFFSHORE NAVIGATION, INC.

379015

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION

LOCATION: PORT SURRELL

OPERATOR: MOLLOY / CARTNER

BASE STATION

LOCATION: DOCTORS ROCKS (SPM-490)

OPERATOR: SMITH / CLARK

UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		085 CODE 5
INTERROGATOR	NTM 01	041	CONTROL BOX		083
AMPLIFIER	NTU 03	026	AMPLIFIER		023
AMPLIFIER P/S	NPU 03	020	AMPLIFIER P/S		028
PREAMP	SAU 12	004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT. STACK	20'		VERT. STACK	40'
INPUT VOLTAGE	115V		INPUT VOLTAGE	115V	
TX. FREQUENCY	441 MHz		TX. FREQUENCY	429 MHz	
RX. FREQUENCY	429 MHz		RX. FREQUENCY	441 MHz	
RX. GAIN SETTING	NOMINAL		RX. GAIN SETTING	NOMINAL	
WEATHER CONDITIONS	OVERCAST		WEATHER CONDITIONS	OVERCAST.	
* 20KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM

COMPUTED SLANT RANGE: ~~63-838~~ 63-753 KM

MOBILE ZERO SETTING IS: 4889 KM

OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 1715

SIGNED: H. J. Molloy.

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
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OFFSHORE NAVIGATION, INC.

379016

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MAXIRAN CALIBRATION REPORT

DATE:

MOBILE STATION			BASE STATION		
LOCATION: <u>PORT SCARRELL</u>			LOCATION: <u>DOCTORS ROCKS (SPN-430)</u>		
OPERATOR: <u>MOLLOY / CARTNER</u>			OPERATOR: <u>SMITH / CLARK</u>		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	<u>NMN 01A</u>	<u>027</u>	BEACON		<u>069</u> CODE <u>5</u>
INTERROGATOR	<u>NTM 01</u>	<u>041</u>	CONTROL BOX		<u>083</u>
AMPLIFIER	<u>NTU 03</u>	<u>026</u>	AMPLIFIER		<u>023</u>
AMPLIFIER P/S	<u>NPU 03</u>	<u>020</u>	AMPLIFIER P/S		<u>028</u>
PREAMP	<u>SAU 12</u>	<u>004</u>	PREAMP	<u>SAU 12</u>	<u>145</u>
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	<u>ANDREWS</u>	<u>82'</u>		<u>ANDREWS</u>	<u>82'</u>
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	<u>VERT STACK</u>	<u>20'</u>		<u>VERT. STACK</u>	<u>40'</u>
INPUT VOLTAGE		<u>115V</u>	INPUT VOLTAGE		<u>115V</u>
TX. FREQUENCY		<u>441 MHz</u>	TX. FREQUENCY		<u>429 MHz</u>
RX. FREQUENCY		<u>429 MHz</u>	RX. FREQUENCY		<u>441 MHz</u>
RX. GAIN SETTING		<u>NOMINAL</u>	RX. GAIN SETTING		<u>NOMINAL</u>
WEATHER CONDITIONS		<u>OVERCAST</u>	WEATHER CONDITIONS		<u>OVERCAST.</u>
<u>20KW LINEAR</u>					

~~STATION BEACON NOT PUTTING OUT O.K. NOW.~~

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: ~~63.538~~ 63.753 KM
 MOBILE ZERO SETTING IS: 4889 KM
 OBSERVED RANGE IN OPERATE: 63.538 KM TIME: 1722

SIGNED: K. J. Molloy

NOTES REGARDING CALIBRATION PROCEDURES:

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OFFSHORE NAVIGATION, INC.

379017

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION			BASE STATION		
LOCATION:	PORT SORRELL		LOCATION:	DOCTORS ROCKS (SPH-430)	
OPERATOR:	MOLLOY / CARTNER		OPERATOR:	SMITH / CLARK	
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMNO1A	027	BEACON		014 CODE 3
INTERROGATOR	NTM 01	041	CONTROL BOX		053
AMPLIFIER	NTU 03	026	AMPLIFIER		046
AMPLIFIER P/S	NPU 03	020	AMPLIFIER P/S		028
PREAMP	SQU 12	004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT. STACK	20'		VERT. STACK	40'
INPUT VOLTAGE		115 V	INPUT VOLTAGE		115V
TX. FREQUENCY		441 MHz	TX. FREQUENCY		429 MHz
RX. FREQUENCY		429 MHz	RX. FREQUENCY		441 MHz
RX. GAIN SETTING		NOMINAL	RX. GAIN SETTING		NOMINAL
WEATHER CONDITIONS		OVERCAST	WEATHER CONDITIONS		OVERCAST.
20 KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: ~~63.538~~ 63.753 KM
 MOBILE ZERO SETTING IS: 4889 KM
 OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 1908

SIGNED: K. J. Molloy

NOTES REGARDING CALIBRATION PROCEDURES:

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2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
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OFFSHORE NAVIGATION, INC.

379018

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION			BASE STATION		
LOCATION: PERT SERRILL			LOCATION: DOCTORS ROCKS (SPM-430)		
OPERATOR: MOLLOY / CARTNER			OPERATOR: SMITH / CLARK		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		014 CODE 3
INTERROGATOR	NTM 01	041	CONTROL BOX		053
AMPLIFIER	NTU 03	026	AMPLIFIER		012
AMPLIFIER P/S	NP 03	020	AMPLIFIER P/S		028
PREAMP	SAU 12	004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT. STACK	20'		VERT. STACK	40'
INPUT VOLTAGE		115 V	INPUT VOLTAGE		115 V
TX. FREQUENCY		441 MHz	TX. FREQUENCY		429 MHz
RX. FREQUENCY		429 MHz	RX. FREQUENCY		441 MHz
RX. GAIN SETTING		NOMINAL	RX. GAIN SETTING		NOMINAL
WEATHER CONDITIONS		OVERCAST	WEATHER CONDITIONS		OVERCAST.
20 KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: ~~63.838~~ 63.753 KM
 MOBILE ZERO SETTING IS: 4.589 KM
 OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 1940

SIGNED: *H. J. Molloy*

NOTES REGARDING CALIBRATION PROCEDURES:

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OFFSHORE NAVIGATION, INC.

379019

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1952

MOBILE STATION			BASE STATION		
LOCATION:	PORT SORELL		LOCATION:	DOCTORS ROCKS (SPM-430)	
OPERATOR:	MOLLOY / CARTNER		OPERATOR:	SMITH CLARK	
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		014 CODE 3
INTERROGATOR	VTM 01	027 038	CONTROL BOX		083
AMPLIFIER	NTU 03	026	AMPLIFIER		023
AMPLIFIER P/S	NPU 03	020	AMPLIFIER P/S		028
REAMP	SAU 12	004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT STACK	20'		VERT. STACK	20'
INPUT VOLTAGE	115 V		INPUT VOLTAGE	115 V	
TX. FREQUENCY	441 MHz		TX. FREQUENCY	429 MHz	
RX. FREQUENCY	429 MHz		RX. FREQUENCY	441 MHz	
RX. GAIN SETTING	NOMINAL		RX. GAIN SETTING	NOMINAL	
WEATHER CONDITIONS	OVERCAST		WEATHER CONDITIONS	OVERCAST	
20KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: 630 ~~753~~ 753 KM
 MOBILE ZERO SETTING IS: 4589 KM
 OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 1952

SIGNED: K. J. Molloy

NOTES REGARDING CALIBRATION PROCEDURES:

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OFFSHORE NAVIGATION, INC.

379020

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MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL

MOBILE STATION			BASE STATION		
LOCATION: <i>PORT SCRELL</i>			LOCATION: <i>DOCTORS ROCKS (SPM-490)</i>		
OPERATOR: <i>MULLOY / CARTNER</i>			OPERATOR: <i>SMITH / CLARK</i>		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	<i>NMM 01A</i>	<i>027</i>	BEACON		<i>014</i> CODE <i>3</i>
INTERROGATOR	<i>NTM 01</i>	<i>050</i>	CONTROL BOX		<i>053</i>
AMPLIFIER	<i>NTU 03</i>	<i>026</i>	AMPLIFIER		<i>023</i>
AMPLIFIER P/S	<i>NPU 03</i>	<i>020</i>	AMPLIFIER P/S		<i>028</i>
PREAMP	<i>SAL 12</i>	<i>004</i>	PREAMP	<i>SAL 12</i>	<i>145</i>
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	<i>ANDREWS</i>	<i>52'</i>		<i>ANDREWS</i>	<i>82'</i>
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	<i>VERT STACK</i>	<i>20'</i>		<i>VERT STACK</i>	<i>20'</i>
INPUT VOLTAGE			INPUT VOLTAGE		
TX. FREQUENCY			TX. FREQUENCY		
RX. FREQUENCY			RX. FREQUENCY		
TX. GAIN SETTING			RX. GAIN SETTING		
WEATHER CONDITIONS			WEATHER CONDITIONS		
<i>20KW LINEAR</i>					

OBSERVED RANGE IN CALIBRATE: KM

COMPUTED SLANT RANGE: *63.753* KM

MOBILE ZERO SETTING IS: *4889* KM

OBSERVED RANGE IN OPERATE: *63.838* KM

TIME: *1455*

SIGNED:

NOTES REGARDING CALIBRATION PROCEDURES:

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OFFSHORE NAVIGATION, INC.

