



FINAL REPORT

OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.

PROJECT 1419

WELL LOCATION HELIOS-1 W.C.R.

OCTOBER - NOVEMBER, 1982

**ATTACHMENT TO WCR  
HELIOS-1  
(W787)**

W787

FINAL REPORT  
OFFSHORE NAVIGATION (AUSTRALIA) PTY. LTD.  
PROJECT 1419

FOR

PHILLIPS AUSTRALIAN OIL COMPANY

VICTORIA, AUSTRALIA  
OCTOBER - NOVEMBER 1982

WELL LOCATION HELIOS #1

**ONA**



OFFSHORE NAVIGATION,  
(AUSTRALIA) PTY. LTD.

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WELL LOCATION HELIOS #1

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OFFSHORE NAVIGATION  
(AUSTRALIA) PTY. LTD.

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## I. INTRODUCTION

Offshore Navigation (Australia) Pty. Ltd.(ONA), under contract to Phillips Australian Oil Company (PHILLIPS), employed a Maxiran Radiopositioning System to position the Drilling Vessel (D/V) DIAMOND M EPOCH on a location that was designated by PHILLIPS as:

### WELL LOCATION HELIOS #1

The survey was conducted in Bass Strait, off the coast of Victoria, Australia. The well was located approximately 94 kilometers, at a bearing of 311°, from Station Seacombe.

The ONA base of operation was established at Bairnsdale, Victoria on 10 October 1982.

## II. FIELD OPERATIONS RECAP

ONA personnel travelled to Melbourne on 9 October 1982. Personnel departed Melbourne on 10 October and travelled to Welshpool, where the Maxiran system was picked up. Personnel and the Maxiran system then proceeded to Bairnsdale, arriving at 1800 hours 10 October 1982.

The Maxiran system was calibrated on 11 October 1982 at Station Emerald (Offset). See "Maxiran Calibration" of this report for details.

On completion of the Maxiran calibration, the Maxiran base station equipment was transported to the three sites occupied to control the survey. The equipment and personnel were transported to Station Nightout by helicopter on 12 October 1982, and to Station Cape Conran by Landrover that same date. Station Seacombe was erected on 13 October 1982, at which time all three stations were operational.

## II. FIELD OPERATIONS RECAP (continued)

The ONA mobile operator and mobile equipment travelled to Melbourne on 12 October 1982. The operator and equipment was transported to the Drilling Vessel (D/V) DIAMOND M EPOCH on 15 October, arriving on board the rig at 1145 hours that date. Installation of the Maxiran mobile equipment on board the D/V DIAMOND M EPOCH was completed on 17 October 1982.

Towing of the D/V DIAMOND M EPOCH to Well Location HELIOS #1 began at 0035 hours 19 October. Maxiran signals were received at 1600 hours 21 October. The D/V DIAMOND M EPOCH arrived in the location area, and Maxiran operations began at 0700 hours 23 October. Some difficulty was experienced in positioning the rig on location due to tidal currents. The D/V DIAMOND M EPOCH was on location, and began setting anchors at 0555 hours 24 October. The anchors were secured, and drilling operations began at 1915 hours 28 October 1982.

## II. FIELD OPERATIONS RECAP (continued)

Difficulties were experienced with the hold, and drilling operations were suspended at 0800 hours 30 October 1982, while the D/V DIAMOND M EPOCH was moved off the hole. Drilling operations resumed at 1400 hours with the rig at a new position. The casing was cemented in at 0730 hours 1 November 1982, and the final Maxiran position was recorded. See Appendix A of this report for details of operations.

Dismantling of the Maxiran system began on 1 November 1982 and was completed on 2 November. The Maxiran system was packaged and shipped to the ONA office in Perth by surface freight on 2 November, and arrived at the ONA Perth, W.A. office at 1600 hours 5 November 1982.

All ONA personnel were released from this survey on 3 November 1982.



### III. GENERAL INFORMATION

A. Maxiran frequencies used were:

Mobile Transmitter	441 MHz
Base Transmitter	429 MHz

B. Satisfactory radiotelephone communications were maintained between the Maxiran stations on the frequencies of 4637.5 and 7840.0 (SSB) kilocycles.

C. The Maxiran field data was turned over to Mr. J. Goodin, the PHILLIPS representative, on 1 November 1982. The final Maxiran position of the drill stem was computed by the ONA office in Perth.

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

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

STATION CAPE CONRAN

STATION NIGHTOUT

STATION SEACOMBE

III. GENERAL INFORMATION (continued)

- F. The maximum range observed by the Maxiran system during this survey was 265 kilometers.
- G. The Maxiran mobile equipment was checked daily for proper delay setting. The delay setting was determined by a Maxiran Calibration conducted on 11 October 1982.

#### IV. MAXIRAN CALIBRATION

The Maxiran system was calibrated on 11 October 1982, prior to the commencement of the Well Location HELIOS #1 survey. For this calibration, the Maxiran system was transported to Station Emerald (Offset), and the equipment installed at two markers at this site. The Maxiran mobile equipment was installed at the Station Emerald (Offset) marker, and the Maxiran base station equipment was installed at the calibration marker. The computed slope range of 1102.00 meters between the two markers, used to calibrate the system, were derived from a survey conducted by M.A. Nicholas and Associates.

The following pages consist of the field report of this calibration.

# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	032 <small>CODE 3</small>
INTERROGATOR	NTM-01	009	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS R4-4/R4-58	76' 33'		ANDREWS R4-4/R4-58	76' 44'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.L.s	10'
INPUT VOLTAGE		117V AC	INPUT VOLTAGE		117V AC
TX. FREQUENCY		441 MHz	TX. FREQUENCY		429 MHz
RX. FREQUENCY		429 MHz	RX. FREQUENCY		441 MHz
RX. GAIN SETTING		A.G.C.	RX. GAIN SETTING		A.G.C.
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.111 ..... KM

COMPUTED SLANT RANGE: ..... 1.102 ..... KM

MOBILE ZERO SETTING IS: ..... 5.009 ..... KM

OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM      TIME: 0926

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.

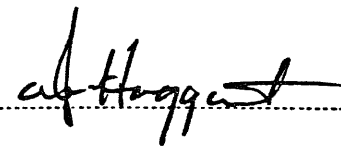
9

## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	067 CODE 3
INTERROGATOR	NTM-01	009	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8 / RG-58	76' 33'		ANDREWS RG-8 / RG-58	76' 46'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.L.s	10'
INPUT VOLTAGE	117V AC		INPUT VOLTAGE	117V AC	
TX. FREQUENCY	441 MHZ		TX. FREQUENCY	429 MHZ	
RX. FREQUENCY	429 MHZ		RX. FREQUENCY	441 MHZ	
RX. GAIN SETTING	AGC		RX. GAIN SETTING	AGC	
WEATHER CONDITIONS	FINE & WARM		WEATHER CONDITIONS	FINE & WARM	

OBSERVED RANGE IN CALIBRATE: ..... 6.111 ..... KM  
COMPUTED SLANT RANGE: ..... 1.102 ..... KM  
∴ MOBILE ZERO SETTING IS: ..... 5.009 ..... KM  
OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM      TIME: 0936

SIGNED: 

### NOTES REGARDING CALIBRATION PROCEDURES:

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# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

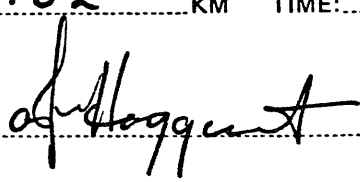
MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	010 CODE 1
INTERROGATOR	NTM-01	009	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8/RG-58	74' 33'		ANDREWS RG-8/RG-58	74' 44'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.L.s	10'
INPUT VOLTAGE		117V AC	INPUT VOLTAGE		117V AC
TX. FREQUENCY		441 MHZ	TX. FREQUENCY		429 MHZ
RX. FREQUENCY		429 MHZ	RX. FREQUENCY		441 MHZ
RX. GAIN SETTING		AGC	RX. GAIN SETTING		AGC
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.108 ..... KM

COMPUTED SLANT RANGE: ..... 1.102 ..... KM

MOBILE ZERO SETTING IS: ..... 5.006 ..... KM

OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM    TIME: 0946

SIGNED: .....  .....

**NOTES REGARDING CALIBRATION PROCEDURES:**

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# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	006 <small>CODE 1</small>
INTERROGATOR	NTM-01	009	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8/RG-58	74' 33'		ANDREWS RG-8/RG-58	74' 46'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.Ls	10'
INPUT VOLTAGE		117V AC	INPUT VOLTAGE		117V AC
TX. FREQUENCY		441 MHZ	TX. FREQUENCY		429 MHZ
RX. FREQUENCY		429 MHZ	RX. FREQUENCY		441 MHZ
RX. GAIN SETTING		AGC	RX. GAIN SETTING		AGC
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.111 ..... KM

COMPUTED SLANT RANGE: ..... 1.102 ..... KM

∴ MOBILE ZERO SETTING IS: ..... 5.009 ..... KM

OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM      TIME: 0956

SIGNED: *A. Hoggart*

**NOTES REGARDING CALIBRATION PROCEDURES:**

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# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	036 CODE 5
INTERROGATOR	NTM-01	009	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8/RG-58	70' 38'		ANDREWS RG-8/RG-58	70' 44'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.Ls	10'
INPUT VOLTAGE		117 V AC	INPUT VOLTAGE		117 V AC
TX. FREQUENCY		441 MHz	TX. FREQUENCY		429 MHz
RX. FREQUENCY		429 MHz	RX. FREQUENCY		441 MHz
RX. GAIN SETTING		AGC	RX. GAIN SETTING		AGC
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.111 ..... KM

COMPUTED SLANT RANGE: ..... 1.102 ..... KM

MOBILE ZERO SETTING IS: ..... 5.009 ..... KM

OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM    TIME: 1006

SIGNED:

**NOTES REGARDING CALIBRATION PROCEDURES:**

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# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARIL		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	064 CODE 5
INTERROGATOR	NTM-01	009	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8/RG-58	70' 33'		ANDREWS RG-8/RG-58	70' 44'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.Ls	10'
INPUT VOLTAGE		117 V AC	INPUT VOLTAGE		117 V AC
TX. FREQUENCY		441 MHz	TX. FREQUENCY		429 MHz
RX. FREQUENCY		429 MHz	RX. FREQUENCY		441 MHz
RX. GAIN SETTING		AGC	RX. GAIN SETTING		AGC
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.111 ..... KM  
 COMPUTED SLANT RANGE: ..... 1.102 ..... KM  
 MOBILE ZERO SETTING IS: ..... 5.009 ..... KM  
 OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM TIME: 1016

SIGNED: *A. Hoggart*

### NOTES REGARDING CALIBRATION PROCEDURES:

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# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	064 CODE 5
INTERROGATOR	NTM-01	050	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8/RG-58	76' 33'		ANDREWS RG-8/RG-58	76' 44'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	WHIP	10'		VERTICAL L.P.L.s	10'
INPUT VOLTAGE		117V AC	INPUT VOLTAGE		117V AC
TX. FREQUENCY		441 MHZ	TX. FREQUENCY		429 MHZ
RX. FREQUENCY		429 MHZ	RX. FREQUENCY		441 MHZ
RX. GAIN SETTING		AGC	RX. GAIN SETTING		AGC
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.108 ..... KM  
 COMPUTED SLANT RANGE: ..... 1.102 ..... KM  
 MOBILE ZERO SETTING IS: ..... 5.006 ..... KM  
 OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM TIME: 1026

SIGNED: 

### NOTES REGARDING CALIBRATION PROCEDURES:

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# OFFSHORE NAVIGATION, INC.

