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DEPT. NAT. RES & ENV
PE902250

BRIDGEWATER
BAY-1

WELL COMPLETION REPORT
Bridgewater Bay No. 1
OIL and GAS DIVISION
ADDENDA 07 JUN 1984

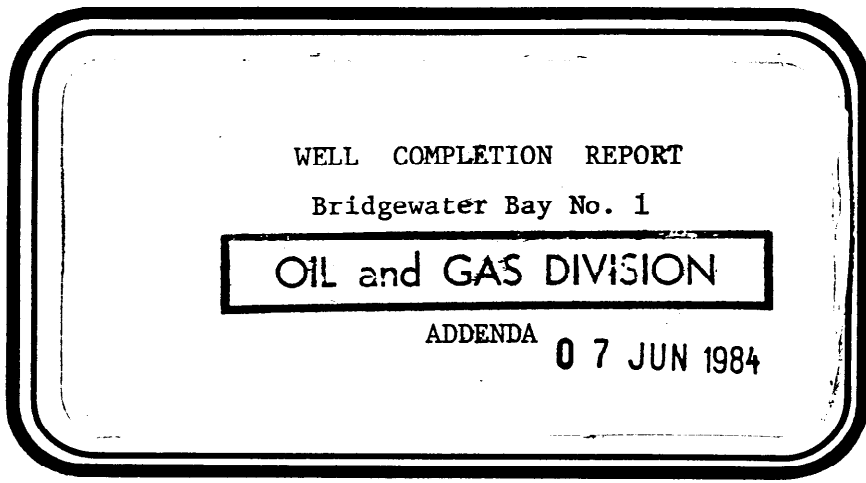
W.C.R.



PHILLIPS AUSTRALIAN OIL COMPANY
PERTH, WESTERN AUSTRALIA

W831

PE902250



PHILLIPS AUSTRALIAN OIL COMPANY
PERTH, WESTERN AUSTRALIA

WELL COMPLETION REPORT

Bridgewater Bay No. 1

OIL and GAS DIVISION

ADDENDA **0 7 JUN 1984**

CONTENTS

Addenda

- 1 Offshore Navigation Report
- 2 Geoservices Well Report
- 3 Well Velocity Survey
- 4 Synthetic Seismogram Report*

*Interpretative and Confidential Data

ADDENDUM 1

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

FOR
PHILLIPS AUSTRALIAN OIL COMPANY

VICTORIA, AUSTRALIA
WELL LOCATION BRIDGEWATER BAY #1

SEPTEMBER 1983

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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 BRIDGEWATER BAY #1

The survey was conducted the Indian Ocean, off the coast of Victoria, Australia. The well was located approximately 17 kilometers, at a bearing of 192°, from Cape Bridgewater.

The ONA base of operation was established at Portland, Victoria on 3 September 1983.

II. FIELD OPERATIONS RECAP

The Maxiran system required to control this survey was stored in Melbourne and Portland from a previous operation. ONA personnel necessary for this operation travelled to Melbourne on 2 September 1983, and to Portland on 3 September. The Maxiran system was transported to Station Crows Hill on 4 September. The Maxiran system was calibrated at this station between 1200 and 1815 hours 4 September 1983. 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. Installation of the Maxiran base station equipment on these three sites was completed on 5 September 1983.

The ONA mobile operator and mobile equipment were transported via helicopter to the Drilling Vessel (D/V) DIAMOND M EPOCH on 6 September 1983, arriving on board the rig at 1345 hours that date. Installation of the Maxiran mobile equipment on board the D/V DIAMOND M EPOCH was completed at 2000 hours 6 September 1983.

II. FIELD OPERATIONS RECAP (continued)

Towing of the D/V DIAMOND M EPOCH to the well site was underway at 2400 hours 6 September 1983. Maxiran signals from Station Mount Warrnambool were acquired at 1500 hours 7 September, and signals were acquired from Station Cape Bridgewater at 1610 hours that date. Maxiran position fixes to assist the rig in navigating to Well Location BRIDGEWATER BAY #1 began at 1900 hours 7 September 1983.

The D/V DIAMOND M EPOCH arrived in the vicinity of the location area at 2400 hours 8 September 1983 and stood by for weather. The first anchor was set at 1030 hours 9 September. Some difficulty was experienced in setting the rig on location due to rough weather dragging the anchors. The anchors were secured, and the final Maxiran ranges were recorded at 0645 hours 16 September 1983. See Appendix A, Daily Operations Logs, of this report for details of operation.

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 frequency of 7840.0 (SSB) kilocycles.

C. The Maxiran field data was turned over to Mr. H. Stapleton, the PHILLIPS representative, on 16 September 1983. The final Maxiran ranges recorded were transmitted to the ONA office in Perth, W.A. for final computation.

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

E. Three Maxiran base station sites were occupied to control the survey. They were:

STATION CAPE BRIDGEWATER
STATION MOUNT RUSKIN
STATION MOUNT WARRNAMBOOL

III. GENERAL INFORMATION (continued)

In addition, Station Crows Hill was occupied to calibrate the Maxiran system, prior to the commencement of the survey.

- F. The maximum range observed by the Maxiran system during this survey was 195 kilometers.

- G. The Maxiran mobile equipment was checked daily for proper delay setting. The delay setting was determined by a Maxiran Calibration conducted on 4 September 1983.

IV. MAXIRAN CALIBRATION

The Maxiran system was calibrated on 4 September 1983, prior to the commencement of the Well Location BRIDGEWATER BAY #1 survey. For this calibration, the Maxiran system was transported to Station Crows Hill, and the equipment installed at two markers at this site. The Maxiran mobile equipment was installed at the Station Crows Hill marker, and the Maxiran base station equipment was installed at the calibration marker. The computed slope range of 1005 meters between the two markers was used to calibrate the system.

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

①

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIRAN CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' R48 PREAMP TO DC BLOCK 8' R48
 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------|-------------------|--------------------|--------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMH01B | 041 | BEACON | NTL01 | 067 CODE 3 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAN 12 | 111 | PREAMP | SAN 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS R48 | 74' + 13' | | ANDREWS R48 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | | 115 VAC | INPUT VOLTAGE | | 115 VAC |
| 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 | | COOL, BLOWY, WIND | WEATHER CONDITIONS | | SAME |

OBSERVED RANGE IN CALIBRATE: 6015 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 5010 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME: 1505

SIGNED: *J. O'Reilly*

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.


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OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIRAN CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' RG8 PREAMP TO DC BLOCK 8' RG8
 DATE: 4 SEPT 83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------------|------------|--------------------|--------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM010 | 041 | BEACON | NTL01 | 089 CODE 3 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAN 12 | 111 | PREAMP | SAN 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-RG8 | 74' + 13' | | ANDREWS-RG8 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | 115 VAC | | INPUT VOLTAGE | 115 VAC | |
| 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 | COOL, BLOWY, WIND | | WEATHER CONDITIONS | SAME | |

OBSERVED RANGE IN CALIBRATE: 6000 KM
 COMPUTED SLANT RANGE: 1005 KM
 ∴ MOBILE ZERO SETTING IS: 4995 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME: 1535 : 1605

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.

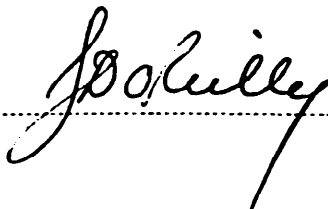
3

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIMUM CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' RG8 PREAMP TO DC BLOCK 8' RG8
 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------|--------------------|--------------------|--------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM01B | 041 | BEACON | NTL01 | 036 CODE 5 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAW 12 | 111 | PREAMP | SAW 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-RG8 | 74' + 13' | | ANDREWS-RG8 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | | 115 VAC | INPUT VOLTAGE | | 115 VAC |
| 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 | | COOL, ELOWOY, WIND | WEATHER CONDITIONS | | SAME |

OBSERVED RANGE IN CALIBRATE: 6015 KM
 COMPUTED SLANT RANGE: 1005 KM
 ∴ MOBILE ZERO SETTING IS: 5010 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME: 1605 : 1635

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.

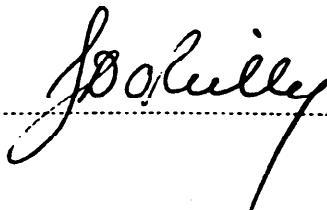
4

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIMAN CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' RG8 PREAMP TO DC BLOCK 8' RG8
 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|-----------------------|-------------|-------------------|------------------------------|-------------|------------|
| LOCATION: CROWS HILL | | | LOCATION: CROWS HILL CAL. PT | | |
| OPERATOR: J. O'REILLY | | | OPERATOR: D. HEAVERLO | | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMH01B | 041 | BEACON | NTL01 | 064 CODE 5 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAN 12 | 111 | PREAMP | SAN 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-RG8 | 74' +13' | | ANDREWS-RG8 | 74' +13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | | 115 VAC | INPUT VOLTAGE | | 115 VAC |
| 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 | | COOL, ELOWOY WIND | WEATHER CONDITIONS | | SAME |

OBSERVED RANGE IN CALIBRATE: 5995 KM
 COMPUTED SLANT RANGE: 1005 KM
 ∴ MOBILE ZERO SETTING IS: 4990 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME: 1700

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.

5

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIRAN CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' R68 PREAMP TO DC BLOCK 8' R68
 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------------|------------|--------------------|--------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM01B | 041 | BEACON | NTL01 | 010 CODE 1 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NCL 01 | 038 | AMPLIFIER P/S | NCL 01 | 020 |
| PREAMP | SAW 12 | 111 | PREAMP | SAW 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-R68 | 74' + 13' | | ANDREWS-R68 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | 115 VAC | | INPUT VOLTAGE | 115 VAC | |
| 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 | COOL, BLOWY, WIND | | WEATHER CONDITIONS | SAME | |

OBSERVED RANGE IN CALIBRATE: 5995 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 4990 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME: 1700:1730

SIGNED: *J. O'Reilly*

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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6

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIMUM CALIBRATION REPORT LINEAR IN "BYPASS" PREAMP TO DC BLOCK 8' RG8
 PREAMP TO DC BLOCK 8' RG8 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|------------------|------------|--------------------|--------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM010 | 041 | BEACON | NTL01 | 006 CODE 1 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTW 02 | 073 | AMPLIFIER | NTW 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAW 12 | 111 | PREAMP | SAW 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-RG8 | 74' + 13' | | ANDREWS-RG8 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | 115 VAC | | INPUT VOLTAGE | 115 VAC | |
| 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 | COOL, BLOWY WIND | | WEATHER CONDITIONS | SAME | |

OBSERVED RANGE IN CALIBRATE: 6003 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 4998 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME: 1800

SIGNED: *J. O'Reilly*

NOTES REGARDING CALIBRATION PROCEDURES:

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7

- different mobile linear

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIMUM CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' R48 PREAMP TO DC BLOCK 8' R48
 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------------|------------|--------------------|---------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT. | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM01B | 041 | BEACON | NTL01 | 006 CODE 1 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 006 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAN 12 | 111 | PREAMP | SAN 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-R48 | 74' + 13' | | ANDREWS-R48 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | 115 VAC | | INPUT VOLTAGE | 115 VAC | |
| 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 | COOL, BLOWY, WIND | | WEATHER CONDITIONS | SAME | |

OBSERVED RANGE IN CALIBRATE: 6003 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 4998 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME:

SIGNED: *J. O'Reilly*

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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4. Use the reverse side of this report for any additional comments deemed necessary or advisable for completeness and clarity.

8

different interrogator

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIRAN CALIBRATION REPORT LINEAR IN "BYPASS"
 PREAMP TO DC BLOCK 8' R48 | PREAMP TO DC BLOCK 8' R48
 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|--------------------|------------|--------------------|---------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT. | |
| PERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM010 | 041 | BEACON | NTL01 | 006 CODE 1 |
| INTERROGATOR | NTM 01 | 050 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAW 12 | 111 | PREAMP | SAW 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-R48 | 74' + 13' | | ANDREWS-R48 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | 115 VAC | | INPUT VOLTAGE | 115 VAC | |
| 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 | COOL, BLOWING WIND | | WEATHER CONDITIONS | SAME | |

OBSERVED RANGE IN CALIBRATE: 5998 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 4993 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME:

SIGNED: *J. O'Reilly*

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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9

Base Linear Amp
in "Operate" mode
16

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIRAN CALIBRATION REPORT LINEAR IN "OPERATE"
PREAMP TO DC BLOCK 8' R48 PREAMP TO DC BLOCK 8' R48
DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------|-------------------|--------------------|---------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT. | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NMM01B | 041 | BEACON | NTL01 | 006 CODE 1 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAN 12 | 111 | PREAMP | SAN 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-R48 | 74' + 13' | | ANDREWS-R48 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | OMNI | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | | 115 VAC | INPUT VOLTAGE | | 115 VAC |
| 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 | | COOL, BLOWY, WIND | WEATHER CONDITIONS | | SAME |

OBSERVED RANGE IN CALIBRATE: 6014 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 5009 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME:

SIGNED: *J. O'Reilly*

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.

10

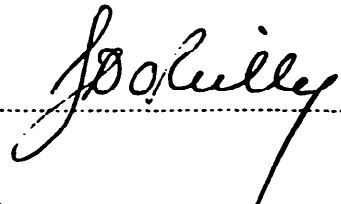
Mobile LPL Stock

OFFSHORE NAVIGATION, INC.

LINEAR IN "OPERATE" MAXIMAN CALIBRATION REPORT LINEAR IN "BYPASS" PREAMP TO DC BLOCK 8' R48
 PREAMP TO DC BLOCK 8' R48 DATE: 4 SEPT '83

| MOBILE STATION | | | BASE STATION | | |
|--------------------|-------------|-------------------|--------------------|---------------------|------------|
| LOCATION: | CROWS HILL | | LOCATION: | CROWS HILL CAL. PT. | |
| OPERATOR: | J. O'REILLY | | OPERATOR: | D. HEAVERLO | |
| UNIT | MODEL | SERIAL No. | UNIT | MODEL | SERIAL No. |
| MONITOR | NHM01B | 041 | BEACON | NTL01 | 006 CODE 1 |
| INTERROGATOR | NTM 01 | 009 | CONTROL BOX | NEL 02 | 077 |
| AMPLIFIER | NTN 02 | 073 | AMPLIFIER | NTN 02 | 055 |
| AMPLIFIER P/S | NEN 01 | 038 | AMPLIFIER P/S | NEN 01 | 020 |
| PREAMP | SAN 12 | 111 | PREAMP | SAN 12 | 145 |
| COAX | TYPE | LENGTH | COAX | TYPE | LENGTH |
| | ANDREWS-R48 | 74' + 13' | | ANDREWS-R48 | 74' + 13' |
| ANTENNA | TYPE | HEIGHT | ANTENNA | TYPE | HEIGHT |
| | QUAD LPL | 15' | | QUAD LPL | 15' |
| INPUT VOLTAGE | | 115 VAC | INPUT VOLTAGE | | 115 VAC |
| 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 | | COOL, BLOWY, WIND | WEATHER CONDITIONS | | SAME |

OBSERVED RANGE IN CALIBRATE: 6009 KM
 COMPUTED SLANT RANGE: 1005 KM
 MOBILE ZERO SETTING IS: 5004 KM
 OBSERVED RANGE IN OPERATE: 1005 KM TIME:

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 positioning of the D/V DIAMOND M EPOCH on Well Location BRIDGEWATER BAY #1

Coordinates of the desired location were obtained from PHILLIPS as:

| | | |
|-----------|-----------------|----------------------|
| Latitude | 38°32'26".13 S | N = 5,734,126 meters |
| Longitude | 141°21'42".06 E | E = 531,520 meters |

The D/V DIAMOND M EPOCH was secured on location, and the following final Maxiran ranges were recorded at 0645 hours 16 September 1983, with the Maxiran mobile equipment installed on board the rig:

| | |
|--------------------------------------|--------------------|
| Sta. Mt. Ruskin to mobile antenna | 64.858 kilometers |
| Sta. Bridgewater to mobile antenna | 17.354 kilometers |
| Sta. Mt. Warrnambool to mob. antenna | 122.859 kilometers |

At the time these final Maxiran ranges were recorded, the drill stem was 20 meters, at a bearing of 029° True, from the Maxiran mobile antenna.

V. WELL LOCATION INFORMATION (continued)

FINAL COMPUTED COORDINATES - WELL LOCATION BRIDGEWATER BAY #1 (Drill stem)

Latitude 38°32'25".97 S N = 5,734,130 meters
Longitude 141°21'47".95 E E = 531,663 meters

RESIDUALS

Mt. Ruskin = -0.47 meter
Bridgewater = +0.48 meter
Mt. Warrnambool = -0.37 meter
Least square adjusted tie = .769 meter
From desired to final position = 142.77 m. @ 088.055°
True

The final coordinates of the drill stem were derived by applying a propagation factor of .999945, 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 54, Central Meridian 141° East, AUSTRALIAN GEODETIC DATUM.

VI. BASIC CONTROL

Coordinates of the three Maxiran base stations occupied to control this survey and of Station Crows Hill, occupied to calibrate the Maxiran system, were obtained from the Lands and Surveys Department, Victoria.

Universal Transverse Mercator Projection
Australian National Spheroid
Zone 54
Central Meridian 141° East
AUSTRALIAN GEODETIC DATUM

STATION CAPE BRIDGEWATER:

| | | |
|-----------|----------------|----------------------|
| Latitude | 38°23'17"21 S | N = 5,751,029 meters |
| Longitude | 141°24'22"81 E | E = 535,487 meters |
| Elevation | 135 meters | |

STATION CROWS HILL:

| | | |
|-----------|----------------|----------------------|
| Latitude | 38°14'50"68 S | N = 5,766,393 meters |
| Longitude | 141°49'48"04 E | E = 572,628 meters |
| Elevation | 41 meters | |

STATION MOUNT RUSKIN:

| | | |
|-----------|----------------|----------------------|
| Latitude | 38°02'54"56 S | N = 5,788,789 meters |
| Longitude | 140°57'49"58 E | E = 496,821 meters |
| Elevation | 38 meters | |

VI. BASIC CONTROLSTATION MOUNT WARRNAMBOOL:

| | | |
|-----------|----------------|----------------------|
| Latitude | 38°18'25"83 S | N = 5,758,658 meters |
| Longitude | 142°44'18"21 E | E = 651,993 meters |
| Elevation | 219 meters | |

VII. PERSONNEL

| NAME | POSITION |
|--------------|-----------------|
| Heaverlo, D. | Party Chief |
| O'Reilly, J. | Mobile Operator |
| Rounds, R. | Base Operator |
| Ward, G. | 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

Attention: Mr. R.F.C. Chase

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 BRIDGEWATER

LOCATED: The station is located near the township of Cape Bridgewater, approximately 19 kilometers west of Portland, Victoria, Australia.

ACCESS: From Portland, drive west for approximately 16 kilometers to a road fork. A sign indicating "Bridgewater Bay" will be on the left, and a sign indicating "Bridgewater Lakes" will be on the right. Take the left fork and drive to the village of Bridgewater, a distance of approximately 3 kilometers from the road fork.

On entering the village, turn left at the first intersection past the meeting hall, staying on the sealed road. If you continue straight at this point (towards Blow Holes), the road will become dirt. Just after making a hard right turn, a house will be seen to your left. This is the home of Mr. J. Doyle. The station is located on his property. A track, as indicated in the sketch, leads to the station site.

MARKER: The physical description of the marker was not submitted from the field operations. Mr. Doyle should be able to point out the marker. The Maxiran tower was erected 2 meters, at a bearing of 090° Magnetic, from the marker.

GENERAL: A 40-foot tower was erected at this station. A minimum tower height of 20 feet is required to clear surrounding obstructions. Clear vista has not been reported. Star stakes were used to secure the tower.

Mr. J. Doyle can be contacted at telephone number 055-26-7213. Permission must be obtained

STATION: CAPE BRIDGEWATER (continued)

from Mr. Doyle to set a station on his property.
No rent was paid for the use of the property.

ELEVATION: 135 meters

SKETCH: See next page.

Coordinates of the trig marker were obtained
from the Lands & Surveys Department, Victoria.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 54, C.M. 141° EAST ----- A.G.D.

Lat. 38°23'17"21 S N = 5,751,029 meters
Long. 141°24'22"81 E E = 535,487 meters

STA. CAPE BRIDGEWATER — AUSTRALIA

LAT. 38°23' 17".21 S

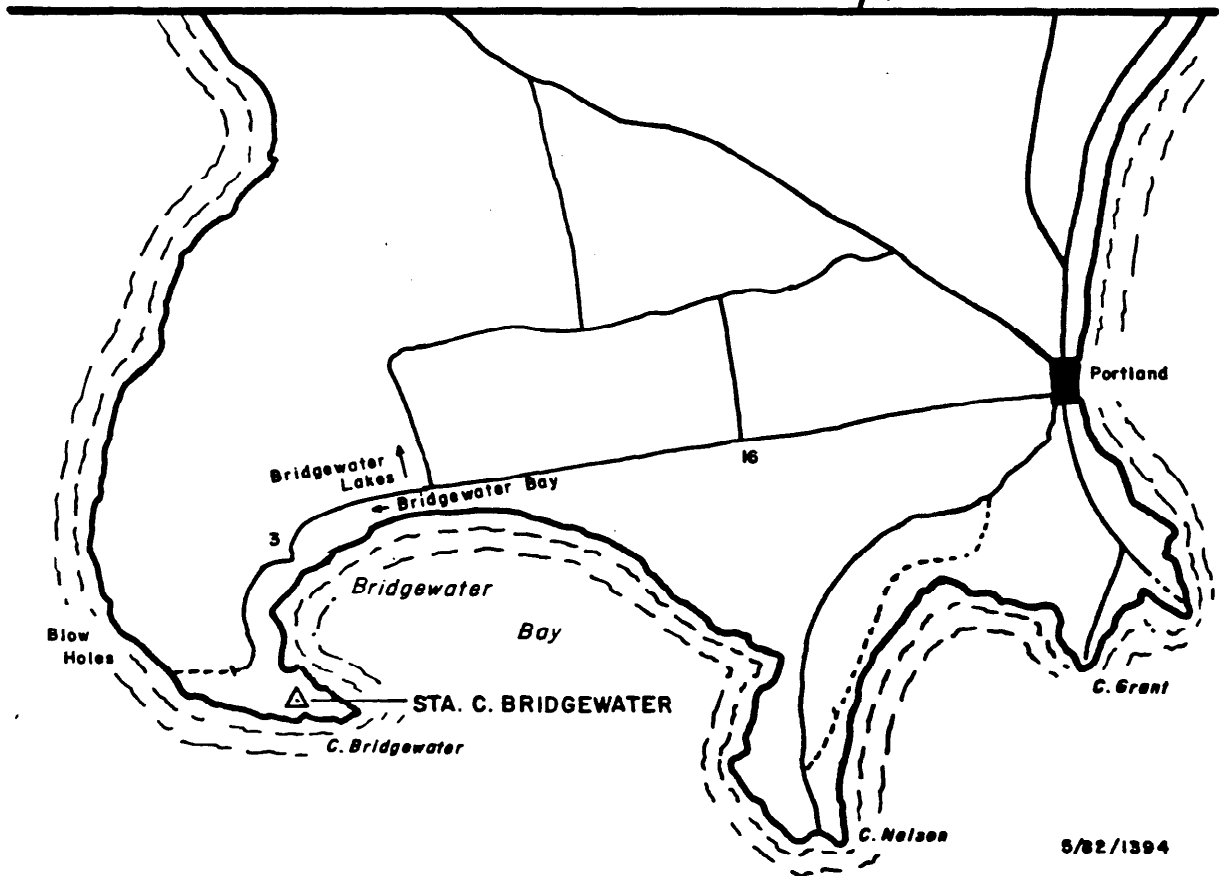
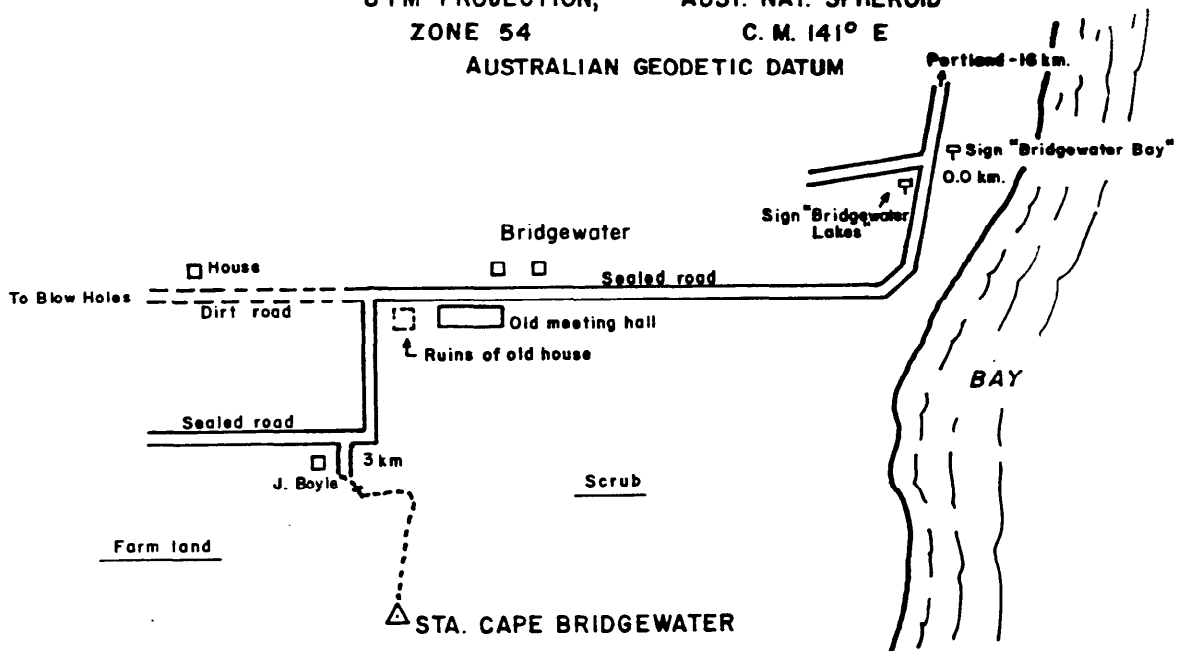
N 5,751,029 meters

LONG. 141°24' 22".81 E

E 535,487 meters

ELEV. 135 meters

UTM PROJECTION, AUST. NAT. SPHEROID
 ZONE 54 C. M. 141° E
 AUSTRALIAN GEODETIC DATUM



5/82/1394

OFFSHORE NAVIGATION
 CONSULTANTS LTD.