379021

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MAXIRAN CALIBRATION REPORT

DATE:

MOBILE STATION			BASE STATION		
LOCATION: PORT SORELL			LOCATION: DOCTORS ROCKS (SPM-430)		
OPERATOR: MOLLOY / CARTNER			OPERATOR: SMITH / CLARK		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM 01A	027	BEACON		014 CODE 3
INTERROGATOR	NTM 01	034	CONTROL BOX		083
AMPLIFIER	NTU 03	026	AMPLIFIER		023
AMPLIFIER P/S	NPU 03	020	AMPLIFIER P/S		028
PREAMP	SAU 12	004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS	82'		ANDREWS	82'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	VERT STACK	20'		VERT. STACK	40'
INPUT VOLTAGE			INPUT VOLTAGE		
TX. FREQUENCY			TX. FREQUENCY		
RX. FREQUENCY			RX. FREQUENCY		
RX. GAIN SETTING			RX. GAIN SETTING		
WEATHER CONDITIONS			WEATHER CONDITIONS		
20 KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: 63.757 KM
 MOBILE ZERO SETTING IS: 4899. KM
 OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 2000

SIGNED:

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

OFFSHORE NAVIGATION, INC.

379022

20

MAXIRAN CALIBRATION REPORT

DATE: 22 APRIL 1982

MOBILE STATION			BASE STATION		
LOCATION: <i>PORT SORELL.</i>			LOCATION: <i>Victors Rock. (SPM-430)</i>		
OPERATOR:			OPERATOR:		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	<i>NMM 01A</i>	<i>027</i>	BEACON		<i>014</i> <i>CODE 3</i>
INTERROGATOR	<i>NTM 01</i>	<i>034</i>	CONTROL BOX		<i>083</i>
AMPLIFIER	<i>VTU 03</i>	<i>002</i>	AMPLIFIER		<i>023</i>
AMPLIFIER P/S	<i>NPU 03</i>	<i>025</i>	AMPLIFIER P/S		<i>028</i>
PREAMP	<i>SAU 12</i>	<i>004</i>	PREAMP		<i>145</i>
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
INPUT VOLTAGE			INPUT VOLTAGE		
TX. FREQUENCY			TX. FREQUENCY		
RX. FREQUENCY			RX. FREQUENCY		
RX. GAIN SETTING			RX. GAIN SETTING		
WEATHER CONDITIONS			WEATHER CONDITIONS		
<i>20 KW LINEAR</i>					

OBSERVED RANGE IN CALIBRATE: KM
 COMPUTED SLANT RANGE: *63.753* KM
 MOBILE ZERO SETTING IS: *4889* KM
 OBSERVED RANGE IN OPERATE: *63.838* KM TIME: *2010*

SIGNED:

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

OFFSHORE NAVIGATION, INC.

379023

21

MAXIRAN CALIBRATION REPORT

DATE:

MOBILE STATION			BASE STATION		
LOCATION:	PORT SORELL		LOCATION:	DOCTORS ROCK (SPN-430)	
OPERATOR:			OPERATOR:		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR		041	BEACON		014 CODE 3
INTERROGATOR		034	CONTROL BOX		083
AMPLIFIER		010	AMPLIFIER		023
AMPLIFIER P/S		035	AMPLIFIER P/S		028
PREAMP		004	PREAMP		145
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
INPUT VOLTAGE			INPUT VOLTAGE		
TX. FREQUENCY			TX. FREQUENCY		
RX. FREQUENCY			RX. FREQUENCY		
RX. GAIN SETTING			RX. GAIN SETTING		
WEATHER CONDITIONS			WEATHER CONDITIONS		
3.5 KW LINEAR					

OBSERVED RANGE IN CALIBRATE: KM

COMPUTED SLANT RANGE: ~~63.558~~ 63.753 KM

MOBILE ZERO SETTING IS: 4830 KM

OBSERVED RANGE IN OPERATE: 63.838 KM

TIME: 2030

SIGNED:

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

MAXIRAN CALIBRATION REPORT

DATE:

MOBILE STATION

BASE STATION

LOCATION: <u>PORT SORELL</u> OPERATOR:	LOCATION: <u>DOCTORS ROCK (SPN-430)</u> OPERATOR:
---	--

UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR		041	BEACON		CODE
INTERROGATOR		034	CONTROL BOX		
AMPLIFIER		019	AMPLIFIER		
AMPLIFIER P/S		035	AMPLIFIER P/S		
PREAMP		004	PREAMP		
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT

INPUT VOLTAGE	INPUT VOLTAGE
TX. FREQUENCY	TX. FREQUENCY
RX. FREQUENCY	RX. FREQUENCY
RX. GAIN SETTING	RX. GAIN SETTING
WEATHER CONDITIONS	WEATHER CONDITIONS
<u>3.5 KW LINEAR</u>	

OBSERVED RANGE IN CALIBRATE: KM

COMPUTED SLANT RANGE: ~~63.558~~ 63.753 KM

MOBILE ZERO SETTING IS: 4880 KM

OBSERVED RANGE IN OPERATE: 63.838 KM TIME: 2035

SIGNED:

NOTES REGARDING CALIBRATION PROCEDURES:

1. All equipment will be allowed to warm up for at least 30 minutes prior to calibrating.
2. All readings entered hereon will be final readings for the item in question, not preliminary or intermediate readings.
3. Each report will be complete in itself. Do not refer to other reports for information.
4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

V. WELL LOCATION INFORMATION

The following information pertains to the Maxiran positioning of the D/V SOUTHERN CROSS on Well Location PIPIPA #1.

Coordinates of the desired location were initially obtained from ESSO as:

(Line HB 80A-434, S.P. 400)

Latitude 40°23'11"00 S N = 5,528,524 meters

Longitude 145°41'45"00 E E = 389,305 meters

Since the Station Doctors Rocks (SPM 430) marker was also used to calibrate the Maxiran system for the seismic survey of May 1980, at which time Line HB 80A-434 was shot. Taking this factor into consideration, it was necessary to redo the computation with the following revised coordinates:

Latitude 40°23'11"99 S N = 5,528,494 meters

Longitude 145°41'46"69 E E = 389,345 meters

The D/V SOUTHERN CROSS was secured on location, and the following final Maxiran ranges were recorded at 0018

V. WELL LOCATION INFORMATION (continued)

hours 4 May 1982, with the Maxiran mobile equipment installed on board the rig:

Sta. Doctors Rock to mobile antenna	70.365 kilometers
Sta. Point Sorell to mobile antenna	107.903 kilometers
Sta. The Nut to mobile antenna	53.467 kilometers

Due to the mis-calibration of the Maxiran system, it was determined that a range correction of (-) 84 meters was to be applied to the final Maxiran ranges recorded. The revised final ranges are as follows:

Sta. Doctors Rock to mobile antenna	70.281 kilometers
Sta. Point Sorell to mobile antenna	107.819 kilometers
Sta. The Nut to mobile antenna	53.383 kilometers

At the time that the final Maxiran ranges were recorded, the drill stem was 21 meters, at a bearing of 024° True, from the Maxiran mobile antenna.

FINAL COMPUTED COORDINATES - WELL LOCATION PIPIPA #1:
(Drill stem)

Latitude	40°23'14".11 S	N = 5,528,428 meters
Longitude	145°41'44".91 E	E = 389,304 meters
Tie to third station (Doctors Rock) = 2 meters		
Three-way adjusted tie = 1 meter		
From desired to final position = 78 meters @ S31°51'W		

V. WELL LOCATION INFORMATION (continued)

Coordinates of the above desired and final position are expressed in the Universal Transverse Mercator Projection, Australian National Spheroid of Reference, Zone 55, Central Meridian 147° East, AUSTRALIAN GEODETIC DATUM.

VI. BASIC CONTROL

Geodetic and grid coordinates of the three Maxiran base station sites occupied to control this survey were obtained from the Lands Department, Tasmania.

Universal Transverse Mercator Projection
Australian National Spheroid
Zone 55
Central Meridian 147° East
AUSTRALIAN GEODETIC DATUM

STATION DOCTORS ROCKS (SPM 430):

Latitude 41°01'00"50 S N = 5,458,648 meters
Longitude 145°46'58"70 E E = 397,671 meters
Elevation 22 meters

STATION POINT SORELL (ST 517):

Latitude 41°07'24"69 S N = 5,447,407 meters
Longitude 146°31'41"88 E E = 460,403 meters
Elevation 30 meters

STATION THE NUT (ST 674):

Latitude 40°45'50"23 S N = 5,486,046 meters
Longitude 145°18'13"45 E E = 356,830 meters
Elevation 143 meters

VII. PERSONNEL

NAME	POSITION
Cartner, I.	Party Chief
Molloy, J.	Mobile Operator
Chan, C.	Base Operator
Clark, T.	Base Operator
DeBloos, J.	Base Operator
Smith, G.	Base Operator

VIII. DISTRIBUTION

ESSO Australia Ltd.
127 Kent St.
Box GPO 4047
Sydney, N.S.W. 2001
AUSTRALIA

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Harahan, LA 70183
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AUSTRALIA

One copy

STATION: DOCTORS ROCKS (SPM 430)

LOCATED: Station Doctors Rocks is located on the north coast of Tasmania, Australia, approximately 4 kilometers east of the town of Wynyard, Tasmania. The station marker is in a pasture, atop a hillock of mostly rock. The Bass Highway, which is parallel to the sea shore, runs directly north of the station. Scattered trees surround the area to the south of the marker. Bass Strait, which separates Tasmania from the Australian mainland, is clearly visible to the north of the station.