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## MAXIRAN CALIBRATION REPORT

DATE: OCT 11<sup>TH</sup> 1982

MOBILE STATION			BASE STATION		
LOCATION: EMERALD OFFSET			LOCATION: CALIBRATION MARK		
OPERATOR: A. HOGGART			OPERATOR: H. BRIDGES		
UNIT	MODEL	SERIAL No.	UNIT	MODEL	SERIAL No.
MONITOR	NMM-01B	041	BEACON	NTL-01	064 <small>CODE 5</small>
INTERROGATOR	NTM-01	050	CONTROL BOX	NCL-02	077
AMPLIFIER	NTU-02	073	AMPLIFIER	NTU-02	032
AMPLIFIER P/S	NCU-01	037	AMPLIFIER P/S	NCU-01	011
PREAMP	SAU-12	056	PREAMP	SAU-12	096
COAX	TYPE	LENGTH	COAX	TYPE	LENGTH
	ANDREWS RG-8/RG-58	76' 41'		ANDREWS RG-8/RG-58	76' 44'
ANTENNA	TYPE	HEIGHT	ANTENNA	TYPE	HEIGHT
	QUAD L.P.L.s	10'		VERTICAL L.P.L.s	10'
INPUT VOLTAGE		117V AC	INPUT VOLTAGE		117V AC
TX. FREQUENCY		441 MHZ	TX. FREQUENCY		429 MHZ
RX. FREQUENCY		429 MHZ	RX. FREQUENCY		441 MHZ
RX. GAIN SETTING		AGC	RX. GAIN SETTING		A.G.C.
WEATHER CONDITIONS		FINE & WARM	WEATHER CONDITIONS		FINE & WARM

OBSERVED RANGE IN CALIBRATE: ..... 6.113 ..... KM

COMPUTED SLANT RANGE: ..... 1.102 ..... KM

MOBILE ZERO SETTING IS: ..... 5.011 ..... KM

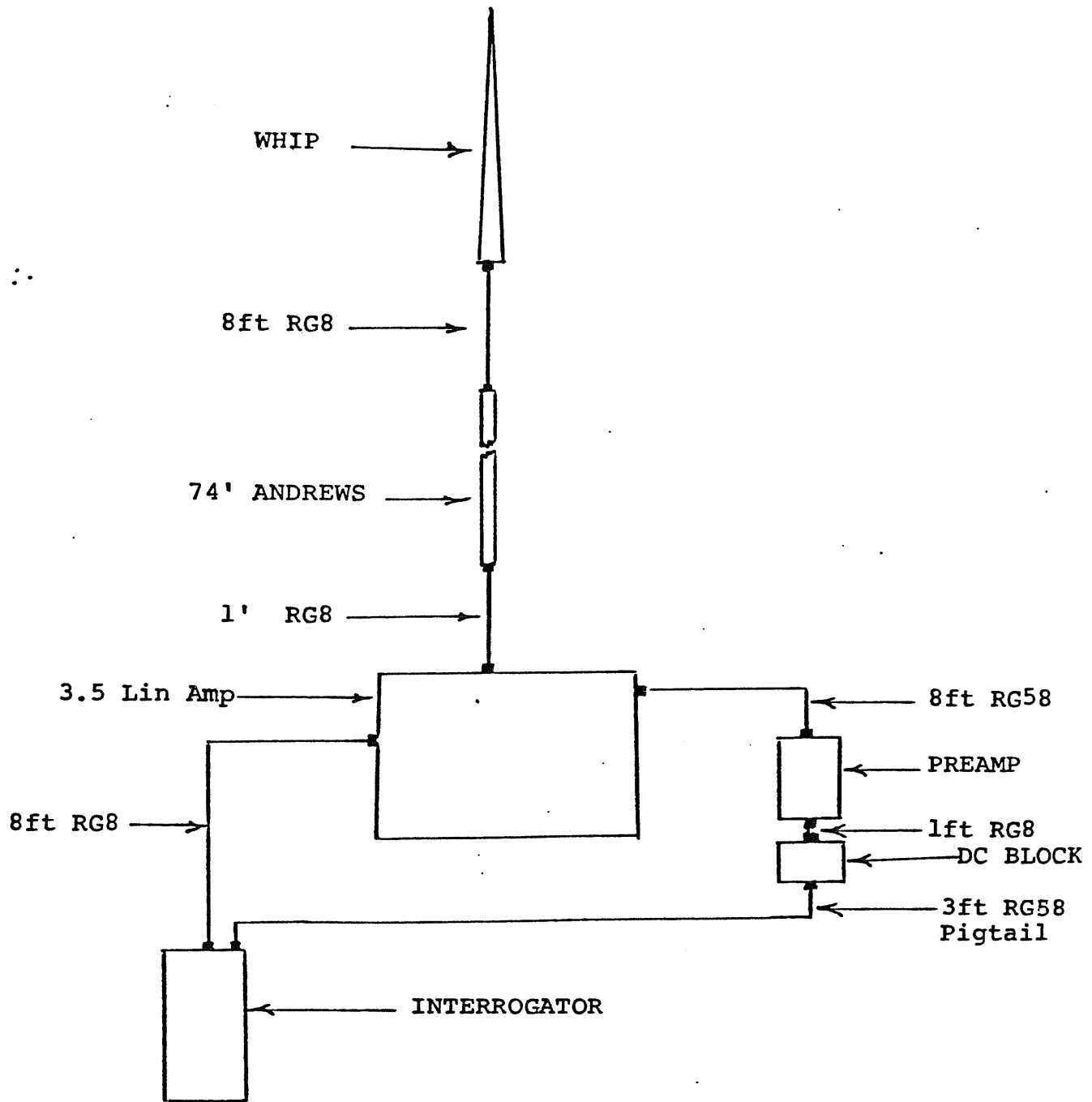
OBSERVED RANGE IN OPERATE: ..... 1.102 ..... KM    TIME: 1036

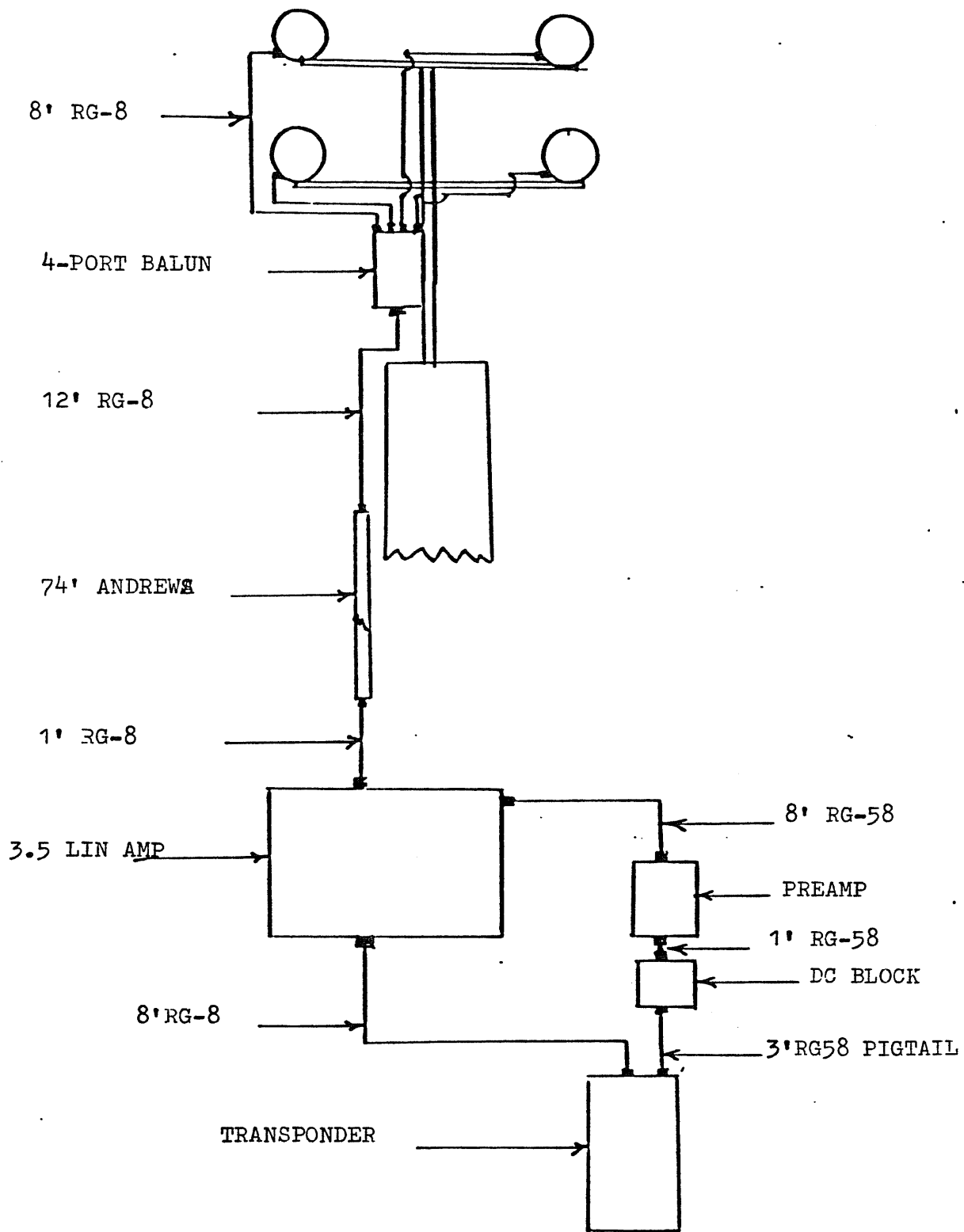
SIGNED: *A. Hoggart*

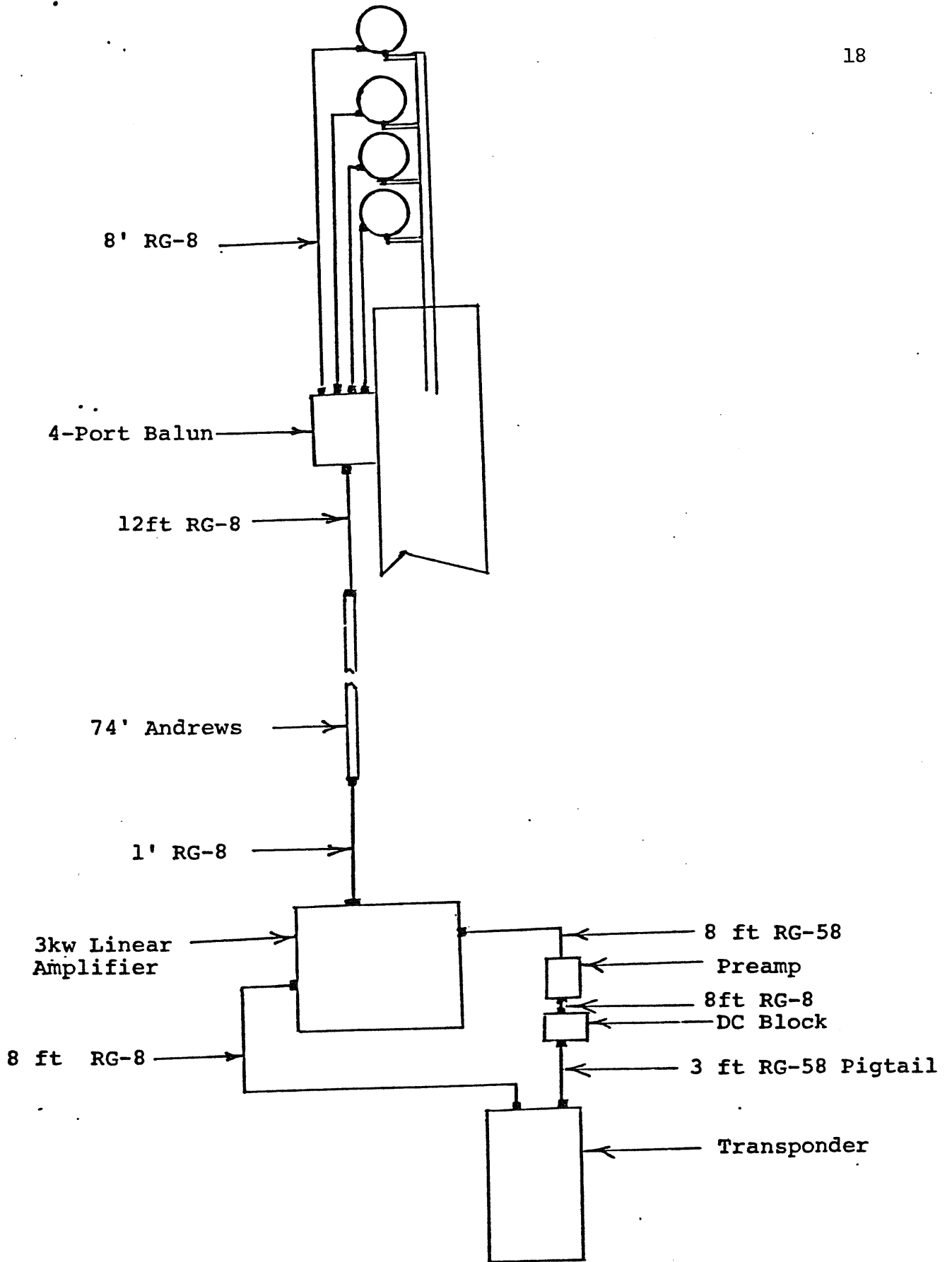
**NOTES REGARDING CALIBRATION PROCEDURES:**

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MOBILE STATION CONFIGURATION







V. WELL LOCATION INFORMATION

The following information pertains to the positioning of the D/V DIAMOND M EPOCH on Well Location HELIOS #1.