STATION: CROWS HILL

LOCATED: Station Crows Hill is located approximately 50 kilometers by road from Portland, Victoria, Australia. The station is located on the highest hill in the area. This hill is used for sighting missing sea crafts. Portland Harbor and the sea are visible from the site. The station is approximately 5 kilometers from the beach and the Fitzroy River Outlet.

The ground around the station marker is made up of small rocks. The area around the station is farming land, and is a great fire risk in summer. All gates must be closed after use on this site. The key to the gates can be obtained from the farm house shown on the Sketch.

ACCESS: From Portland, travel 16 kilometers on the Henry Highway, and turn right at the intersection of Princess Highway. This road will pass through Narrawong (32 kilometers from Portland), and the small farming community of Tyrendarra. Twelve kilometers past Tyrendarra, turn right onto a road signposted "Fitzroy River Outlet". Drive on this road for approximately 5 kilometers to a fork, and turn right. Drive another 1 kilometer to where the road makes a sharp left bend, and a metal road continues straight. Continue straight at this point on the metal road, and pass up a gateway. Turn left at the second gateway, and follow the track to the station site.

MARKER: The trig marker stands approximately 14 feet high, and is made from 2-inch diameter pipe built in a triangular shape. This marker can be seen from the main road.

The ONA marker, consisting of a concrete block, with a 1/2-inch galvanized pipe protruding 1 foot above ground level, is located 5 feet from the trig. The galvanized pipe is marked "ONI".

STATION: CROWS HILL (continued)

GENERAL: All necessary supplies, labor, and water can be obtained in Portland. Some water may be available from the nearby farms, if required.

Strong winds can be experienced at this station. The weather is fairly changeable, and the site may be infested with flies. Some precautions should be taken. The months of April through August are very wet and cold.

A 40-foot tower was erected at this site, the minimum tower height required to clear surrounding obstructions. Clear vista is from 270° to 090°. Star stakes were used to secure the tower.

ELEVATION: 41 meters

SKETCH: See next page.

Coordinates of the trig marker were obtained from the Lands & Surveys Department, Victoria.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 54, C.M. 141° EAST ----- A.G.D.

Lat. 38°14'50"68 S N = 5,766,393 meters
Long. 141°49'48"04 E E = 572,628 meters

STA. CROWS HILL — AUSTRALIA

PHILLIPS COORDINATES

LAT. 38°14' 50".68 S

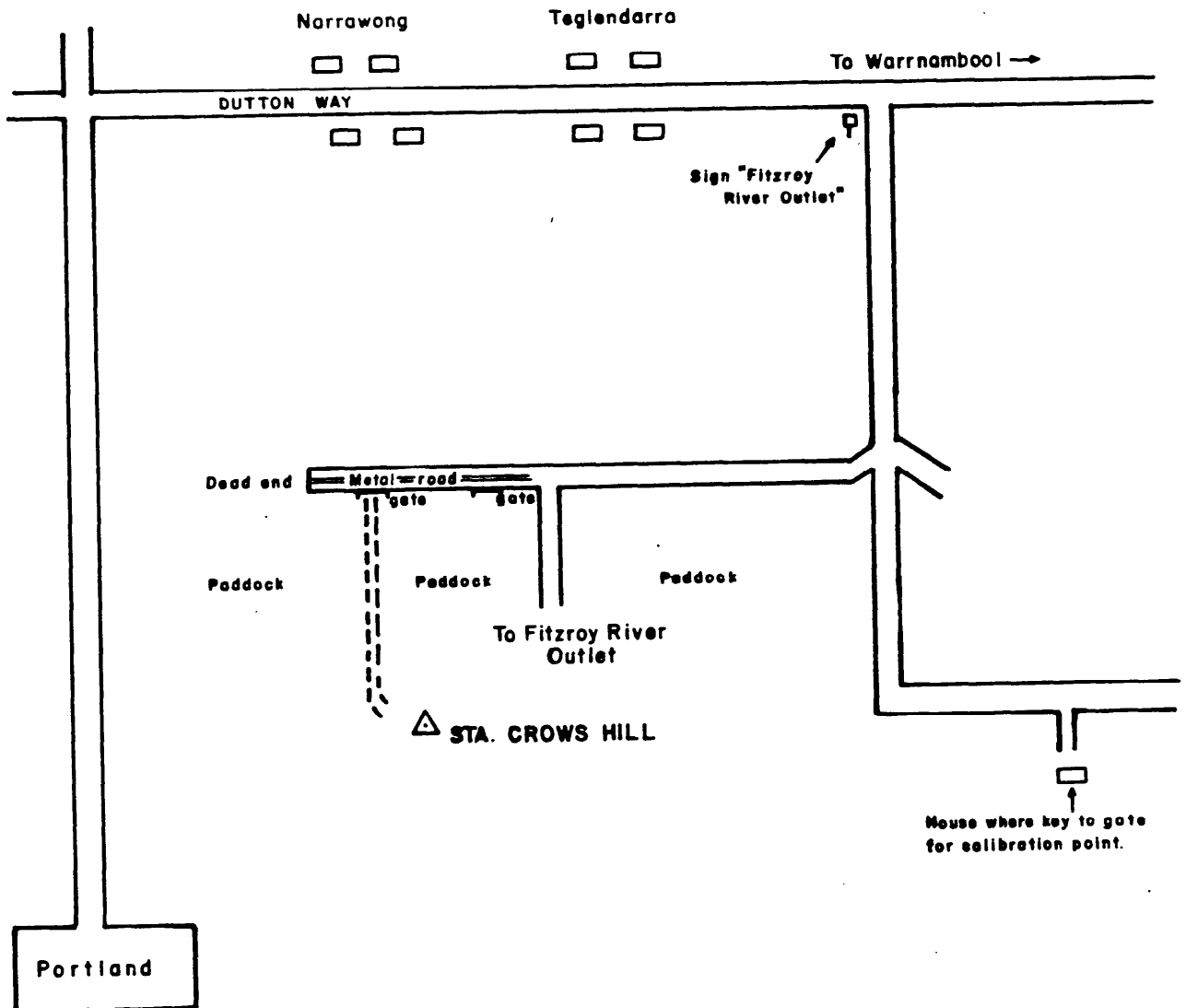
N 5,766,393 meters

LONG. 141°49' 48".04 E

E 572,628 meters

ELEV. 41 meters

UTM PROJECTION, AUST. NAT. SPHEROID
ZONE 54 C.M. 141° E
AUSTRALIAN GEODETIC DATUM

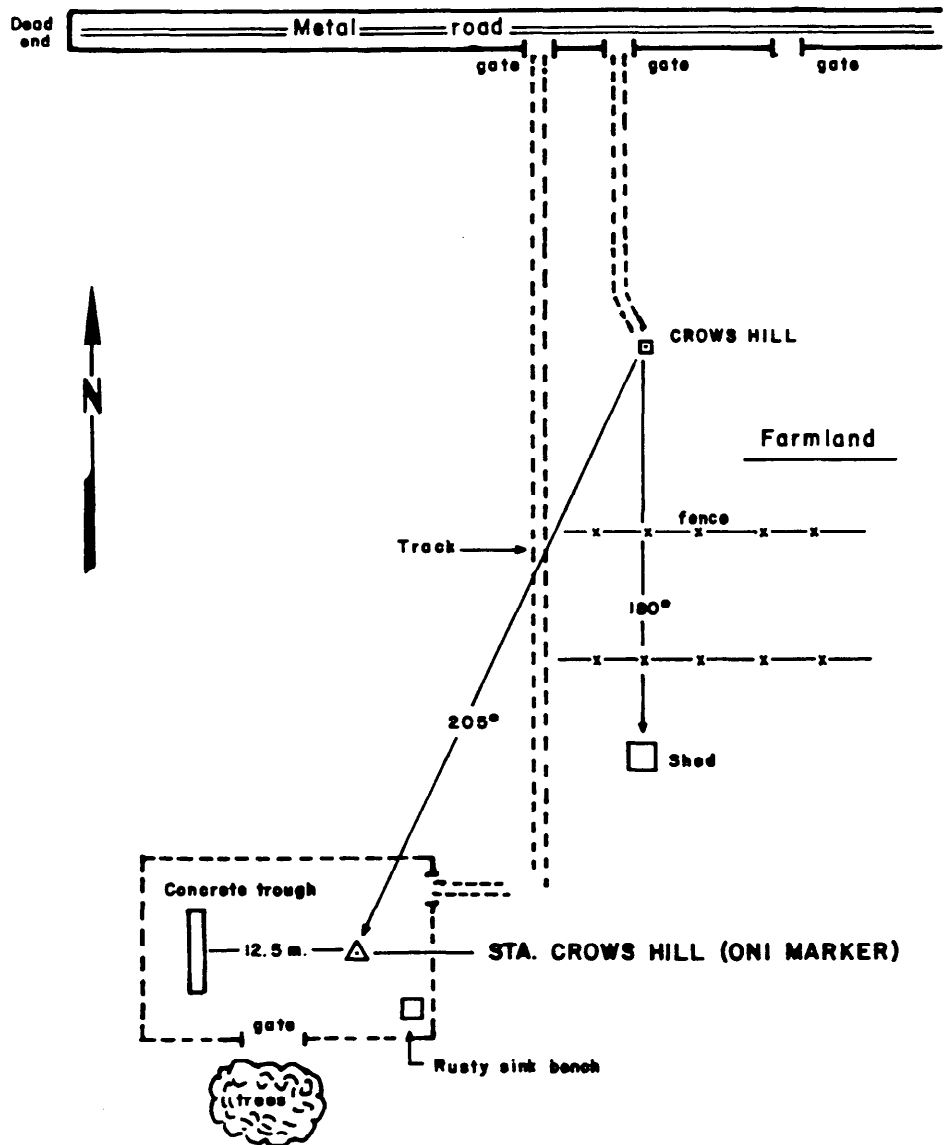


9/83/1419

CHECKING INFORMATION
DATE: 11/11/11

STA. CROWS HILL ————— AUSTRALIA

STATION DETAILS



STATION: MOUNT RUSKIN

LOCATED: Station Mount Ruskin is located on the Victoria-South Australia border, about 4 miles west of the township of Nelson, Victoria. The station is on a prominent hill, which can be seen from the Port Nelson - Mount Gambier Highway at the border sign. The station is in a large paddock on the farm of Mr. Max Holaway.

ACCESS: From the Portland, Victoria General Post Office building, set the vehicle's odometer to 0.00 kilometer, and travel on the North Princess Highway for 2.7 kilometers to a Shell garage. Turn left at this point, remaining on the Princess Highway, and drive to Nelson. At 65.2 kilometers, and in the township of Nelson, a Mobil garage will be passed. Continue on the Princess Highway, crossing a bridge that is over the Elenee River at 65.5 kilometers, pass the entrance to Mr. Holaway's house at 68.5 kilometers, and drive to a gate on the left hand side of the road at 69.3 kilometers, just past the Victoria - South Australia border. Turn left and go through the gate. Follow the track from the gate to the station, a distance of 1.4 kilometers. A four-wheel drive vehicle is required to negotiate the track during periods of wet weather.

MARKER: The station marker consists of a standard Victorian Department of Lands & Surveys marker, a circular concrete wheel with a metal pin in its center. A 12-foot steel quadruped sits over the marker.

Mr. Holaway's house is located approximately 1 kilometer, at a bearing of 080°, from the marker. A windmill and tank is approximately one-half kilometer away from the marker, at a bearing of 180°.

STATION: MOUNT RUSKIN (continued)

GENERAL: All food, fuel, oil, and water supplies can be purchased in either Nelson or Portland. Water from the bores in the station area is suitable for drinking. Labor is available in Portland at approximately \$40.00 per day.

The station property owner, Mr. Max Holaway, must be notified when this station is to be occupied, and permission obtained. No rent was paid for the use of the property.

A 60-foot tower was erected at this station. A minimum tower height of 40 feet is required to clear surrounding obstructions. Clear vista is from 120° to 250°. Double star stakes are required to secure the tower, due to strong winds that can be experienced in this area. Difficulty can be experienced in trying to keep a tent up in these winds. A caravan, to house the equipment and operator, is required.

ELEVATION: 38 meters

SKETCH: See next page.

Coordinates of the trig marker were obtained from the Lands & Surveys Department, Victoria.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 54, C.M. 141° EAST ----- A.G.D.

Lat. 38°02'54"56 S N = 5,788,789 meters
Long. 140°57'49"58 E E = 496,821 meters

STATION: MOUNT WARRNAMBOOL

LOCATED: Station Mount Warrnambool is located approximately 26 kilometers northeast of Warrnambool, Victoria, Australia. The hill on which the station site is located can be seen from the main road leading out of Warrnambool. There is a forestry lookout located on the only flat spot on the hill.

The hill is covered with grass, and slopes steeply on all sides.

ACCESS: From Warrnambool, proceed east on the Princess Highway for 25.2 kilometers, passing through the towns of Allansford (11.26 km.), and Panmure (21 km.). At 25.2 kilometers, a gate, old quarry, and fire tank will be seen on the left side of the road. Drive through the gate, and proceed about 0.8 kilometer to the farm house of Mr. J. O'Donaghue. This farm house is at the base of the hill (Mount Warrnambool). From the farm house, drive towards the dairy shed, then follow the track to the top of Mount Warrnambool, and the station site. A four-wheel drive vehicle was used to reach this station during a previous survey. The track to the station is very slippery when wet.

MARKER: The survey marker consists of a brass plaque set in a 9-inch square steel box 6 inches below ground level. The outside of the box is inscribed "GEODETIC SURVEY VICTORIA", and the inside is inscribed "TRIANGULATION STATION". A 12-1/2-foot high normal steel quadruped, with circular vanes, has been constructed directly over the marker. The forestry fire lookout hut is located 120 feet at a bearing of 270° from the marker. This hut is 10 feet high, octagonal in shape, and built in 1980.

GENERAL: All food supplies required can be obtained from any of the several large stores in Warrnambool. Fuel and oil can be obtained from the SHELL Depot in Warrnambool. Mr. Paynter is in charge. Water can be obtained from the farm house, with permission.

STATION: MOUNT WARRNAMBOOL (continued)

During the later part of the year, the prevailing winds at this site are mainly from the north-east at an average velocity of 40 knots. It can also become very cold and rainy at this time of the year.

Livestock need watching, as they tend to use anchors as back scratchers.

A caravan was used on this site during October 1980. The caravan was hired at very reasonable rates from Rex Caravan Hire in Warrnambool. The Shire Health Inspector insists that a portable toilet be brought to this site. This was also obtained from Rex Caravan Hire.

The station site is located on land owned by Mr. J. O'Donaghue (phone 055-676210). Permission to occupy the station site must be obtained from Mr. O'Donaghue and from the Warrnambool Shire Council. No rent was paid for its use.

A 60-foot tower was erected at this station. A minimum of 30 feet is required to give clear vista of 360°. Star stakes were used to secure the tower.

ELEVATION: 219 meters

SKETCH: See next page.

Coordinates of the trig marker were obtained from the Lands & Surveys Department, Victoria.

UTM PROJECTION, AUSTRALIAN NATIONAL SPHEROID
ZONE 54, C.M. 141° EAST ----- A.G.D.

| | | |
|-------|----------------|----------------------|
| Lat. | 38°18'25"83 S | N = 5,758,658 meters |
| Long. | 142°44'18"21 E | E = 651,993 meters |

STA. MOUNT WARRNAMBOOL — AUSTRALIA

PHILLIPS COORDINATES

LAT. 38°18'25".83 S

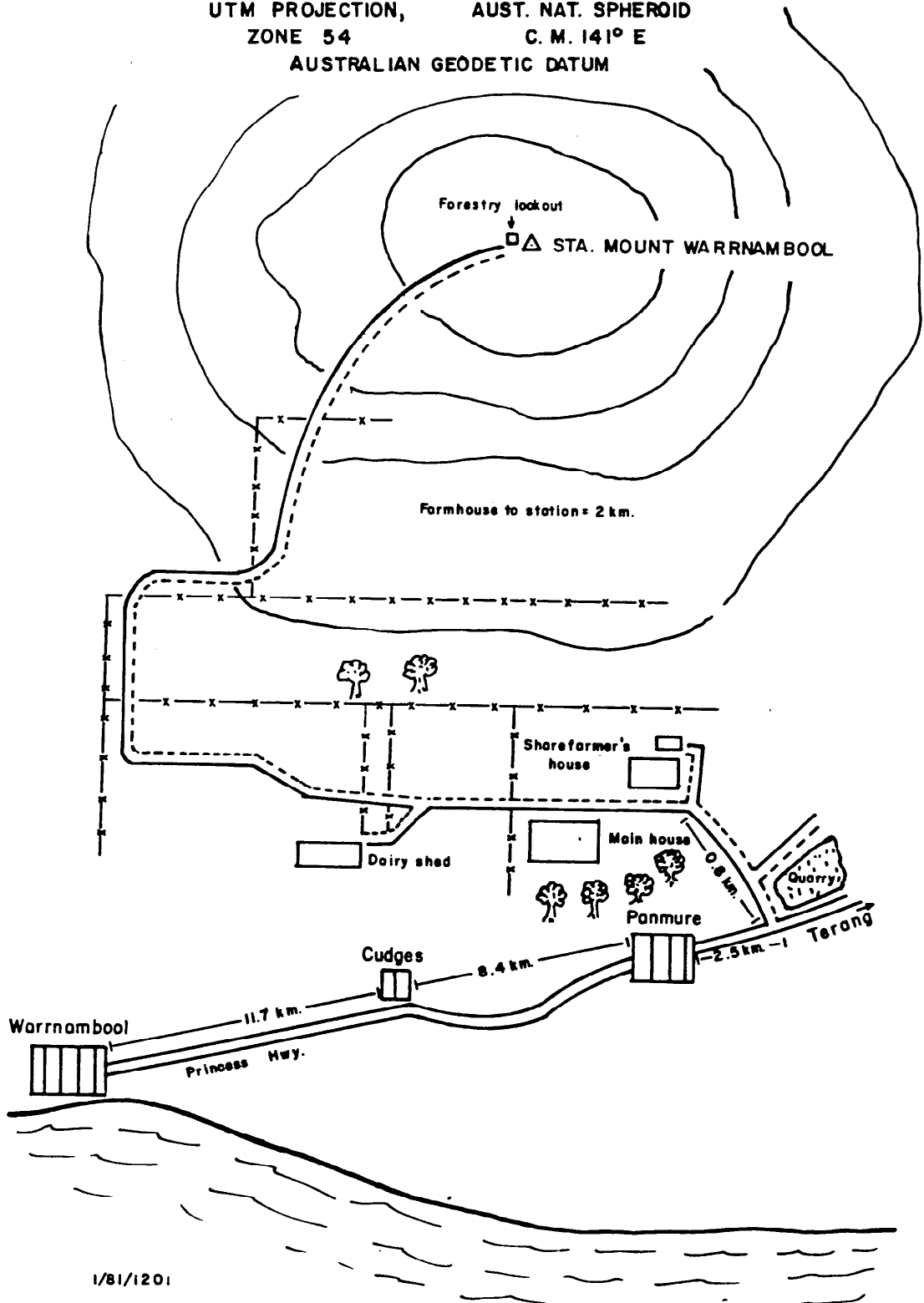
N 5,758,658 meters

LONG. 142°44'18".21 E

E 651,993 meters

ELEV. 219 meters

UTM PROJECTION, AUST. NAT. SPHEROID
ZONE 54 C. M. 141° E
AUSTRALIAN GEODETIC DATUM



1/81/1201

PHILLIPS COORDINATES
UTM PROJECTION

WELL BRIDGEWATER BAY NO. I—AUSTRALIA

LAT. 38°32' 25".97 S
LONG. 141°21' 47".95 E

N 5,734,130 meters
E 531,663 meters

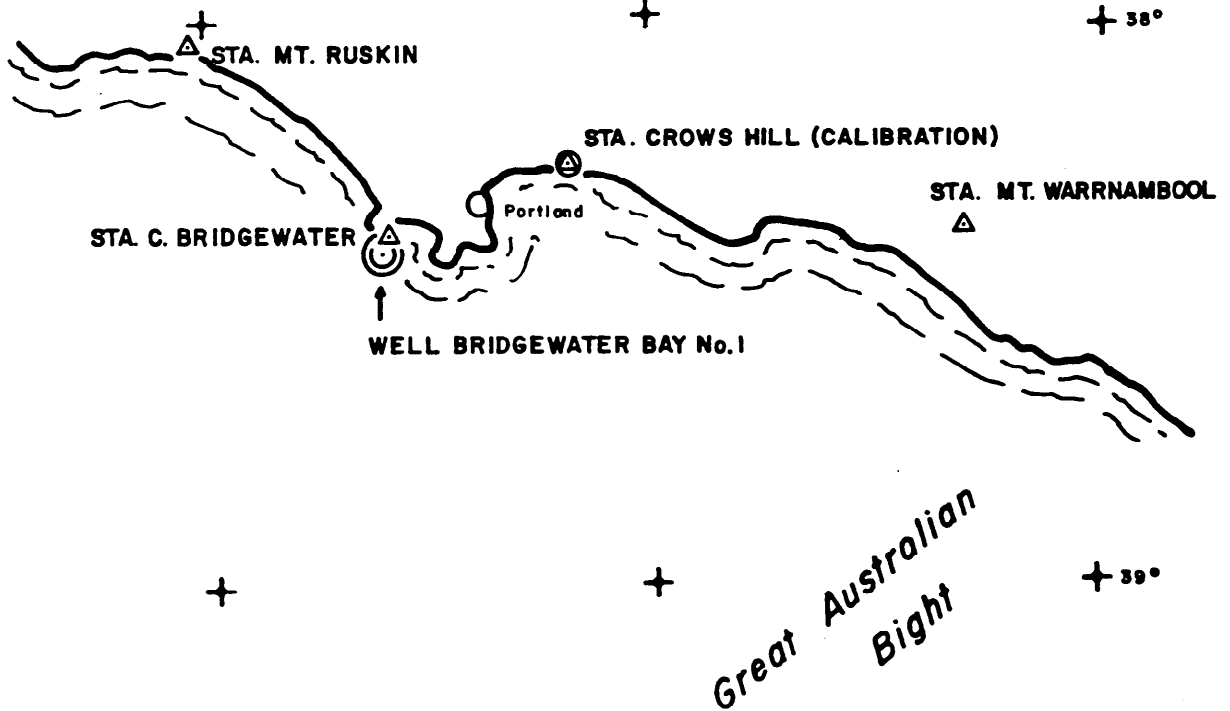
UTM PROJECTION, AUST. NAT. SPHEROID
ZONE 54 C. M. 141° E
AUSTRALIAN GEODETIC DATUM

141°
+

142°
+

143°
+ 37°

V I C T O R I A



9/83/1419

DEPARTMENT OF DEFENSE
GEOGRAPHIC NAME BOARD

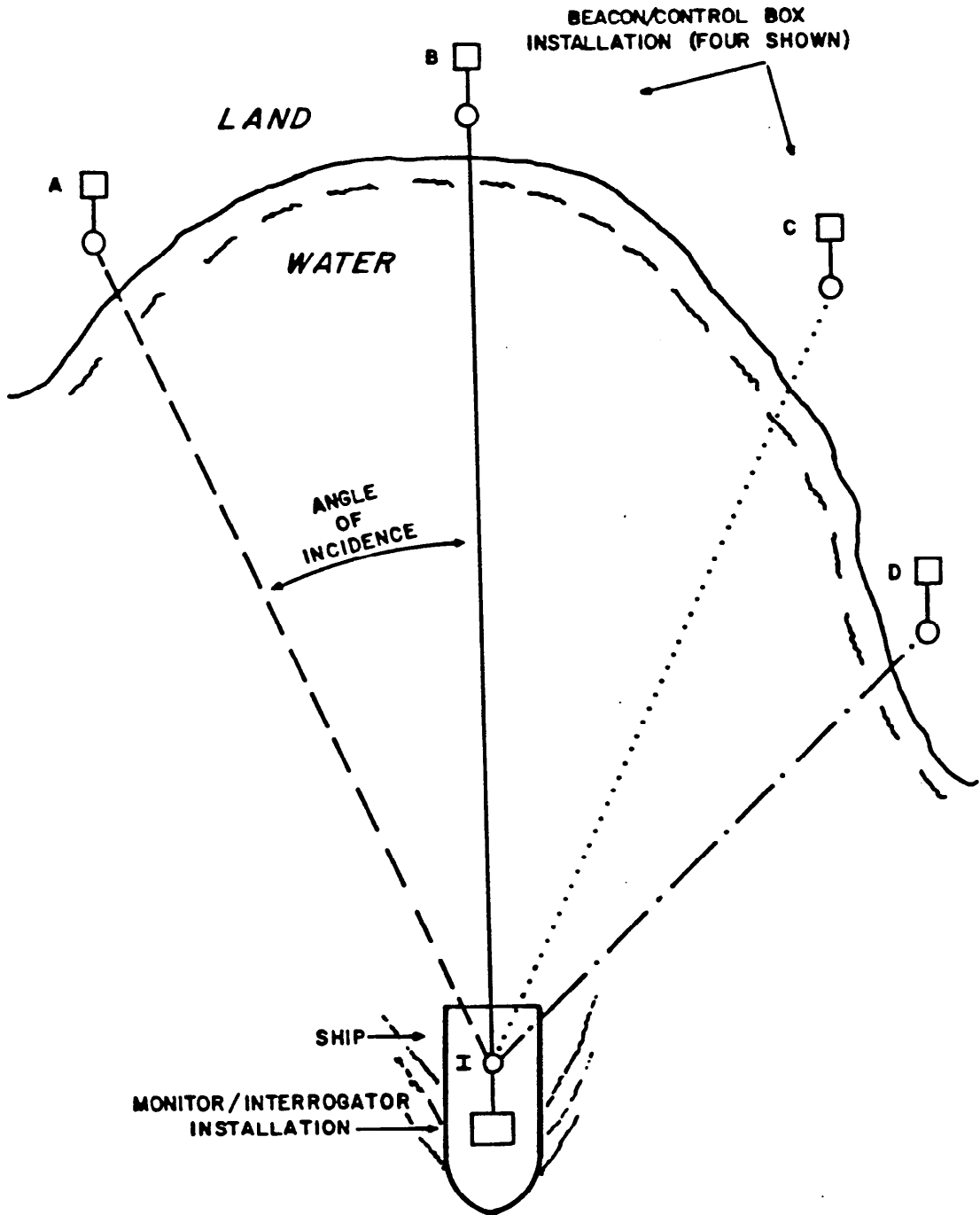
I. THE MAXIRAN RADIOPOSITIONING SYSTEM

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



APPENDIX A
DAILY OPERATIONS LOGS

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

Project Number M19 Date 2-3 SEPT 1983 Boat DIAMOND M EPOCH
 Geophysical Company _____ Oil Company PHILLIPS
 Country AUSTRALIA Area/Prospect BRIDGEWATER - 1 Stepback _____

well location
 Client Party Bridgewater No.
 Number _____
 Radio Frequency 7840 Kcs
 Shot Point Interval _____

| | | | | | |
|----------------|-------------------------|----------------------------|-----------------------|-------------------------|-------------------------------|
| Mobile Station | FREQUENCY <u>441</u> | INTERROGATOR <u>009</u> | MONITOR <u>041</u> | AMPLIFIER <u>073</u> | ANTENNA SYSTEM <u>OMNI</u> |
|----------------|-------------------------|----------------------------|-----------------------|-------------------------|-------------------------------|

| BASE STATIONS | | | | | | |
|--------------------|------------------|------------|------------|------------|----------|-------------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| <u>WARRNAMBOOL</u> | <u>G. WELLS</u> | <u>429</u> | <u>010</u> | <u>036</u> | <u>1</u> | <u>5001</u> |
| <u>BRIDGEWATER</u> | <u>R. ROUNDS</u> | <u>"</u> | <u>067</u> | <u>055</u> | <u>3</u> | <u>5021</u> |
| <u>MT. RUSKIN</u> | <u>G. WARD</u> | <u>"</u> | <u>036</u> | <u>032</u> | <u>5</u> | <u>5021</u> |

| 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 Sept 2nd. Heaverlo and rounds travel from perth to melbourne.
Sept 3rd. Heaverlo, rounds, O'Reilly, and ward travel from melbourne to portland. wells travels from new zealand to melbourne.