ACCESS: A two-wheel drive is sufficient for access to this station at all times. From the Shell Station in Wynyard, proceed east on the Old Bass Highway for approximately 4 kilometers to the intersection with the New Bass Highway. Turn left onto the New Bass Highway and drive on this highway for approximately 300 meters to two gates on the righthand side, and a small cape to the left. Turn right and drive through the second gate. Drive 150 feet past the gate, and turn left onto the track that leads into a pasture. A rocky rise will be seen on the left at this point. The station marker is located on this rise, near a fence.

MARKER: The station marker consists of a small brass plaque embedded in an 8-inch square concrete structure. There are no inscriptions on this marker.

GENERAL: Labor, food, and camping equipment can be obtained in Wynyard. Fuel, oil, rental vehicles, and drivers can be obtained at the Wynyard Shell Station, whose address is 13 Bass Highway East, Wynyard, Tasmania 7325; telephone number is 422240. Vehicles can also be obtained through Transline, located on Green Road in Dandenone, Victoria. Their telephone number is 7922900.

STATION: DOCTORS ROCKS (SPM 430) (continued)

The station site is on property owned by Mr. Busby. Mr. Busby's brother lives in a house located directly behind the station. Permission to occupy the station must be obtained from the owner, telephone 422045, Burnie, Tasmania, or from his brother at the station site. No rent was paid for the use of the site. Drinking water can be obtained from the home of Mr. Busby's brother.

The weather at this station during April is mild, with occasional high winds.

A 20-foot tower was erected at this station. A minimum tower height of 10 feet is required to clear surrounding obstructions. Clear vista is from 330° to 130°. Star stakes were used to secure the tower. However, since the hillock on which the station site is located is almost solid rock, the star stakes should be driven in at the base of the rise. The northernmost point of the hill is cut off with a dropoff to the Bass Highway, about 30 feet from the marker.

ELEVATION: 22 meters

SKETCH: See next page.

Coordinates of the station marker were obtained from a Lands Department, Tasmania, Division of National Mapping summary sheet.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 55, C.M. 147° EAST - - A.G.D.

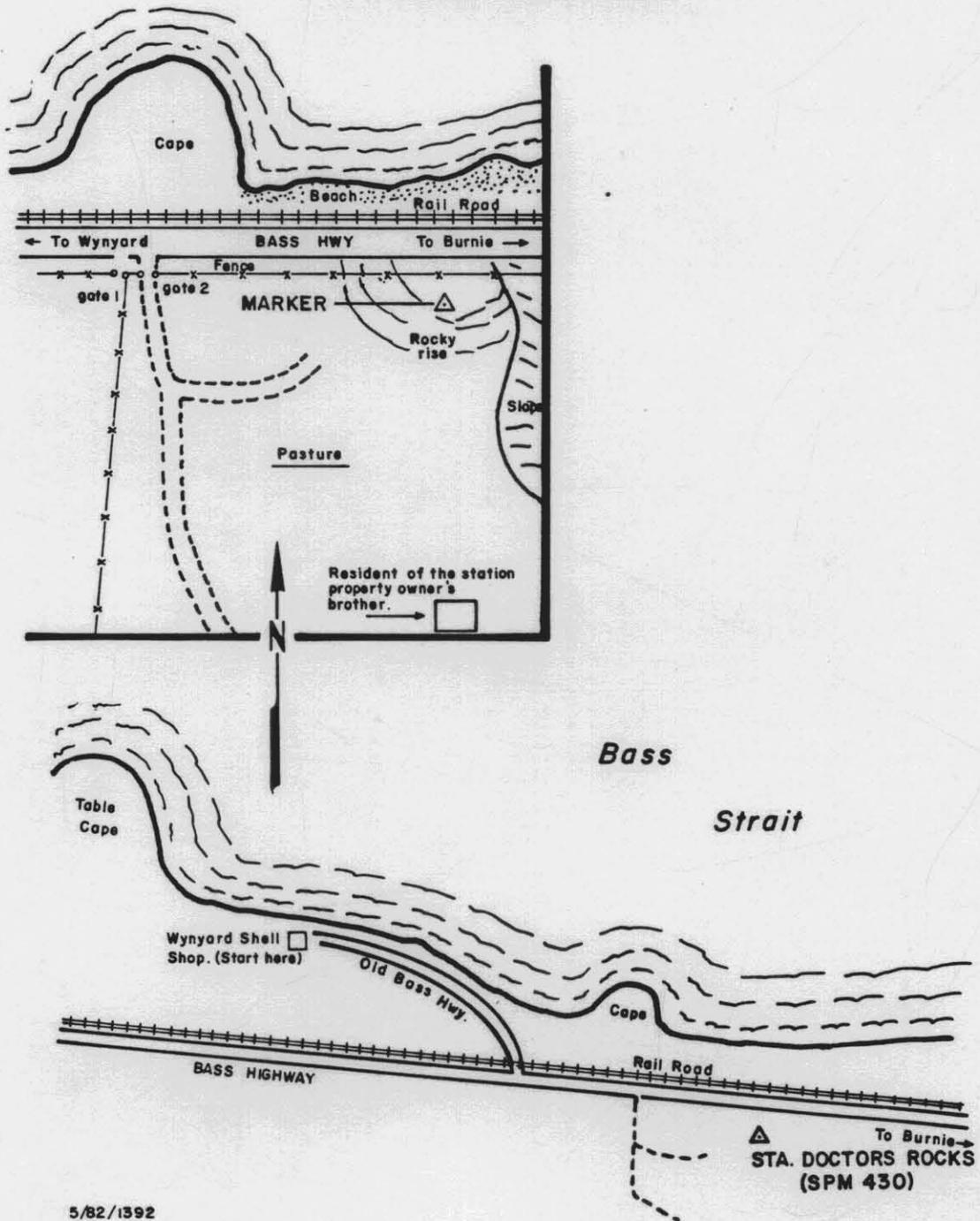
Lat. 41°01'00"50 S N = 5,458,648 meters
Long. 145°46'58"70 E E = 397,671 meters

STA. DOCTORS ROCKS (SPM 430) — AUSTRALIA

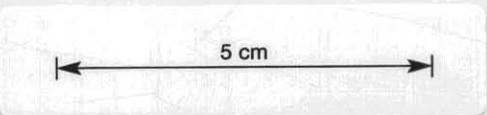
LAT. 41°01'00"50 S
 LONG. 145°46'58"70 E
 ELEV. 22 meters

N 5,458,648 meters
 E 397,671 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
 ZONE 55 C.M. 147° E
 AUSTRALIAN GEODETIC DATUM



5/82/1392



STATION: POINT SORELL (ST 517)

LOCATED: This station is located at Point Sorell, Tasmania, Australia, which is 1 kilometer from of Howley Beach, and 4 kilometers from Port Sorell.

The station marker is geographically located on a point, 150 meters from the water's edge. Rocks lay about the station. Some of the rocks extend up to 1 foot above ground level. Vegetation in the area is mainly green grass. A few clumps of grass, up to 2 feet tall, are located around the hill. A boulder of rocks is located 80 meters from the marker, and another boulder of rocks is located at the edge of the sea.

On a clear day, the city of Devonport can be seen 20 miles away, at a bearing of 260° . Beach areas, separated by rocks, are located 900 meters from the station, at a bearing of 200° . Small patches of trees are located 500 meters, at a bearing of 080° from the station. An 80-meter by 30-meter island is located offshore, approximately 800 meters, at a bearing of 060° , from the station.

ACCESS: A regular front wheel drive vehicle can be used to reach this station, although the grass at the station may become slippery when the ground is wet. This vehicle can be obtained from Transline Truck Rental, at the Shell Station on the east end of Wynyard, Tasmania.

From Devonport, drive on the Bass Highway towards Lancaster for 2 kilometers, and turn left at the Exeter/Port Sorell "T" junction. Follow this road towards Port Sorell to a road intersection, located approximately 1 kilometer before entering Port Sorell, and 19 kilometers from Devonport. Turn left at this intersection, and follow the road to Howley Beach. Turn left at a "T" junction, located 50 meters before the Hawley Beach Store and Post Office. Drive down

STATION: POINT SORELL (ST 517) (continued)

this street for three blocks, passing Tarooma and Sankey Streets, and turn right. This will take you to another "T" junction that faces a beach. Turn left at this junction, and follow the road to a white wood gate, which is indicated by several signs "Larooma". From that point on, you will go past 2 closed gates. Ask the land owner for the specific track to the trig marker. A water sewage system, being constructed in April 1982, is located 600 meters before arriving to the station.