Coordinates of the desired location were obtained from PHILLIPS as:

Latitude	38°41'39"98 S	N = 5,716,343 meters
Longitude	148°16'34"78 E	E = 610,996 meters

The D/V DIAMOND M EPOCH was secured on location, and the following final Maxiran ranges were recorded at 0730 hours 1 November 1982, with the Maxiran mobile equipment installed on board the rig:

Sta. Cape Conran to mobile antenna	106.148 kilometers
Sta. Nightout to mobile antenna	159.486 kilometers
Sta. Seacombe to mobile antenna	94.371 kilometers

At the time these final Maxiran ranges were recorded, the drill stem was 37 meters, at a bearing of 094° True, from the Maxiran mobile antenna.

V. WELL LOCATION INFORMATION (continued)

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

Latitude 38°41'40".45 S N = 5,716,329 meters  
Longitude 148°16'34".06 E E = 610,978 meters  
Least square adjusted tie = 0.2 meter  
From desired to final position = 22.6 meters @ 230.547°

The final coordinates of the drill stem were derived by applying a propagation factor of .999931, and the reported offset and bearing, to the final Maxiran ranges recorded.

Coordinates of the 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

Coordinates of the three Maxiran base stations, occupied to control this survey, were obtained from the ONA Basic Control files. Coordinates of Station Emerald (Offset), occupied to calibrate the Maxiran system, was obtained from a M.A. Nicholas and Associates survey.

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

### STATION CAPE CONRAN:

Latitude	37°48'28".42 S	N = 5,814,075 meters
Longitude	148°43'46".98 E	E = 652,266 meters
Elevation	43 meters	

### STATION NIGHTOUT:

Latitude	38°54'29".93 S	N = 5,693,244 meters
Longitude	146°27'37".03 E	E = 453,205 meters
Elevation	229 meters	

### STATION SEACOMBE:

Latitude	38°07'59".47 S	N = 5,779,291 meters
Longitude	147°27'51".55 E	E = 540,692 meters
Elevation	28 meters	

VI. BASIC CONTROLSTATION EMERALD (OFFSET):

Latitude	37°48'48"60 S	N = 5,814,632 meters
Longitude	147°42'00"03 E	E = 561,615 meters
Elevation	70 meters	

VII. PERSONNEL

NAME	POSITION
Bridges, H.	Party Chief
Hoggart, A.	Mobile Operator
Smith, G.	Base Operator
Walsh, S.	Base Operator
Wells, G.	Base Operator

VIII. DISTRIBUTION

Phillips Australian Oil Company  
 23rd Floor, City Centre Tower  
 48 St. Georges Terrace  
 Perth, W.A. 6000  
 AUSTRALIA

Four copies

Offshore Navigation, Inc.  
 Post Office Box 23504  
 Harahan, Louisiana 70183  
 U.S.A.

Two copies

Offshore Navigation (Australia) Pty. Ltd.  
 Post Office Box 291  
 Cloverdale, W.A. 6105  
 AUSTRALIA

One copy

**STATION:** CAPE CONRAN

**LOCATED:** Station Cape Conran is located on the southeastern corner of Gippsland, Victoria, Australia, approximately 34 kilometers southeast of Orbost.

The station site is located at the highest lookout in the area. The terrain is fairly flat, and covered with small 1-foot high bush. The open sea is approximately one-half mile from the station.

**ACCESS:** From Orbost, follow the road through Marlo, a small built up area, to Cape Conran, a distance of approximately 5 miles from Marlo. After passing Marlo, you will come to a fork in the road. Turn right at this fork, and drive on a gravel road for approximately one-half mile to a boat ramp and lighthouse. Before reaching the boat ramp or lighthouse, a sand track will be seen on the left. Turn left onto this sand track to a round about. You will notice two galvanized pipes inside the round about. This identifies the station site. This track to the station is a small narrow sand track, and has been used as a stopping place for tourists due to it being the highest lookout in the area.

**MARKER:** The station marker consists of a brass plate at ground level. The two galvanized pipes, which protrudes 2 feet above ground level, are on either side of the marker. The brass plate is inscribed "GEODETIC SURVEY VICTORIA - TRIANGULATION STATION".

**GENERAL:** Food, fuel and water can be obtained in Orbost, Bairnsdale, Orbost, or Marlo. If camping equipment needs to be purchased, it is best to make this purchase in Bairnsdale.

This station site can become very cold during the winter months.

STATION: CAPE CONRAN (continued)

A 30-foot tower was erected at this station, the minimum height required to clear surrounding obstructions. Clear vista is from 180° to 270°. Star stakes were used to secure the tower.

The station site is located on Crown land. Permission to occupy the site must be obtained from Crown Land and Survey Department, Bairnsdale, Mr. Jim Bennett, telephone 051-523975

ELEVATION: 43 meters

SKETCH: See next page.

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

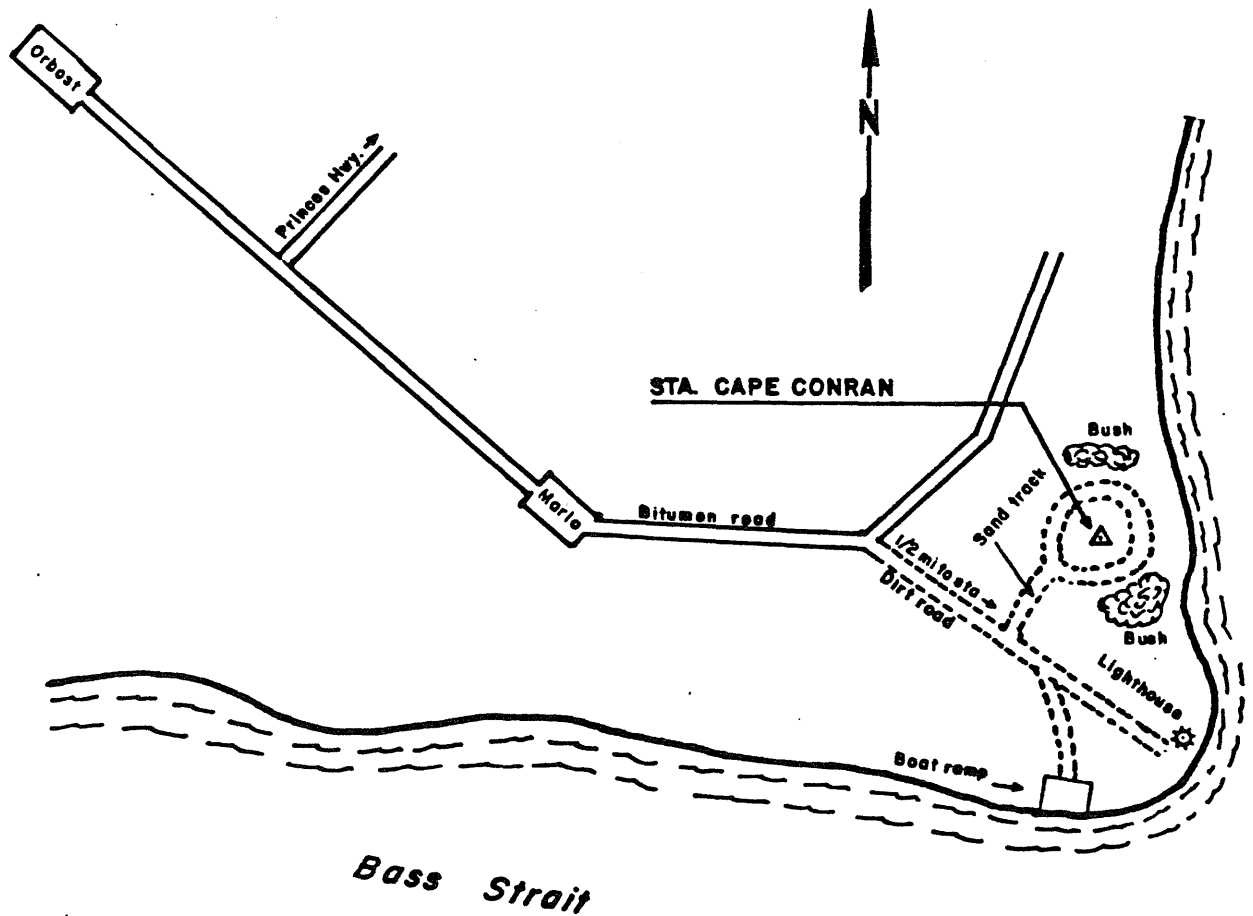
Lat. 37°48'28".42 S      N = 5,814,075 meters  
Long. 148°43'46".98 E      E = 652,266 meters

# STA. CAPE CONRAN — AUSTRALIA

LAT. 37°48'28".42 S  
LONG. 148°43'46".98 E  
ELEV. 43 meters

N 5,814,075 meters  
E 652,266 meters

UTM PROJ. — AUST. NAT. SPHEROID  
ZONE 55, C.M. 147° E — A.G.D.



11/82/1419

OFFSHORE NAVIGATION  
(AUSTRALIA) PTY. LTD.

STATION: NIGHTOUT

LOCATED: Station Nightout is located in the northeast corner of Wilsons Promontory, Victoria, Australia.

The station site is located on the summit of a hill. The marker is surrounded by a few small rocks and 18-inch high scrub. The hill slopes away on all sides. There are hills of less elevation to the south, east, and northeast of the station. The Verever Ranges are about 5 kilometers away, and Mount Roundback is about 1.5 kilometers north-northwest of the station. Sealers Cove is about 11 kilometers from the station, at a bearing of 175° to 180°.

ACCESS: Access to this station is by helicopter only. All vehicular traffic is prohibited in this area. The helicopter transported personnel and equipment from Welshpool to the site. The area at the station site is fairly flat with a slight slope to the west and is quite suitable for helicopter landing.

MARKER: The station marker consists of a brass Department of Lands and Surveys Triangulation marker, set in a 6-inch square block of concrete that is flush with the ground. Two 1-1/2-inch galvanized iron pipes, standing 24 inches high, are set on either side of the marker. The pipes are painted blue and orange. See Sketch for references to this marker.

Food, fuel, water, and food is available in Welshpool.

A 35-foot tower was erected at this site. A minimum tower height of 10 feet would be required to clear surrounding obstructions. Clear vista is from 030° to 165°. Star stakes were used to secure the tower.

STATION: NIGHTOUT (continued)

The station site is on land that is owned by the National Parks, Victoria. Permission to occupy the station must be obtained from the Director of National Parks, Mr. Don Saunders, 240-250 Victoria Parade, Melbourne, telephone 03-6514111. The Wilsons Promotory contact is Mr. Ray Leivers of National Parks, Wilsons Promotory (South Gippsland), telephone 822796. A \$1000.00 bond had to be submitted to the National Parks to occupy the station.

ELEVATION: 229 meters

SKETCH: See next page.