Mobile Operators J. O'REILLY Party Chief A Heaverlo

OFFSHORE NAVIGATION INC.
MAXIRAN DAILY OPERATIONS LOG

well location

Project Number M19 Date 4-5 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number Bridgedwater No.
 Geophysical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 8840 KHz
 Country AUSTRALIA Area/Prospect BRIDGewater - 1 Stepback Shot Point Interval

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

BASE STATIONS

| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
|-------------|-----------|-----------|--------|-----------|------|-------|
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGewater | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

OPERATING TIME

| Time On | Time Off | Requested By | System Used For |
|------------------|----------|--------------|---|
| 1200 | 1815 | client | calibration sept 4th. |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>18 1/4 Hrs</u> |

LOST TIME

| From | To | Hours Lost | Reason(s) |
|------|----|------------|-----------|
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks sept 4th. T1130 arrive at sta crows Hill
T1200 in operate.
T1815 complete calibration, see calibration sheets.
G. Wells travels to Warrnambool station.
Sept 5th. O'Reilly and Heaverlo to Warrnambool station to pick up truck.
O'Reilly continues on to Melbourne with Mobile equipment.
Heaverlo returns to Portland. Rounds and Ward set up Station
Bridgewater.

Mobile Operators J. O'REILLY Party Chief D. Heaverlo
N. Heaverlo

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

Project Number 1419 Date 6 SEPT '83 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KHz
 Country AUSTRALIA Area Prospect BRIDGEWATER #1 Stepback _____ Shot Point Interval _____

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | WHIP |

| BASE STATIONS | | | | | | |
|---------------|----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| 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
1345: ARRIVE ABOARD "DIAMOND M EPOCH" VIA CHOPPER WITH MOBILE EQUIPMENT. COMMENCE INSTALLING SAME.
2000: MOBILE SYSTEM INSTALLED AND CHECKED OHT.
2400: AS ABOVE. ENROUTE LOCATION BRIDGEWATER #1 OFF PORTLAND VICTORIA.

Mobile Operators James D O'Keefe Party Chief A Heavels

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

Project Number H19 Date 7 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number.....
 Geophysical Company..... Oil Company PHILLIPS Radio Frequency 7840 KHZ
 Country AUSTRALIA Area/Prospect BRIDGEWATER - 1 Stepback..... Shot Point Interval.....

| | | | | | |
|----------------|-----------|--------------|---------|-----------|----------------|
| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 0700 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>17^H</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks
 0700: MOBILE SYSTEM T
 1500: ACQUIRE STA WARRNAMBOOL 100+ KM. GOOD SIGNAL
 1610: ACQUIRE STA BRIDGEWATER 195+ KM. GOOD SIGNAL
 1900: 2400: TAKING NAV FIXES. NO SIGNAL RE MT. RUSKIN

Mobile Operators J. O'Rielly Party Chief A. Heaverlo

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

Project Number 1419 Date 8 SEPT '83 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company PITILLIPS Oil Company PITILLIPS Radio Frequency 7840 Kcs
 Country ANSTRALIA Area/Prospect BRIDGEWATER #1 Stepback Shot Point Interval

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 0000 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>24^h</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks 0700: ACQUIRE MT. RUSKIN STA 118 + K. GOOD SIG.
1130: 3 WF RNS 81.632 BRIDGE 27.789 WARR 104.289
1200: " " 77.483 23.847 107.364
1230: " " 72.773 19.381 110.253
1302: " " 68.897 15.694 112.393
1349: " " 67.250 13.906 112.527
1410: 66.827 13.393 112.369
1534: 65.962 12.450 112.524
1550: 66.352 12.846 112.383
1603: 66.608 13.073 112.194
1815: 70.853 17.126 109.557
2400: STOP VICINITY BRIDGEWATER #1 AWAITING WEATHER -
TOO ROUGH TO HANDLE ANCHORS AT PRESENT

Mobile Operators J. O'Leary Party Chief D. Heavels

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

Project Number 1419 Date 9 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company _____ Oil Company PHILLIPS Radio Frequency 7840 Kcs.
 Country AUSTRALIA Area/Prospect BRIDGEWATER #1 Stepback _____ Shot Point Interval _____

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|--------------------------|----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| ² BRIDGEWATER | R. RONDS | " | 067 | 055 | 3 | 5021 |
| ST. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |
| | | | | | | |

| OPERATING TIME | | | |
|------------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 0600 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By _____ | | | Total System - Hours Operation for Client <u>24</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

rief Operations Log & Remarks 0700: 3WF WARB. 108.781 D.WATER 23.894 RNSK 77.262
1030: SET C #7 WARB 121.831 DWATER 17.062 RNSK 65.268
1235: P #2 ON BOTTOM
1729: 3WF WARB 122.977 D.WATER 17.369 RNSKIN 64.779
2400: RUNNING ANCHORS

Mobile Operators J. Kelly Party Chief A. Heavels

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

Project Number 1419 Date 10 SEPT '83 Boat DIAMOND M EPOCH Client Party Number.....
 Geophysical Company..... Oil Company PHILLIPS Radio Frequency 7840 KGS
 Country AUSTRALIA Area/Prospect BRIDGEWATER Stepback..... Shot Point Interval.....

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|------------|--------------|------------|------------|----------------|
| | <u>441</u> | <u>009</u> | <u>041</u> | <u>073</u> | <u>OMNI</u> |

| BASE STATIONS | | | | | | |
|--------------------|-----------------|------------|------------|------------|----------|-------------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| <u>WARRNAMBOOL</u> | <u>G. WELLS</u> | <u>429</u> | <u>010</u> | <u>036</u> | <u>1</u> | <u>5001</u> |
| <u>BRIDGEWATER</u> | <u>R. ROWNS</u> | " | <u>067</u> | <u>055</u> | <u>3</u> | <u>5021</u> |
| <u>MT. RUSKIN</u> | <u>G. WARD</u> | " | <u>036</u> | <u>032</u> | <u>5</u> | <u>5021</u> |
| | | | | | | |

| OPERATING TIME | | | |
|------------------|-------------|---------------|---|
| Time On | Time Off | Requested By | System Used For |
| <u>0000</u> | <u>2400</u> | <u>CLIENT</u> | <u>RIG LOCATION</u> |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>24</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks
0000: RUNNING ANCHORS (PIGGY BACKS)
0830: 3WT WARR. 122.962 B.WATER 17.344 RUSKIN 64.759
2400: STBY ON LOCATION

Mobile Operators J. O'Reilly Party Chief A. Heavey

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

Project Number 1419 Date 11 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KCS
 Country AUSTRALIA Areal Prospect BRIDGEWATER #1 Stepback Shot Point Interval

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROHNOS | " | 067 | 055 | 3 | 5021 |
| PT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 1000 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>24</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |

Chief Operations Log & Remarks 0000: STBY ON LOCATION
0350: RIG DRAGGING - HIGH WINDS - NO SIG BRIDGEWATER OR WARR
0515: POSITION: RUSKIN 64.794 DWATER 17.367
RIG HAS DRAGGED 130 FT. EAST SINCE LAST NIGHT
0700: FIX RUSKIN 64.789 BRIDGEWATER 17.360
0730: SAME
1720: SAME
2400: SAME POSITION: AWAITING WX

Mobile Operators [Signature] Party Chief [Signature]

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

Project Number H19 Date 12 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KHz
 Country AUSTRALIA Area/Prospect BRIDGEWATER - 1 Stepback 1 Shot Point Interval

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| PT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 0000 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>24</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |

Chief Operations Log & Remarks
 0000: AWAITING CALMER WEATHER
 1440: WORK BOATS AT RIG START HANDLING ANCHORS - RESPOTTING
 DRAGGED ONES & PIGGY BACKING.
 1530: 3WF WARR 122.972 D.WATER 17.368 RUSK 64.783
 Δ TO MOONPOOL 1040 28mtrs.
 2400: WORKING ANCHORS - ANCHORS NOT HOLDING

Mobile Operators J. Kelly Party Chief A. Shavello

OFFSHORE NAVIGATION INC.
MAXIRAN DAILY OPERATIONS LOG

Project Number H19 Date 13 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company PHILLIPS Oil Company PHILLIPS Radio Frequency 7840 KHZ
 Country AUSTRALIA Areal Prospect BRIDGEWATER - 1 Stepback 1 Shot Point Interval

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |
| | | | | | | |

| OPERATING TIME | | | |
|------------------|----------|--------------|--|
| Time On | Time Off | Requested By | System Used For |
| 0000 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>24H</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks
 0000: TENSIONING ANCHOR CABLES - ANCHORS DRAGGING
 0810: FIX B'WATER 17.325 RUSKIN 64.842
 MOONPOOL NOW 495 FT. EAST OF LOCATION
 2105: FIX B'WATER 17.319 RUSKIN 64.841
 MOONPOOL 508 FT. 84.5° FROM LOCATION
 2400: AS ABOVE - ANCHORS NOT HOLDING

Mobile Operators J. Deilly Party Chief A. Heavey
 Form N-1A SEE INSTRUCTIONS ON REVERSE

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

Project Number H19 Date 14 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company _____ Oil Company PHILLIPS Radio Frequency 7840 Kcs
 Country AUSTRALIA Area Prospect BRIDGEWATER - 1 Stepback _____ Shot Point Interval _____

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 0000 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>24</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks
 0000: STBY LOCATION
 0645: FIX BWATER 17.316 RUSKIN 64.838
 ANT TO MOONPOOL 103° 28' m
 MOONPOOL TO LOC. 567' 86"
 1530 * FIX WAR 122.807 BWATER 17.336 RUSKIN 64.876
 ANT → MOONPOOL = 025° 28' mtr. =
 616 FT. 264° MOONPOOL → LOCATION
 2000: POSITION AS ABOVE
 2400: AS ABOVE - ANCHORS PROBLEMS

* MOVED MAXIRAN ANTENNA TO PORT SIDE OF HELIDECK PRIOR TO THIS FIX

Mobile Operators J. O'REILLY Party Chief A. Slavoff

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

Project Number H19 Date 15 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company _____ Oil Company PHILLIPS Radio Frequency 7840 KHz
 Country AUSTRALIA Area/Prospect BRIDGEWATER #1 Stepback _____ Shot Point Interval _____

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------------|----------|--------------|---|
| Time On | Time Off | Requested By | System Used For |
| 0000 | 2400 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By _____ | | | Total System - Hours Operation for Client <u>24 H</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks

0800: 3WF RUS 64.817 BRIDGEWATER 17.352 WARRN 122.832
 20° 20 mtr. ANT TO DRILLSTEM

1040: 3WF 64.865 17.359 122.859
 30° 20 mtr ANT TO DRILLSTEM

1245: 64.859 17.357 122.864
 29° 20 mtr ANT TO DRILLSTEM ~ ALL VS TESTED
 AND AT WORKING TENSION BEFORE THIS FIX

Mobile Operators James D. Kelly Party Chief R. Heaver

OFFSHORE NAVIGATION INC.
MAXIRAN DAILY OPERATIONS LOG

Project Number M19 Date 16 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company Oil Company PHILLIPS Radio Frequency 7840 KHz Shot Point Interval
 Country AUSTRALIA Area/Prospect BRIDGEWATER - 1 Stepback

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

| BASE STATIONS | | | | | | |
|---------------|-----------|-----------|--------|-----------|------|-------|
| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

| OPERATING TIME | | | |
|------------------|----------|--------------|--|
| Time On | Time Off | Requested By | System Used For |
| 0000 | 1130 | CLIENT | RIG LOCATION |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client <u>11½ hrs</u> |

| LOST TIME | | | |
|-----------|----|------------|-----------|
| From | To | Hours Lost | Reason(s) |
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks
 0000: ON LOCATION
 0645: FIX WARR 122.859 B'WATER 17.354 RNSK 64.858
 ANT. TO DRILLSTEM = 20m. 029°
 1130 Secure stations. Demob mobile equipment.
 1400 Fly mobile equipment to Portland airport. Heaverlo meets helicopter and stores mobile equipment. All base stations returned to Portland. O'Reilly to Melbourne.

Mobile Operators J. O'REILLY Party Chief A. Heaverlo

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

Project Number H19 Date 17 SEPT 1983 Boat DIAMOND M EPOCH Client Party Number
 Geophysical Company Oil Company PHILLIPS Radio Frequency 1840 KHZ
 Country AUSTRALIA Areal Prospect BRIDGEWATER - 1 Stepback Shot Point Interval

| Mobile Station | FREQUENCY | INTERROGATOR | MONITOR | AMPLIFIER | ANTENNA SYSTEM |
|----------------|-----------|--------------|---------|-----------|----------------|
| | 441 | 009 | 041 | 073 | OMNI |

BASE STATIONS

| Position | Operator | Frequency | Beacon | Amplifier | Code | Delay |
|-------------|-----------|-----------|--------|-----------|------|-------|
| WARRNAMBOOL | G. WELLS | 429 | 010 | 036 | 1 | 5001 |
| BRIDGEWATER | R. ROUNDS | " | 067 | 055 | 3 | 5021 |
| MT. RUSKIN | G. WARD | " | 036 | 032 | 5 | 5021 |

OPERATING TIME

| Time On | Time Off | Requested By | System Used For |
|------------------|----------|--------------|---|
| none | | | |
| | | | |
| | | | |
| | | | |
| O/T Requested By | | | Total System - Hours Operation for Client |

LOST TIME

| From | To | Hours Lost | Reason(s) |
|------|----|------------|-----------|
| | | | |
| | | | |
| | | | |
| | | | |

Brief Operations Log & Remarks All equipment taken to Warrnambool and stored.
Project completed. Crew returns to Perth.

Mobile Operators J. O'REILLY Party Chief D. Heaverlo

APPENDIX B
THE MAXIRAN RADIOPOSITIONING 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

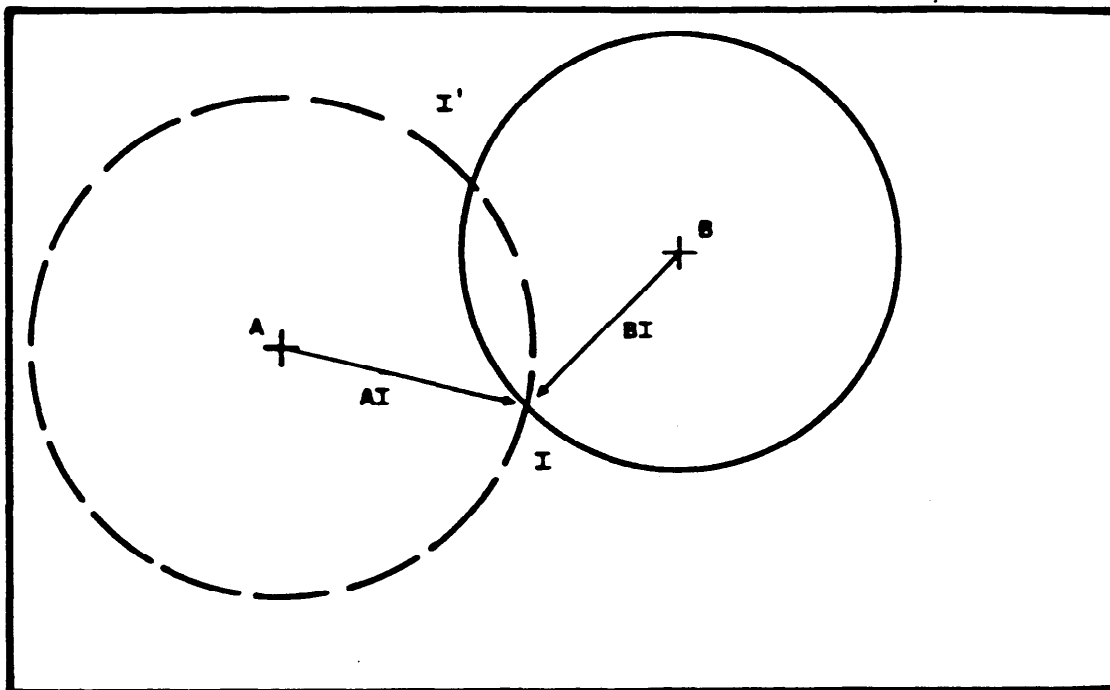
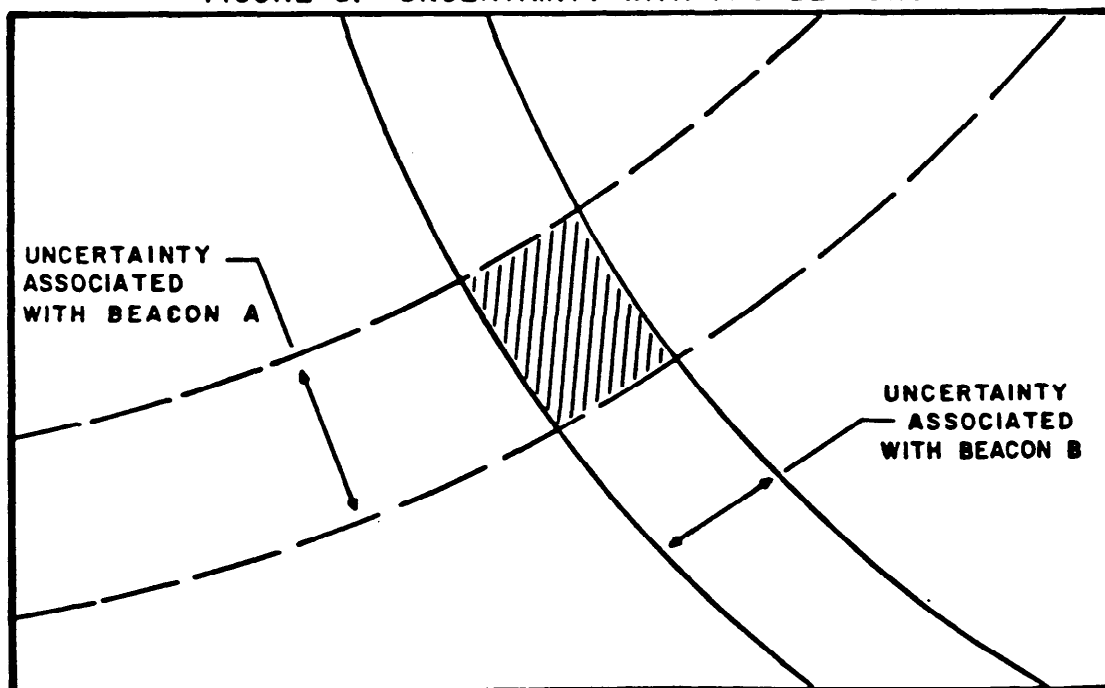


FIGURE-3. UNCERTAINTY WITH TWO BEACONS



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

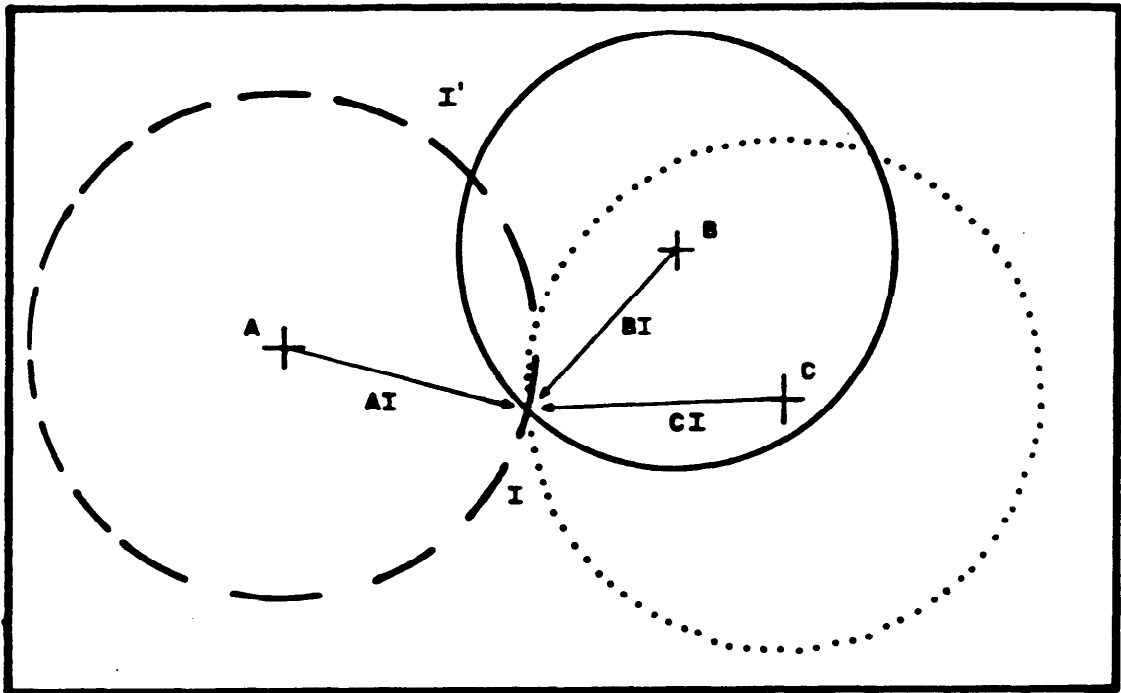
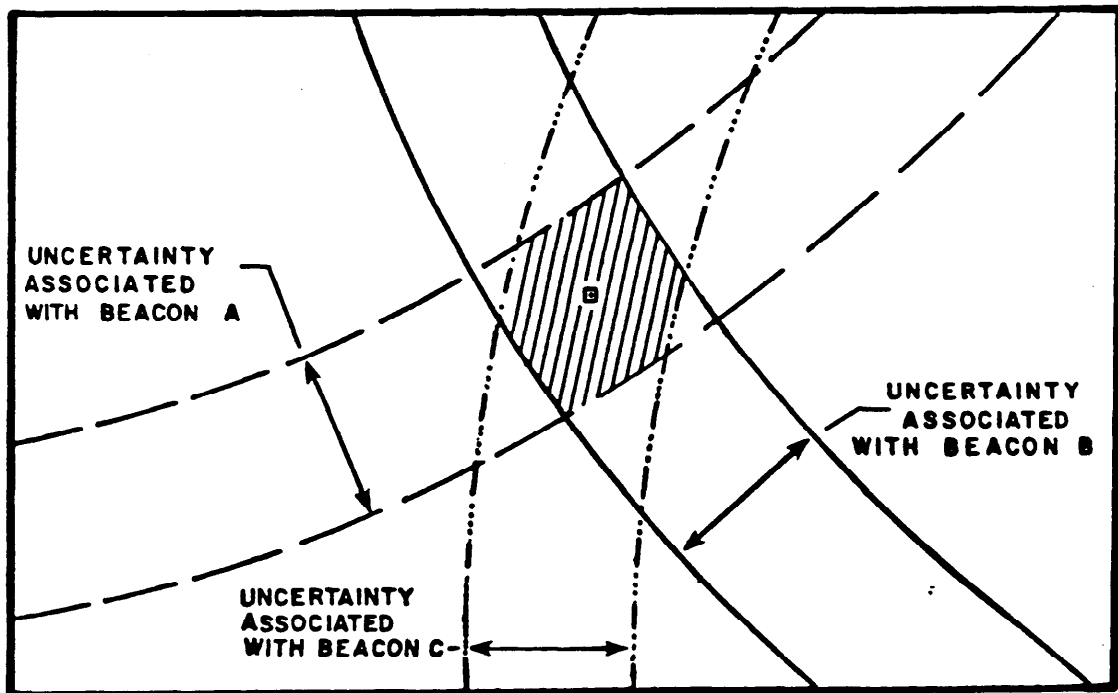


FIGURE-5. UNCERTAINTY WITH THREE BEACONS



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.

PE 900163

PHILLIPS AUSTRALIAN OIL CO

Bridgewater Bay-1

Geoservices Final Well Report

General

C O N T E N T S

GENERAL

- General Well Data
- Well Summary
- Days versus Depth Plot
- Bit Record
- Mud Record
- Final Well Geometry
- Casings List.