MARKER: The station marker, located on a hill, consists of a brass mushroom S.P.M., which is not numbered. The marker is embedded in concrete at ground level, with stones piled over the marker.

A 3-meter high quadropod has been erected over the marker. The quadropod is painted white, and has a black disc attached to the top. Rocks covers each leg of the quadropod.

GENERAL: The nearest city for labor would be Devonport, approximately 22 kilometers from the station, or Latrobe, approximately 19 kilometers away. A limited supply of food and fuel can be obtained at the Hawley Beach Store and Post Office, 1 kilometer from the station. A better choice of supplies can be obtained in Port Sorell, 4 kilometers away. Bulk fuel can be obtained from several depots located in Devonport. A wide selection of camping supplies can be obtained at Devonport or Port Sorell. Drinking water can be obtained from the station property land owner, Mr. D.C. Moncriett.

A caravan for the station can be obtained at Jopsons Viscount Caravan Center, 1 Wright Street, East Devonport, Tasmania 7310; telephone 278605. This center is opened Monday through Saturday until 5 PM. The center will deliver a

STATION: POINT SORELL (ST 517) (continued)

caravan to the station site, and remove it at the completion of a survey.

If it is desired to rent batteries instead of an outright purchase, check with Nor-Co Batteries, Ltd., 42 Wenvoe Street in Devonport. Their phone number is 24-6466.

A 20-foot tower was erected at this site, the minimum height required to clear surrounding obstructions. Clear vista is from 200° (through north) to 060°. Star stakes were used to secure the tower.

Permission to occupy the station must be obtained from the land owner, Mr. D.C. Moncriott, Hawley Beach via Latrobe 7307, Tasmania. His phone number is (004) 28-6193. Mr. Moncriott was paid a daily rental fee of A\$25.00 for the use of his land.

ELEVATION: 30 meters

SKETCH: See next page.

Coordinates of the station marker were obtained from a Lands Department, Tasmania, Division of National Mapping summary sheet.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 55, C.M. 147° EAST - - A.G.D.

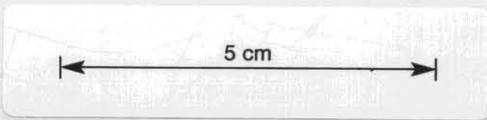
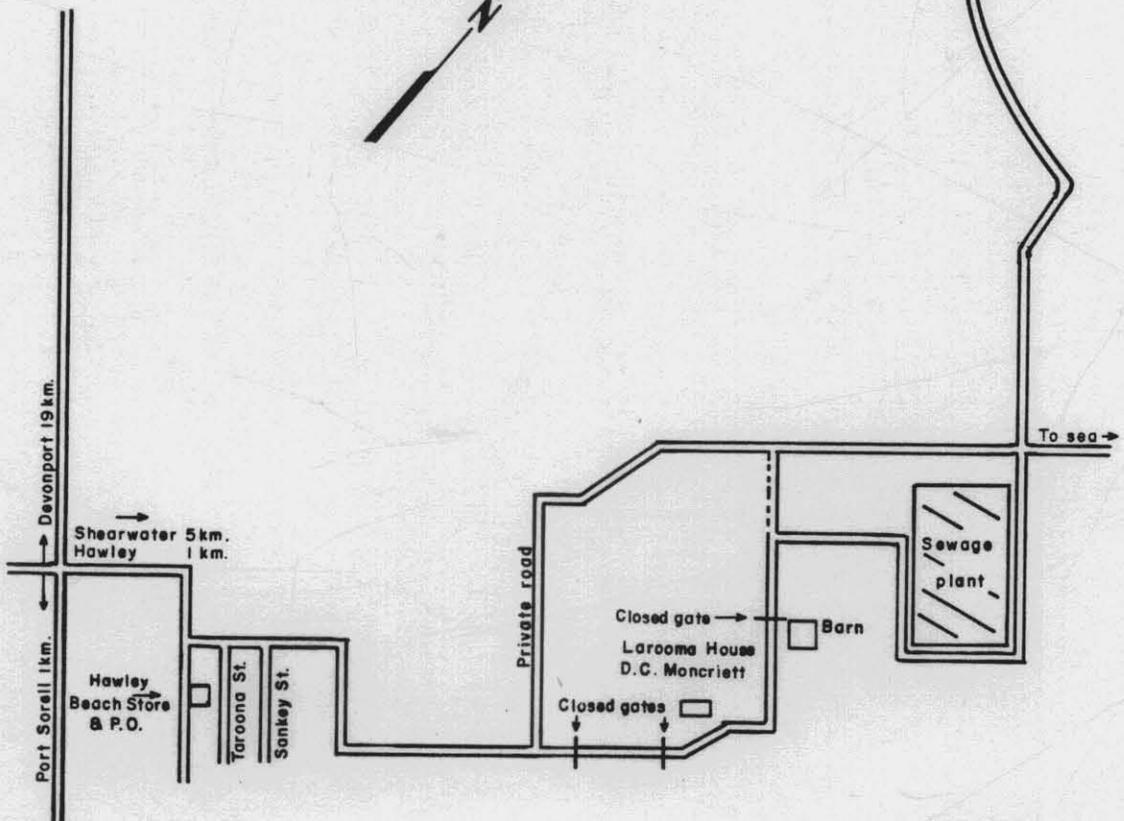
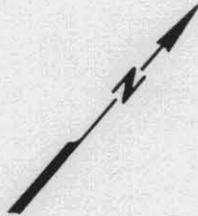
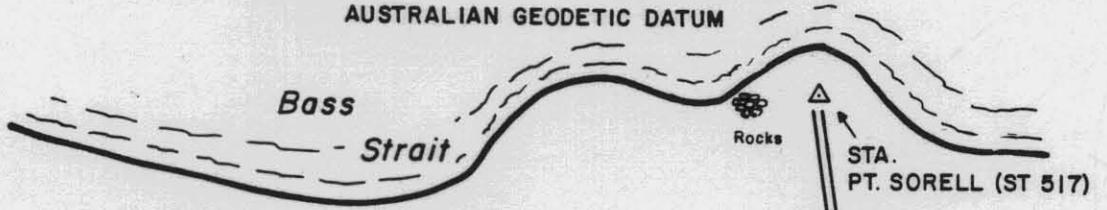
Lat.	41°07'24"69 S	N = 5,447,407 meters
Long.	146°31'41"88 E	E = 460,403 meters

STA. POINT SORELL (ST 517) — AUSTRALIA

LAT. 41°07'24".69 S
LONG. 146°31'41".88 E
ELEV. 30 meters

N 5,447,407 meters
E 460,403 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
ZONE 55 C.M. 147° E
AUSTRALIAN GEODETIC DATUM



5/82/1385

STATION: THE NUT (ST 674)

LOCATED: This station is located on a hill overlooking the town of Stanley, Tasmania, Australia. The hill is named "The Nut", and its summit is flat to slightly rolling. The vegetation on this hill consists of grass. Small patches, which were burnt during the beginning of 1982, are black. The burnt grass should disappear in a year or two. There is an old telecom station, consisting of a hut and fresh water tank, on the righthand side of The Nut, when you reach the summit.

ACCESS: To reach the town of Stanley from Burnie or Devonport, drive north on the Bass Highway to the intersection with the Stanley Highway. This intersection is 64 kilometers past Wynyard. Turn onto the Stanley Highway, and drive 8 kilometers to Stanley. The Nut will be easily seen to the northeast of Stanley, right beside the town. The road to the hill is signposted "Nut". Drive to the base of the hill, and you will see the track that leads to the summit. Take the left hand track at the fork on top of the hill, and you will see the station marker. It is a walk of about 20 minutes from the base of the hill to the station.

MARKER: The station marker consists of a brass mushroom S.P.M., which is not numbered. The marker is embedded in concrete which is below ground level, with a 1.26-meter high stone cairn built over it.

A 3.86-meter high galvanized guard has been erected over the marker. The guard has a black disc attached to its top. The Maxiran tower was erected 2.76 meters, at a bearing of 217° from the rock cairn. Coordinates listed in this description are for the brass mushroom marker.

GENERAL: Food, fuel, oil, and water can be obtained in Stanley. Fuel and oil can be obtained from W.T. House, Inc. Service Station. He can also assist in obtaining labor, which is scarce in this area and can only be obtained with great difficulty.

STATION: THE NUT (ST 674) (continued)

The station site is completely exposed to weather. This should be taken into consideration when erecting the station. A 10-foot tower was erected at this site. Star stakes were sufficient to secure the tower. Clear vista with a 10-foot tower was from 300° (through north) to 090°.

The station site is on land owned by the National Parks and Wildlife Service. Permission to occupy the site was obtained from Mr. P. Murrell, Director, in Sandy Bay, Tasmania 7005. His office address in Sandy Bay is Magnet Court or P.O. Box 210. Telegrams, addressed "TASPAWS", will be received by the director. Mr. Gary Melville, the Ranger at Smithton, was advised when the site was occupied. He can be reached at telephone 52 2188.