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

Lat. 38°54'29".93 S N = 5,693,244 meters  
Long. 146°27'37".03 E E = 453,205 meters

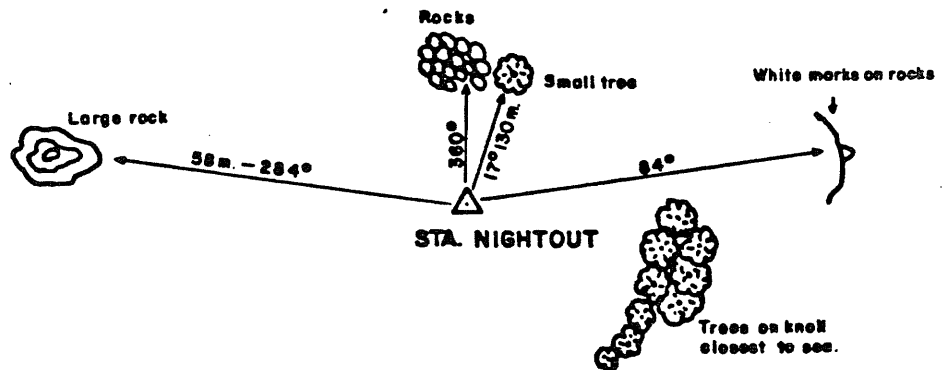
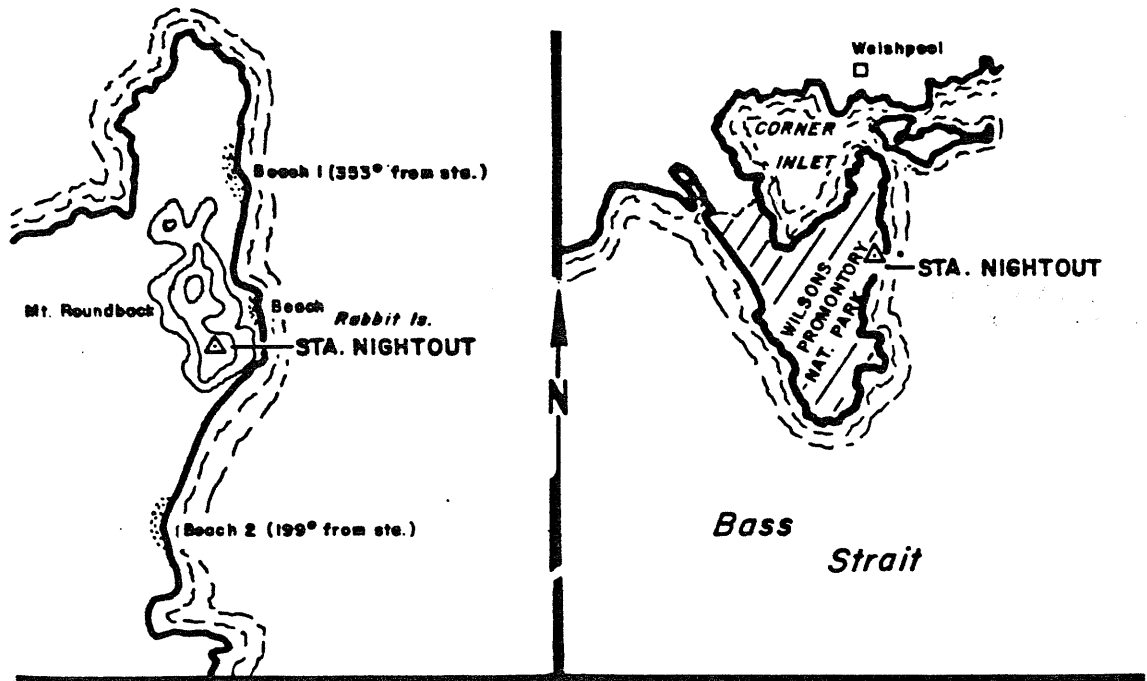


# STA. NIGHTOUT ————— AUSTRALIA

LAT. 38°54'29".30 S  
 LONG. 146 27 37 03 E  
 ELEV. 229 meters

N 5,693,244 meters  
 E 453,205 meters

UTM PROJ. ————— AUST. NAT. SPHEROID  
 ZONE 55, C.M. 147° E ————— A.G.D.



11/82/1419

OFFSHORE NAVIGATION  
 (AUSTRALIA) PTY. LTD.

**STATION:** SEACOMBE

**LOCATED:** Station Seacombe is located approximately 12 kilometers south of the township of Lock Sport, Victoria, Australia. The station site is located on a small hill, with gently sloping sides. The ground at the station is hard packed sand. Plant life in the surrounding area consists of 10 to 15-foot high trees and brush. The surrounding country side is similar, with trees reaching a height of 25 to 30 feet. The land to the south, west, north, and northeast is flat to the horizon. Lake beds, approximately 1/4 mile in distance, can be seen to the southeast of the site. The lake beds lie in a strip of land known as "90-Mile Beach". The sea lies beyond this strip of land. "Ninety-Mile Beach" is relatively low land. With the exception of the rise on which the station is located, there seems to be no other feature in the area which can distinguish the site.

**ACCESS:** From Yarram, Victoria, drive south on the Gippsland Highway towards Sale to Longford. On reaching the entrance to Longford, turn off towards Dutson and Golden Beach. Turn left towards Lock Sport and Seacombe, approximately 26 kilometers past Longford. Drive 12.5 kilometers on this road to track on the right hand side of the road that is sign-posted "Trig Mark". This sign can be easily missed, as it is partly obscured by bush. Turn onto this track, and follow the track until you pass a cleared area for a pipe line. Go beyond this pipe line crossing to a point where another track will be seen on the right. turn right onto this steep track and follow it to its end and the station marker. A four-wheel drive vehicle is required to reach this station.

**MARKER:** The station marker is located on a 10-foot diameter sand mound, approximately 3 feet above surrounding levels. The trig marker consists of

STATION: SEACOMBE (continued)

a 6-inch square block of concrete, with a 4-inch diameter bronze plaque embedded in its center. The bronze plaque is inscribed "GEODETIC SURVEY VICTORIA - 69104 - TRIANGULATION STATION". A 10-foot high steel tubular quadripod is located over the marker. Two 2-foot diameter black steel discs are mounted vertically on top of the quadripod.

GENERAL: The town of Lock Sport is located northeast of the station, 10 kilometers away along the hard top road. This is a small town that caters to private boats. The town has a couple of gas stations, which also serve as local stores. The Shell Station, located at the entrance to Lock Sport, is probably the best station for supplies. In addition to fuel supplies, vegetables, canned and frozen foods, cooking gas, water, reading material, hardware and tools can be purchased at this station. The station is also equipped to perform minor vehicle repairs, including welding. There is also a post office and marina located in Lock Sport. No local labor could be found in the area.

The station site is located on the Gippsland Lakes National Park. Permission to occupy the site was obtained from Mr. Gordon Godsack of the National Parks, telephone 051-460278. A \$1000.00 bond was submitted to the National Park to occupy the station.

It is imperative that the site be kept clean. Garbage and old oil should be disposed of at the garbage dump, 2 kilometers from Lock Sport, and 8 kilometers from the turnoff to the site. Toilet facilities are available at Seacombe, 4.5 kilometers southwest of the site, and their use should be encouraged. The site area is also vulnerable to fire. The brush is dry and of an oily nature.

STATION: SEACOMBE (continued)

Flies, mosquitoes and sand flies are present at this station. Personnel are well advised to have a supply of repellent on hand. Warm clothing is a must, as nights at this site are very cold.

A 30-foot tower was erected at this site. A minimum height of 20 feet is required to clear surrounding obstructions. Clear vista is from 040° to 260°. Star stakes were used to secure the tower.

ELEVATION: 28 meters

SKETCH: See next page.

Coordinates of the station markers were obtained from a Department of Crown Lands and Survey, Victoria summary sheet.

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

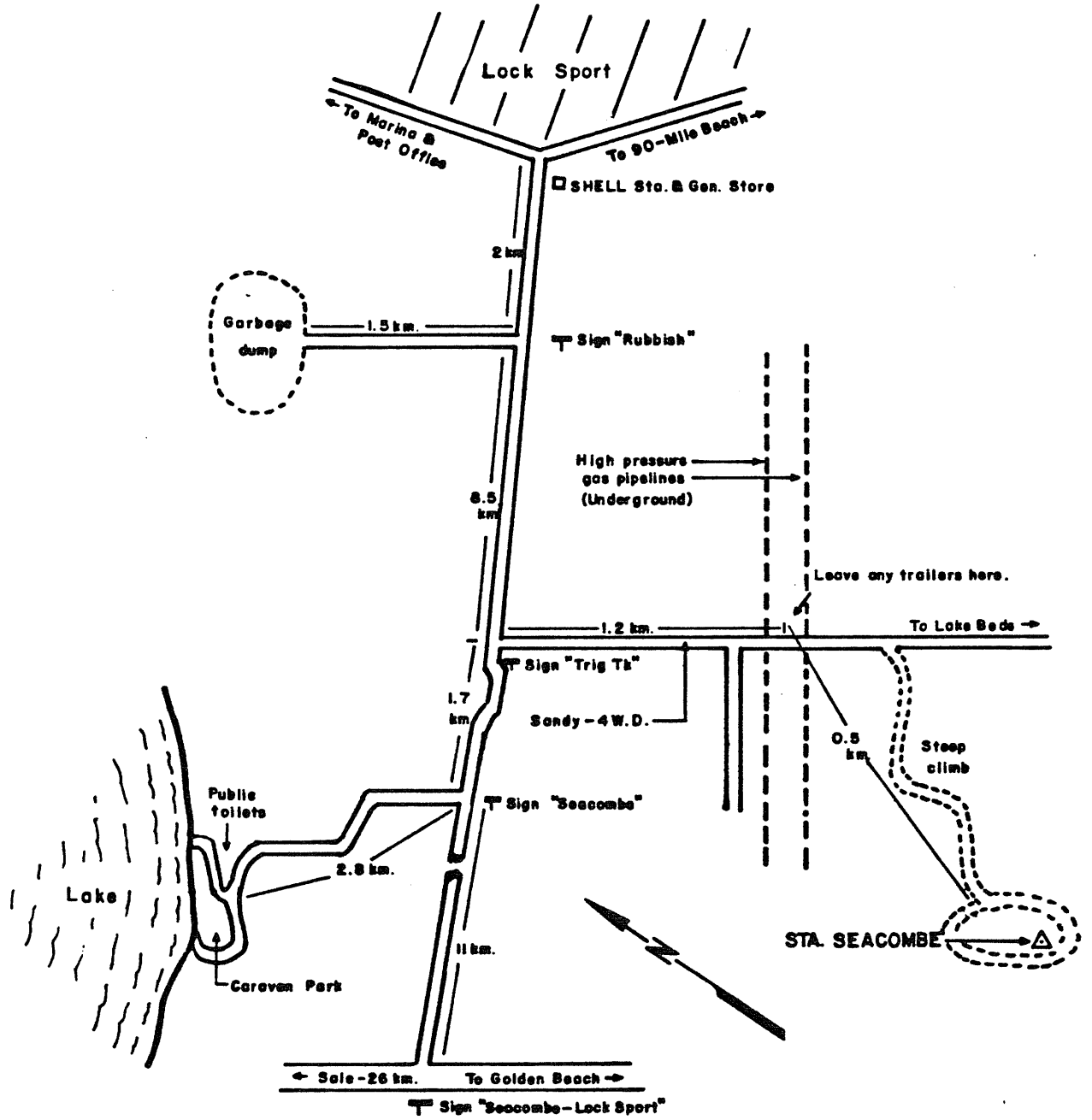
Lat. 38°07'59".47 S N = 5,779,291 meters  
Long. 147°27'51".55 E E = 540,692 meters

# STA. SEACOMBE — AUSTRALIA

LAT. 38°07'59".47 S  
LONG. 147°27'51".55 E  
ELEV. 28 meters

N 5,779,291 meters  
E 540,692 meters

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



5/82/1392

OFFSHORE NAVIGATION  
(AUSTRALIA) PVT. LTD.

**STATION:** EMERALD (OFFSET)

**LOCATED:** Station Emerald (Offset) is located on Emerald Hill, approximately 9 kilometers northeast of Bairnsdale, Victoria, Australia.

**ACCESS:** From the Marlin Motel in Bairnsdale, travel east towards Lakes entrance. Set the vehicle's odometer to 0.00 kilometer at the bridge just outside of Bairnsdale. Drive to 1 kilometer and a fork. Take the left fork to Lakes Entrances, and turn left onto Cummins Road at 5.2 kilometers. Cummins Road will be seen just before a railroad crossing. Follow Cummins Road to 6.5 kilometers and a "T" junction. Turn left, and follow the road to a gate at 7.1 kilometers. Turn into this gate, and the station marker will be located along the fence line. This is the location of the Offset marker.