Record of Operations

- Phase Summaries
- Daily Well Record

Overpressure Survey

- Summary
- D Exponent Plot
- Temperature Plot

Real Time Depth Plot

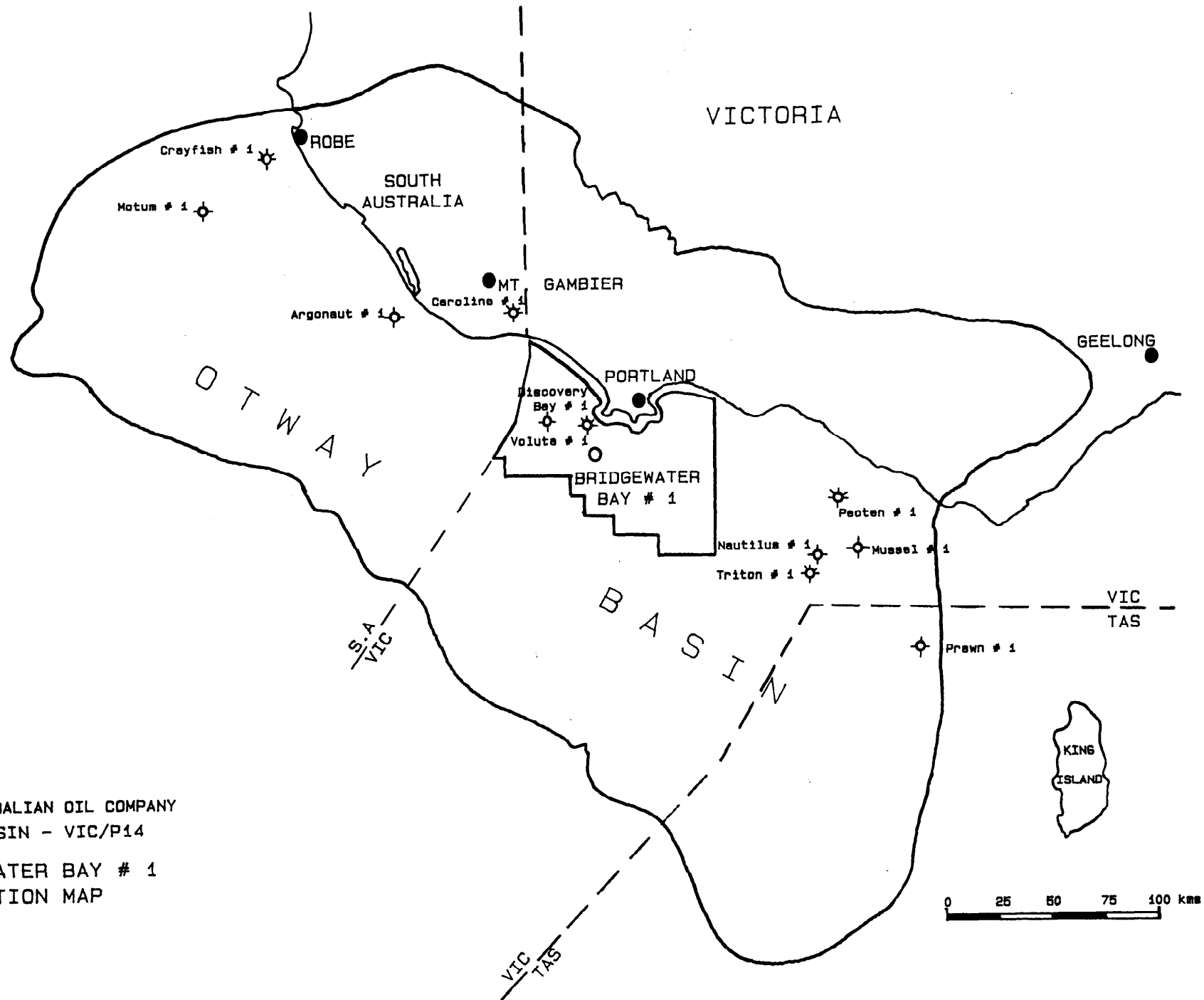
- Depth Plot reduced to A4

Geology

- Lithology
- Masterlog

GENERAL WELL DATA

Company Name : Phillips Australian Oil Co.
Well Name : Bridgewater Bay # 1.
Permit Number : VIC/P14.
Contract Area : Cape Otway Basin.
State and Country : Victoria, Australia.
Location : Latitude 38 32 26.20" S.
: Longitude 141 21 47.59" E.
Water Depth : 109.2 m (358 ft).
Elevation KB AMSL : 22.2 m (73 ft).
Elevation KB : 131.4 m (431 ft).
Total Depth : 4200 m.
Spudded on : 15 September 1983.
Reached TD on : 2 December 1983.
Plugged in : December 1983.
Type of Well : Wildcat.
Primary Objective : Top of Otway Group (Faulted Anticline).
Drilling Contractor : Diamond "M".
Rig Name & Type : Diamond "M" Epoch - Semi-submersible.
Personnel (T.D.C) : Andy Buffin Nick Hardy Derek Shields.
Personnel (Loggers) : Dave Andrew James Guy.
: Chris Ruffle Gordon Beattie.



PHILLIPS AUSTRALIAN OIL COMPANY
 OTWAY BASIN - VIC/P14
 BRIDGEWATER BAY # 1
 LOCATION MAP

WELL SUMMARY

BRIDGEWATER BAY # 1

Bridgewater Bay # 1 was a vertical exploration well in the centre of Permit VIC/P14. The exact location was at Shot Point 860 on seismic line OP 80 - 43. Bridgewater Bay # 1 was projected to penetrate the Waarre Formation, a sand body of Upper Cretaceous age (Cenomanian).

The objectives were :

Look at the Intra-Sherbrook Group (Brown Horizon).

Evaluate the hydrocarbon potential of the Waarre Sands.

Bridgewater Bay # 1 was spudded on 15th September 1983 and reached T.D. on 2nd December 1983, after 78 days on location. A total of 32 new bits were used to drill the well. Overpressure was encountered at about 2950m and became a problem prior to running the 9 5/8" casing at 3549m.

Two depths at which lost circulation occurred were encountered, one at 4052m and the second at 4101m. A total of 675 bbls of mud were lost. On both occasions circulation was regained and the well was drilled to a T.D. of 4200m.

After logging the 8 1/2" hole, the 9 5/8" casing was cut and the well was plugged and abandoned.

PE902251

This is an enclosure indicator page.
The enclosure PE902251 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE902251 has the following characteristics:

ITEM_BARCODE = PE902251
CONTAINER_BARCODE = PE902250
 NAME = BRIDGEWATER BAY 1 DRILL CURVE
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = BRIDGEWATER BAY 1 DRILL CURVE
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

 Phillips Aust Co. Bridgewater Bay # 1 BIT REPORT

| BIT No | TYPE | SIZE | NOZZLES | DEP. IN | MTRGE | DRING | | | AVER COST/M WOB | | | HYDRO. POWER | | | | Remarks |
|--------|------------|--------|----------|---------|-------|--------|-------|----------|-----------------|------|-----|--------------|------|-------|-----------------------|---------------------|
| | | | | | | HOURS | T/B/G | M/HR | US \$ | KLBS | RPM | FLOW | SPP | MW | TTL | |
| 1 | Hughes | 26 | T: 0.00 | 131.5 | 55.0 | 6.50 | 0/0/1 | 8.5 | 1683 | 5.0 | 110 | 950 | 0 | 8.60 | 0\$\$\$\$\$\$\$\$ | +36"H/O (open jets) |
| LRR | Hughes | 26 | 22 22 22 | 186.5 | 317.5 | 14.50 | 0/0/1 | 21.9 | 528 | 15.0 | 105 | 925 | 2100 | 8.60 | 16141 2320 3.4 | |
| 2 | SMITH DSJ | 14 1/2 | 24 24 24 | 504.6 | 338.8 | 11.13 | 2/2/0 | 30.4 | 381 | 16.0 | 112 | 919 | 2290 | 9.20 | 17487 1718 7.9 | 17.5" U/Reamer |
| 3 | Smith SDT | 14 1/2 | 24 24 24 | 843.0 | 277.0 | 20.20 | 6/3/0 | 13.7 | 737 | 27.4 | 120 | 905 | 2460 | 9.30 | 18499 1659 7.6 | 3/8" out gauge |
| 4 | Smith DSJ | 14 1/2 | 24 24 24 | 1120.0 | 394.0 | 18.50 | 8/6/0 | 21.3 | 526 | 18.5 | 118 | 895 | 2555 | 9.20 | 19001 1537 7.3 | 1/4" out gauge |
| 5 | Hughes 1GJ | 14 1/2 | 24 24 24 | 1514.0 | 89.0 | 8.00 | 6/5/0 | 11.1 | 1345 | 29.0 | 118 | 865 | 2500 | 9.10 | 17969 1417 6.5 | 1/8" out gauge |
| 6 | Smith FDGH | 12 1/4 | 14 14 14 | 1515.0 | 83.0 | 0.75 | 0/0/1 | \$\$\$\$ | 596 | 30.0 | 105 | 520 | 2000 | 9.20 | 8642 2688 17.9 | Drilled cnt. |
| 7 | Smith SDGH | 12 1/4 | 14 14 14 | 1603.0 | 209.0 | 14.10 | 8/7/0 | 14.8 | 855 | 35.5 | 105 | 572 | 2775 | 9.20 | 13189 3578 23.8 | 1/4" out gauge |
| 8 | Reed HS51J | 12 1/4 | 14 14 14 | 1812.0 | 300.0 | 17.50 | 4/3/0 | 17.1 | 689 | 38.0 | 105 | 550 | 2845 | 9.40 | 13002 3250 21.7 | 1/16" out gauge |
| 9 | Reed HS51J | 12 1/4 | 14 14 14 | 2112.0 | 112.0 | 14.10 | 6/5/1 | 7.9 | 1592 | 43.0 | 105 | 530 | 2825 | 9.50 | 12441 2939 19.6 | |
| 10 | Smith FDGH | 12 1/4 | 14 14 14 | 2224.0 | 119.0 | 7.30 | 4/3/0 | 16.3 | 1015 | 42.0 | 71 | 530 | 2850 | 9.50 | 12551 2939 19.6 | 3/16" out gauge |
| 11 | Smith FDGH | 12 1/4 | 14 14 14 | 2343.0 | 91.0 | 14.50 | 3/3/0 | 6.3 | 2078 | 42.0 | 71 | 531 | 2870 | 9.50 | 12663 2956 19.7 | 1/4" out gauge |
| 12 | Smith F2 | 12 1/4 | 14 14 14 | 2434.0 | 35.0 | 8.37 | 1/2/1 | 4.2 | 4020 | 42.8 | 69 | 529 | 2846 | 9.50 | 12510 2922 19.5 | |
| 13 | Diamax MS5 | 12 1/4 | T: 1.05 | 2469.0 | | | | | | 20.0 | 105 | 490 | 1750 | 9.50 | 7125\$\$\$\$\$\$\$\$ | Reaming |
| 14 | Smith SDGH | 12 1/4 | 14 14 14 | 2469.0 | | | | | | 5.0 | 140 | 520 | 1600 | 9.60 | 6913 2805 18.7 | Twisted off |
| 15 | Smith SDGH | 12 1/4 | 14 14 14 | 2469.0 | 30.0 | 3.53 | 1/2/1 | 8.5 | 3852 | 35.9 | 77 | 557 | 2520 | 9.60 | 11663 3447 23.0 | |
| 16 | LX 27 HS | 12 1/4 | T: 1.10 | 2499.0 | 194.0 | 16.31 | | 11.9 | 1455 | 33.1 | 600 | 686 | 3120 | 9.60 | 17784\$\$\$\$\$\$\$\$ | |
| 17 | D'max ADS2 | 12 1/4 | T: 1.10 | 2693.0 | 176.0 | 28.30 | | 6.2 | 2115 | 37.7 | 600 | 650 | 3145 | 9.70 | 16986\$\$\$\$\$\$\$\$ | |
| 18 | CHR R26LF | 12 1/4 | T: 1.05 | 2869.0 | 202.0 | 24.60 | | 8.2 | 1601 | 24.6 | 600 | 665 | 3190 | 9.80 | 17627\$\$\$\$\$\$\$\$ | |
| 19 | Diamax MS5 | 12 1/4 | T: 1.05 | 3071.0 | 42.0 | 10.01 | | 4.2 | 5042 | 40.6 | 600 | 655 | 3330 | 9.80 | 18124\$\$\$\$\$\$\$\$ | |
| 20 | LX 27 HS | 12 1/4 | T: 1.10 | 3113.0 | 436.0 | 73.60 | | 5.9 | 1742 | 49.8 | 600 | 652 | 3570 | 9.80 | 19341\$\$\$\$\$\$\$\$ | |
| 21 | LX 27 HS | 12 1/4 | T: 1.10 | 3549.0 | | | | | | 25.0 | 110 | 600 | 3700 | 9.90 | 18446\$\$\$\$\$\$\$\$ | |
| 22 | Smith SDGH | 12 1/4 | 12 12 12 | 3549.0 | | | 1/1/0 | | | 10.0 | 140 | 590 | 3200 | 10.50 | 15688 8302 55.3 | 1/16 out gauge |
| 23 | Smith SDGH | 12 1/4 | 12 12 12 | 3549.0 | | | 2/2/0 | | | 8.0 | 140 | 575 | 3200 | 12.50 | 15289 9149 61.0 | 3/8 out gauge |
| 24 | Reed FP53J | 12 1/4 | 14 14 14 | 3549.0 | | | 1/1/0 | | | 5.0 | 110 | 550 | 3050 | 12.50 | 13939 4322 28.8 | 1/4 out gauge |
| 25 | Smith FDT | 8 1/2 | 11 11 11 | 3549.0 | | | 0/0/1 | | | 10.0 | 80 | 370 | 3100 | 14.00 | 9531 3867 53.5 | Reaming |
| 26 | Smith FDGH | 8 1/2 | 32 32 32 | 3549.0 | 2.0 | 1.80 | 8/2/0 | 1.158283 | | 32.0 | 110 | 585 | 2885 | 15.00 | 14024 229 3.2 | 1/8 out gauge |
| 27 | Smith SVH | 8 1/2 | 11 11 11 | 3551.0 | 4.0 | 1.82 | 4/2/1 | 2.229183 | | 35.0 | 95 | 370 | 2960 | 15.00 | 9100 4143 57.3 | |
| 28 | LX 27 HS | 8 1/2 | T: 0.75 | 3555.0 | 63.0 | 23.20 | | 2.7 | 5635 | 29.5 | 600 | 345 | 3450 | 15.10 | 9390\$\$\$\$\$\$\$\$ | |
| 29 | Smith F2 | 8 1/2 | 11 11 11 | 3618.0 | 9.0 | 5.80 | 1/1/1 | 1.618808 | | 33.9 | 70 | 345 | 3200 | 15.10 | 9173 3381 46.8 | |
| 30 | Diamax MS5 | 8 1/2 | T: 0.75 | 3627.0 | 429.0 | 117.90 | | 3.6 | 2620 | 26.3 | 600 | 400 | 3575 | 15.10 | 11882\$\$\$\$\$\$\$\$ | |
| 31 | LX 16 | 8 1/2 | T: 0.75 | 4056.0 | 45.0 | 8.80 | | 5.1 | 4778 | 19.8 | 600 | 365 | 3150 | 15.20 | 9554\$\$\$\$\$\$\$\$ | |
| 32 | Smith F2 | 8 1/2 | 32 32 32 | 4101.0 | 99.0 | 48.40 | 2/3/0 | 2.0 | 5380 | 41.8 | 65 | 295 | 1080 | 14.90 | 2647 29 0.4 | 1/16 out gauge |

Phillips Aust Co Bridgewater Bay #1

MUD REPORT

CAKE

| DEPTH | WEIGHT | FV | PV | YP | Gels | WL | thks | pH | pf | mf | Cl- | OIL | Ca++ | N | K | |
|--------|--------|----|----|----|------|----|------|----|------|-----|-----|-------|------|-----|--------|--------|
| m | ppg | | | | | cc | /32 | | | | ppm | % | ppm | | | |
| 800.0 | 9.30 | 35 | 6 | 6 | 1 | 15 | 30.0 | 2 | 10.5 | 0.2 | 0.2 | 15000 | 0.0 | 500 | 0.5848 | 0.3128 |
| 843.0 | 9.30 | 35 | 6 | 6 | 2 | 15 | 13.0 | 1 | 10.0 | 0.5 | 0.4 | 12000 | 0.0 | 120 | 0.5848 | 0.3128 |
| 880.0 | 9.20 | 37 | 7 | 8 | 2 | 13 | 13.0 | 1 | 10.0 | 0.2 | 0.3 | 13000 | 0.0 | 220 | 0.5524 | 0.4786 |
| 980.0 | 9.10 | 38 | 10 | 10 | 2 | 15 | 10.0 | 1 | 10.0 | 0.2 | 0.3 | 13000 | 0.0 | 120 | 0.5848 | 0.5214 |
| 1158.0 | 9.20 | 37 | 8 | 7 | 3 | 10 | 12.0 | 1 | 9.5 | 0.1 | 0.2 | 15000 | 0.0 | 300 | 0.5165 | 0.3209 |
| 1188.0 | 9.20 | 36 | 7 | 7 | 2 | 7 | 12.5 | 1 | 10.0 | 0.2 | 0.3 | 15000 | 0.0 | 300 | 0.5848 | 0.3650 |
| 1341.0 | 9.10 | 37 | 7 | 8 | 2 | 10 | 12.5 | 1 | 9.5 | 0.1 | 0.2 | 15000 | 0.0 | 350 | 0.5524 | 0.4786 |
| 1514.0 | 9.10 | 36 | 7 | 7 | 2 | 10 | 12.0 | 1 | 9.5 | 0.1 | 0.2 | 15000 | 0.0 | 300 | 0.5848 | 0.3650 |
| 1602.0 | 9.10 | 43 | 7 | 10 | 3 | 11 | 10.0 | 2 | 9.5 | 0.1 | 0.2 | 15000 | 0.0 | 300 | 0.4974 | 0.7645 |
| 1659.0 | 9.20 | 39 | 9 | 15 | 3 | 9 | 10.0 | 1 | 9.5 | 0.3 | 0.4 | 75000 | 0.0 | 50 | 0.4593 | 1.3684 |
| 1832.0 | 9.40 | 38 | 10 | 14 | 3 | 9 | 9.8 | 1 | 9.5 | 0.3 | 0.5 | 73000 | 0.0 | 50 | 0.5024 | 1.0462 |
| 2005.0 | 9.40 | 36 | 10 | 13 | 3 | 9 | 9.8 | 1 | 9.4 | 0.2 | 0.3 | 73000 | 0.0 | 50 | 0.5207 | 0.8943 |
| 2094.0 | 9.40 | 36 | 9 | 14 | 2 | 9 | 9.8 | 1 | 9.3 | 0.2 | 0.3 | 75000 | 0.0 | 50 | 0.4763 | 1.1795 |
| 2221.0 | 9.60 | 35 | 9 | 9 | 2 | 7 | 9.8 | 1 | 8.4 | 0.1 | 0.3 | 63000 | 0.0 | 560 | 0.5848 | 0.4692 |
| 2343.0 | 9.50 | 38 | 12 | 12 | 2 | 5 | 8.0 | 1 | 9.5 | 0.2 | 0.5 | 59000 | 0.0 | 100 | 0.5848 | 0.6256 |
| 2374.0 | 9.50 | 38 | 12 | 11 | 2 | 5 | 8.4 | 1 | 9.5 | 0.2 | 0.6 | 59500 | 0.0 | 80 | 0.6056 | 0.5268 |
| 2434.0 | 9.50 | 38 | 13 | 14 | 5 | 9 | 8.0 | 1 | 9.5 | 0.3 | 0.6 | 59000 | 0.0 | 100 | 0.5669 | 0.7871 |
| 2469.0 | 9.50 | 36 | 9 | 10 | 2 | 4 | 8.4 | 1 | 10.0 | 0.5 | 1.2 | 57500 | 0.0 | 100 | 0.5593 | 0.5808 |
| 2470.0 | 9.50 | 37 | 10 | 9 | 2 | 4 | 8.8 | 1 | 10.5 | 1.0 | 1.9 | 57000 | 0.0 | 60 | 0.6099 | 0.4236 |
| 2499.0 | 9.50 | 37 | 10 | 10 | 2 | 4 | 7.4 | 1 | 10.0 | 0.8 | 1.8 | 56500 | 0.0 | 50 | 0.5848 | 0.5214 |
| 2692.0 | 9.60 | 36 | 9 | 9 | 2 | 3 | 8.7 | 1 | 10.0 | 0.5 | 1.6 | 60000 | 0.0 | 80 | 0.5848 | 0.4692 |
| 2745.0 | 9.60 | 36 | 10 | 11 | 2 | 5 | 7.8 | 1 | 9.5 | 0.4 | 1.2 | 60000 | 0.0 | 100 | 0.5617 | 0.6322 |

 Phillips Aust Co Bridgewater Bay #1 MUD REPORT

| DEPTH m | WEIGHT ppg | FV | PV | YP | Gels | CAKE | | pH | pf | mf | Cl- ppm | OIL % | Ca++ ppm | N | K | |
|------------|---------------|----|----|----|------|----------|-------------|----|------|-----|------------|----------|-------------|-----|--------|--------|
| | | | | | | WL cc | thks /32 | | | | | | | | | |
| 2860.0 | 9.70 | 37 | 10 | 11 | 3 | 5 | 8.2 | 1 | 9.0 | 0.2 | 1.9 | 61500 | 0.0 | 180 | 0.5617 | 0.6322 |
| 2975.0 | 9.70 | 37 | 12 | 11 | 2 | 6 | 7.8 | 1 | 9.0 | 0.3 | 1.6 | 62000 | 0.0 | 200 | 0.6056 | 0.5268 |
| 3120.0 | 9.70 | 39 | 12 | 11 | 2 | 5 | 6.9 | 1 | 9.5 | 0.5 | 1.4 | 62000 | 0.0 | 160 | 0.6056 | 0.5268 |
| 3257.0 | 9.70 | 36 | 10 | 10 | 2 | 4 | 7.4 | 1 | 9.5 | 0.3 | 1.0 | 61000 | 0.0 | 160 | 0.5848 | 0.5214 |
| 3385.0 | 9.80 | 36 | 9 | 9 | 2 | 5 | 8.4 | 1 | 9.5 | 0.2 | 0.9 | 59500 | 0.0 | 160 | 0.5848 | 0.4692 |
| 3476.0 | 9.90 | 36 | 9 | 7 | 1 | 3 | 8.9 | 1 | 9.0 | 0.2 | 1.0 | 60500 | 0.0 | 140 | 0.6437 | 0.2889 |
| 3549.0 | 9.90 | 37 | 10 | 9 | 2 | 4 | 8.6 | 1 | 9.5 | 0.2 | 1.1 | 60000 | 0.0 | 160 | 0.6099 | 0.4236 |
| 3549.1 | 11.20 | 49 | 34 | 20 | 3 | 5 | 7.0 | 1 | 9.5 | 0.2 | 0.4 | 77000 | 0.0 | 120 | 0.7043 | 0.6679 |
| 3549.2 | 12.50 | 55 | 28 | 25 | 7 | 12 | 5.0 | 2 | 9.5 | 0.1 | 0.2 | 85000 | 9.0 | 80 | 0.6118 | 1.1678 |
| 3551.0 | 14.90 | 62 | 39 | 24 | 4 | 25 | 7.5 | 3 | 10.0 | 0.4 | 0.9 | 87500 | 6.0 | 100 | 0.6950 | 0.8263 |
| 3559.0 | 14.90 | 73 | 50 | 23 | 4 | 24 | 4.6 | 3 | 10.5 | 0.3 | 0.8 | 95000 | 6.0 | 400 | 0.7525 | 0.6688 |
| 3604.0 | 15.00 | 63 | 43 | 20 | 3 | 26 | 5.8 | 3 | 10.0 | 0.2 | 0.7 | 124000 | 5.0 | 280 | 0.7504 | 0.5846 |
| 3623.0 | 15.10 | 63 | 40 | 27 | 3 | 26 | 5.5 | 3 | 9.5 | 0.1 | 0.6 | 142000 | 5.0 | 360 | 0.6752 | 0.9940 |
| 3654.0 | 15.00 | 64 | 41 | 19 | 3 | 29 | 4.8 | 3 | 10.0 | 0.1 | 0.7 | 144000 | 4.0 | 160 | 0.7511 | 0.5544 |
| 3725.0 | 14.95 | 66 | 37 | 21 | 3 | 46 | 6.2 | 3 | 10.0 | 0.3 | 0.8 | 149000 | 3.0 | 80 | 0.7117 | 0.6853 |
| 3790.0 | 15.00 | 56 | 30 | 15 | 3 | 37 | 7.4 | 3 | 9.5 | 0.2 | 0.7 | 147000 | 4.0 | 280 | 0.7368 | 0.4547 |
| 3855.0 | 15.00 | 54 | 33 | 17 | 3 | 32 | 5.6 | 3 | 10.5 | 0.3 | 1.0 | 147500 | 1.0 | 140 | 0.7310 | 0.5238 |
| 3936.0 | 15.00 | 54 | 32 | 16 | 3 | 29 | 5.6 | 3 | 10.0 | 0.2 | 0.9 | 146500 | 1.0 | 140 | 0.7368 | 0.4850 |
| 4022.0 | 15.10 | 53 | 34 | 19 | 4 | 31 | 5.2 | 3 | 10.0 | 0.3 | 1.0 | 145000 | 1.0 | 100 | 0.7148 | 0.6141 |
| 4055.0 | 15.20 | 48 | 31 | 14 | 2 | 25 | 5.1 | 2 | 10.0 | 0.2 | 0.8 | 151000 | 2.0 | 160 | 0.7559 | 0.4037 |
| 4059.0 | 15.10 | 48 | 31 | 14 | 2 | 23 | 5.8 | 2 | 10.0 | 0.2 | 0.7 | 148000 | 1.0 | 200 | 0.7559 | 0.4037 |
| 4100.0 | 14.90 | 49 | 33 | 14 | 2 | 22 | 5.7 | 2 | 10.0 | 0.2 | 0.7 | 134000 | 1.0 | 200 | 0.7671 | 0.3930 |

Phillips Aust Co Bridgewater Bay #1

MUD REPORT

CAKE

| DEPTH | WEIGHT | FV | PV | YP | Gels | WL | thks | pH | pf | mf | Cl- | OIL | Ca++ | N | K | |
|--------|--------|----|----|----|------|----|------|----|------|-----|-----|--------|------|-----|--------|--------|
| m | ppg | | | | | cc | /32 | | | | ppm | % | ppm | | | |
| 4102.0 | 15.00 | 49 | 33 | 14 | 2 | 19 | 6.1 | 2 | 9.5 | 0.1 | 0.7 | 134500 | 1.0 | 200 | 0.7671 | 0.3930 |
| 4147.0 | 14.90 | 54 | 36 | 18 | 2 | 19 | 4.8 | 2 | 10.0 | 0.2 | 0.8 | 141000 | 1.0 | 220 | 0.7368 | 0.5457 |
| 4180.0 | 15.00 | 50 | 36 | 14 | 2 | 15 | 5.2 | 2 | 10.5 | 0.3 | 1.0 | 143000 | 1.0 | 120 | 0.7822 | 0.3806 |
| 4200.0 | 15.00 | 48 | 33 | 15 | 2 | 14 | 5.0 | 2 | 10.0 | 0.2 | 0.4 | 143000 | 1.0 | 140 | 0.7547 | 0.4338 |