As per the Director's letter instructions, all equipment is to be back packed to the site, and removed in a similar manner. The site is to be kept clean and tidy during occupation. All rubbish is to be removed at the conclusion of a survey. Another Ranger that can be contacted is Mr. Rex Gatenby, in Laneston. His phone number is (003) 31 8133.

ELEVATION: 143 meters

SKETCH: See next page.

Coordinates of the station marker were obtained from a Lands Department, Tasmania, Division of National Mapping summary sheet.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 55, C.M. 147° EAST - - A.G.D.

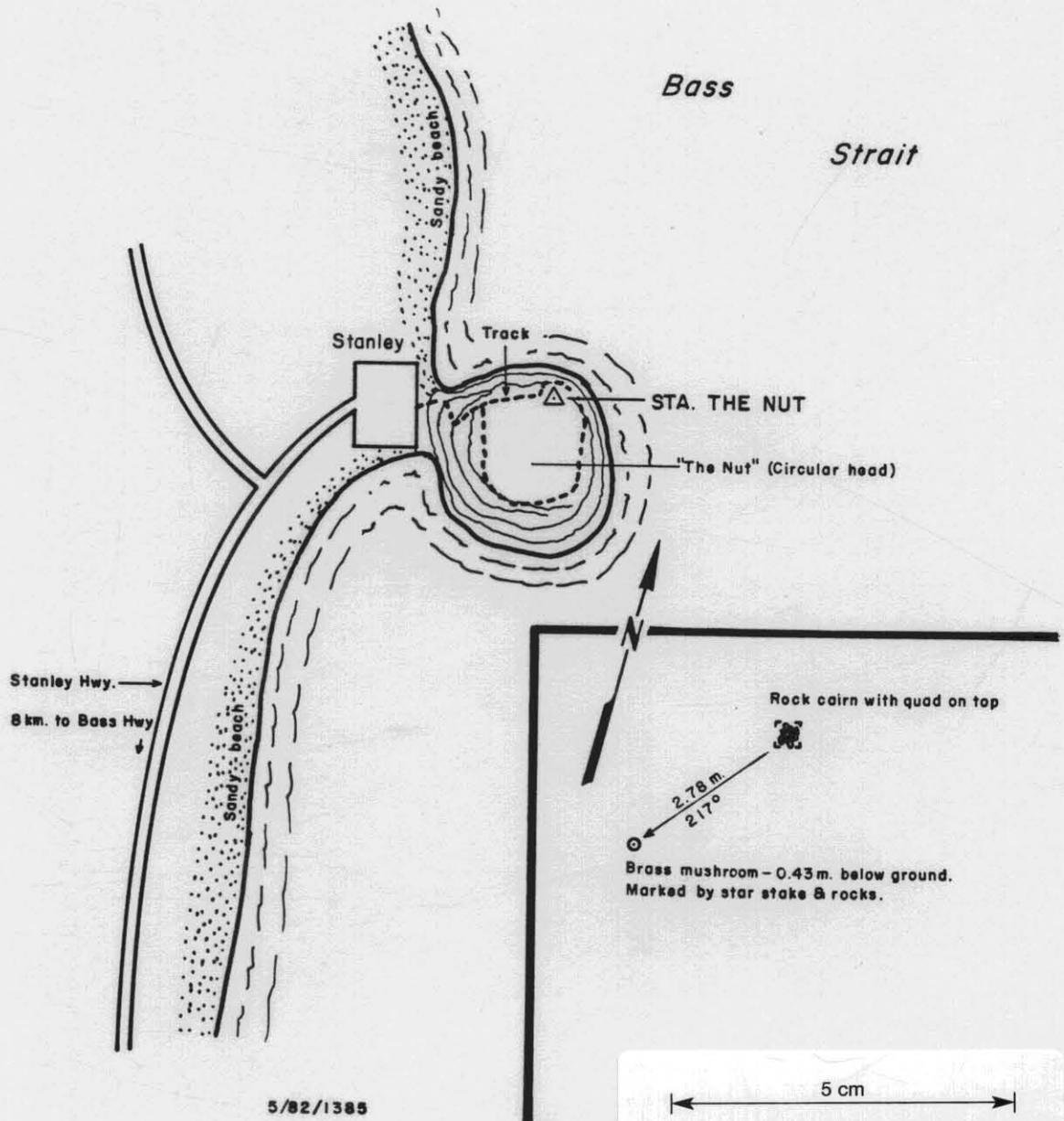
Lat.	40°45'50"23 S	N = 5,486,046 meters
Long.	145°18'13"45 E	E = 356,830 meters

STA. THE NUT (ST 674) — AUSTRALIA

LAT. 40°45'50".23 S
LONG. 145°18'13".45 E
ELEV. 143 meters

N 5,486,046 meters
E 356,830 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
ZONE 55 C.M. 147° E
AUSTRALIAN GEODETIC DATUM



5/82/1385

WELL PIPIPA No.1 — AUSTRALIA

LAT. 40°23'14" 11 S
LONG. 145°41'44" 91 E

N 5,528,428 meters
E 389,304 meters

UTM PROJECTION, AUST. NATIONAL SPHEROID
ZONE 55 C.M. 147° E
AUSTRALIAN GEODETIC DATUM

145°
+

146°
+

147°
+ 40°

WELL
PIPIPA No.1

Three Hummock Is.

Bass Strait

Robbins Is.

STA. THE NUT (ST 674)

STA. DOCTORS ROCKS (SPM 430)

Wynyard

Burnie

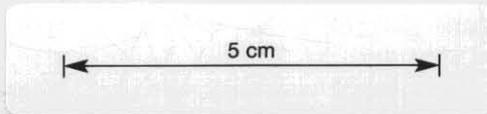
Devonport

STA. POINT SORELL (ST 517)

T A S M A N I A

5/82/1385

+ 42°



379041

APPENDIX A
DAILY OPERATIONS LOGS

MAXIRAN DAILY OPERATIONS LOG

379042

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
----------------	---------	-----------	--------------	-----------	----------------

BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE NUT							
DOCTORS ROCKS.							
PT. SORELL.							

OPERATING TIME

Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation For Client

LOST TIME

From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks

1500 - MOBILE OP AND LAST OF EQUIPMENT LEAVE WARRANBOOL BY HELICOPTER FOR RIG "SOUTHERN CROSS."
 1530 - ON RIG - BEGIN MOB. INSTALLATION.

Mobile Operator(s) K. J. MOLLOY,

Party Chief _____

Project Number P-1385 Date 20 APRIL 1982 Vessel RIG "SOUTHERN CROSS" Client Party Number RIG LOCATION
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT Stepback NA. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

372040

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
----------------	---------	-----------	--------------	-----------	----------------

BASE STATIONS							
Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type (s)
THE NUT							
DOCTORS ROCKS							
PT. SORELL.							

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation For Client

LOST TIME			
From	To	Hours Lost	Reason (s)

Brief Operations Log & Remarks

25 THRU 27 APRIL 1982.

SETTING UP MOB. INSTALLATION ON BOARD RIG.

WEATHER TOO ROUGH TO ERECT TOWER ON RIG. CANNOT TRANSFER TO M/V "SOUTHERN TIDE" TO MOBILISE BOAT FOR LAYING ANCHOR PATTERN.

WAITING ON WEATHER.

Mobile Operator(s) K. J. McILLOY. Party Chief _____

Project Number P-1385 Date 25-27 APRIL 1982 Vessel RIG "SOUTHERN CROSS." Client Party Number RIG LOCATION.
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379044

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
----------------	---------	-----------	--------------	-----------	----------------

BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE NUT							
DOCTORS ROCKS							
PT. SORELL							

OPERATING TIME

Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation For Client

LOST TIME

From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks 0001. CONTINUE INSTALLATION ON SOUTHERN CROSS.
1145 TRANSFER EQUIPMENT AND MOB. OP. TO m/v SOUTHERN TIDE. BEGIN INSTALLATION.
2400 WORKING ON INSTALLATION.

Mobile Operator(s) K. J. MCKLOY. Party Chief _____

Project Number P-1385 Date 28 APRIL 1982 Vessel RIG SOUTHERN CROSS/m/v SOUTHERN TIDE Client Party Number RIG LOCATION
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT. Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379045

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
----------------	---------	-----------	--------------	-----------	----------------

BASE STATIONS							
Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE NUT							
DOCTORS ROCKS							
PT. SORRELL							

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
O/T Requested By		Total System - Hours Operation For Client	

LOST TIME			
From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks

29-30 APRIL. WORK ON INSTALLATION OF GEAR ON M/V SOUTHERN TIDE.
M/V SOUTHERN TIDE WORKING ANCHORS FOR SHIFT TO NEW LOCATION.

1 MAY. 0630 RIG UNDER TOW TO NEW LOCATION "PIPIPA #1"

C. CHAN REPLACED J. CLARK ON STN. DOCTORS ROCKS.

Mobile Operator(s) K. J. MOLLOY.