A calibration marker is also established at this site. This calibration marker is 1102.1 meters, at a bearing of 319° Magnetic, from the Offset marker.

To reach the calibration marker, remain on the road at 7.1 kilometers, and drive to a second "T" junction at 8.0 kilometers. Turn left at this junction, and follow this road to 8.8 kilometers, where a cow shed will be to the right of the road, and a gate on the left hand side. The calibration point is located near this gate. See Sketch for details.

**MARKER:** The offset marker consists of a 1-1/2-inch brass pipe set in concrete, with a galvanized plug.

The calibration marker consists of a star stake embedded in the ground, and set in concrete.

**ELEVATION:** 70 meters

**SKETCH:** See next page.

STATION: EMERALD (OFFSET) (continued)

GENERAL: All necessary supplies and labor are available in Bairnsdale.

This station was occupied during October 1982 only to calibrate the Maxiran system between the offset and calibration markers. A 10-foot tower was erected adjacent of the two markers for this calibration. Star stakes were used to secure the towers.

The station site and markers are on land owned by Mr. Paul Needham. Permission must be obtained from Mr. Needham to occupy the sites. His telephone number is 52-5347.

ELEVATION: 70 meters (Offset) marker

SKETCH: See next page.

Coordinates of the offset marker were obtained from a M.A. Nicholas and Associates summary sheet. No coordinates are published for the calibration marker.

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

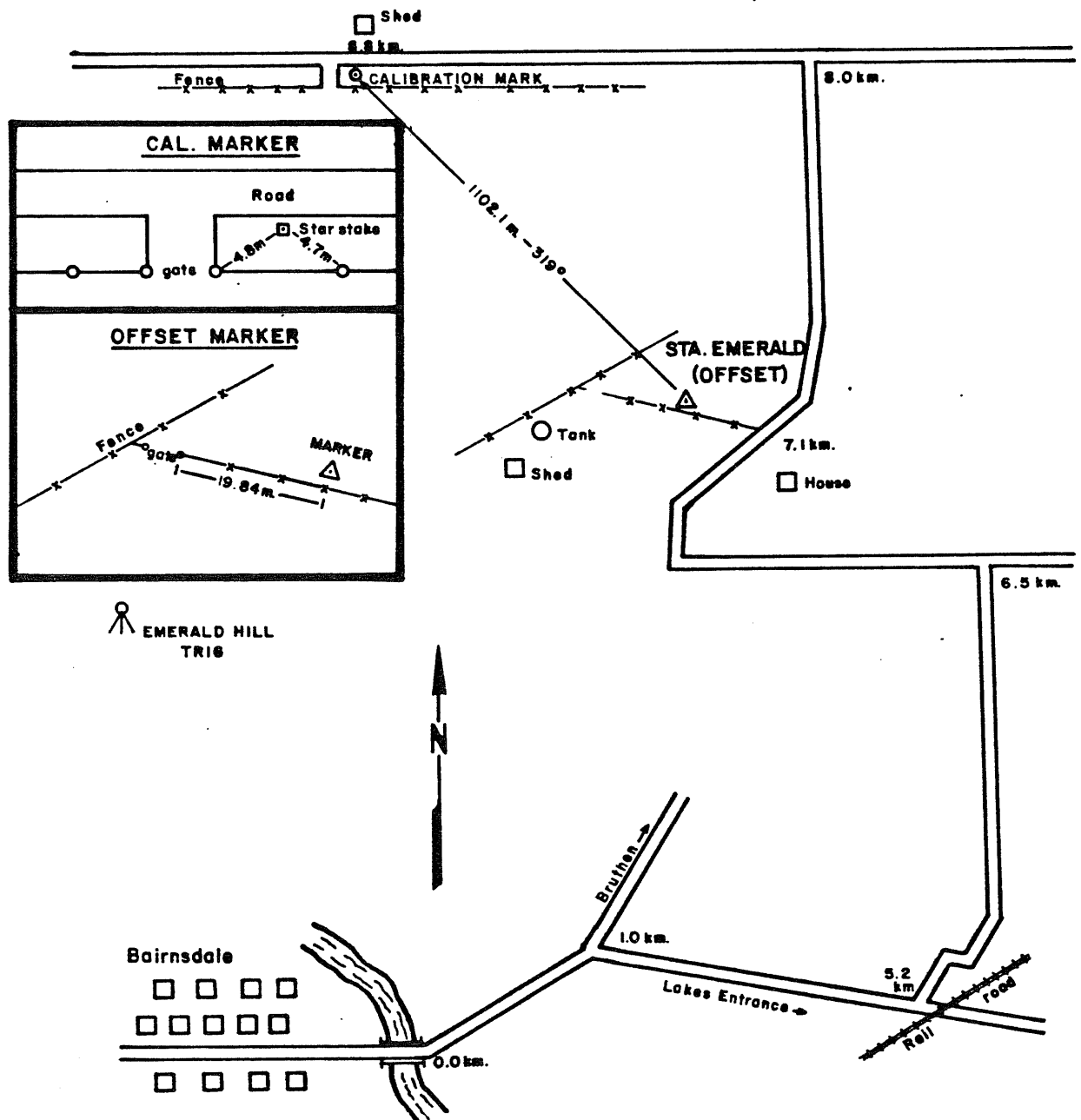
Lat. 37°48'48".60 S N = 5,814,632 meters  
Long. 147°42'00".03 E E = 561,615 meters

# STA. EMERALD (OFFSET) — AUSTRALIA

LAT. 37°48'48".60 S  
 LONG. 147°42'00".03 E  
 ELEV. 70 meters

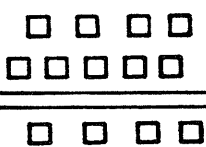
N 5,814,632 meters  
 E 561,615 meters

UTM PROJ. — AUST. NAT SPHEROID  
 ZONE 55, C.M. 147° E — A.G.D.



EMERALD HILL  
 TRIS

Bairnsdale



11/82/1419

OFFSHORE NAVIGATION  
 (AUSTRALIA) PTY. LTD.



# WELL HELIOS No.1 — AUSTRALIA

LAT. 38°41'40".45 S  
LONG. 148°16'34".06 E

N 5,716,329 meters  
E 610,978 meters

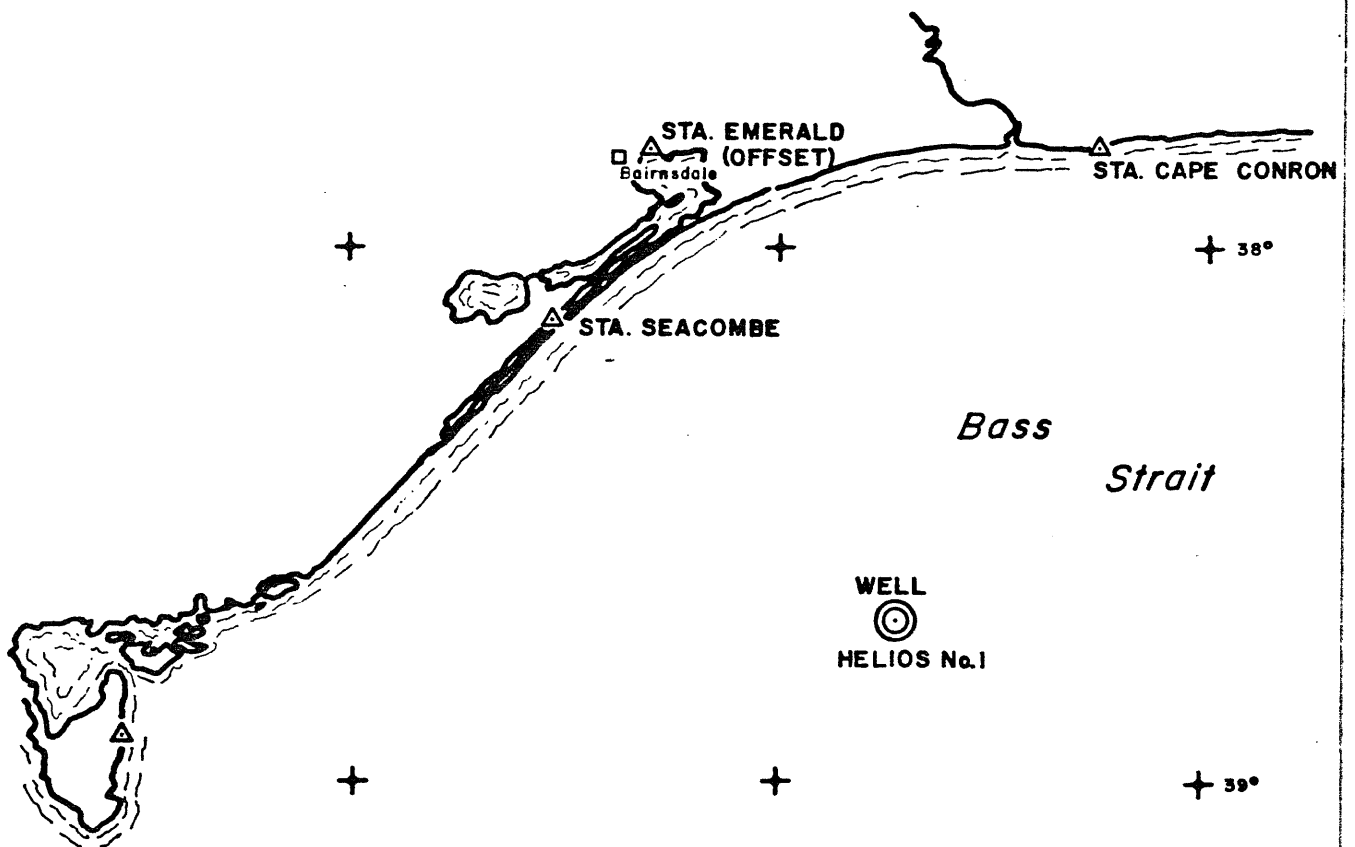
UTM PROJ. — AUST. NAT SPHEROID  
ZONE 55, C.M. 147° E — A.G.D.

147°  
+

148°  
+

149°  
+ 37°

## V I C T O R I A



11/82/1419

OFFSHORE NAVIGATION  
(AUSTRALIA) PTY. LTD.

APPENDIX A  
DAILY OPERATIONS LOGS

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 15<sup>TH</sup> 1982** Boat **DIAMOND M GPOCH** Client Party Number **HELIOS-1**  
 Physical Company **PHILIPS** Oil Company **PHILIPS** Radio Frequency **9840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GISLARD** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
Total Requested By			Total System - Hours Operation for Client <b>NIL</b>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Br Operations Log & Remarks .....  
**1015 - 1145 FLYING TO RIG**  
**AFTERNOON COMMENCE INSTALLING MOBILE EQUIPMENT.**

Mobile Operators **A. HOGGART** Party Chief **H. BRIDGES**

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 16<sup>TH</sup> 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS-1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GIPSLAND** Stepback Shot Point Interval

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHz</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>LIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHz</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHz</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>MONRAN</b>	<b>G. WELLS</b>	<b>429 MHz</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation for Client <b>NIL</b>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks .....

**INSTALLING MOBILE EQUIPMENT ABOARD RIG**

**PERIODIC RADIO CHECKS**

File Operators **A. HOGGART** Party Chief **H. BRIDGES**

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 17 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS - 1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GIPSLAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHz</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHz</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHz</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHz</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For

O/T Requested By \_\_\_\_\_ Total System - Hours Operation for Client **NIL**

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks .....  
 .....  
**COMPLETE MOBILE INSTALLATION**  
 .....  
**PERIODIC RADIO CHECKS**  
 .....  
 .....

Mobile Operators **A. HOGGART** Party Chief **H. BRIDGES**

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 18<sup>TH</sup> 1982** Boat **DIAMOND M EPDCM** Client Party Number **HELLOS-1**  
 Geophysical Company ..... Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **G.P.S.LAND** Stepback ..... Shot Point Interval .....