Elevation KB 22.2 m above MSL
Sea bed at 109.2 m below MSL

Hole 36"
at 186.5 m

30" Casing shoe at 182.0 m

Hole 26"
at 504.5 m

20" Casing shoe at 493.0 m

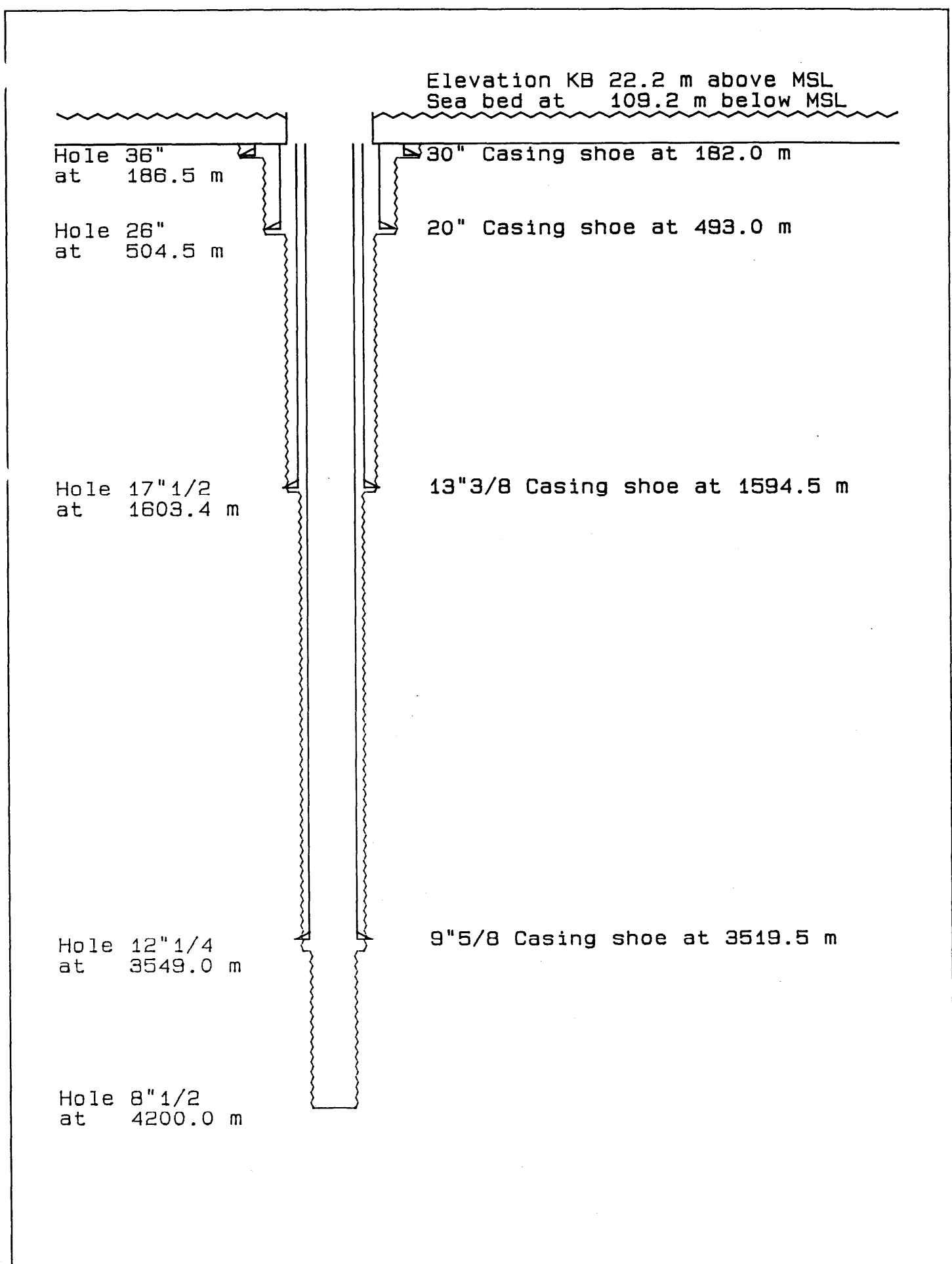
Hole 17" 1/2
at 1603.4 m

13" 3/8 Casing shoe at 1594.5 m

Hole 12" 1/4
at 3549.0 m

9" 5/8 Casing shoe at 3519.5 m

Hole 8" 1/2
at 4200.0 m



GEO SERVICES T.D.C

Phillips Aust Co.

Bridgewater Bay # 1

16.9.83

CASING LIST

CASING SIZE: 30" TYPE: 1" Wall WEIGHT(lbs/ft): 309

CASING LENGTH: 53.50
SHOE DEPTH : 182.00

```
*****  
* Jt # * LENGTH * TOTAL LENGTH * Depth From KB *      Remarks      *  
*****  
*      * 12.61 *      12.61      *      169.39      *Csg Shoe Jt.      *  
*    1 * 12.00 *      24.61      *      157.39      *      *  
*    2 * 12.25 *      36.86      *      145.14      *      *  
*    3 * 12.47 *      49.33      *      132.67      *      *  
*      * 4.17 *      53.50      *      128.50      *Well Head      *  
*****
```


GEO SERVICES T.D.C

Phillips Aust Co.

Bridgewater Bay # 1

17.9.83

CASING LIST

CASING SIZE: 20"

TYPE: Cameron X-56

WEIGHT(lbs/ft): 133

CASING LENGTH: 353.52

SHOE DEPTH : 493.00

| * Jt # | * LENGTH | * TOTAL LENGTH | * Depth From KB | * Remarks |
|--------|----------|----------------|-----------------|---------------|
| * | * 12.66 | * 12.66 | * 480.34 | * Csg Shoe Jt |
| * 1 | * 11.90 | * 24.56 | * 468.44 | * |
| * 2 | * 11.89 | * 36.45 | * 456.55 | * |
| * 3 | * 11.91 | * 48.36 | * 444.64 | * |
| * 4 | * 11.91 | * 60.27 | * 432.73 | * |
| * 5 | * 11.84 | * 72.11 | * 420.89 | * |
| * 6 | * 11.86 | * 83.97 | * 409.03 | * |
| * 7 | * 11.89 | * 95.86 | * 397.14 | * |
| * 8 | * 11.90 | * 107.76 | * 385.24 | * |
| * 9 | * 11.83 | * 119.59 | * 373.41 | * |
| * 10 | * 11.91 | * 131.50 | * 361.50 | * |
| * 11 | * 11.90 | * 143.40 | * 349.60 | * |
| * 12 | * 11.89 | * 155.29 | * 337.71 | * |
| * 13 | * 11.90 | * 167.19 | * 325.81 | * |
| * 14 | * 11.90 | * 179.09 | * 313.91 | * |
| * 15 | * 11.89 | * 190.98 | * 302.02 | * |
| * 16 | * 11.90 | * 202.88 | * 290.12 | * |
| * 17 | * 11.89 | * 214.77 | * 278.23 | * |
| * 18 | * 11.90 | * 226.67 | * 266.33 | * |
| * 19 | * 11.90 | * 238.57 | * 254.43 | * |
| * 20 | * 11.89 | * 250.46 | * 242.54 | * |
| * 21 | * 11.90 | * 262.36 | * 230.64 | * |
| * 22 | * 11.90 | * 274.26 | * 218.74 | * |
| * 23 | * 11.90 | * 286.16 | * 206.84 | * |
| * 24 | * 11.90 | * 298.06 | * 194.94 | * |
| * 25 | * 11.90 | * 309.96 | * 183.04 | * |
| * 26 | * 11.84 | * 321.80 | * 171.20 | * |
| * 27 | * 11.90 | * 333.70 | * 159.30 | * |
| * 28 | * 11.90 | * 345.60 | * 147.40 | * |
| * | * 6.02 | * 351.62 | * 141.38 | * Pup Joint |
| * | * 1.90 | * 353.52 | * 139.48 | * Wellhead |

Phillips Aust Co.

Bridgewater Bay #1

4.10.83

CASING LOG

CASING SIZE: 13 3/8"

TYPE: Buttress N-30

WEIGHT(lbs/ft): 72

CASING LENGTH: 1465.41
SHOE DEPTH : 1594.55

| * JOE # | * DEPTH | * TOTAL LENGTH | * Depth From JO | * Remarks |
|---------|---------|----------------|-----------------|------------------|
| * | 12.00 | 12.00 | 1582.46 | *Shoe Joint |
| * | 12.37 | 24.46 | 1570.09 | *Float Collar Jt |
| * 1 | 11.77 | 36.23 | 1558.32 | * |
| * 2 | 11.33 | 48.06 | 1546.42 | * |
| * 3 | 11.91 | 59.97 | 1534.73 | * |
| * 4 | 11.91 | 71.88 | 1522.67 | * |
| * 5 | 11.71 | 83.59 | 1510.96 | * |
| * 6 | 11.99 | 95.49 | 1499.06 | * |
| * 7 | 11.99 | 107.39 | 1487.16 | * |
| * 8 | 11.43 | 118.82 | 1475.73 | * |
| * 9 | 11.76 | 130.58 | 1463.97 | * |
| * 10 | 11.43 | 142.01 | 1452.43 | * |
| * 11 | 11.70 | 153.71 | 1440.79 | * |
| * 12 | 11.77 | 165.53 | 1429.02 | * |
| * 13 | 11.97 | 177.50 | 1417.05 | * |
| * 14 | 11.69 | 189.19 | 1405.35 | * |
| * 15 | 11.74 | 200.93 | 1393.62 | * |
| * 16 | 10.94 | 211.87 | 1382.63 | * |
| * 17 | 11.67 | 223.54 | 1371.01 | * |
| * 18 | 11.62 | 235.16 | 1359.39 | * |
| * 19 | 11.73 | 246.89 | 1347.65 | * |
| * 20 | 11.62 | 258.51 | 1336.04 | * |
| * 21 | 11.75 | 270.26 | 1324.29 | * |
| * 22 | 11.74 | 282.00 | 1312.55 | * |
| * 23 | 11.75 | 293.75 | 1300.80 | * |
| * 24 | 11.91 | 305.66 | 1288.89 | * |
| * 25 | 12.03 | 317.69 | 1276.86 | * |
| * 26 | 11.86 | 329.55 | 1265.00 | * |
| * 27 | 12.02 | 341.57 | 1252.97 | * |
| * 28 | 11.54 | 353.12 | 1241.43 | * |
| * 29 | 12.06 | 365.18 | 1229.37 | * |
| * 30 | 11.79 | 376.97 | 1217.58 | * |
| * 31 | 11.56 | 388.53 | 1206.02 | * |
| * 32 | 11.57 | 400.10 | 1194.45 | * |
| * 33 | 11.91 | 412.01 | 1182.54 | * |
| * 34 | 11.79 | 423.80 | 1170.75 | * |
| * 35 | 11.72 | 435.52 | 1159.03 | * |
| * 36 | 11.76 | 447.28 | 1147.27 | * |
| * 37 | 11.77 | 459.05 | 1135.50 | * |
| * 38 | 12.06 | 471.11 | 1123.44 | * |
| * 39 | 12.04 | 483.15 | 1111.40 | * |
| * 40 | 11.82 | 494.97 | 1099.58 | * |
| * 41 | 11.32 | 506.79 | 1087.76 | * |
| * 42 | 11.91 | 518.70 | 1075.85 | * |
| * 43 | 11.33 | 530.03 | 1063.87 | * |
| * 44 | 11.26 | 542.54 | 1052.01 | * |
| * 45 | 11.79 | 554.33 | 1040.23 | * |
| * 46 | 12.02 | 566.37 | 1028.19 | * |
| * 47 | 11.33 | 577.70 | 1016.08 | * |
| * 48 | 11.26 | 589.03 | 1004.01 | * |

CASING LIST

CASING SIZE: 13 3/8"

TYPE: Buttress N-30

WEIGHT (lbs/ft): 72

CASING LENGTH: 1465.41

SHOE DEPTH : 1594.55

| * Jt # * | * LENGTH * | * TOTAL LENGTH * | * Depth From KB * | * Remarks * |
|----------|------------|------------------|-------------------|-------------|
| * 40 * | * 11.60 * | * 601.20 * | * 903.35 * | * * |
| * 50 * | * 11.70 * | * 612.90 * | * 921.65 * | * * |
| * 51 * | * 11.83 * | * 624.73 * | * 939.88 * | * * |
| * 52 * | * 11.86 * | * 636.59 * | * 957.99 * | * * |
| * 53 * | * 11.71 * | * 648.30 * | * 976.23 * | * * |
| * 54 * | * 11.60 * | * 659.90 * | * 994.60 * | * * |
| * 55 * | * 11.94 * | * 671.84 * | * 1013.14 * | * * |
| * 56 * | * 11.56 * | * 683.40 * | * 1031.84 * | * * |
| * 57 * | * 11.90 * | * 695.30 * | * 1050.74 * | * * |
| * 58 * | * 11.74 * | * 707.04 * | * 1069.84 * | * * |
| * 59 * | * 12.00 * | * 719.04 * | * 1089.14 * | * * |
| * 60 * | * 11.90 * | * 730.94 * | * 1108.64 * | * * |
| * 61 * | * 11.77 * | * 742.71 * | * 1128.24 * | * * |
| * 62 * | * 12.06 * | * 754.77 * | * 1148.04 * | * * |
| * 63 * | * 11.87 * | * 766.64 * | * 1168.04 * | * * |
| * 64 * | * 11.83 * | * 778.47 * | * 1188.14 * | * * |
| * 65 * | * 11.85 * | * 790.32 * | * 1208.44 * | * * |
| * 66 * | * 12.01 * | * 802.33 * | * 1228.94 * | * * |
| * 67 * | * 11.46 * | * 813.79 * | * 1249.64 * | * * |
| * 68 * | * 11.67 * | * 825.46 * | * 1270.54 * | * * |
| * 69 * | * 11.88 * | * 837.34 * | * 1291.64 * | * * |
| * 70 * | * 11.57 * | * 848.91 * | * 1312.94 * | * * |
| * 71 * | * 12.02 * | * 860.93 * | * 1334.44 * | * * |
| * 72 * | * 11.74 * | * 872.67 * | * 1356.14 * | * * |
| * 73 * | * 11.79 * | * 884.46 * | * 1378.04 * | * * |
| * 74 * | * 11.69 * | * 896.15 * | * 1400.14 * | * * |
| * 75 * | * 12.02 * | * 908.17 * | * 1422.44 * | * * |
| * 76 * | * 12.02 * | * 920.19 * | * 1444.94 * | * * |
| * 77 * | * 12.02 * | * 932.21 * | * 1467.64 * | * * |
| * 78 * | * 11.65 * | * 943.86 * | * 1490.54 * | * * |
| * 79 * | * 11.93 * | * 955.79 * | * 1513.74 * | * * |
| * 80 * | * 11.81 * | * 967.60 * | * 1537.14 * | * * |
| * 81 * | * 11.88 * | * 979.48 * | * 1560.74 * | * * |
| * 82 * | * 12.03 * | * 991.51 * | * 1584.54 * | * * |
| * 83 * | * 11.62 * | * 1003.13 * | * 1608.54 * | * * |
| * 84 * | * 11.44 * | * 1014.57 * | * 1632.74 * | * * |
| * 85 * | * 12.08 * | * 1026.65 * | * 1657.14 * | * * |
| * 86 * | * 11.89 * | * 1038.54 * | * 1681.74 * | * * |
| * 87 * | * 12.06 * | * 1050.60 * | * 1706.54 * | * * |
| * 88 * | * 11.61 * | * 1061.91 * | * 1731.54 * | * * |
| * 89 * | * 11.76 * | * 1073.67 * | * 1756.74 * | * * |
| * 90 * | * 12.01 * | * 1085.68 * | * 1782.14 * | * * |
| * 91 * | * 11.94 * | * 1097.62 * | * 1807.74 * | * * |
| * 92 * | * 11.87 * | * 1109.49 * | * 1833.54 * | * * |
| * 93 * | * 11.71 * | * 1121.20 * | * 1859.54 * | * * |
| * 94 * | * 12.01 * | * 1133.21 * | * 1885.74 * | * * |
| * 95 * | * 11.84 * | * 1144.95 * | * 1912.14 * | * * |
| * 96 * | * 12.01 * | * 1156.96 * | * 1938.74 * | * * |
| * 97 * | * 12.03 * | * 1169.00 * | * 1965.54 * | * * |
| * 98 * | * 11.85 * | * 1180.85 * | * 1992.54 * | * * |

SECSERVICES T.R.C

Phillips Aust Co.

Bridgewater Bay #1

4.10.83

CASING LIST

CASING SIZE: 13 3/8"

TYPE: Buttress N-30

WEIGHT(lbs/ft): 72

CASING LENGTH: 1465.41

SHOE DEPTH : 1504.55

| * JOE # * | * LENGTH * | * TOTAL LENGTH * | * Depth From KB * | * Remarks * |
|-----------|------------|------------------|-------------------|--------------|
| * 99 * | * 11.93 * | * 1192.79 * | * 401.85 * | * * |
| * 100 * | * 11.93 * | * 1204.63 * | * 389.92 * | * * |
| * 101 * | * 12.02 * | * 1216.65 * | * 377.90 * | * * |
| * 102 * | * 12.02 * | * 1228.67 * | * 365.88 * | * * |
| * 103 * | * 11.99 * | * 1240.56 * | * 353.99 * | * * |
| * 104 * | * 11.94 * | * 1252.50 * | * 342.05 * | * * |
| * 105 * | * 11.65 * | * 1264.15 * | * 330.40 * | * * |
| * 106 * | * 12.01 * | * 1276.16 * | * 318.39 * | * * |
| * 107 * | * 11.75 * | * 1287.91 * | * 306.54 * | * * |
| * 108 * | * 11.67 * | * 1299.58 * | * 294.67 * | * * |
| * 109 * | * 11.89 * | * 1311.47 * | * 283.08 * | * * |
| * 110 * | * 11.51 * | * 1322.98 * | * 271.57 * | * * |
| * 111 * | * 11.95 * | * 1334.93 * | * 259.62 * | * * |
| * 112 * | * 11.86 * | * 1346.79 * | * 247.76 * | * * |
| * 113 * | * 11.86 * | * 1358.65 * | * 235.90 * | * * |
| * 114 * | * 11.90 * | * 1370.55 * | * 224.00 * | * * |
| * 115 * | * 11.38 * | * 1382.43 * | * 212.12 * | * * |
| * 116 * | * 11.73 * | * 1394.21 * | * 200.34 * | * * |
| * 117 * | * 11.36 * | * 1406.07 * | * 188.48 * | * * |
| * 118 * | * 11.87 * | * 1417.94 * | * 176.61 * | * * |
| * 119 * | * 11.70 * | * 1429.64 * | * 164.91 * | * * |
| * 120 * | * 11.66 * | * 1441.30 * | * 153.25 * | * * |
| * 121 * | * 11.89 * | * 1453.19 * | * 141.36 * | * * |
| * * | * 12.22 * | * 1465.41 * | * 129.14 * | * Wellhead * |

CASING LIST

CASING SIZE: 9 5/8" TYPE: L-80/N-80 WEIGHT(lbs/ft): 47

CASING LENGTH: 3399.51
 SHOE DEPTH : 3519.50

| ***** | | | | | |
|----------|------------|------------------|-------------------|-----------------|--|
| * Jt # * | * LENGTH * | * TOTAL LENGTH * | * Depth From FB * | * Remarks * | |
| ***** | | | | | |
| * * | * 12.47 | * 12.47 | * 3507.03 | *Casing Shoe * | |
| * * | * 12.10 | * 24.57 | * 3494.93 | *Float Cellar * | |
| * 1 * | * 11.83 | * 36.50 | * 3483.00 | * * | |
| * 2 * | * 11.82 | * 48.42 | * 3471.02 | * * | |
| * 3 * | * 11.81 | * 60.33 | * 3459.11 | * * | |
| * 4 * | * 11.70 | * 72.03 | * 3447.41 | * * | |
| * 5 * | * 12.04 | * 84.13 | * 3435.37 | * * | |
| * 6 * | * 12.02 | * 96.15 | * 3423.35 | * * | |
| * 7 * | * 11.75 | * 107.90 | * 3411.60 | * * | |
| * 8 * | * 11.82 | * 119.72 | * 3399.72 | * * | |
| * 9 * | * 11.82 | * 131.75 | * 3387.74 | * * | |
| * 10 * | * 11.72 | * 143.49 | * 3376.01 | * * | |
| * 11 * | * 12.02 | * 155.51 | * 3363.99 | * * | |
| * 12 * | * 12.03 | * 167.54 | * 3351.96 | * * | |
| * 13 * | * 12.03 | * 179.57 | * 3339.93 | * * | |
| * 14 * | * 11.82 | * 191.55 | * 3327.95 | * * | |
| * 15 * | * 12.01 | * 203.56 | * 3315.94 | * * | |
| * 16 * | * 11.82 | * 215.54 | * 3303.96 | * * | |
| * 17 * | * 11.82 | * 227.52 | * 3291.98 | * * | |
| * 18 * | * 11.82 | * 239.50 | * 3280.00 | * * | |
| * 19 * | * 11.82 | * 251.48 | * 3268.02 | * * | |
| * 20 * | * 11.82 | * 263.30 | * 3256.20 | * * | |
| * 21 * | * 11.50 | * 274.80 | * 3244.70 | *Type P-110 * | |
| * 22 * | * 11.57 | * 286.37 | * 3233.13 | * * | |
| * 23 * | * 11.77 | * 298.14 | * 3221.36 | * * | |
| * 24 * | * 11.70 | * 309.84 | * 3209.66 | * * | |
| * 25 * | * 11.81 | * 321.65 | * 3197.85 | * * | |
| * 26 * | * 11.77 | * 333.42 | * 3186.08 | * * | |
| * 27 * | * 11.70 | * 345.12 | * 3174.38 | * * | |
| * 28 * | * 11.23 | * 356.35 | * 3163.15 | * * | |
| * 29 * | * 11.77 | * 368.12 | * 3151.38 | * * | |
| * 30 * | * 11.38 | * 379.50 | * 3140.00 | * * | |
| * 31 * | * 11.49 | * 390.99 | * 3128.51 | * * | |
| * 32 * | * 11.45 | * 402.44 | * 3117.06 | * * | |
| * 33 * | * 11.65 | * 414.09 | * 3105.41 | * * | |
| * 34 * | * 11.74 | * 425.83 | * 3093.67 | * * | |
| * 35 * | * 11.68 | * 437.51 | * 3081.99 | * * | |
| * 36 * | * 11.50 | * 449.01 | * 3070.49 | * * | |
| * 37 * | * 11.23 | * 460.24 | * 3059.26 | * * | |
| * 38 * | * 11.86 | * 472.10 | * 3047.40 | * * | |
| * 39 * | * 11.63 | * 483.73 | * 3035.77 | * * | |
| * 40 * | * 11.00 | * 494.73 | * 3024.77 | * * | |
| * 41 * | * 11.10 | * 505.83 | * 3013.67 | * * | |
| * 42 * | * 11.12 | * 516.95 | * 3002.55 | * * | |
| * 43 * | * 11.61 | * 528.56 | * 2990.94 | * * | |
| * 44 * | * 11.73 | * 540.29 | * 2979.21 | * * | |
| * 45 * | * 11.42 | * 551.71 | * 2967.79 | * * | |
| * 46 * | * 12.01 | * 563.72 | * 2955.78 | * * | |
| * 47 * | * 11.71 | * 575.43 | * 2944.07 | * * | |
| * 48 * | * 11.60 | * 587.03 | * 2932.41 | * * | |

CASING LIST

CASING SIZE: 9 5/8" TYPE: L-80/N-80 WEIGHT (lbs/ft): 47

CASING LENGTH: 3399.51
 SHOE DEPTH : 3519.50

| ***** | | | | | | |
|----------|------------|------------------|-------------------|-------------|------------|-----|
| * Jt # * | * LENGTH * | * TOTAL LENGTH * | * Depth From KE * | * Remarks * | | * * |
| ***** | | | | | | |
| * 49 * | 12.00 | 599.09 | 2920.41 | * | | * |
| * 50 * | 11.62 | 610.71 | 2908.79 | * | | * |
| * 51 * | 11.89 | 622.59 | 2896.91 | * | | * |
| * 52 * | 11.87 | 634.46 | 2885.04 | * | | * |
| * 53 * | 11.80 | 645.66 | 2873.24 | * | | * |
| * 54 * | 11.58 | 657.24 | 2862.66 | * | | * |
| * 55 * | 12.07 | 669.31 | 2850.19 | * | | * |
| * 56 * | 11.77 | 681.08 | 2838.42 | * | | * |
| * 57 * | 12.09 | 693.09 | 2826.42 | * | | * |
| * 58 * | 11.80 | 704.89 | 2814.62 | * | | * |
| * 59 * | 11.61 | 716.49 | 2803.01 | * | | * |
| * 60 * | 11.63 | 728.12 | 2791.38 | * | | * |
| * 61 * | 11.78 | 739.90 | 2779.60 | * | | * |
| * 62 * | 11.50 | 751.40 | 2768.10 | * | | * |
| * 63 * | 11.59 | 762.99 | 2756.51 | * | | * |
| * 64 * | 11.80 | 774.79 | 2744.71 | * | *Type N-80 | * |
| * 65 * | 12.02 | 786.81 | 2732.69 | * | | * |
| * 66 * | 11.84 | 798.65 | 2720.85 | * | | * |
| * 67 * | 12.05 | 810.70 | 2708.80 | * | | * |
| * 68 * | 11.81 | 822.51 | 2696.99 | * | | * |
| * 69 * | 11.71 | 834.22 | 2685.28 | * | | * |
| * 70 * | 11.65 | 845.87 | 2673.63 | * | | * |
| * 71 * | 11.75 | 857.62 | 2661.88 | * | | * |
| * 72 * | 11.70 | 869.32 | 2650.18 | * | | * |
| * 73 * | 11.98 | 881.30 | 2638.20 | * | | * |
| * 74 * | 11.76 | 893.06 | 2626.44 | * | | * |
| * 75 * | 11.79 | 904.85 | 2614.65 | * | | * |
| * 76 * | 11.98 | 916.83 | 2602.67 | * | | * |
| * 77 * | 11.93 | 928.76 | 2590.74 | * | | * |
| * 78 * | 11.76 | 940.52 | 2578.98 | * | | * |
| * 79 * | 10.90 | 951.42 | 2568.08 | * | | * |
| * 80 * | 12.03 | 963.50 | 2556.00 | * | | * |
| * 81 * | 11.58 | 975.08 | 2544.42 | * | | * |
| * 82 * | 11.64 | 986.72 | 2532.78 | * | | * |
| * 83 * | 12.02 | 998.74 | 2520.76 | * | | * |
| * 84 * | 11.77 | 1010.51 | 2508.98 | * | | * |
| * 85 * | 11.76 | 1022.27 | 2497.23 | * | | * |
| * 86 * | 11.96 | 1034.23 | 2485.27 | * | | * |
| * 87 * | 12.01 | 1046.24 | 2473.26 | * | | * |
| * 88 * | 12.01 | 1058.25 | 2461.25 | * | | * |
| * 89 * | 11.92 | 1070.17 | 2449.33 | * | | * |
| * 90 * | 11.97 | 1082.14 | 2437.36 | * | | * |
| * 91 * | 11.84 | 1093.98 | 2425.52 | * | | * |
| * 92 * | 11.95 | 1105.93 | 2413.57 | * | | * |
| * 93 * | 12.03 | 1117.96 | 2401.54 | * | | * |
| * 94 * | 11.77 | 1129.73 | 2389.77 | * | | * |
| * 95 * | 11.68 | 1141.41 | 2378.09 | * | | * |
| * 96 * | 11.76 | 1153.17 | 2366.33 | * | | * |
| * 97 * | 11.88 | 1165.05 | 2354.45 | * | | * |
| * 98 * | 12.02 | 1177.07 | 2342.43 | * | | * |