Party Chief _____

Project Number P-1385 Date 29-30 APRIL, 1 MAY 1982 Vessel M/V SOUTHERN TIDE Client Party Number RIG LOCATION.
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT. Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379040

Mobile Station	NAVCOMP 3.5 KW.	INDICATOR 041	INTERROGATOR 041	AMPLIFIER 010	ANTENNA SYSTEM 'H' FRAME.
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BASE STATIONS							
Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE NUT	G. SMITH	4880	085	008	020	5	VERT. STACK
DOCTORS ROCKS	C. CHAN	4880	014	083	023	3	-
PT. SORELL	J. DEBLOOS.	4880	009	081	049	2	-

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
0001	2400	C. REESE	RIG LOCATION.
O/T Requested By		Total System - Hours Operation For Client	
		24 HRS.	

LOST TIME			
From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks 0001. M/V SOUTHERN TIDE UNDERWAY TO PIPPA #1, CHECKING SIGNALS.
 0230 SIGNAL FROM THE NUT - 71 KM.
 0530 " " DR'S ROCKS - 67 KM.
 0600 ON LOCATION PIPPA #1. WAITING ON SIGNAL FROM PT. SORELL.
 1300 NO SIG. PT SORELL, RUNNING TO SET BUOYS USING THE NUT AND DR'S ROCKS.
 1346 LOCATION BUOY LAID.
 1402 N° 1 " "
 1437 N° 8 " "
 1500 N° A " "
 1520 N° B " "
 1545 N° 5 " "
 1605 N° 4 " "
 1730 SOUTHERN CROSS ENTERED BUOY PATTERN.
 2400 SOUTHERN TIDE WORKING ANCHORS.

* PT. SORELL SIGNAL IMPROVED FROM AROUND 1730 ONWARDS, WAS BEING BLOCKED BY WEATHER.

mobile Operator(s) K. J. MOLLOY
 Party Chief _____

Project Number P-1385 Date 2 MAY 1982 Vessel M/V SOUTHERN TIDE Client Party Number RIG LOCATION.
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT. Stepback N.A. Shot Point Interval NA.

MAXIRAN DAILY OPERATIONS LOG

379047

Mobile Station	NAVCOMP 20 KW	INDICATOR 027	INTERROGATOR 038	AMPLIFIER 026	ANTENNA SYSTEM H. FRAME
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BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE NUT	G. SMITH	4889	085	008	020	5	VERT. STACK
DOCTORS ROCKS	C. CHAN	4889	014	083	023	3	-
PT. SORELL	J. DEBLOOS	4889	009	081	049	2	-

OPERATING TIME

Time On	Time Off	Requested By	System Used For
0001	2400	C. REESE	RIG LOCATION.
O/T Requested By		Total System - Hours Operation For Client	
		24 HRS.	

LOST TIME

From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks 0001. SETTING ANCHORS.

0230 MOB. OP. TO RIG - COMPLETE SETTING TOWER.

0712 PRELIM. FIX PT. SORELL 108.029, DR'S ROCKS 70.449, THE NUT 53.457.

1135 " " " " 108.027 " " 70.439 " " 53.451.

1240 " " " " 107.993 " " 70.412 " " 53.441

1355 " " " " 107.963 " " 70.385 " " 53.431

1440 " " " " 107.933 " " 70.380 " " 53.451

1512 " " " " 107.886 " " 70.354 " " 53.465

1545 " " " " 107.896 " " 70.356 " " 53.467

2400 TENSIONING ANCHORS FOR FINAL FIX.

Mobile Operator(s) K. J. MOLLAY

Party Chief

Project Number P-1385 Date 3 MAY 1982

Geophysical Company N.A.

Country AUSTRALIA Area/Prospect BASS STRAIT Stepback N.A.

Vessel RIG SOUTHERN CROSS.
M/V SOUTHERN TIDE
Oil Company ESSO

Client Party Number RIG LOCATION.
Radio Frequency 7640/4637.5
Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379048

Mobile Station	NAVCOMP 20 Kw.	INDICATOR 027	INTERROGATOR 038	AMPLIFIER 026	ANTENNA SYSTEM 'H' FRAME.
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BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE NUT.	G. SMITH	4889	085	008	020	5	VERT. STACK
DOCTORS ROCKS	C. CHAN.	4889	014	083	023	3	" "
PT. SORELL	J. DE BLOOS	4889	009	081	049	2	" "

OPERATING TIME

Time On	Time Off	Requested By	System Used For
COCI	2400	C. REESE	RIG LOCATION.
O/T Requested By		Total System - Hours Operation For Client	
		24 HRS.	

LOST TIME

From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks COCI TENSIONING ANCHORS FOR FINAL FIX.
COCI FINAL FIX. PT. SORELL 107.903, DR. ROCKS 70.365, THE NUT 53.467.
DRILL STEM BEARS 024° TRUE FROM ANTENNA AT DISTANCE 21 METERS.
ON BOARD CALCULATION: DRILL STEM OFF 14M ON BEARING 202° FROM DESIRED LOCATION.
1105 COMPUTED RESULTS FROM PERTH: X 389304, Y 5528516, LAT. 40° 23' 11.26 S
LONG. 145° 41' 44.96 E. DESIRED LOCATION TO DRILL STEM - 8 M BEARING 186°
32 M BUST IN 3 W.F. THESE FIGURES BASED ON PT. SORELL AND THE NUT.
2400. STANDING BY FOR 20" CASING TO BE SET.

Mobile Operator(s) K. J. MOLLOY Party Chief

Project Number P-1385 Date 4 MAY 1962 Vessel RIG "SOUTHERN CROSS" Client Party Number RIG LOCATION
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT. Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379049

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
	20KW	027	038	026	H FRAME.

BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)
THE HUT	G. SMITH	4889	055	008	020	5	VERT. STACK
DOCTORS ROCKS	C. CHAN	4889	014	083	023	3	" "
PT. SORELL	J. DEBLOOS	4889	009	081	049	2	" "

OPERATING TIME

Time On	Time Off	Requested By	System Used For
0001	1000	C. REESE	RIG LOCATION.
O/T Requested By		Total System - Hours Operation For Client	
		10 HRS.	

LOST TIME

From	To	Hours Lost	Reason(s)

rief Operations Log & Remarks 0001. STANDING BY FOR 20" CASING TO BE SET.
 0945 CHECK ON RIG POSITION AFTER CASING SET. NO CHANGE IN SW READINGS.
 1000 MAXIRAN NET SECURED. BEGIN DE-MOB. ON RIG.
 2400 DE-MOBILISE RIG EQUIP.

Mobile Operator(s) K. J. MOLLOY Party Chief _____

Project Number P-1385 Date 5 MAY 1982 Vessel RIG "SOUTHERN CROSS" Client Party Number RIG LOCATION.
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379050

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
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BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)

OPERATING TIME

Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation For Client

LOST TIME

From	To	Hours Lost	Reason(s)

rief Operations Log & Remarks COOL. DE-MOBILISE RIG EQUIP.
0830-1230. THREE HELICOPTER FLIGHTS MOVING RIG EQUIPMENT ASHORE.
2400 STANDING BY ON WEATHER TO MOVE M/V SOUTHERN CROSS ALONGSIDE TO
DE-MOBILISE BOAT.

Mobile Operator(s) K. J. MOLLOY. Party Chief

Project Number P-1385 Date 6 MAY 1982 Vessel RIG "SOUTHERN CROSS" Client Party Number RIG LOCATION
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379051

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
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BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)

OPERATING TIME

Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation For Client

LOST TIME

From	To	Hours Lost	Reason(s)

Brief Operations Log & Remarks

001. STANDING BY ON N/W SOUTHERN TIDE TO COME ALONGSIDE TO DE-MOBILISE.
 1330 PLUS OP. TO SOUTHERN TIDE TO DE-MOBILISE.
 1400 DE-MOBILISE SOUTHERN TIDE.

Mobile Operator(s) K. J. MOLLOY Party Chief _____

Project Number P-1385 Date 7 MAY 1982 Vessel RIG "SOUTHERN CROSS" Client Party Number RIG LOCATION.
 Geophysical Company N.A. Oil Company ESSO Radio Frequency 7640/4637.5
 Country AUSTRALIA Area/Prospect BASS STRAIT. Stepback N.A. Shot Point Interval N.A.

MAXIRAN DAILY OPERATIONS LOG

379052

Mobile Station	NAVCOMP	INDICATOR	INTERROGATOR	AMPLIFIER	ANTENNA SYSTEM
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BASE STATIONS

Station Name/No.	Operator	Mob. Delay	Beacon	Control Box	Amplifier	Code	Antenna Type(s)

OPERATING TIME

Time On	Time Off	Requested By	System Used For
D/T Requested By			Total System - Hours Operation For Client

LOST TIME

From	To	Hours Lost	Reason(s)

1. of Operations Log & Remarks COX. DEMOLISHED RIG SOUTHERN TIDE.
100 EQUIPMENT TRUCKS FROM SOUTHERN TIDE TO SOUTHERN CROSS.
145 ALL EQUIPMENT AND LOGS OF ASHORE AT WYBYARD.