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>QUAD L.P.L.s</b>

**BASE STATIONS**

Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>RIGHT OUT</b>	<b>G. SMITH</b>	<b>429MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.014</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.014</b>
<b>ONRAN</b>	<b>G. WELLS</b>	<b>429MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.014</b>

**OPERATING TIME**

Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation for Client <b>NIL</b>

**LOST TIME**

From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks .....

**PERIODIC RADIO CHECKS**

**WAITING FOR SERVICE BOATS TO COMPLETE PULLING ANCHORS**

Mobile Operators **A. HORGART** .....

Party Chief **H. BRIDGES** .....

Form N-1A

SEE INSTRUCTIONS ON REVERSE

OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG

1419  
~~1419~~ Date OCT 19<sup>TH</sup> 1982 Boat DIAMOND M EPOCH Client Party Number HELIOS-1  
Geophysical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KHZ  
Area/Prospect AUSTRALIA GIPSLAND Stepback                      Shot Point Interval                     

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	441 MHz	009	001	073	QUAD L.P.Ls

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
NIGHTOUT	G. SMITH	429MHz	032	006	3	5.014
SEACOME	S. WALSH	429MHz	036	016	5	5.014
CONRAN	G. WELLS	429MHz	006	032	1	5.014

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
1600	1630	J. GOODIN	SIGNAL CHECK
O/T Requested By			Total System - Hours Operation for Client <u>0h 30m</u>

LOST TIME			
From	To	Hours Lost	Reason(s)
		NIL	

Operations Log & Remarks  
0035 COMMENCE TOW TO NEW LOCATION  
PERIODIC RADIO CHECKS  
1600-1630 ATTEMPT TO GET SIGNAL FROM NIGHTOUT - NO GO  
2301 TOW BROKE  
2400 AT ANCHOR OFF CAPE OTWAY

File Operators A. HOGGART Party Chief H. BRIDGES

OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG

Project No. **1419** Date **OCT 20<sup>TH</sup> 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS-1**  
 Physical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Area/Prospect **AUSTRALIA G.P.S. LAND** Stepback Shot Point Interval

FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>QUAD L.P.Ls</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.014</b>
<b>SEAGOME</b>	<b>S. WALSH</b>	<b>429 MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.014</b>
<b>GONRAN</b>	<b>G. WELLS</b>	<b>429 MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.014</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
OTT Requested By			Total System - Hours Operation for Client <b>NIL</b>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks  
**0001 AT ANCHOR OFF CAPE OTWAY**  
**PERIODIC RADIO CHECKS**  
**1630 UNDER TOW TO LOCATION**  
**2400 UNDER TOW TO LOCATION**

Supervisors **A. HOGGART** Party Chief **H. BRIDGES**  
 Form N-1A SEE INSTRUCTIONS ON REVERSE



**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Object Number 1419 Date OCT 21<sup>ST</sup> 1982 Boat DIAMOND M EPOCH Client Party Number HELIOS-1  
 Physical Agency PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KHZ  
 Country AUSTRALIA Area/Prospect GIPSLAND Stepback            Shot Point Interval           

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<u>441 MHZ</u>	<u>009</u>	<u>041</u>	<u>073</u>	<u>QUAD L.P.L.S</u>

**BASE STATIONS**

Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<u>NIGHTOUT</u>	<u>G. SMITH</u>	<u>429MHZ</u>	<u>032</u>	<u>006</u>	<u>3</u>	<u>5.014</u>
<u>SEACOME</u>	<u>S. WALSH</u>	<u>429MHZ</u>	<u>036</u>	<u>016</u>	<u>5</u>	<u>5.014</u>
<u>CONRAN</u>	<u>C. WELLS</u>	<u>429MHZ</u>	<u>006</u>	<u>032</u>	<u>1</u>	<u>5.014</u>

**OPERATING TIME**

Time On	Time Off	Requested By	System Used For
<u>1600</u>	<u>1630</u>	<u>J. GOODYN</u>	<u>SIGNAL CHECK</u>
/T Requested By			Total System - Hours Operation for Client <u>0h 30m</u>

**LOST TIME**

From	To	Hours Lost	Reason(s)
		<u>NIL</u>	

Brief Operations Log & Remarks 0001 EN ROUTE FOR LOCATION  
PERIODIC RADIO CHECKS  
1600 - 1630 ON IN OPERATE GOOD SIGNAL FROM NIGHTOUT AT 245 KM  
2400 EN ROUTE FOR LOCATION

Mobile Operators A. HOGGART Party Chief H. BRIDGES

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 22<sup>ND</sup> 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS-1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GIPSLAND** Stepback **Interval**

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>QUAD L.P.L.S</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.014</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.014</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.014</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0900</b>	<b>0930</b>	<b>J. GOODIN</b>	<b>SIGNAL CHECK</b>

O/T Requested By \_\_\_\_\_ Total System - Hours Operation for Client **0h 30m**

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Bridge Operations Log & Remarks  
**0900 EN ROUTE FOR LOCATION**  
**0315 ANCHOR DOWN OFF RABBIT ISLAND TO PREPARE ANCHORS**  
**0900-0930 ON IN OPERATE SIGNAL FROM SEACOME AT 122km**  
**PERIODIC RADIO CHECKS**  
**2400 AT ANCHOR OFF RABBIT ISLAND**

Mobile Operators **A. HOGGART**  
 Party Chief **H. BRIDGES**  
 Form N-1A SEE INSTRUCTIONS ON REVERSE

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 23<sup>RD</sup> 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS - 1**  
 Geophysical Company \_\_\_\_\_ Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **G. ISLAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>QUAD L.P.L S</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.014</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.014</b>
<b>COURAN</b>	<b>G. WELLS</b>	<b>429MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.014</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0700</b>	<b>2400</b>	<b>J. GOODIN</b>	<b>RIG LOCATION</b>

O/T Requested By \_\_\_\_\_ Total System - Hours Operation for Client **17h 0m**

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks **0001 AT ANCHOR OFF RABBIT ISLAND**  
**0247 COMMENCE TOW TO LOCATION**  
**0700 ON IN OPERATE SIGNALS FROM NIGHTOUT & SEACOME NIL FROM COURAN**  
**1200 SIGNALS FROM ALL STATIONS**  
**A SERIES OF READINGS TAKEN & J. GOODIN CONFIRMS A PROPAGATION FACTOR OF .999921**  
**TRYING TO BRING THE RIG ON LOCATION EXPERIENCING PROBLEMS WITH TIDAL CURRENTS**  
**2400 EN ROUTE FOR LOCATION**

Mobile Operators **A. HOGGART** Party Chief **H. BRIDGES**

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1619** Date **OCT 24<sup>TH</sup> 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS-1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GIPSLAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>QUAD L.P.L.S</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHT OUT</b>	<b>G. SMITH</b>	<b>429 MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.014</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.014</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.014</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0001</b>	<b>2400</b>	<b>J. GOODIN</b>	<b>RIG LOCATION</b>

O/T Requested By \_\_\_\_\_ Total System - Hours Operation for Client **24h**

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks **0001 EN ROUTE FOR LOCATION**  
**SSS ANCHOR 7 DROPPED - COMMENCE ANCHORING**  
**1200 N= 159.482 S= 94.371 C= 106.159 E To D.S. 37m @ 098°**  
**1450 N= 159.488 S= 94.357 C= 106.146 E To D.S. 37m @ 090°**  
**1700 N= 159.479 S= 94.367 C= 106.160 E To D.S. 37m @ 096°**  
**1800 N= 159.497 S= 94.390 C= 106.158 E To D.S. 37m @ 096°**  
**1830 N= 159.497 S= 94.377 C= 106.148 E To D.S. 37m @ 099°**  
**1920 N= 159.512 S= 94.391 C= 106.144 E To D.S. 37m @ 103°**  
**1940 N= 159.504 S= 94.378 C= 106.141 E To D.S. 37m @ 094°**  
**2045 N= 159.493 S= 94.387 C= 106.166 E To D.S. 37m @ 099°**  
**2130 N= 159.485 S= 94.384 C= 106.166 E To D.S. 37m @ 099°**  
**2400 WAITING ON ANCHOR HANDLING BOATS**

Mobile Operators **A. HOGGART** Party Chief **H. BRIDGES**

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 25<sup>TH</sup> 1982** Boat **DIAMOND M. EPOCH** Client Party Number **HELIOS-1**  
 Geophysical Company \_\_\_\_\_ Oil Company **PHILLIPS** Radio Frequency **7860 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GIPSLAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHz</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHz</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHz</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>CONRAN</b>	<b>C. WELLS</b>	<b>429 MHz</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0001</b>	<b>2400</b>	<b>J. GOODIN</b>	<b>RIG LOCATION</b>
O/T Requested By			Total System - Hours Operation for Client <b>24h</b>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief of Operations Log & Remarks **0001** ..... **WAITING ON SERVICE BOATS**.....

**0700** N = 159.474 S = 94.400 C = 106.197 E To D.S. 37m @ 092°  
**0800** N = 159.501 S = 94.417 C = 106.180 E To D.S. 37m @ 095°  
**0830** N = 159.490 S = 94.398 C = 106.172 E To D.S. 37m @ 088°  
**0905** N = 159.486 S = 94.390 C = 106.171 E To D.S. 37m @ 087°  
**0900** N = 159.485 S = 94.397 C = 106.185 E To D.S. 37m @ 090°  
**1615** N = 159.479 S = 94.385 C = 106.173 E To D.S. 37m @ 088°  
**1715** N = 159.492 S = 94.376 C = 106.152 E To D.S. 37m @ 095°  
**1850** N = 159.477 S = 94.370 C = 106.157 E To D.S. 37m @ 089°  
**1930** N = 159.472 S = 94.365 C = 106.163 E To D.S. 37m @ 089°

**2400** ..... **WAITING ON SERVICE BOATS**.....

Mobile Operators **A. HOGGART** Party Chief **H. BRIDGES**  
 Form N-1A SEE INSTRUCTIONS ON REVERSE

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number 1419 Date OCT 26<sup>TH</sup> 1982 Boat DIAMOND M EPOCH Client Party Number HELIOS-1  
 Geophysical Company \_\_\_\_\_ Oil Company PHILLIPS Radio Frequency 7840 KHZ  
 Location AUSTRALIA Area/Prospect CRISLAND Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<u>441 MHZ</u>	<u>009</u>	<u>041</u>	<u>073</u>	<u>WHIP</u>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<u>NIGHTOUT</u>	<u>G. SMITH</u>	<u>429MHZ</u>	<u>032</u>	<u>006</u>	<u>3</u>	<u>5.009</u>
<u>SEACOME</u>	<u>S. WALSH</u>	<u>429MHZ</u>	<u>036</u>	<u>016</u>	<u>5</u>	<u>5.009</u>
<u>CONRAN</u>	<u>G. WELLS</u>	<u>429MHZ</u>	<u>006</u>	<u>032</u>	<u>1</u>	<u>5.009</u>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<u>0001</u>	<u>2400</u>	<u>J. GOODIN</u>	<u>RIG POSITIONING</u>
O/T Requested By _____			Total System - Hours Operation for Client <u>2400</u>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<u>NIL</u>	

Brief Operations Log & Remarks 0001 WAITING ON SERVICE BOATS

0700 N = 159.471 S = 94.365 C = 106.161 E TO D.S. 37m @ 096°

1030 N = 159.472 S = 94.359 C = 106.154 E TO D.S. 37m @ 092°

1440 N = 159.476 S = 94.358 C = 106.150 E TO D.S. 37m @ 096°

1715 N = 159.471 S = 94.393 C = 106.190 E TO D.S. 37m @ 073°

1910 N = 159.481 S = 94.397 C = 106.149 E TO D.S. 37m @ 072°

2400 WORKING ON ANCHORS

Mobile Operators A. Haggart Party Chief H. BRIDGES

Form N-1A SEE INSTRUCTIONS ON REVERSE

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Job Number **1419** Date **OCT 27<sup>TH</sup> 1982** Boat **DIAMOND M. EARL** Client Party Number **HELIPS-1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **G.P.S.LAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHz</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHz</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHz</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHz</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0001</b>	<b>2400</b>	<b>J. GOODIN</b>	<b>RIG POSITIONING</b>