CASING LIST

CASING SIZE: 9 5/8" TYPE: L-80/P-80 WEIGHT (lbs/ft): 47

CASING LENGTH: 3399.51
SHOE DEPTH : 3519.50

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*****
* Jt # * LENGTH * TOTAL LENGTH * Depth From KB *      Remarks      *
*****
*  99 * 11.97 * 1189.04 * 2330.46 *
* 100 * 12.04 * 1201.08 * 2318.42 *
* 101 * 11.93 * 1213.01 * 2306.49 *
* 102 * 11.97 * 1224.98 * 2294.52 *
* 103 * 11.42 * 1236.40 * 2283.10 *
* 104 * 11.99 * 1248.39 * 2271.11 *
* 105 * 11.99 * 1260.37 * 2259.23 *
* 106 * 11.75 * 1272.02 * 2247.48 *
* 107 * 11.89 * 1283.91 * 2235.59 *
* 108 * 11.85 * 1295.76 * 2223.74 *
* 109 * 11.73 * 1307.49 * 2212.01 *
* 110 * 11.42 * 1318.91 * 2200.59 *
* 111 * 11.95 * 1330.86 * 2188.64 *
* 112 * 11.69 * 1342.55 * 2176.95 *
* 113 * 11.91 * 1354.46 * 2165.04 *
* 114 * 12.03 * 1366.49 * 2152.96 *
* 115 * 11.98 * 1378.42 * 2141.03 *
* 116 * 11.90 * 1390.32 * 2129.18 *
* 117 * 11.84 * 1402.16 * 2117.34 *
* 118 * 12.08 * 1414.24 * 2105.26 *
* 119 * 11.97 * 1426.21 * 2093.29 *
* 120 * 11.91 * 1438.12 * 2081.38 *
* 121 * 11.96 * 1449.92 * 2069.58 *
* 122 * 11.52 * 1461.44 * 2058.06 *
* 123 * 11.72 * 1473.16 * 2046.34 *
* 124 * 11.93 * 1485.14 * 2034.36 *
* 125 * 11.43 * 1496.57 * 2022.93 *
* 126 * 11.82 * 1508.39 * 2011.11 *
* 127 * 11.70 * 1520.09 * 1999.41 *
* 128 * 11.42 * 1531.51 * 1987.99 *
* 129 * 11.95 * 1543.46 * 1976.04 *
* 130 * 12.02 * 1555.48 * 1964.02 *
* 131 * 12.01 * 1567.49 * 1952.01 *
* 132 * 11.87 * 1579.36 * 1940.14 *
* 133 * 11.92 * 1591.28 * 1928.22 *
* 134 * 11.59 * 1602.87 * 1916.63 *
* 135 * 11.87 * 1614.74 * 1904.76 *
* 136 * 11.83 * 1626.57 * 1892.93 *
* 137 * 11.87 * 1638.44 * 1881.06 *
* 138 * 12.11 * 1650.55 * 1868.95 *
* 139 * 11.93 * 1662.48 * 1857.02 *
* 140 * 11.27 * 1673.75 * 1845.75 *
* 141 * 11.83 * 1685.58 * 1833.92 *
* 142 * 11.91 * 1697.49 * 1822.01 *
* 143 * 11.89 * 1709.38 * 1810.12 *
* 144 * 11.88 * 1721.26 * 1798.24 *
* 145 * 12.06 * 1733.32 * 1786.18 *
* 146 * 11.88 * 1745.20 * 1774.30 *
* 147 * 11.80 * 1757.00 * 1762.50 *
* 148 * 11.53 * 1768.53 * 1750.97 *
*****

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CASING LIST

CASING SIZE: 9 5/8" TYPE: I-30/W-30 WEIGHT (lbs/ft): 47

CASING LENGTH: 3399.51

SHOT DEPTH : 3519.50

| ***** | | | | | | |
|----------|------------|------------------|-------------------|-------------|--|--|
| * Jt # * | * LENGTH * | * TOTAL LENGTH * | * Depth From ME * | * Remarks * | | |
| ***** | | | | | | |
| * 149 * | 11.84 * | 1780.37 * | 1739.13 * | | | |
| * 150 * | 12.04 * | 1792.41 * | 1727.09 * | | | |
| * 151 * | 11.61 * | 1804.02 * | 1715.48 * | | | |
| * 152 * | 11.68 * | 1815.70 * | 1703.80 * | | | |
| * 153 * | 12.01 * | 1827.71 * | 1691.79 * | | | |
| * 154 * | 11.53 * | 1839.24 * | 1680.26 * | | | |
| * 155 * | 11.72 * | 1850.96 * | 1668.54 * | | | |
| * 156 * | 11.98 * | 1862.94 * | 1656.56 * | | | |
| * 157 * | 11.93 * | 1874.87 * | 1644.63 * | | | |
| * 158 * | 11.87 * | 1886.74 * | 1632.76 * | | | |
| * 159 * | 11.98 * | 1898.72 * | 1620.78 * | | | |
| * 160 * | 11.79 * | 1910.51 * | 1608.99 * | | | |
| * 161 * | 11.91 * | 1922.42 * | 1597.08 * | | | |
| * 162 * | 11.83 * | 1934.25 * | 1585.25 * | | | |
| * 163 * | 12.05 * | 1946.30 * | 1573.20 * | | | |
| * 164 * | 11.84 * | 1958.14 * | 1561.36 * | | | |
| * 165 * | 11.80 * | 1969.94 * | 1549.56 * | | | |
| * 166 * | 11.75 * | 1981.69 * | 1537.81 * | | | |
| * 167 * | 11.21 * | 1992.90 * | 1526.60 * | | | |
| * 168 * | 11.73 * | 2004.63 * | 1514.67 * | | | |
| * 169 * | 11.79 * | 2016.42 * | 1503.08 * | | | |
| * 170 * | 11.84 * | 2028.26 * | 1491.24 * | | | |
| * 171 * | 11.83 * | 2040.09 * | 1479.41 * | | | |
| * 172 * | 11.62 * | 2051.71 * | 1467.79 * | | | |
| * 173 * | 12.02 * | 2063.73 * | 1455.77 * | | | |
| * 174 * | 11.71 * | 2075.44 * | 1444.06 * | | | |
| * 175 * | 11.90 * | 2087.34 * | 1432.16 * | | | |
| * 176 * | 12.02 * | 2099.36 * | 1420.14 * | | | |
| * 177 * | 11.63 * | 2110.99 * | 1408.51 * | | | |
| * 178 * | 11.90 * | 2122.89 * | 1396.61 * | | | |
| * 179 * | 11.83 * | 2134.77 * | 1384.73 * | | | |
| * 180 * | 12.01 * | 2146.78 * | 1372.72 * | | | |
| * 181 * | 11.95 * | 2158.73 * | 1360.77 * | | | |
| * 182 * | 11.97 * | 2170.70 * | 1348.80 * | | | |
| * 183 * | 11.94 * | 2182.64 * | 1336.86 * | | | |
| * 184 * | 12.09 * | 2194.73 * | 1324.77 * | | | |
| * 185 * | 11.84 * | 2206.57 * | 1312.93 * | | | |
| * 186 * | 11.48 * | 2218.05 * | 1301.45 * | | | |
| * 187 * | 11.90 * | 2229.95 * | 1289.55 * | | | |
| * 188 * | 11.98 * | 2241.93 * | 1277.57 * | | | |
| * 189 * | 11.84 * | 2253.77 * | 1265.73 * | | | |
| * 190 * | 11.44 * | 2265.21 * | 1254.29 * | | | |
| * 191 * | 11.73 * | 2276.94 * | 1242.56 * | | | |
| * 192 * | 11.66 * | 2288.60 * | 1230.90 * | *Type L-30 | | |
| * 193 * | 11.81 * | 2300.41 * | 1219.09 * | | | |
| * 194 * | 12.02 * | 2312.43 * | 1207.07 * | | | |
| * 195 * | 10.82 * | 2323.25 * | 1196.25 * | | | |
| * 196 * | 12.17 * | 2335.42 * | 1184.08 * | | | |
| * 197 * | 11.59 * | 2347.01 * | 1172.49 * | | | |
| * 198 * | 11.69 * | 2358.70 * | 1160.21 * | | | |

CASING LIST

CASING SIZE: 9 5/8" TYPE: L-80/11-80 WEIGHT (lbs/ft): 47

CASING LENGTH: 3399.51

SHOP LENGTH : 3519.50

| * Jt # * | * LENGTH * | * TOTAL LENGTH * | * Depth From PC * | * Remarks * |
|----------|------------|------------------|-------------------|-------------|
| * 199 * | * 11.80 * | * 2370.49 * | * 1149.01 * | * * |
| * 200 * | * 11.36 * | * 2382.35 * | * 1137.15 * | * * |
| * 201 * | * 11.80 * | * 2394.15 * | * 1125.35 * | * * |
| * 202 * | * 11.55 * | * 2405.70 * | * 1113.80 * | * * |
| * 203 * | * 11.16 * | * 2417.66 * | * 1101.64 * | * * |
| * 204 * | * 11.77 * | * 2429.63 * | * 1089.27 * | * * |
| * 205 * | * 11.74 * | * 2441.37 * | * 1077.13 * | * * |
| * 206 * | * 11.82 * | * 2453.32 * | * 1065.29 * | * * |
| * 207 * | * 12.00 * | * 2465.32 * | * 1054.16 * | * * |
| * 208 * | * 12.00 * | * 2477.32 * | * 1042.16 * | * * |
| * 209 * | * 11.89 * | * 2489.31 * | * 1030.29 * | * * |
| * 210 * | * 11.60 * | * 2500.91 * | * 1018.60 * | * * |
| * 211 * | * 11.20 * | * 2512.67 * | * 1006.23 * | * * |
| * 212 * | * 11.23 * | * 2523.90 * | * 995.60 * | * * |
| * 213 * | * 11.35 * | * 2535.25 * | * 984.25 * | * * |
| * 214 * | * 12.02 * | * 2547.27 * | * 972.22 * | * * |
| * 215 * | * 11.75 * | * 2559.02 * | * 960.46 * | * * |
| * 216 * | * 11.16 * | * 2571.22 * | * 948.30 * | * * |
| * 217 * | * 11.50 * | * 2582.72 * | * 936.70 * | * * |
| * 218 * | * 11.71 * | * 2594.43 * | * 925.07 * | * * |
| * 219 * | * 11.79 * | * 2606.19 * | * 913.31 * | * * |
| * 220 * | * 12.17 * | * 2618.36 * | * 901.14 * | * * |
| * 221 * | * 12.30 * | * 2630.36 * | * 888.14 * | * * |
| * 222 * | * 12.54 * | * 2641.30 * | * 875.20 * | * * |
| * 223 * | * 12.02 * | * 2653.32 * | * 863.18 * | * * |
| * 224 * | * 12.03 * | * 2665.35 * | * 851.15 * | * * |
| * 225 * | * 11.44 * | * 2676.79 * | * 842.71 * | * * |
| * 226 * | * 11.70 * | * 2688.53 * | * 830.92 * | * * |
| * 227 * | * 11.91 * | * 2700.44 * | * 819.01 * | * * |
| * 228 * | * 12.01 * | * 2712.59 * | * 807.00 * | * * |
| * 229 * | * 12.06 * | * 2724.50 * | * 794.94 * | * * |
| * 230 * | * 11.30 * | * 2736.30 * | * 783.14 * | * * |
| * 231 * | * 11.80 * | * 2748.26 * | * 771.24 * | * * |
| * 232 * | * 12.12 * | * 2760.30 * | * 759.12 * | * * |
| * 233 * | * 11.41 * | * 2771.79 * | * 747.71 * | * * |
| * 234 * | * 12.16 * | * 2783.95 * | * 735.55 * | * * |
| * 235 * | * 11.95 * | * 2795.90 * | * 723.60 * | * * |
| * 236 * | * 12.20 * | * 2808.10 * | * 711.40 * | * * |
| * 237 * | * 12.03 * | * 2820.13 * | * 699.37 * | * * |
| * 238 * | * 11.50 * | * 2831.63 * | * 687.87 * | * * |
| * 239 * | * 12.00 * | * 2843.63 * | * 675.87 * | * * |
| * 240 * | * 12.02 * | * 2855.65 * | * 663.85 * | * * |
| * 241 * | * 11.58 * | * 2867.23 * | * 652.27 * | * * |
| * 242 * | * 11.99 * | * 2879.22 * | * 640.28 * | * * |
| * 243 * | * 11.93 * | * 2891.15 * | * 628.35 * | * * |
| * 244 * | * 12.00 * | * 2903.15 * | * 616.35 * | * * |
| * 245 * | * 12.02 * | * 2915.17 * | * 604.33 * | * * |
| * 246 * | * 12.12 * | * 2927.29 * | * 592.21 * | * * |
| * 247 * | * 11.96 * | * 2939.25 * | * 580.25 * | * * |
| * 248 * | * 11.67 * | * 2951.12 * | * 568.38 * | * * |

CASING LIST

CASING SIZE: 9 5/8"

TYPE: L-30/N-80

WEIGHT(lbs/ft): 47

CASING LENGTH: 3399.51

SPEC DEPTH : 3510.50

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*****
* Jt # * LENGTH * TOTAL LENGTH * Depth From FF * Remarks *
*****
* 248 * 11.87 * 2962.99 * 556.51 * *
* 250 * 11.65 * 2974.64 * 544.86 * *
* 251 * 12.01 * 2986.65 * 532.85 * *
* 252 * 11.90 * 2998.55 * 520.95 * *
* 253 * 11.83 * 3010.38 * 509.12 * *
* 254 * 11.63 * 3022.01 * 497.49 * *
* 255 * 11.92 * 3033.93 * 485.57 * *
* 256 * 11.64 * 3045.57 * 473.93 * *
* 257 * 11.93 * 3057.50 * 462.00 * *
* 258 * 11.77 * 3069.27 * 450.23 * *
* 259 * 11.82 * 3081.09 * 438.41 * *
* 260 * 11.87 * 3092.96 * 426.54 * *
* 261 * 11.67 * 3104.63 * 414.87 * *
* 262 * 11.86 * 3116.49 * 403.01 * *
* 263 * 12.04 * 3128.53 * 390.97 * *
* 264 * 11.88 * 3140.41 * 378.09 * *
* 265 * 11.79 * 3152.20 * 367.30 * *
* 266 * 11.85 * 3164.05 * 355.45 * *
* 267 * 11.82 * 3175.87 * 343.63 * *
* 268 * 12.02 * 3187.89 * 331.61 * *
* 269 * 11.81 * 3199.70 * 319.80 * *
* 270 * 11.60 * 3211.36 * 308.14 * *
* 271 * 11.72 * 3223.08 * 296.42 * *
* 272 * 11.95 * 3235.04 * 284.46 * *
* 273 * 11.81 * 3246.85 * 272.65 * *
* 274 * 11.75 * 3258.60 * 260.90 * *
* 275 * 11.59 * 3270.10 * 249.40 * *
* 276 * 11.79 * 3281.89 * 237.61 * *
* 277 * 12.04 * 3293.93 * 225.57 * *
* 278 * 12.05 * 3305.98 * 213.52 * *
* 279 * 11.85 * 3317.83 * 201.67 * *
* 280 * 11.23 * 3329.06 * 190.44 * *
* 281 * 11.49 * 3340.55 * 178.95 * *
* 282 * 11.57 * 3352.12 * 167.38 * *
* 283 * 12.01 * 3364.13 * 155.37 * *
* 284 * 11.98 * 3376.11 * 143.39 * *
* 285 * 11.65 * 3387.76 * 131.74 * *
* 286 * 11.75 * 3399.51 * 119.99 * Well Head *
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RECORD OF OPERATIONS

- Phase Summaries
- Daily Well Diary

36" PHASE REPORT

36" PHASE

SUMMARY

The well was spudded in 109m of water at 17.30 hrs. on 15th September 1983. Elevation of RKB above sea level was 22m. Bit # 1 HUGHES, 26" + 36" H/O (open jets) was run in and drilled ahead to 186.5m. A survey was dropped at 162m, with 1 deg. deviation. 450 bbls of high viscous mud were then pumped at TD and a second survey was dropped with 1 deg. deviation. The hole was further conditioned with 250 bbls of high viscous mud before pulling out to run the 30" casing.

WOB/RPM/ROP PRACTICES

One bit was used in this phase. The drilling time was 6.5 hrs. With an average ROP of 8.5m/hr. Drilling practices are summarized below:

| DEPTH INTERVAL m | ROP m/hr | WOB klbs | RPM | FR gpm |
|---------------------|-------------|-------------|-----|-----------|
| 131.5-186.5 | 8.5 | 5 | 110 | 950 |

HYDRAULICS

To achieve good hole cleaning, high flow rates and annular velocities must be maintained. Although high flow rates were achieved during the phase, annular were low and this results in only the finest cuttings being removed. However since the phase is short and ROP's low cuttings build up will not be a serious problem. On reaching TD 450 bbls of high viscous mud were circulated prior to a survey and a further 250 bbls of high viscous were circulated before pulling out. This measure ensured good cuttings removal and a clean hole.

CASING AND CEMENTATION

The casing shoe joint, 3 joints and a 4.2m well head housing of Vetco 30" (1" wall), 310 lbs/ft casing were run in and set at 182m (597 ft). A stinger was made up and run in. The following were then pumped:

- 1) 150 bbls of seawater.
- 2) 1500 sacks of Class "G" cement at 15.8 ppg with 5.0 gal/stack of seawater.

CASING AND CEMENTATION /cont.

- 3) The cement was displaced by 20.4 bbls of seawater at a rate of 3 bbl/min. There was no bleed back.

The top of good cement was estimated to be at the sea bed.

CUTTINGS TRANSPORT TABLES

These tables will provide a quick look at hole cleaning and cuttings removal. By controlling the Rate of Penetration (ROP), then raising or lowering the flow rate, or changing the rheological properties of the mud, one can then decide upon the action necessary to provide the most efficient hole cleaning.

In the following tables the data has been calculated for the space between the Drill Collars (DC) and Open Hole (OH). For each interval the cutting sizes are given in decimal inches.

The following gives a brief explanation of the abbreviations used:

Vs = slip velocity (m/min)

Vc = annular velocity minus slip velocity

Cf = cuttings generated at the bit
(gallons/gallons of mud)

Ca = cuttings in the annulus
(gallons/gallons of mud)

Rct = cutting transport ratio (decimal percentage)
= cutting velocity/annular velocity

Interval: 131 m. to 136 m.

FOP: 3.50 m/hr.

Flow rate 950.0 gpm.

Ann. Vel: 5.74 m/min (DP/OH)

MW: 8.6 ppq PV 2 YP 2 Gel (10 sec) 1 YP/PV 1.00

n = 0.585 K = 0.143

Cuttings Density: 2.30 (Limestone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 17.55 | -11.31 | | | |
| 0.750 | 13.15 | -7.42 | | | |
| 0.500 | 8.72 | -3.03 | | | |
| 0.250 | 4.39 | 1.35 | 0.2353 | 0.0259 | 0.1093 |
| 0.125 | 1.23 | 4.51 | 0.7351 | 0.0259 | 0.0330 |
| 0.061 | 0.42 | 5.32 | 0.9263 | 0.0259 | 0.0279 |

Cuttings Density: 2.40 (Limestone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 13.46 | -12.72 | | | |
| 0.750 | 13.25 | -8.11 | | | |
| 0.500 | 9.23 | -3.49 | | | |
| 0.250 | 4.62 | 1.13 | 0.1962 | 0.0259 | 0.1319 |
| 0.125 | 1.31 | 4.43 | 0.7719 | 0.0259 | 0.0336 |
| 0.061 | 0.45 | 5.29 | 0.9215 | 0.0259 | 0.0281 |

Interval: 131 m. to 136 m.

FOP: 3.50 m/hr.

Flow rate 950.0 gpm.

Ann. Vel: 5.89 m/min (DC/OH)

MW: 8.6 ppq PV 2 YP 2 Gel (10 sec) 1 YP/PV 1.00

n = 0.585 K = 0.143

Cuttings Density: 2.30 (Limestone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 18.02 | -12.14 | | | |
| 0.750 | 13.52 | -7.63 | | | |
| 0.500 | 9.01 | -3.13 | | | |
| 0.250 | 4.51 | 1.38 | 0.2345 | 0.0259 | 0.1104 |
| 0.125 | 1.30 | 4.53 | 0.7739 | 0.0259 | 0.0332 |
| 0.061 | 0.45 | 5.44 | 0.9242 | 0.0259 | 0.0290 |

Cuttings Density: 2.40 (Limestone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 13.96 | -13.07 | | | |
| 0.750 | 14.22 | -8.33 | | | |
| 0.500 | 9.48 | -3.59 | | | |
| 0.250 | 4.74 | 1.15 | 0.1948 | 0.0259 | 0.1329 |
| 0.125 | 1.39 | 4.50 | 0.7645 | 0.0259 | 0.0339 |
| 0.061 | 0.48 | 5.41 | 0.9192 | 0.0259 | 0.0282 |

26" PHASE REPORT

26" PHASE

SUMMARY

The 26" hole was drilled from 136.5m (612 ft) to 504.5m (1655 ft) with one bit.

Bit # 2 HUGHES, 26" (3*22), after drilling out the cement and casing shoe drilled ahead to 504.5m. A survey was dropped at 368m (1207 ft) but mis-ran twice. After the first attempt the well packed off (20-25000 klbs overpull) and high viscous slugs were bumped after both mis-runs, at the third attempt a deviation of 1 deg was recorded. A survey was dropped at TD with 1/2 deg. deviation and a wiper trip was made to the 30" casing shoe before the bit was pulled out. Whilst tripping cut high viscous slugs of mud were circulated after pulling every 4th single. The hole was then conditioned before running in the 20" casing.

WOB/RPM/ROP PRACTICES

One bit drilled this phase in 15.0 hrs. with an average ROP of 21.9 m/hr. On bottom time was 19.5 hrs. which included surveys and circulating time. Drilling practices are summarized below:

| DEPTH INTERVAL m | ROP m/hr | WOB klbs | RPM | FR gpm |
|---------------------|-------------|-------------|-----|-----------|
| 136.5-504.5 | 21.9 | 15.0 | 105 | 925 |

HYDRAULICS

As with the 36" phase, high flow rates and annular velocities must be maintained to achieve good hole cleaning. Cutting removal was again facilitated by circulating the hole with high viscous mud pills, which conditioned and cleaned the hole prior to running the 20" casing.

CASING AND CEMENTATION

1 casing shoe joint, 23 joints and an 8m well head of 20" Cameron X-56 133 lb/ft casing were run in and set at 493m (1618 ft), the following were then pumped:

- 1) 500 bbls of seawater at 8.3 bbl/min.
- 2) Lead Slurry: 1300 sacks of Class "G" cement at 12.8 ppg mixed with 10.8 gal/sack of mix water, 2.5% Pre-hydrated gel at 9 lb/bbl and 0.5% CFR-2 at 1.8 lb/bbl were added.

CASING AND CEMENTATION /cont.

- 3) Tail Slurry: 500 sacks of Class "G" cement at 15.8 ppm mixed with 5.0 gal/sack of seawater.
- 4) The cement was displaced with 22.4 bbl of seawater at a rate of 7.5 bbl/min. There was no bleed back.

The top of good cement was estimated to be at the sea bed.

CUTTINGS TRANSPORT TABLES

These tables will provide a quick look at hole cleaning and cuttings removal. By controlling the Rate of Penetration (ROP), then raising or lowering the flow rate, or changing the rheological properties of the mud, one can then decide upon the action necessary to provide the most efficient hole cleaning.

In the following tables the data has been calculated for the space between the Drill Collars (DC) and Open Hole (OH). For each interval the cutting sizes are given in decimal inches.

The following gives a brief explanation of the abbreviations used:

- Vs = slip velocity (m/min)
- Vc = annular velocity minus slip velocity
- Cf = cuttings generated at the bit
(gallons/gallons of mud)
- Ca = cuttings in the annulus
(gallons/gallons of mud)
- Rct = cutting transport ratio (decimal percentage)
= cutting velocity/annular velocity

Interval: 186 m. to 504 m.

FOP: 21.90 m/hr.

Flow rate 925.0 gpm.