Mobile Operator(s) K. J. HOLLDT Party Chief _____

Project Number P-1385 Date 8.23.92 Vessel RIG "SOUTHERN CROSS" Client Party Number RIG LOCATION.
 Geophysical Company V. A. Oil Company ESSO Radio Frequency 7640/4657.5
 Country AUSTRALIA Area/Prospect BASS STRAIT. Stepback N.A. Shot Point Interval N.A.

APPENDIX B
THE MAXIRAN RADIOPOSITIONING SYSTEM

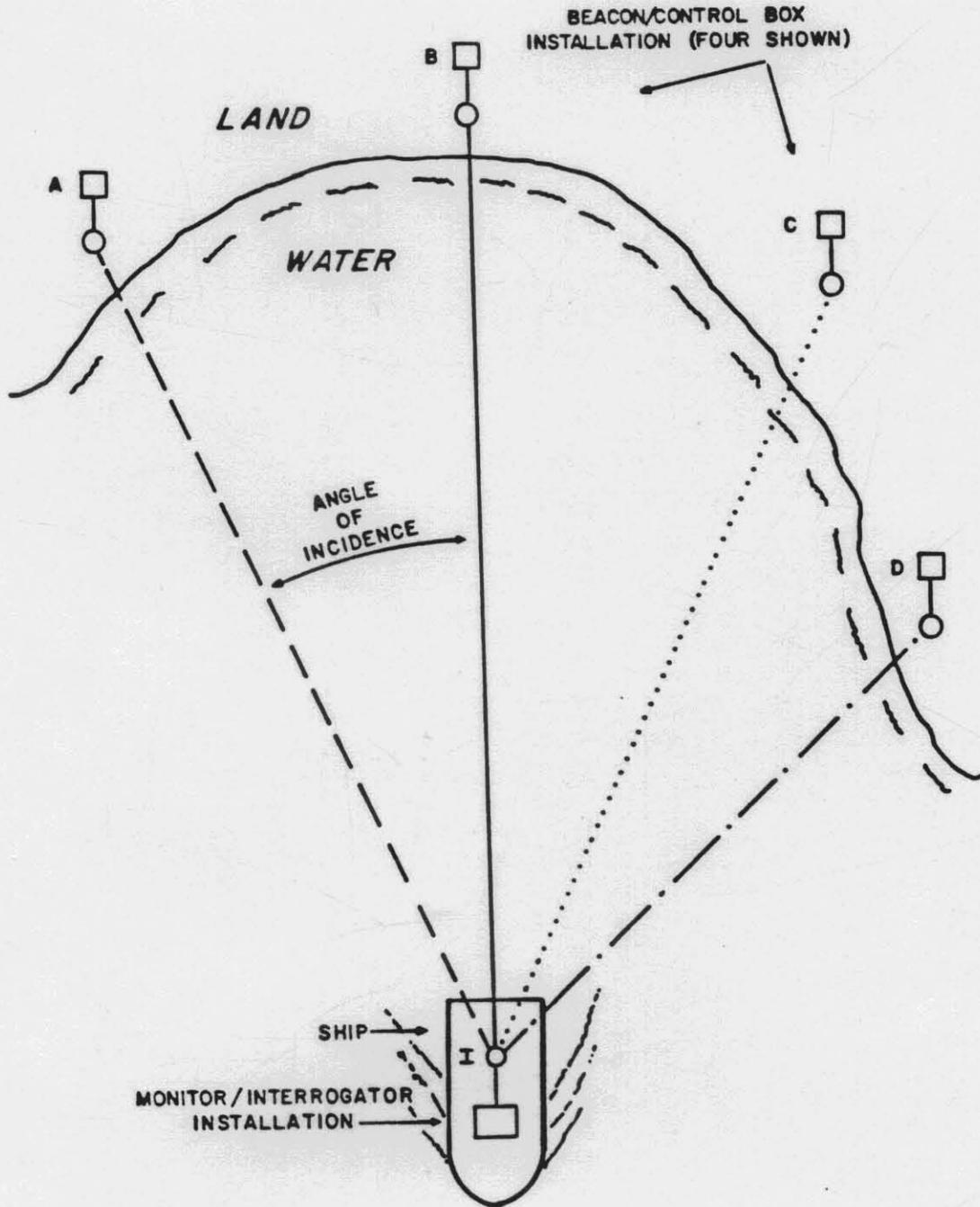
I. THE MAXIRAN RADIOPOSITIONING SYSTEM

The Maxiran Radiopositioning System is a precision electronic ranging system, capable of both manual and automatic tracking of range. It is especially useful for measuring distances across bodies of water.

The use of the Maxiran requires three or more electronic installations. For the purposes of this discussion, one of these installations is assumed to be aboard a ship (see Figure 1). This installation consists of the Maxiran Monitor and Interrogator. The other installations are located onshore. Each of these installations consist of a Maxiran Beacon and a Control Box. There are two or more of the Beacon Control Box installations situated at appropriate locations onshore.

In operation, the Monitor/Interrogator installation transmits a radio signal (containing a Beacon-Select code which addresses a selected Beacon) which is picked up by all of the Beacon/Control Box installations. Each Beacon decodes the received signal and decides whether the Beacon-Select code transmitted corresponds to that Beacon. If the Beacon-Select code is correct for a

FIGURE-1. TYPICAL MAXIRAN SYSTEM



I. THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

Beacon, it responds by transmitting a radio signal reply. The Monitor measures the amount of time elapsed between the Interrogator's transmission and the received reply sent by the Beacon. Since, for all practical purposes, radio signals travel at a known speed, the time elapsed between transmission and response is a measure of the distance the radio signal travelled. The elapsed time is converted by the Monitor into distance and then displayed. Knowing the location of the land stations and the current distance from the ship to each of them, the position of the ship can be readily calculated.

For the purposes of this discussion, let us first assume that only two Beacons are being utilized. They are the Beacons marked "A" and "B" in Figure 1. Since the distance from Beacon "A" to the Interrogator (call it distance A_1), and the distance from Beacon "B" to the Interrogator (call it distance B_1) are now known (these distances are the distances displayed on the Monitor front panel), we can use some geometry to calculate the position of the ship with reference to Beacons "A" and "B".

I. THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

As illustrated in Figure 2, the distances of A1 and B1 define two intersecting circles, one with a radius of length A1 centered about Beacon "A", the other with radius of length B1 centered about Beacon "B". The two circles intersect at two points (marked I and I' in Figure 2). Obviously, the ship can only be located at one of the points. Since point I' happens to be located on land, we can safely assume that the ship is located at Point I.

There is always some uncertainty associated with the exact measurements of the Beacons. This is illustrated in Figure 3. Figure 3 illustrates an enlarged view of the intersection of the circles shown in Figure 2. If the tolerance of the measurements of Beacon "B" is plus-or-minus 5 meters, then the two solid lines in Figure 3 are 10 meters apart. The tolerance of the measurements of Beacon "A" should be the same as that of Beacon "B", but this is not always the case due to differences in geographical location. Under the above conditions, we only know that the ship is located somewhere in the shaded area of Figure 3.