O/T Requested By \_\_\_\_\_ Total System - Hours Operation for Client **24h On**

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks **0001 WORKING ON ANCHORS**  
**0700 N= 159.473 S= 94.404 C= 106.200 E To D.S. 37m @ 071°**  
**1137 N= 159.439 S= 94.419 C= 106.269 E To D.S. 37m @ 087°**  
**1115 N= 159.482 S= 94.346 C= 106.121 E To D.S. 37m @ 090°**  
**2007 N= 159.468 S= 94.271 C= 106.067 E To D.S. 37m @ 066°**  
**2700 N= 159.475 S= 94.271 C= 106.045 E To D.S. 37m @ 097°**

**2400 WORKING ON ANCHORS**

Operators **A. HAGGART**

Party Chief **H. BRIDGES**

Form N-1A

SEE INSTRUCTIONS ON REVERSE

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Job Number: **1419** Date: **OCT 28<sup>TH</sup> 1982** Boat: **DIAMOND M. EPOCH** Client Party Number: **HELIOS-1**  
 Physical Company: **PHILLIPS** Oil Company: **PHILLIPS** Radio Frequency: **7840 KHZ**  
 Country: **AUSTRALIA** Area/Prospect: **G.P.S.L.A.N.D.** Stepback: \_\_\_\_\_ Shot Point Interval: \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHz</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>QUAD L.P.L.s</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHz</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.014</b>
<b>SEACOMG</b>	<b>S. WALSH</b>	<b>429 MHz</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.014</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHz</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>6.014</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0001</b>	<b>2400</b>	<b>J. GOODIN</b>	<b>RIG POSITIONING</b>

O/T Requested By: \_\_\_\_\_ Total System - Hours Operation for Client: **24h**

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks **0001 WORKING ON ANCHORS**

**0700** N = 159.485 S = 94.270 C = 106.042 A To D.S. 37m @ 096°  
**1100** N = 159.474 S = 94.273 C = 106.044 A To D.S. 37m @ 092°  
**1110** N = 159.499 S = 94.292 C = 106.042 A To D.S. 37m @ 095°  
**1120** N = 159.511 S = 94.306 C = 106.052 A To D.S. 37m @ 086°  
**1150** N = 159.513 S = 94.362 C = 106.084 A To D.S. 37m @ 084°  
**1205** N = 159.500 S = 94.379 C = 106.145 A To D.S. 37m @ 081°  
**1900** N = 159.501 S = 94.381 C = 106.141 A To D.S. 37m @ 086°  
**2115** N = 159.506 S = 94.375 C = 106.136 A To D.S. 37m @ 090°

**COMMENCE DRILLING**

**2400 DRILLING**

Operators: **A. HOGGART** Party Chief: **H. BRIDGES**



**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **OCT 29<sup>TH</sup> 1982** Boat **DIAMOND M EPOCH** Client Party Number **HELIOS - 1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Country **AUSTRALIA** Area/Prospect **GIPSLAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHz</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429 MHz</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429 MHz</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429 MHz</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>001</b>	<b>2400</b>	<b>J. GODDIN</b>	<b>RIG POSITIONING</b>
O/T Requested By			Total System - Hours Operation for Client <b>24h</b>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks **0001 DRILLERS EXPERIENCING DIFFICULTY WITH HOLE**  
**0900 N= 159.502 S= 94.373 CONRAN 106.120 E TO D.S. 37m @ 090° T**  
**HOLE NO GO MOVE RIG**  
**1230 N= 159.495 S= 96.377 C= 106.134 E TO D.S. 37m @ 089° T**  
**2000 N= 159.491 S= 96.378 C= 106.136 E TO D.S. 37m @ 089° T**  
**2400 DRILLING**

Mobile Operators **A. HOGGART** Party Chief **H. BRIDGES**

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number 1419 Date OCT 30<sup>TH</sup> 1982 Boat DIAMOND M EPOCH Client Party Number HELIOS-1  
 Geophysical Company \_\_\_\_\_ Oil Company PHILLIPS Radio Frequency 7840 KHZ  
 Country AUSTRALIA Area/Prospect G.P.SLAND Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<u>441 MHz</u>	<u>009</u>	<u>041</u>	<u>073</u>	<u>WHIP</u>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<u>NIGHTOUT</u>	<u>G. SMITH</u>	<u>429 MHz</u>	<u>032</u>	<u>006</u>	<u>3</u>	<u>5.009</u>
<u>SEACONG</u>	<u>S. WALSH</u>	<u>429 MHz</u>	<u>036</u>	<u>016</u>	<u>5</u>	<u>5.009</u>
<u>CONRAN</u>	<u>G. WELLS</u>	<u>429 MHz</u>	<u>006</u>	<u>032</u>	<u>1</u>	<u>5.009</u>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<u>001</u>	<u>2400</u>	<u>J. GOODIN</u>	<u>RIG POSITIONING</u>
O/T Requested By _____			Total System - Hours Operation for Client <u>24h</u>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<u>NIL</u>	

Brief of Operations Log & Remarks 0001 DRILLING  
0800 N=159.496 S=94.376 C=106.136 E TO D.S. 37m @ 089°T  
NO GO ON DRILLING MOVE RIG  
1400 N=159.468 S=94.376 C=106.160 E TO D.S. 37m @ 092°T  
1430 N=159.476 S=94.376 C=106.152 E TO D.S. 37m @ 093°T  
2400 DRILLING

Mobile Operators A. HERRERT Party Chief H. BRIDGES  
 Form N-1A SEE INSTRUCTIONS ON REVERSE

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project 1419 Date OCT 31<sup>ST</sup> 1982 Boat DIAMOND M EPOCH Client Party Number HELIOS-1  
 Physical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KHZ  
 Country AUSTRALIA Area/Prospect GIPSLAND Stepback                      Shot Point Interval                     

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<u>441 MHZ</u>	<u>009</u>	<u>041</u>	<u>073</u>	<u>WHIP</u>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<u>NIGHTOUT</u>	<u>G. SMITH</u>	<u>429MHZ</u>	<u>032</u>	<u>006</u>	<u>3</u>	<u>5.009</u>
<u>SEACOME</u>	<u>S. WALSH</u>	<u>429MHZ</u>	<u>036</u>	<u>016</u>	<u>5</u>	<u>5.009</u>
<u>CONRAN</u>	<u>G. WELLS</u>	<u>429MHZ</u>	<u>006</u>	<u>032</u>	<u>1</u>	<u>5.009</u>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<u>0001</u>	<u>2400</u>	<u>J. GOODIN</u>	<u>RIG POSITIONING</u>
/T Requested By			Total System - Hours Operation for Client <u>24h</u>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<u>NIL</u>	

Brief Operations Log & Remarks 0001 DRILLING

900 N=159.475 S=96.373 C=106.151 A.T.O.D.S. 37m @ 093°T

ADD CASING GOING DOWN

Mobile operators A. HOGGART Party Chief H. BRIDGES

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number **1419** Date **Nov 1<sup>st</sup> 1982** Boat **DIAMOND M. EPOCH** Client Party Number **HGLDS-1**  
 Geophysical Company **PHILLIPS** Oil Company **PHILLIPS** Radio Frequency **7840 KHZ**  
 Area/Prospect **AUSTRALIA G. ISLAND** Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM
	<b>441 MHZ</b>	<b>009</b>	<b>041</b>	<b>073</b>	<b>WHIP</b>

BASE STATIONS						
Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
<b>NIGHTOUT</b>	<b>G. SMITH</b>	<b>429MHZ</b>	<b>032</b>	<b>006</b>	<b>3</b>	<b>5.009</b>
<b>SEACOME</b>	<b>S. WALSH</b>	<b>429MHZ</b>	<b>036</b>	<b>016</b>	<b>5</b>	<b>5.009</b>
<b>CONRAN</b>	<b>G. WELLS</b>	<b>429MHZ</b>	<b>006</b>	<b>032</b>	<b>1</b>	<b>5.009</b>

OPERATING TIME			
Time On	Time Off	Requested By	System Used For
<b>0001</b>	<b>0800</b>	<b>J. GOODIN</b>	<b>RIG POSITIONING</b>
O/T Requested By			Total System - Hours Operation for Client <b>8h 0m</b>

LOST TIME			
From	To	Hours Lost	Reason(s)
		<b>NIL</b>	

Brief Operations Log & Remarks **0001 SETTING 30" CASING**  
**0730 CASING CEMENTED IN**  
**N = 159.486 S = 94.371 C = 106.148 E TO D.S. 37m @ 094° T**  
**A PROPOSITION FACTOR OF .999931 WAS DETERMINED BY**  
**J. GOODIN**  
**0800 NET SECURED**  
**DISMANTLE AND PACK MOBILE EQUIPMENT**

Supervisors **A. HOGGART** Party Chief **H. BRIDGES**  
 Form N-1A SEE INSTRUCTIONS ON REVERSE

**OFFSHORE NAVIGATION INC.  
MAXIRAN DAILY OPERATIONS LOG**

Project Number 1419 Date NOV 2<sup>ND</sup> 1982 Boat DIAMOND M. EPOCH Client Party Number HELOS-1  
 Geophysical Company \_\_\_\_\_ Oil Company PHILLIPS Radio Frequency 7840 KHZ  
 Country AUSTRALIA Area/Prospect GIPSLAND Stepback \_\_\_\_\_ Shot Point Interval \_\_\_\_\_

Mobile Station	FREQUENCY	INTERROGATOR	MONITOR	AMPLIFIER	ANTENNA SYSTEM

**BASE STATIONS**

Position	Operator	Frequency	Beacon	Amplifier	Code	Delay
	<u>G. SMITH</u>					
	<u>S. WALSH</u>					
	<u>G. WELLS</u>					

**OPERATING TIME**

Time On	Time Off	Requested By	System Used For
O/T Requested By			Total System - Hours Operation for Client <u>NIL</u>

**LOST TIME**

From	To	Hours Lost	Reason(s)
		<u>NIL</u>	

Bring Operations Log & Remarks 0001 ABOARD DIAMOND M. EPOCH WAITING FOR TRANSPORT  
1000 ENROUTE TO WELSHPOOL BY HELI  
1330 ENROUTE MELBOURNE BY HELI CAR  
1600 MELBOURNE AIRPORT