Ann.Vel: 11.22 m/min (DP/DH)

MW: 8.6 ppq PV 2 YP 2 Gel (10 sec) 1 YP/PV 1.00

n = 0.585 K = 0.143

Cuttings Density: 2.30 (Limestone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 24.16 | -12.94 | | | |
| 0.750 | 13.12 | -6.90 | | | |
| 0.500 | 12.08 | -0.86 | | | |
| 0.250 | 6.04 | 5.18 | 0.4616 | 0.0357 | 0.0774 |
| 0.125 | 3.02 | 8.20 | 0.7308 | 0.0357 | 0.0489 |
| 0.061 | 0.30 | 10.42 | 0.9285 | 0.0357 | 0.0335 |

Cuttings Density: 2.40 (Limestone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 25.41 | -14.19 | | | |
| 0.750 | 19.06 | -7.84 | | | |
| 0.500 | 12.71 | -1.49 | | | |
| 0.250 | 6.35 | 4.37 | 0.4337 | 0.0357 | 0.0324 |
| 0.125 | 3.18 | 8.04 | 0.7169 | 0.0357 | 0.0493 |
| 0.061 | 0.35 | 10.36 | 0.9238 | 0.0357 | 0.0387 |

Interval: 186 m. to 504 m.

FOP: 21.90 m/hr.

Flow rate 925.0 gpm.

Ann.Vel: 11.80 m/min (DC/DH)

MW: 8.6 ppq PV 2 YP 2 Gel (10 sec) 1 YP/PV 1.00

n = 0.585 K = 0.143

Cuttings Density: 2.30 (Limestone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 25.19 | -13.39 | | | |
| 0.750 | 18.39 | -7.09 | | | |
| 0.500 | 12.59 | -0.80 | | | |
| 0.250 | 6.30 | 5.50 | 0.4663 | 0.0357 | 0.0766 |
| 0.125 | 3.15 | 8.65 | 0.7331 | 0.0357 | 0.0487 |
| 0.061 | 0.87 | 10.93 | 0.9261 | 0.0357 | 0.0386 |

Cuttings Density: 2.40 (Limestone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|--------|--------|--------|--------|
| 1.000 | 26.49 | -14.70 | | | |
| 0.750 | 19.87 | -8.07 | | | |
| 0.500 | 13.25 | -1.45 | | | |
| 0.250 | 6.52 | 5.17 | 0.4386 | 0.0357 | 0.0814 |
| 0.125 | 3.31 | 8.49 | 0.7193 | 0.0357 | 0.0497 |
| 0.061 | 0.93 | 10.87 | 0.9213 | 0.0357 | 0.0388 |

17 1/2" PHASE REPORT

17 ½" PHASE

SUMMARY

The BOP stack and riser string were run in and landed onto the wellhead. Initial BOP tests failed, after checking the test plug however, successful tests were obtained to a pressure of 5000 psi. A new BHA was made up and Bit #2 was run into the hole. Cement was tagged at 487m and the cement, float collar and casing shoe were drilled out with seawater.

The hole was displaced with mud and a LOT performed to 12.5 EMW, before drilling ahead into new formation.

Bit # 2 SMITH DSJ 14 3/4" + 17 ½" U/R (3*24), drilled from 504m to 843m a total of 339m. A survey at 667m recorded 1/2 deg. deviation, at 816m 1/2 deg. deviation and at 843m 0 degree deviation. The hole was then circulated bottoms up and the bit pulled out.

Bit # 3 SMITH SDT 14 3/4" + 17 1/2" (U/R (3*24) drilled from 843m to 1120m a total of 277m. Several tight spots were encountered during drilling. These were washed and reamed down. Seawater pills were circulated during reaming to alleviate bit balling and from 995m high viscous mud pills were circulated at every second connection. A survey at 995m showed 1/2 deg. deviation and at 1120m 3/4 deg. deviation. The hole was circulated before pulling out the bit.

Bit # 4 SMITH DSJ 14 3/4" + 17 1/2" U/R (3*24) drilled from 1129m to 1514m a total of 394m. The hole was washed and reamed at several spots throughout the drilling operations and circulated for seven minutes at each connection to ensure good hole cleaning. Surveys were dropped at 1276m 1/2 deg. deviation, 1424m, 1¼ deg. deviation and at 1514m ½ deg. deviation. The hole was circulated and the bit pulled out. A test tool was run in the hole to test the BOP's. After testing, the tool was stuck in the stack and a Schlumberger back off tool was used to back off one single above the packer. The fish was then successfully retrieved.

Bit # 5 HUGHES 1GJ 14 3/4" + 17 ½" U/R (3*24) drilled from 1514m to 1603m (13 3/8" casing point) a total of 89m. Again reaming was necessary throughout the bit run. A survey was dropped at 1603m ½ deg deviation and the hole conditioned before logging. A wiper trip was made to the 20" casing shoe, and the hole circulated before finally pulling out. Schlumberger was then rigged up and the open hole logged. The logs run were:

Run 1: SLS, DIL, GR.

Run 2: HDT, CALI

Run 3: Sidewall Cores (30 shot-28 recovered).

| DEPTH INTERVAL m | ROP m/hr | WOB klbs | RPM | FP qpm |
|---------------------|-------------|-------------|-----|-----------|
| 504-843 | 30.4 | 15.0 | 112 | 919 |
| 843-1120 | 13.7 | 27.4 | 120 | 905 |
| 1120-1514 | 21.3 | 13.5 | 113 | 895 |
| 1514-1603 | 11.1 | 29.0 | 113 | 855 |

HYDRAULICS

The phase drilled with generally high ROP values and although high flow rates were maintained, (average 900 qpm.), and good annular velocities were achieved (average 26.77 m/min - 87.3 ft/hr) between DC/CH, and (average 23.9 m/min - 73.6 ft/min) between DP/CH, further measures were taken to ensure good cutting removal and a clean hole.

Throughout the phase, with a fast penetration rate, a great deal of cuttings were generated at the bit, to remove these excessive amounts of cuttings the hole was circulated at connections and often seawater or high viscous mud pills were pumped. This served two purposes:

- 1) Cleaning the hole efficiently.
- 2) Reducing the possibility of any bit balling.

The mud system maintained similar PV, YP and Gel values throughout the phase and a good "n"-value (average 0.65) was achieved. The degree of non-Newtonian behavior shown is good and results in an efficient ability to clean and suspend cutting particles.

Cutting removal and hole cleaning throughout the phase is summarized in the cutting transport tables.

Annular flow was turbulent, but did not seem to cause any excessive hole damage, although the Schlumberger Caliper Log did show some washing out of the sand horizons.

In summary, the 17 1/2" phase was drilled with good hole cleaning parameters and cutting removal was successfully achieved without excessive hole damage.

CASING AND CEMENTATION

121 joints, a float collar, casing shoe joint, pup joint and hanger of Buttress N-80 (72 lb/ft) 13 3/8" casing were run in and landed. The casing shoe was set at 1594.5m (5231.5 ft) and the following were then pumped:

- 1) Circulation: 1300 bbls of mud were pumped around the hole at 14 bpm, a total of 1 1/2 hours.
- 2) Pre-flush: 25 bbls of water, the bottom plug was then released at a pressure of 3100 psi.
- 3) Lead Slurry: 1697 sacks of class "G" cement at 12.8 ppg was mixed with 10.8 gal/sack of mixwater, 2.5% prehydrated gel at 9 lb/bbl, 0.4% CFR-2 at 1.3 lb/bbl and 0.2% HP-6L at 0.08 gal/bbl were added.

CASING AND CEMENTATION /cont.

- 4) Tail Slurry: 500 sacks of class "C" cement at 15.3 ppg was mixed with 5 gal/sack of drill water, 0.1% HR-5L at 0.05 gal/sack was added.
- 5) Displacement: The cement was displaced with 20 bbls of water and 683 bbls of mud, at a rate of 9 bbl/min. The top plug was released at 3500 psi. The plug was then bumped to a pressure of 1400 psi and held for 30 minutes, there was no bleed back.

The estimated top of cement outside the casing was 341m (1120 ft) based on a Caliper calculated open hole volume.

It was however not possible to maintain pressure when the plug was bumped. The cement and casing were tested, with unsuccessful results. An open ended drill string was run in and 200 ft of cement was pumped above the float collar. The cement and casing were again tested, this time successfully, to 2500 psi. The cement, float collar and casing shoe were then drilled out, the hole and casing cleaned and an EZSV bridge plug set at 1576m (5171 ft).

The following were then pumped:

- 1) Sting in and pressure to 1500 psi. Injection rate 10 bbl/minute.
- 2) Sting out.
- 3) Pump 62 bbl slurry: 300 sacks class "C" cement at 15.8 ppg and 20 bbl mud.
- 4) Sting in and pressure up to 800 psi in the annulus.
- 5) Pump 70 bbls of mud and squeeze, final squeeze pressure 2100 psi.
- 6) Release annular pressure and sting out.
- 7) POOH with 4 stands and reverse circulate.

Final cement and casing tests were good and the bridge and cement was milled/drilled out.

 Phillips Aust Co. Bridgewater Bay # 1

 SIF REPORT

| BTP NO | TYPE | SIZE | NOZZLES | DWP. IN | MFRS | DOFS | F/R/G | M/R | OS \$ | KLSS | PRV | FLD | SPP | IN | NEL | BTP /SI | HYDRD. | PO/FP | REMARKS |
|--------|------------|--------|----------|---------|-------|-------|-------|-----|-------|------|------|-----|-----|------|------|---------|--------|-------|----------------|
| 2 | SMITH DSJ | 14 1/2 | 24 24 24 | 504.6 | 338.3 | 11.13 | 2/2/2 | | 30.4 | 331 | 16.0 | 112 | 212 | 2230 | 2.20 | 17477 | 1713 | 7.3 | 17.5" o/corner |
| 3 | Smith SOT | 14 1/2 | 24 24 24 | 843.0 | 277.0 | 20.20 | 6/3/7 | | 13.7 | 737 | 27.4 | 120 | 905 | 2450 | 9.31 | 13459 | 1559 | 7.5 | 3/8" o/c gauge |
| 4 | Smith DSJ | 14 1/2 | 24 24 24 | 1120.0 | 394.0 | 18.50 | 8/6/6 | | 21.3 | 525 | 18.5 | 113 | 225 | 2555 | 8.20 | 13081 | 1307 | 7.3 | 1/4" o/c gauge |
| 5 | Hughes IGT | 14 1/2 | 24 24 24 | 1514.0 | 29.0 | 8.00 | 6/7/2 | | 11.1 | 1345 | 28.0 | 118 | 325 | 2500 | 9.10 | 17359 | 1417 | 6.5 | 1/8" o/c gauge |

DPLHS AVFP COST/M 903

CUTTINGS TRANSPORT TABLES

These tables will provide a quick look at hole cleaning and cuttings removal. By controlling the Rate of Penetration (ROP), then raising or lowering the flow rate, or changing the rheological properties of the mud, one can then decide upon the action necessary to provide the most efficient hole cleaning.

In the following tables the data has been calculated for the space between the Drill Collars (DC) and Open Hole (OH). For each interval the cutting sizes are given in decimal inches.

The following gives a brief explanation of the abbreviations used:

V_s = slip velocity (m/min)

V_c = annular velocity minus slip velocity

C_f = cuttings generated at the bit
(gallons/gallons of mud)

C_a = cuttings in the annulus
(gallons/gallons of mud)

R_{ct} = cutting transport ratio (decimal percentage)
= cutting velocity/annular velocity

Interval: 504 m. to 343 m.

FDP: 30.40 m/hr.

Flow rate 919.0 gpm.

Ann. Vel: 24.41 m/min (DP/OP)

W: 9.2 ppm PV 6 YP 6 Gel (10 sec) 2 YP/PV 1.00

n = 0.535 K = 0.423

Cuttings Density: 2.10 (Calcarenite)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 34.10 | 0.31 | 0.0125 | 0.0225 | 1.7975 |
| 0.750 | 13.00 | 6.33 | 0.2534 | 0.0225 | 0.0872 |
| 0.500 | 12.95 | 12.36 | 0.5953 | 0.0225 | 0.0447 |
| 0.250 | 6.93 | 15.28 | 0.7531 | 0.0225 | 0.0309 |
| 0.125 | 3.91 | 21.40 | 0.8756 | 0.0225 | 0.0258 |
| 0.061 | 0.82 | 23.53 | 0.9665 | 0.0225 | 0.0234 |

Interval: 504 m. to 343 m.

FDP: 30.40 m/hr.

Flow rate 919.0 gpm.

Ann. Vel: 27.46 m/min (DC/OP)

W: 9.2 ppm PV 6 YP 6 Gel (10 sec) 2 YP/PV 1.00

n = 0.535 K = 0.423

Cuttings Density: 2.40 (Calcarenite)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 39.53 | -3.17 | | | |
| 0.750 | 19.50 | 7.96 | 0.2899 | 0.0225 | 0.0760 |
| 0.500 | 13.00 | 14.40 | 0.5266 | 0.0225 | 0.0429 |
| 0.250 | 6.50 | 20.96 | 0.7533 | 0.0225 | 0.0296 |
| 0.125 | 3.25 | 24.21 | 0.8316 | 0.0225 | 0.0250 |
| 0.061 | 0.95 | 26.51 | 0.9654 | 0.0225 | 0.0234 |

Interval: 943 m. to 1129 m.

ROP: 13.79 m/hr.

Flow rate 995.0 gpm.

Ann. vel: 24.01 m/min (DP/DB)

W: 0.1 mpa Pv 0 YP 0

Sei (10 sec) 3

YP/PV 0.28

n = 0.513

K = 0.516

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 20.52 | 3.42 | 0.1421 | 0.0103 | 0.0723 |
| 0.750 | 15.47 | 3.57 | 0.3566 | 0.0103 | 0.0299 |
| 0.500 | 10.31 | 13.73 | 0.5711 | 0.0103 | 0.0161 |
| 0.250 | 5.16 | 13.23 | 0.7355 | 0.0103 | 0.0132 |
| 0.125 | 1.80 | 22.24 | 0.9253 | 0.0103 | 0.0112 |
| 0.061 | 0.52 | 23.42 | 0.9744 | 0.0103 | 0.0193 |

Cuttings Density: 2.40 (Calcarenite)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 21.74 | 2.29 | 0.0955 | 0.0103 | 0.1064 |
| 0.750 | 16.31 | 7.73 | 0.3216 | 0.0103 | 0.0322 |
| 0.500 | 11.27 | 13.17 | 0.5477 | 0.0103 | 0.0189 |
| 0.250 | 5.44 | 13.60 | 0.7739 | 0.0103 | 0.0134 |
| 0.125 | 1.92 | 22.12 | 0.9202 | 0.0103 | 0.0112 |
| 0.061 | 0.56 | 23.38 | 0.9726 | 0.0103 | 0.0105 |

Cuttings Density: 2.50 (Sand)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 22.34 | 1.20 | 0.0590 | 0.0103 | 0.2071 |
| 0.750 | 17.13 | 6.91 | 0.2375 | 0.0103 | 0.0360 |
| 0.500 | 11.42 | 12.62 | 0.5259 | 0.0103 | 0.0197 |
| 0.250 | 5.71 | 13.33 | 0.7625 | 0.0103 | 0.0136 |
| 0.125 | 2.04 | 22.00 | 0.9152 | 0.0103 | 0.0113 |
| 0.061 | 0.70 | 23.34 | 0.9709 | 0.0103 | 0.0107 |

Interval: 843 m. to 1120 m.

ROP: 13.70 m/hr.

Flow rate 995.0 gpm.

Ann. Vel: 27.84 m/min (DC/DH)

KW: 9.1 hp

PV 9

YP 8

Cal (10 sec) 3

YP/PV 0.89

n = 0.613

K = 0.515

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 22.25 | 4.78 | 0.1757 | 0.0103 | 0.0535 |
| 0.750 | 15.79 | 10.35 | 0.3225 | 0.0103 | 0.0270 |
| 0.500 | 11.13 | 15.91 | 0.5384 | 0.0103 | 0.0175 |
| 0.250 | 5.57 | 21.43 | 0.7942 | 0.0103 | 0.0133 |
| 0.125 | 2.73 | 24.25 | 0.8971 | 0.0103 | 0.0115 |
| 0.061 | 0.72 | 26.33 | 0.9735 | 0.0103 | 0.0105 |

Cuttings Density: 2.40 (Calcarenite)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.42 | 3.57 | 0.1319 | 0.0103 | 0.0784 |
| 0.750 | 17.51 | 9.44 | 0.3490 | 0.0103 | 0.0297 |
| 0.500 | 11.74 | 15.31 | 0.5650 | 0.0103 | 0.0183 |
| 0.250 | 5.87 | 21.17 | 0.7830 | 0.0103 | 0.0132 |
| 0.125 | 2.93 | 24.11 | 0.8915 | 0.0103 | 0.0115 |
| 0.061 | 0.77 | 26.23 | 0.9715 | 0.0103 | 0.0105 |

Cuttings Density: 2.50 (Sand)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 24.55 | 2.39 | 0.0883 | 0.0103 | 0.1172 |
| 0.750 | 18.49 | 6.55 | 0.3162 | 0.0103 | 0.0327 |
| 0.500 | 12.33 | 14.72 | 0.5441 | 0.0103 | 0.0190 |
| 0.250 | 6.16 | 20.83 | 0.7721 | 0.0103 | 0.0134 |
| 0.125 | 3.08 | 23.95 | 0.8850 | 0.0103 | 0.0117 |
| 0.061 | 0.82 | 26.23 | 0.9698 | 0.0103 | 0.0107 |

Interval: 1120 m. to 1514 m.

ROP: 21.30 m/hr.

Flow rate 395.0 gpm.

Ann. Vel: 23.77 m/min (DP/OD)

W: 9.2 ppq PV 7 YP 7 Gel (10 sec) 2 YP/PV 1.00
n = 0.535 K = 0.439

Cuttings Density: 2.39 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 22.07 | 1.71 | 0.0717 | 0.0163 | 0.2267 |
| 0.750 | 16.55 | 7.22 | 0.3038 | 0.0163 | 0.0535 |
| 0.500 | 11.93 | 12.74 | 0.5359 | 0.0163 | 0.0304 |
| 0.250 | 5.52 | 18.26 | 0.7672 | 0.0163 | 0.0212 |
| 0.125 | 2.76 | 21.61 | 0.8040 | 0.0163 | 0.0184 |
| 0.061 | 0.71 | 23.06 | 0.9700 | 0.0163 | 0.0162 |

Cuttings Density: 2.50 (Sand)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 24.41 | -0.59 | | | |
| 0.750 | 13.35 | 5.43 | 0.2283 | 0.0163 | 0.0713 |
| 0.500 | 12.23 | 11.54 | 0.4855 | 0.0163 | 0.0335 |
| 0.250 | 6.12 | 17.66 | 0.7423 | 0.0163 | 0.0212 |
| 0.125 | 3.05 | 20.72 | 0.8714 | 0.0163 | 0.0167 |
| 0.061 | 0.81 | 22.96 | 0.9659 | 0.0163 | 0.0162 |

Interval: 1120 m. to 1514 m.

ROP: 21.30 m/hr.

Flow rate 395.0 gpm.

Ann. Vel: 26.74 m/min (DC/OD)

W: 9.2 ppq PV 7 YP 7 Gel (10 sec) 2 YP/PV 1.00
n = 0.535 K = 0.439

Cuttings Density: 2.39 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.75 | 2.99 | 0.1119 | 0.0163 | 0.1454 |
| 0.750 | 17.81 | 8.93 | 0.3339 | 0.0163 | 0.0487 |
| 0.500 | 11.88 | 14.97 | 0.5559 | 0.0163 | 0.0293 |
| 0.250 | 5.94 | 20.81 | 0.7780 | 0.0163 | 0.0209 |
| 0.125 | 2.97 | 23.78 | 0.8390 | 0.0163 | 0.0183 |
| 0.061 | 0.83 | 25.92 | 0.9691 | 0.0163 | 0.0163 |

Cuttings Density: 2.50 (Sand)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 31.73 | -5.04 | | | |
| 0.750 | 19.75 | 7.00 | 0.2617 | 0.0163 | 0.0622 |
| 0.500 | 13.16 | 13.58 | 0.5073 | 0.0163 | 0.0320 |
| 0.250 | 6.53 | 20.16 | 0.7539 | 0.0163 | 0.0216 |
| 0.125 | 3.29 | 23.45 | 0.8769 | 0.0163 | 0.0185 |
| 0.061 | 0.94 | 25.81 | 0.9649 | 0.0163 | 0.0169 |

Interval: 1514 m. to 1503 m.

ROP: 11.10 m/hr.

Flow rate 365.0 gpm.

Ann. Vel: 22.93 m/min (DP/DH)

WV: 9.2 ppb PV 7 YP 3

Sol (10 sec) 2 YF/PV 1.14

n = 0.552 K = 0.643

Cuttings density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 21.74 | 1.24 | 0.0533 | 0.0033 | 0.1529 |
| 0.750 | 15.30 | 5.67 | 0.2904 | 0.0033 | 0.0302 |
| 0.500 | 10.27 | 12.11 | 0.5269 | 0.0033 | 0.0156 |
| 0.250 | 5.43 | 17.54 | 0.7635 | 0.0033 | 0.0115 |
| 0.125 | 1.93 | 21.00 | 0.9140 | 0.0033 | 0.0093 |
| 0.061 | 0.63 | 22.33 | 0.9795 | 0.0033 | 0.0090 |

Cuttings Density: 2.40 (Sandstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 22.32 | 0.66 | 0.0237 | 0.0033 | 0.3054 |
| 0.750 | 15.74 | 5.24 | 0.2715 | 0.0033 | 0.0323 |
| 0.500 | 11.16 | 11.82 | 0.5144 | 0.0033 | 0.0171 |
| 0.250 | 5.58 | 17.40 | 0.7572 | 0.0033 | 0.0116 |
| 0.125 | 2.04 | 20.94 | 0.9112 | 0.0033 | 0.0096 |
| 0.061 | 0.70 | 22.28 | 0.9695 | 0.0033 | 0.0090 |

Cuttings Density: 2.50 (Sand)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.45 | -0.47 | | | |
| 0.750 | 17.59 | 5.39 | 0.2346 | 0.0033 | 0.0374 |
| 0.500 | 11.72 | 11.25 | 0.4897 | 0.0033 | 0.0179 |
| 0.250 | 5.36 | 17.11 | 0.7449 | 0.0033 | 0.0113 |
| 0.125 | 2.17 | 20.80 | 0.9055 | 0.0033 | 0.0097 |
| 0.061 | 0.74 | 22.23 | 0.9676 | 0.0033 | 0.0091 |

Interval: 1514 m. to 1503 m.

ROP: 11.10 m/hr.

Flow rate 365.0 gpm.

Ann. Vel: 25.85 m/min (OC/OH)

W: 9.2 cp PV 7 YP 3 Gel (10 sec) 2 YP/PV 1.14

n = 0.552 K = 0.543

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.40 | 2.45 | 0.0947 | 0.0033 | 0.0225 |
| 0.750 | 17.55 | 8.30 | 0.3211 | 0.0033 | 0.0273 |
| 0.500 | 11.70 | 14.15 | 0.5474 | 0.0033 | 0.0160 |
| 0.250 | 5.85 | 20.00 | 0.7737 | 0.0033 | 0.0113 |
| 0.125 | 2.92 | 22.92 | 0.8866 | 0.0033 | 0.0099 |
| 0.061 | 0.73 | 25.06 | 0.9696 | 0.0033 | 0.0090 |

Cuttings Density: 2.40 (Sandstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 24.00 | 1.83 | 0.0707 | 0.0033 | 0.1240 |
| 0.750 | 18.00 | 7.33 | 0.3030 | 0.0033 | 0.0209 |
| 0.500 | 12.00 | 13.84 | 0.5354 | 0.0033 | 0.0164 |
| 0.250 | 6.00 | 19.84 | 0.7677 | 0.0033 | 0.0114 |
| 0.125 | 3.00 | 22.85 | 0.8338 | 0.0033 | 0.0099 |
| 0.061 | 0.61 | 25.04 | 0.9685 | 0.0033 | 0.0091 |

Cuttings Density: 2.50 (Sand)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 25.24 | 0.61 | 0.0236 | 0.0033 | 0.3724 |
| 0.750 | 18.93 | 6.92 | 0.2677 | 0.0033 | 0.0323 |
| 0.500 | 12.62 | 13.23 | 0.5118 | 0.0033 | 0.0171 |
| 0.250 | 6.31 | 19.54 | 0.7559 | 0.0033 | 0.0116 |
| 0.125 | 3.15 | 22.69 | 0.8779 | 0.0033 | 0.0100 |
| 0.061 | 0.65 | 24.93 | 0.9655 | 0.0033 | 0.0091 |

12 1/4" PHASE REPORT

12 ¼" PHASE

SUMMARY

The 12 ¼" BHA was made up with Bit # 6, a SMITH FDGH (3*14). However, on running in a leak was found in the kill lines. So the bit was pulled to allow work to be done on the BOP stack. The BOP stack was then lowered and tested with no leaks. Bit # 6 was then rerun and tagged the cement at 1515m, which was drilled down to 1597m. There was no cement found between the float collar and the casing shoe. A leak off test performed at this depth gave an equivalent mud weight (EMW) of 12.9 ppg. The casing was then scraped and an EZSV bridge plug set at 1576m, which gave a good test. an RTTS was run into the hole and stung into the EZSV. This failed on being tested through the drill pipe. The casing was then re-cemented and squeezed (for details of this see 17 ½" PHASE CASING AND CEMENTATION section). Bit # 6 was then run into the hole again to drill out the cement from 1563m to the bridge plug at 1576. A mill bit was then used to drill out the bridge plug, after which the casing was tested and the cement held. The cement was drilled out to 1595m with Bit # 6RR at which point another leak off test was performed giving an EMW of 13.0 ppg. The 12 ¼" hole was then ready to be drilled. The bits used during this phase were as follows:

Bit # 7, a SMITH FDGH 12 ¼" (3*14) drilled from 1603m to 1812m, a total of 209m. Prior to drilling this phase the drilling mud was changed to KCl based fluid. A deviation survey taken just before pulling the bit gave 1 degree. Bit # 8, a REED HS51J 12¼" (3*14) drilled from 1812m to 2112m, a total of 300m. Before drilling the last 3 stands had to be reamed. A survey gave 1 degree deviation. On pulling the bit the BOP's were tested with no problems.

Bit # 9, a REED HS51J 12 ¼" (3*14) drilled from 2112m to 2224m, a total of 112m. A survey taken prior to pulling the bit gave a 1/2 degree deviation.

Bit # 10, a SMITH FDGH 12 ¼" (3*14) drilled from 2224m to 2343m, a total of 119m. A ½ degree deviation was recorded on pulling the bit.

Bit # 11, a SMITH FDGH 12 ¼" (3*14) drilled from 2343m to 2434m, a total of 91m. There was no deviation found on dropping a survey.

Bit # 12, a SMITH F2 12 ¼" (3*14) drilled from 2434m to 2469m, a total of just 35m. This bit was pulled early after it was found to be drilling very slowly.