FIGURE-2. SYSTEM WITH TWO BEACONS

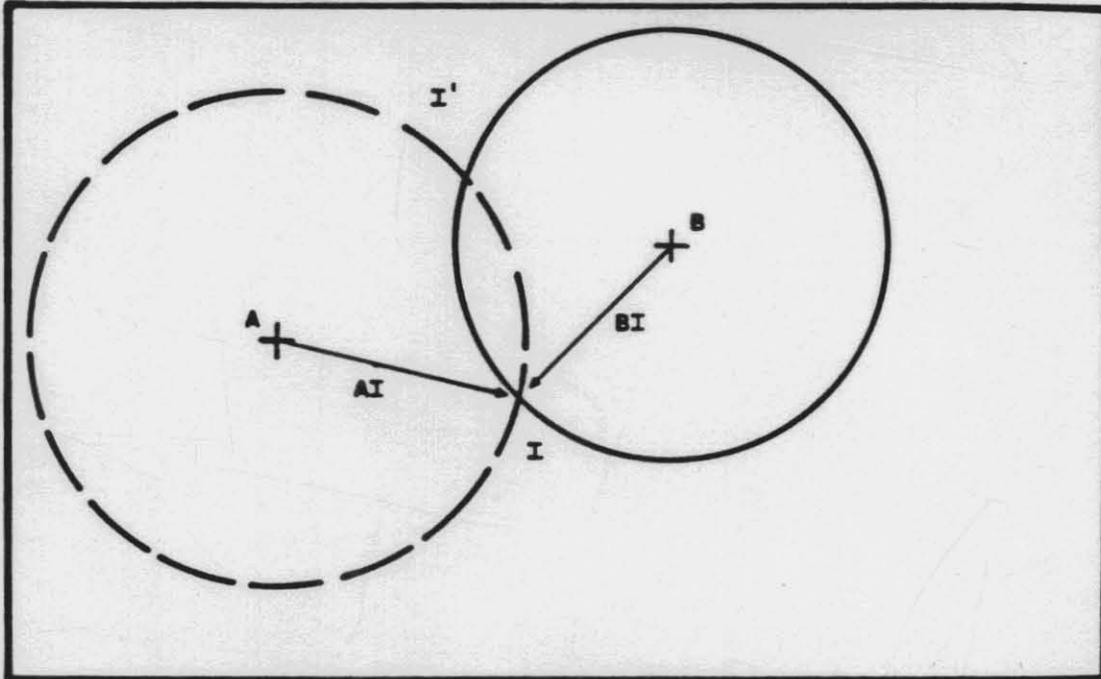
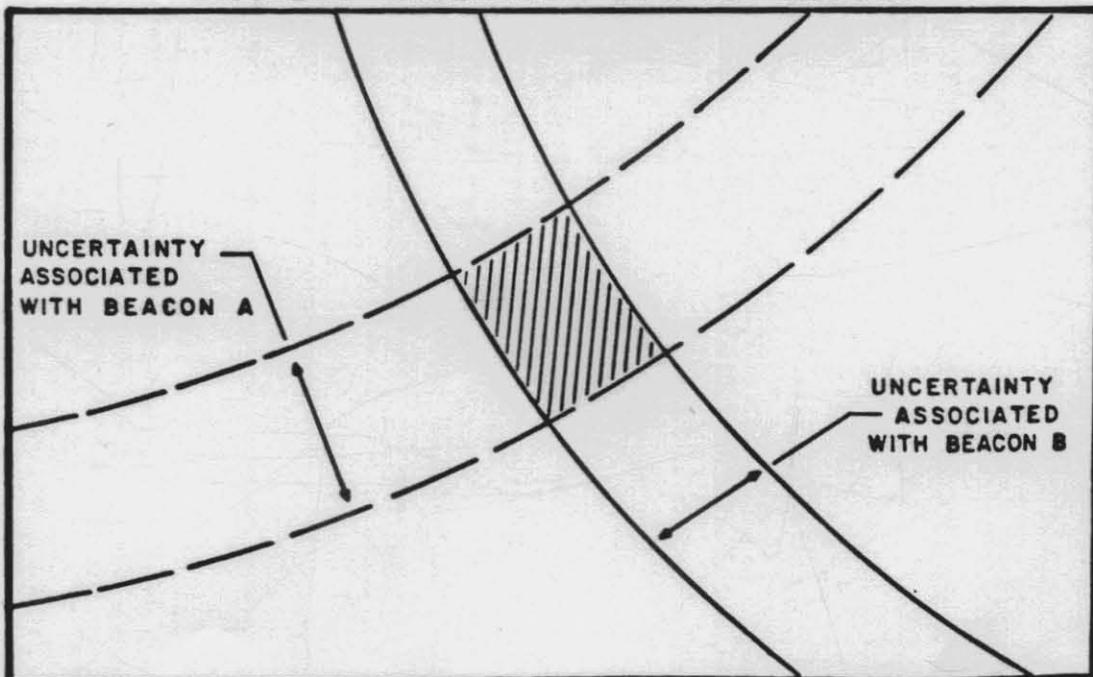


FIGURE-3. UNCERTAINTY WITH TWO BEACONS



I. THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

For the purposes of the following discussion, it is assumed that there are now three Beacons utilized. Now three circles are defined, instead of the two from the discussion above. The third distance, from Beacon "C" to the Interrogator (call it distance C_1), defines a circle of radius length C_1 centered about Beacon "C". The new situation is illustrated in Figure 4. Notice that with the three circles, there is only one location where all three circles can intersect. This eliminates the ambiguity associated with using only two Beacons. Now there is no I' to worry about. An additional advantage of using three Beacons is illustrated in Figure 5. Now the area of uncertainty has been reduced even though the tolerance of Beacon "C"'s measurement isn't any better than that of the other Beacons.

As the ship moves along, one or more of the Beacons may become unusable for various reasons; out of range, too small or too great an operating angle, etc. If additional Beacons are situated on shore, they may be interrogated, as desired, to greatly expand the range and usability of the system.

FIGURE-4. SYSTEM WITH THREE BEACONS

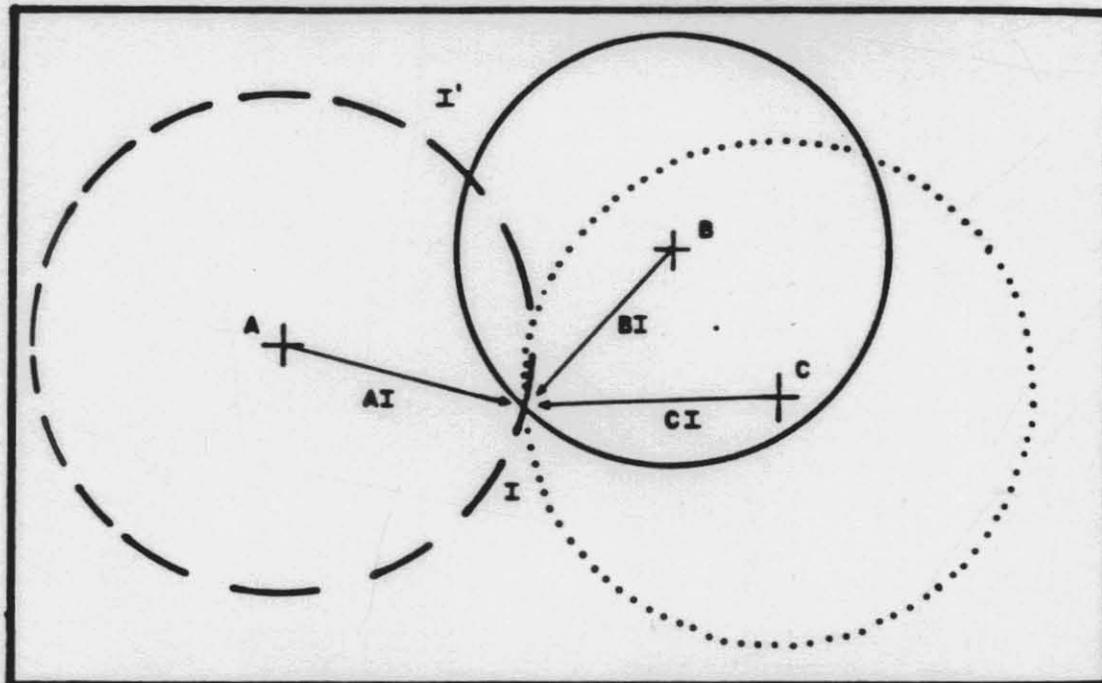
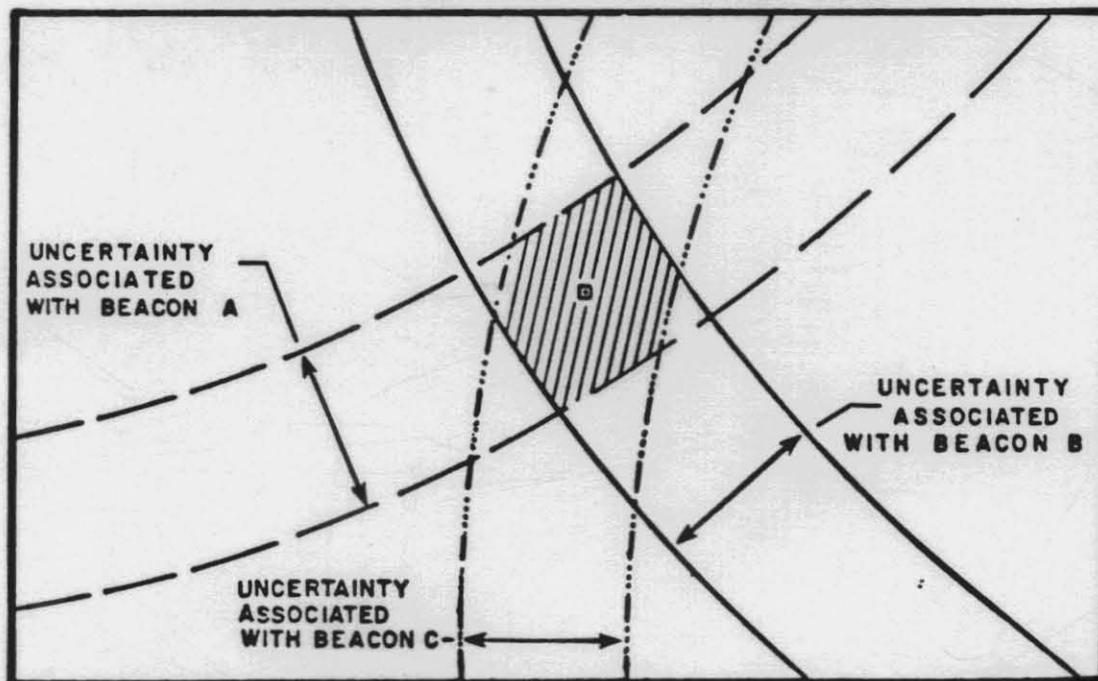


FIGURE-5. UNCERTAINTY WITH THREE BEACONS



I. THE MAXIRAN RADIOPOSITIONING SYSTEM (continued)

As many as three different Beacons may be selected at one time by the proper setting of the Monitor's Beacon-Select switches.