Mobile Operators A. HARRATT

Party Chief H. BRIDGES ✓

Form N-1A

SEE INSTRUCTIONS ON REVERSE

APPENDIX B

THE MAXIRAN RADIOPOSITIONING SYSTEM

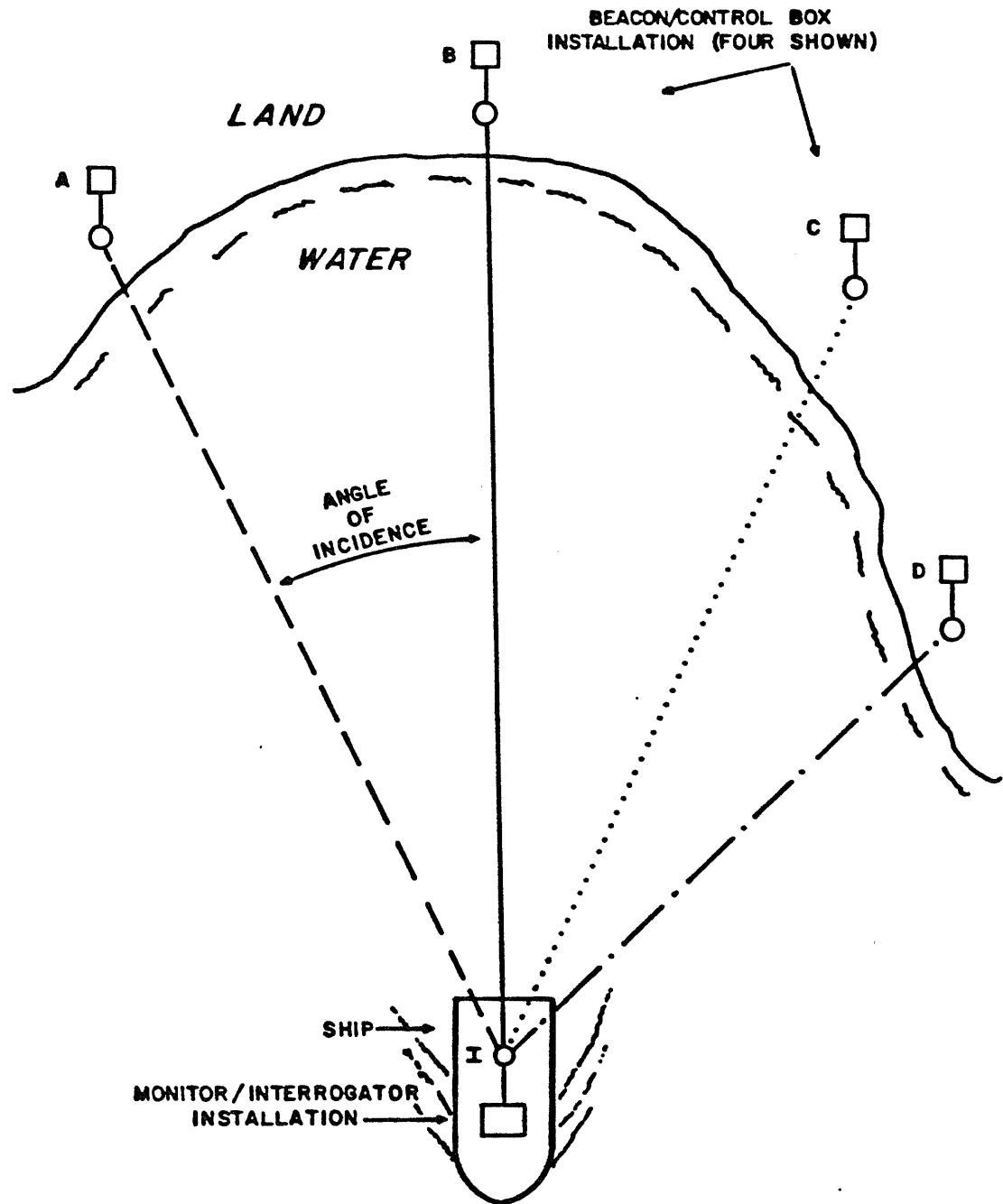
## I. THE MAXIRAN RADIOPOSITIONING SYSTEM

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

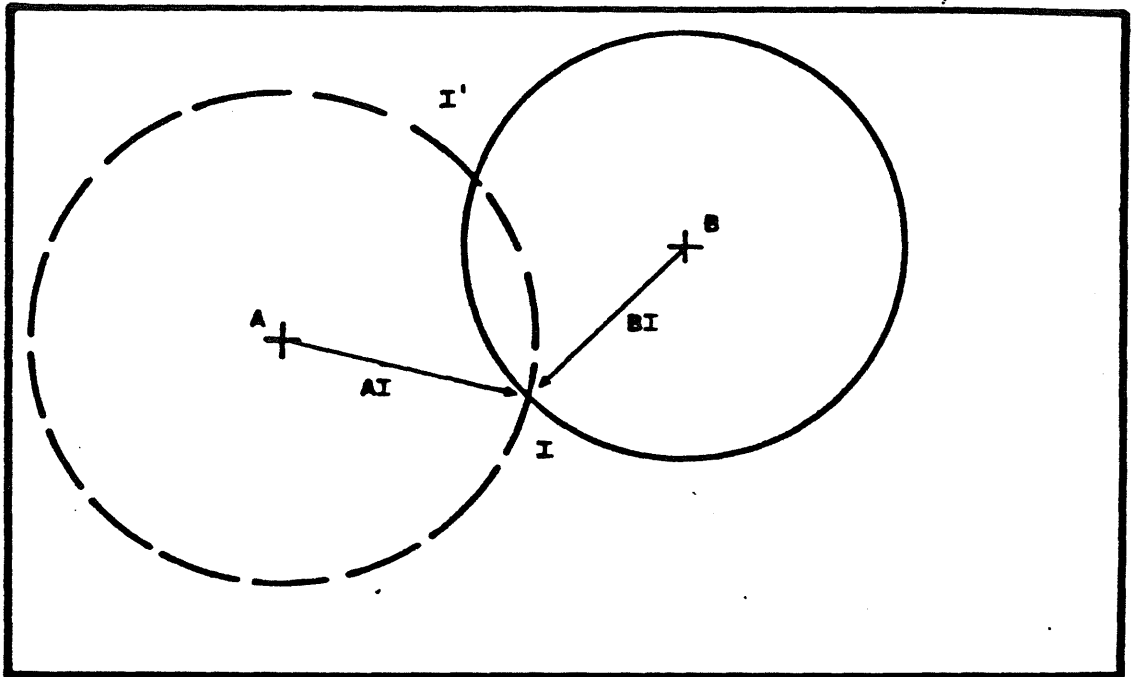
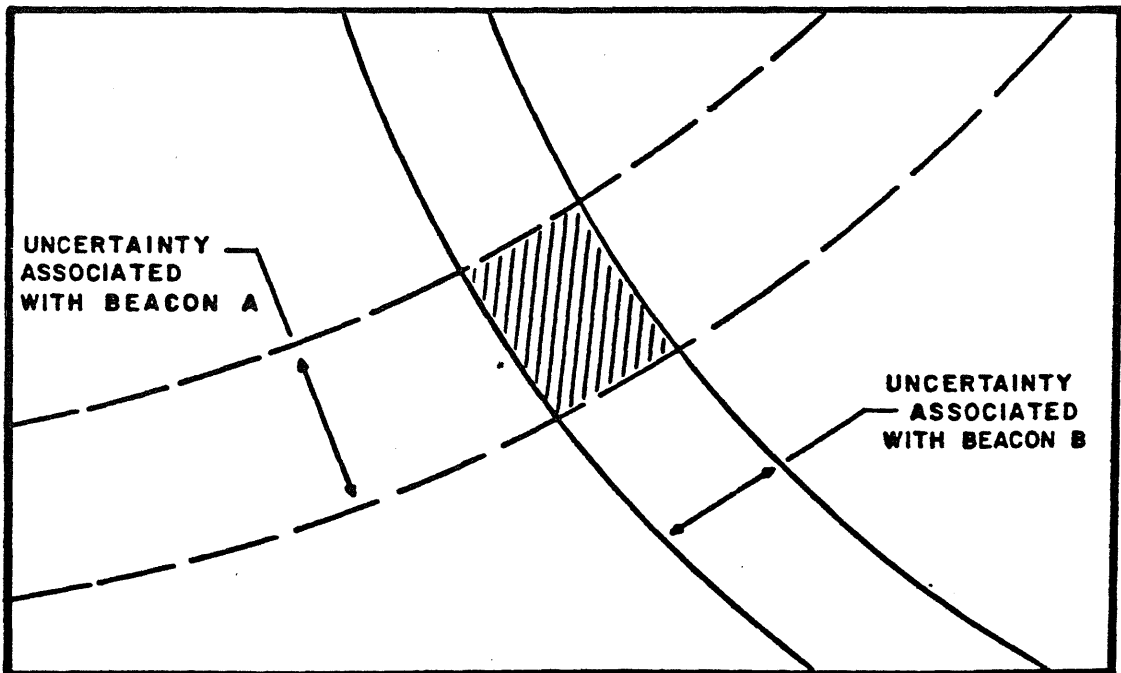


FIGURE-3. UNCERTAINTY WITH TWO BEACONS



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

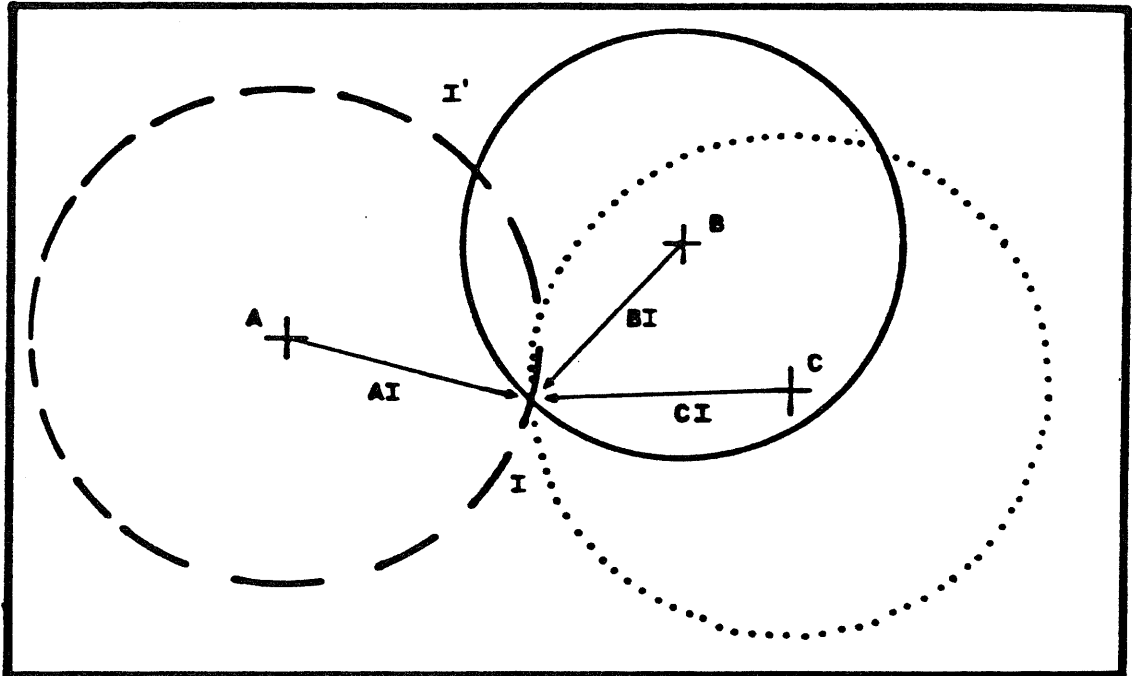
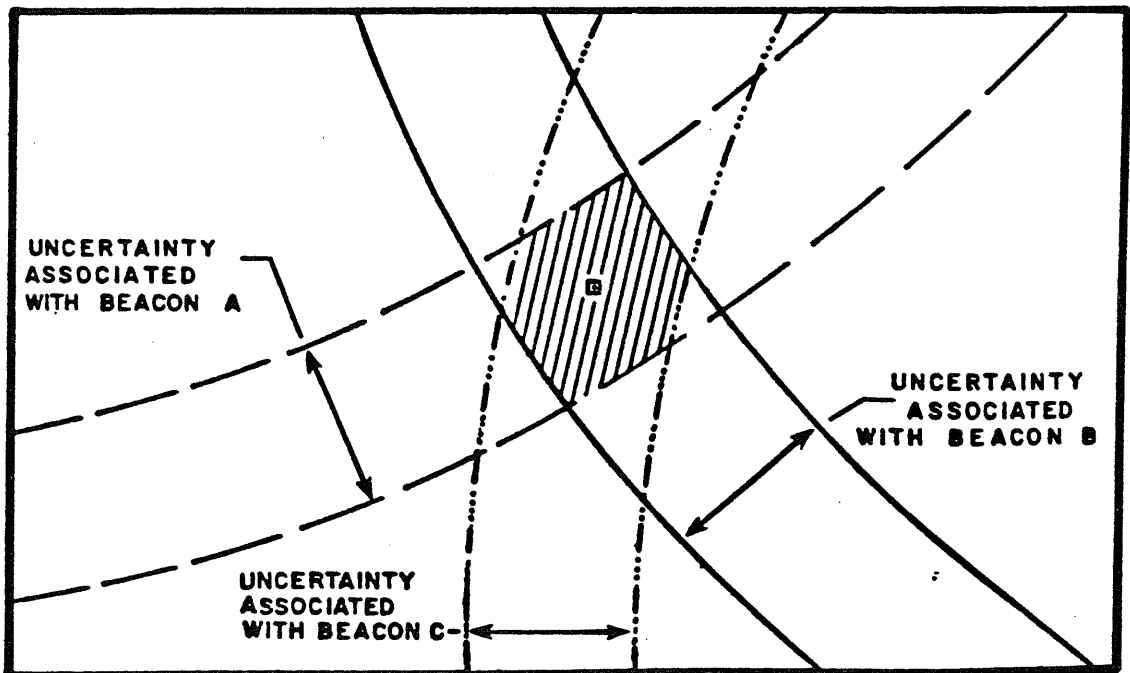


FIGURE-5. UNCERTAINTY WITH THREE BEACONS



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.