Bit # 13, a DIAMAX MS5 12 ¼" (TFA : 1.05), this diamond bit was run into the hole with a turbo, but undergauged hole was encountered at 1786m. The hole was reamed from 1786m to 1808m. A short trip was made here and the hole found to be in good condition. Reaming was then continued from 1808m down to 2235m. Another wiper trip here found the hole still

in good condition and reaming continued to 2335m. The bit was then pulled.

Bit # 14, a SMITH SDGH 12 ¼" (3*14) was then run in to 2191.5m and reamed down to 2243m. At this point a loss of 125000 lbs was recorded at 450 amps, from this it was deduced that a "twist-off" had occurred. On pulling the remainder of the string it was found that 10 stands and a double of drill pipe and the BHA were left in the hole.

A new fishing BHA was then made up with a 6 5/8" overshot. The fish was tagged at 1810m, but could not be latched onto. It was suspected that the fish was lying against the side of the hole. A second attempt was made whilst awaiting parts from town, but this was also unsuccessful. A mill bit was then run in to mill the tool joint down about 60 cms. An 11 3/4" overshot was then run and successfully latched onto the fish, an overpull of about 30000 lbs was recorded whilst working the pipe. The fish was then pulled out and all the drill pipe laid down. A new BHA was made up to continue drilling:

Bit # 15, a SMITH SDGH 12 ¼" (3*14), reamed 2243m to 2469m, and drilled from 2469m to 2499m, a total of 30m. A ½ degree deviation was recorded.

Bit # 16, an LX 27 HS 12 ¼" (TFA : 1.1) was run in with a turbo and drilled from 2499m to 2693m, a total of 194m with a moderate rate of penetration.

Bit # 17, a DIAMAX ADS2 12 ¼" (TFA : 1.1) drilled from 2693m to 2869m, a total of 176m. A survey dropped prior to pulling the bit gave a deviation of 3/4 degree.

Bit # 18, a CHRISTENSEN P26LF 12 ¼" (TFA : 1.05) drilled from 2869m to 3071m, a total of 202m. A survey gave 3/4 degree.

Bit # 19, a DIAMAX MS5 12 ¼" (TFA : 1.1) drilled from 3071m to 3113m, a total of only 42m. This bit was pulled due to its very poor rate of penetration.

Bit # 20, an LX 27 HS 12 ¼" (TFA : 1.1) drilled from 3113m to 3549m, a total of 436m. The drilling rate was remarkably constant during the entire bit run.

The original T.D. was exceeded due to the fact that the sands which were expected in the Waarre Formation (Upper Cretaceous) had not been encountered. Palaeontological dating of a spot sample taken at 3495m gave a date of Upper Cretaceous age in the Belfast Formation. It was therefore thought that the Waarre Formation sands were located lower in the sequence.

Bit # 21, an LX 27 HS 12 ¼" (TFA : 1.1) was then run into the 13 3/8 casing shoe. Bad weather then prevented drilling.

During this bad weather 2 anchors shifted and the rig moved some 10m off location. After the storm the rig was relocated. Bit # 21 was then run into the hole and tagged a bridge at 3365m. The hole had to be reamed from here, however progress was slow and Bit # 21 was pulled to be replaced by a conventional rock bit, Bit # 22.

Bit # 22, a SMITH SDGH 12 ¼" (3*12) tagged the bridge at 3359m and reamed to 3443m, high torque and drag were encountered all the way. It was thought that this could possibly be due to the stabilisers, so the bit was pulled.

Bit # 23, a SMITH SDGH 12 ¼" (3*12) was run in without stabilisers to continue to ream. Reaming commenced at 3429m, but the bit had to be pulled back to the shoe to wait out another storm. Reaming was then continued from 3454m and was extremely slow with high torque and drag. When pulled, the bit was found to be severely undergauged (3/8 th).

Bit # 24, a PRED FP53J 12 1/4" (3*14) reamed down to T.D. A wiper trip was made to ensure that the hole was in good condition prior to logging and casing. The following Schlumberger logs were run:

DIL - SLS - GR
 LDL - CNL - Cal - GR
 HDT
 CST (51 side wall cores shot)

WOB/RPM/ROP PRACTICES

The phase was completed using a total of 18 bits for the 1946m drilled. The total drilling time was 222 hours, giving an average ROP throughout the phase of 8.8 m/hr (28.9 ft/hr). The total bottom hole time, including circulation and reaming (excluding W.C.W.), was 339 hours. The average ROP for this was 5.7 m/hr (18.6 ft/hr). The drilling practices are summarised in the table below :

| DEPTH INTERVAL m | ROP m/hr | WOB klb | RPM | FP gpc |
|---------------------|-------------|------------|-----|-----------|
| 1602 - 1812 | 14.7 | 37 | 105 | 570 |
| 1812 - 2112 | 16.9 | 39 | 105 | 550 |
| 2112 - 2224 | 7.9 | 43 | 105 | 530 |
| 2224 - 2374 | 15.9 | 42 | 70 | 530 |
| 2374 - 2415 | 24.0 | 42 | 70 | 530 |
| 2415 - 2467 | 6.5 | 42 | 75 | 530 |
| 2467 - 2699 | 8.1 | 36 | 75 | 560 |
| 2499 - 2639 | 10.0 | 35 | 600 | 690 |
| 2639 - 2731 | 16.8 | 25 | 600 | 675 |
| 2731 - 2869 | 6.2 | 38 | 600 | 650 |
| 2869 - 3022 | 10.4 | 25 | 600 | 675 |
| 3022 - 3549 | 5.9 | 50 | 600 | 650 |

HYDRAULICS AND SOLIDS CONTROL

This section, as far as drilling is concerned, must be divided up into 2 sections:

- Section I - Conventional Bits.
- Section II - Diamond and Stratapax Bits.

Section I :

Bits # 7 to # 15 were all run using 3 * 14 nozzles. These gave extremely good percentage losses at the bit and good FP/SQ In values. The percentage losses ranged from 57% to 62.4% (accepted values range from 48% to 65%). The FP/SQ In values ranged from 3.1 to 4.0, this latter value is the extreme value of the accepted norm. These parameters gave rise to optimum drilling conditions and the corresponding rates of penetration were fairly good, especially at the start of the phase.

However, further down the hole the ROP's slowly decreased and it was for this reason that the conventional rock bits were exchanged for the diamond bits with turbo drill.

The n and k values ranged from 0.5 - 0.6 and 0.6 - 1.0 respectively. These, together with the flow rates used, led to Laminar flow for most of the section. Turbulent flow was recorded during Bit # 10, but this was just in the turbulent range and appeared to have no adverse affect on the hole condition. The hole cleaning and cuttings transport was excellent throughout the section, with little cavings encountered whilst drilling. The mud weight was increased from 9.2 ppg to 9.5 ppg.

Section II:

Bits # 16 to 20 were all diamond or stratapax bits with TFA between 1.05 and 1.1. Percentage losses and HP/SQ In at the bits were all low for these runs. However, this is expected with this type of bit due to the fact that their manner of drilling is different to conventional rock bits. The percentage losses and HP/SQ In ranged from 18.7% to 24.5% and 1.0 to 1.4 respectively. According to the Power law the flow around the Drill Collars and the HWDP was tubulent during most of this phase. However, this appears to have had no adverse affect on the condition of the hole. This was probably due to the nature of the rock, which was not prone to washing out. The n and k values were very much the same as for the previous section and hole cleaning and cuttings transport were again excellent.

The problems came when the phase was interrupted for several days by storms, which had to be waited out at the 13 3/8" casing shoe. On going back into the hole it was found to have closed off from 3365m to T.D. The mud weight was slowly brought up from 9.9 ppg to 12.5 ppg over a period of several days. A final resort was to add 10% diesel which allowed the hole to be reamed to bottom. A lot of cuttings were obtained whilst reaming and the majority was siltstone. These cuttings had a blocky nature and this indicated some caving. The mechanism that caused the closure of the hole was suspected to be overpressuring. This was later proved when electric logs of the interval were studied. A secondary mechanism may have been hydration of the clays and claystones. T.D. was eventually reached and a wiper trip gave only a little drag and this was circulated out..

The mud used throughout this phase was a KCl (potassium chloride) based mud, this was used to try to prevent too much hydration of the clays.

CASING AND CEMENTATION

287 joints of 9 5/8" casing were run, in were this included 43 joints of P-110, 94 joints of L-80 and 150 joints of N-80 (all joints weighed 47 lb/ft). The casing shoe was set at 3519.5m. The casing was run in smoothly with no excessive drag recorded.

The casing was circulated for 2 hours with drill mud during which time heavy cavings and mud losses were encountered. The cementation then followed:

- 1). Preflush: 100 bbls of seawater at 1300 psi to release the bottom plug.

2). Lead Slurry: 840 sacks of "G" class cement mixed with :
14.2 gal/sack of Drillwater.
3.7% Gel.
0.5% CFP-2.

This gave a weight of 12.0 ppq.

3). Tail Slurry: 500 sacks of "G" class cement with :
5.0 gal/sack of Drillwater.
0.5% CFP-2.
0.8% Halad 22A.
0.1% HF-6L.

This gave a weight of 15.3 ppq.

4). Displacement: 316 bbls of Drillmud was bumped at 4300 psi during
1 1/2 hours. The plug was then bumped for 15 mins before 2.25 bbl
of mud was bled back.

The estimated ton of cement, outside the casing, was 2031m (based
on caliber log).

Phillips Aust Co. Bridgewater Bay # 1

RIP REPORT

| PTP NO | TYPE | SIZE | NOZZLES | DEP. IN | PTPGE | HOURS | T/D/C | M/W | US \$ | KEBS | RPM | FLOW | SPR | WV | TTL | ETP | /31 | REMARKS |
|--------|------------|--------|----------|---------|-------|-------|-------|------|-------|------|-----|------|------|-------|-------|------|------|----------------|
| 7 | Smith SDGH | 12 1/4 | 14 14 14 | 1603.0 | 209.0 | 14.10 | 6/7/C | 14.8 | 655 | 36.5 | 105 | 572 | 2775 | 9.20 | 13189 | 3576 | 23.8 | 1/4" cut gauge |
| 8 | Reed HS5IJ | 12 1/4 | 14 14 14 | 1812.0 | 306.0 | 17.50 | 4/3/D | 17.1 | 689 | 32.0 | 105 | 550 | 2345 | 9.48 | 13002 | 3250 | 21.7 | 1/4" out gauge |
| 9 | Reed HS5IJ | 12 1/4 | 14 14 14 | 2112.0 | 112.0 | 14.10 | 6/5/A | 7.9 | 1592 | 43.0 | 105 | 530 | 2825 | 9.50 | 12441 | 2939 | 19.5 | |
| 10 | Smith FCGH | 12 1/4 | 14 14 14 | 2224.0 | 119.0 | 7.30 | 4/3/D | 16.3 | 1615 | 42.0 | 71 | 530 | 2250 | 9.50 | 12551 | 2939 | 19.6 | 3/4" cut gauge |
| 11 | Smith FCGH | 12 1/4 | 14 14 14 | 2343.0 | 91.0 | 14.50 | 3/3/D | 6.3 | 2672 | 42.0 | 71 | 531 | 2670 | 9.50 | 12663 | 2956 | 19.7 | 1/4" out gauge |
| 12 | Smith F2 | 12 1/4 | 14 14 14 | 2434.0 | 35.0 | 8.37 | 1/2/A | 4.2 | 4630 | 42.8 | 59 | 529 | 2846 | 9.50 | 12510 | 2922 | 19.5 | |
| 13 | Diamax MS5 | 12 1/4 | T: 1.05 | 2469.0 | | | | | | 20.0 | 105 | 490 | 1750 | 9.50 | 7125 | 3555 | | Pearing |
| 14 | Smith SDGH | 12 1/4 | 14 14 14 | 2469.0 | | | | | | 5.0 | 140 | 526 | 1600 | 9.50 | 6913 | 2305 | 19.7 | Twisted off |
| 15 | Smith SDGH | 12 1/4 | 14 14 14 | 2469.0 | 30.0 | 3.53 | 1/2/A | 6.5 | 3852 | 35.9 | 77 | 557 | 2520 | 9.50 | 11663 | 3447 | 23.0 | |
| 16 | LX 27 HS | 12 1/4 | T: 1.10 | 2499.0 | 154.0 | 15.31 | | 11.9 | 1455 | 33.1 | 600 | 606 | 3170 | 9.50 | 1773 | 4555 | | |
| 17 | D'rax ADS2 | 12 1/4 | T: 1.10 | 2595.0 | 176.0 | 28.30 | | 6.2 | 2115 | 37.7 | 609 | 650 | 3145 | 9.70 | 16986 | 3555 | | |
| 18 | Cmp P26TF | 12 1/4 | T: 1.05 | 2860.0 | 202.0 | 24.60 | | 8.2 | 1601 | 24.6 | 600 | 665 | 3150 | 9.80 | 17627 | 3555 | | |
| 19 | Diamax MS5 | 12 1/4 | T: 1.05 | 3071.0 | 42.0 | 10.00 | | 4.2 | 5042 | 40.6 | 600 | 655 | 3330 | 9.70 | 12124 | 3555 | | |
| 20 | LX 27 HS | 12 1/4 | T: 1.10 | 3113.0 | 436.0 | 73.60 | | 5.9 | 1742 | 49.8 | 600 | 652 | 3570 | 9.80 | 19341 | 3555 | | |
| 21 | LX 27 HS | 12 1/4 | T: 1.10 | 3549.0 | | | | | | 25.0 | 110 | 600 | 3700 | 9.50 | 12446 | 3555 | | |
| 22 | Smith SDGH | 12 1/4 | 12 12 12 | 3549.0 | | | 1/1/C | | | 16.0 | 140 | 570 | 3200 | 10.50 | 15668 | 6302 | 55.3 | 1/16 cut gauge |
| 23 | Smith SDGH | 12 1/4 | 12 12 12 | 3549.0 | | | 2/2/D | | | 8.0 | 140 | 575 | 3200 | 12.50 | 15289 | 9149 | 61.0 | 3/8 cut gauge |
| 24 | Reed FP53J | 12 1/4 | 14 14 14 | 3549.0 | | | 1/1/C | | | 5.0 | 110 | 550 | 3050 | 12.50 | 13939 | 4322 | 28.8 | 1/4 cut gauge |

DRING AVFT COST/M POP HYDJO. PGPPE

CUTTINGS TRANSPORT TABLES

These tables will provide a quick look at hole cleaning and cuttings removal. By controlling the Rate of Penetration (ROP), then raising or lowering the flow rate, or changing the rheological properties of the mud, one can then decide upon the action necessary to provide the most efficient hole cleaning.

In the following tables the data has been calculated for the space between the Drill Collars (DC) and Open Hole (OH). For each interval the cutting sizes are given in decimal inches.

The following gives a brief explanation of the abbreviations used:

V_s = slip velocity (ft/min)

V_c = annular velocity minus slip velocity

C_f = cuttings generated at the bit
(gallons/gallons of mud)

C_a = cuttings in the annulus
(gallons/gallons of mud)

Pct = cutting transport ratio (decimal percentage)
= cutting velocity/annular velocity

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In the following tables the data has been calculated for the space between the Drill Collars (DC) and Open Hole (OH). For each interval the cutting sizes are given in decimal inches.

The following gives a brief explanation of the abbreviations used:

- Vs = slip velocity (m/min)
- Vc = annular velocity minus slip velocity
- Cf = cuttings generated at the bit
(gallons/gallons of mud)
- Ca = cuttings in the annulus
(gallons/gallons of mud)
- Rct = cutting transport ratio (decimal percentage)
= cutting velocity/annular velocity

Interval: 1503 m. to 1512 m.

FDP: 14.70 m/hr.

Flow rate 570.0 gpm.

Ann.Vel: 47.31 m/min (DC/DH)

W: 0.2 ppm

PV 2

YP 15

Gel (10 sec) 3

YP/PV 1.67

n = 0.450

K = 1.740

Cuttings Density: 2.50 (Sand/Sandstone)

| Cuttings size | Vs | Vc | Rct | CF | Ca |
|---------------|-------|-------|--------|--------|--------|
| 1.000 | 31.79 | 15.53 | 0.3232 | 0.0086 | 0.0263 |
| 0.750 | 29.63 | 25.59 | 0.5641 | 0.0086 | 0.0153 |
| 0.500 | 13.75 | 33.56 | 0.7084 | 0.0086 | 0.0122 |
| 0.250 | 6.22 | 40.44 | 0.8547 | 0.0086 | 0.0101 |
| 0.125 | 3.44 | 43.22 | 0.9273 | 0.0086 | 0.0093 |
| 0.061 | 1.22 | 45.36 | 0.9735 | 0.0026 | 0.0038 |

Cuttings Density: 2.35 (Siltstone)

| Cuttings size | Vs | Vc | Rct | CF | Ca |
|---------------|-------|-------|--------|--------|--------|
| 1.000 | 39.03 | 17.22 | 0.3553 | 0.0086 | 0.0236 |
| 0.750 | 19.12 | 28.12 | 0.5950 | 0.0086 | 0.0145 |
| 0.500 | 12.75 | 34.57 | 0.7306 | 0.0086 | 0.0113 |
| 0.250 | 6.37 | 40.24 | 0.8653 | 0.0086 | 0.0100 |
| 0.125 | 3.12 | 44.13 | 0.9326 | 0.0086 | 0.0093 |
| 0.061 | 0.23 | 45.33 | 0.9864 | 0.0026 | 0.0038 |

Interval: 1812 m. to 2112 m.

FDP: 16.20 m/hr.

Flow rate 550.0 gpm.

Ann.Vel: 45.65 m/min (DC/DH)

W: 0.4 ppm

PV 10

YP 13

Gel (10 sec) 3

YP/PV 1.39

n = 0.521

K = 1.181

Cuttings Density: 2.50 (Sand/Sandstone)

| Cuttings size | Vs | Vc | Rct | CF | Ca |
|---------------|-------|-------|--------|--------|--------|
| 1.000 | 31.18 | 14.43 | 0.3171 | 0.0103 | 0.0325 |
| 0.750 | 20.26 | 24.79 | 0.5430 | 0.0103 | 0.0190 |
| 0.500 | 13.91 | 31.74 | 0.6953 | 0.0103 | 0.0143 |
| 0.250 | 6.95 | 38.70 | 0.8477 | 0.0103 | 0.0121 |
| 0.125 | 3.42 | 42.13 | 0.9238 | 0.0103 | 0.0111 |
| 0.061 | 1.06 | 44.50 | 0.9767 | 0.0103 | 0.0105 |

Cuttings Density: 2.35 (Siltstone)

| Cuttings size | Vs | Vc | Rct | CF | Ca |
|---------------|-------|-------|--------|--------|--------|
| 1.000 | 29.42 | 16.23 | 0.3555 | 0.0103 | 0.0289 |
| 0.750 | 19.32 | 26.34 | 0.5769 | 0.0103 | 0.0178 |
| 0.500 | 12.98 | 32.73 | 0.7179 | 0.0103 | 0.0143 |
| 0.250 | 6.44 | 39.21 | 0.8590 | 0.0103 | 0.0120 |
| 0.125 | 3.22 | 42.43 | 0.9295 | 0.0103 | 0.0111 |
| 0.061 | 0.95 | 44.59 | 0.9739 | 0.0103 | 0.0105 |

Interval: 2212 m. to 2224 m.

ROP: 7.00 m/hr.

Flow rate 530.0 gpm.

Ann.Vel: 43.00 m/min (OC/OC)

W: 2.5 mm PV 8 YP 8 Sol (10 sec) 2 YP/PV 1.00
n = 0.505 K = 0.641

Cuttings Density: 2.50 (Sand/Sandstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 30.50 | 13.41 | 0.3040 | 0.0050 | 0.0164 |
| 0.750 | 26.48 | 17.51 | 0.3031 | 0.0050 | 0.0125 |
| 0.500 | 15.27 | 23.72 | 0.5528 | 0.0050 | 0.0076 |
| 0.250 | 7.64 | 36.36 | 0.8264 | 0.0050 | 0.0060 |
| 0.125 | 3.82 | 49.18 | 0.9132 | 0.0050 | 0.0055 |
| 0.061 | 1.91 | 42.63 | 0.9783 | 0.0050 | 0.0051 |

Cuttings Density: 2.37 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 24.03 | 15.16 | 0.3447 | 0.0050 | 0.0145 |
| 0.750 | 24.07 | 19.03 | 0.4325 | 0.0050 | 0.0115 |
| 0.500 | 14.12 | 23.06 | 0.6761 | 0.0050 | 0.0074 |
| 0.250 | 7.06 | 36.03 | 0.8335 | 0.0050 | 0.0050 |
| 0.125 | 3.53 | 49.45 | 0.9100 | 0.0050 | 0.0054 |
| 0.061 | 1.76 | 42.91 | 0.9731 | 0.0050 | 0.0051 |

Interval: 2324 m. to 2374 m.

ROP: 15.00 m/hr.

Flow rate 530.0 gpm.

Ann.Vel: 43.00 m/min (OC/OC)

W: 2.5 mm PV 12 YP 12 Sol (10 sec) 2 YP/PV 1.00
n = 0.533 K = 0.355

Cuttings Density: 2.50 (Sand/Sandstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 30.88 | 13.12 | 0.2032 | 0.0100 | 0.0337 |
| 0.750 | 21.33 | 22.66 | 0.5151 | 0.0100 | 0.0195 |
| 0.500 | 14.22 | 29.77 | 0.6767 | 0.0100 | 0.0143 |
| 0.250 | 7.11 | 36.33 | 0.8334 | 0.0100 | 0.0120 |
| 0.125 | 3.56 | 49.44 | 0.9102 | 0.0100 | 0.0109 |
| 0.061 | 1.78 | 42.87 | 0.9745 | 0.0100 | 0.0103 |

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 29.13 | 14.87 | 0.3380 | 0.0100 | 0.0297 |
| 0.750 | 19.74 | 24.25 | 0.5514 | 0.0100 | 0.0132 |
| 0.500 | 13.16 | 30.84 | 0.7009 | 0.0100 | 0.0143 |
| 0.250 | 6.58 | 37.42 | 0.8505 | 0.0100 | 0.0113 |
| 0.125 | 3.29 | 49.70 | 0.9252 | 0.0100 | 0.0109 |
| 0.061 | 1.64 | 42.93 | 0.9769 | 0.0100 | 0.0103 |

Interval: 2374 m. to 2415 m.

RQP: 24.00 m/hr.

Flow rate 530.0 gpm.

Ann.Vel: 43.99 m/min (OC/OH)

WF: 9.5 ppm PV 12 YP 11

Ccl (10 sec) 2 YP/PV 0.92

n = 0.605

K = 0.723

Cuttings Density: 2.50 (Sand/Sandstone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 30.83 | 13.12 | 0.2932 | 0.0152 | 0.0509 |
| 0.750 | 21.80 | 22.13 | 0.5045 | 0.0152 | 0.0301 |
| 0.500 | 14.53 | 29.46 | 0.5697 | 0.0152 | 0.0226 |
| 0.250 | 7.27 | 36.73 | 0.3348 | 0.0152 | 0.0132 |
| 0.125 | 3.63 | 40.36 | 0.9174 | 0.0152 | 0.0165 |
| 0.061 | 1.17 | 42.22 | 0.9734 | 0.0152 | 0.0156 |

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 29.13 | 14.97 | 0.3330 | 0.0152 | 0.0449 |
| 0.750 | 20.17 | 23.83 | 0.5416 | 0.0152 | 0.0289 |
| 0.500 | 13.44 | 30.55 | 0.6944 | 0.0152 | 0.0212 |
| 0.250 | 6.72 | 37.27 | 0.8472 | 0.0152 | 0.0179 |
| 0.125 | 3.36 | 40.63 | 0.9236 | 0.0152 | 0.0164 |
| 0.061 | 1.06 | 42.93 | 0.9759 | 0.0152 | 0.0155 |

Interval: 2415 m. to 2467 m.

RQP: 6.50 m/hr.

Flow rate 530.0 gpm.

Ann.Vel: 43.99 m/min (OC/OH)

WF: 9.5 ppm PV 13 YP 14

Ccl (10 sec) 5 YP/PV 1.08

n = 0.567

K = 1.055

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.83 | 20.16 | 0.4583 | 0.0041 | 0.0090 |
| 0.750 | 17.87 | 26.12 | 0.5937 | 0.0041 | 0.0069 |
| 0.500 | 11.92 | 32.03 | 0.7291 | 0.0041 | 0.0056 |
| 0.250 | 5.96 | 38.04 | 0.8646 | 0.0041 | 0.0048 |
| 0.125 | 2.98 | 41.01 | 0.9323 | 0.0041 | 0.0044 |
| 0.061 | 0.83 | 43.16 | 0.9810 | 0.0041 | 0.0042 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.17 | 20.82 | 0.4733 | 0.0041 | 0.0037 |
| 0.750 | 17.33 | 26.61 | 0.6049 | 0.0041 | 0.0068 |
| 0.500 | 11.59 | 32.41 | 0.7366 | 0.0041 | 0.0056 |
| 0.250 | 5.79 | 38.20 | 0.8683 | 0.0041 | 0.0047 |
| 0.125 | 2.90 | 41.10 | 0.9342 | 0.0041 | 0.0044 |
| 0.061 | 0.81 | 43.19 | 0.9817 | 0.0041 | 0.0042 |

Interval: 2457 m. to 2499 m.

FDP: 3.10 m/hr.

Flow rate 560.0 gpm.

Ann.Vel: 46.48 m/min (DC/OH)

MW: 9.5 ppq PV 10 YP 9 Gel (10 sec) 2 YP/PV 0.90

n = 0.610 K = 0.587

Cuttings Density: 2.50 (Sand/Sandstone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 30.88 | 15.61 | 0.3358 | 0.0048 | 0.0144 |
| 0.750 | 25.74 | 19.74 | 0.4248 | 0.0048 | 0.0114 |
| 0.500 | 15.50 | 30.98 | 0.6666 | 0.0048 | 0.0073 |
| 0.250 | 7.75 | 33.73 | 0.8333 | 0.0048 | 0.0058 |
| 0.125 | 3.87 | 42.51 | 0.9156 | 0.0048 | 0.0053 |
| 0.061 | 1.33 | 45.15 | 0.9714 | 0.0048 | 0.0050 |

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 29.13 | 17.36 | 0.3734 | 0.0048 | 0.0139 |
| 0.750 | 25.22 | 21.26 | 0.4574 | 0.0048 | 0.0106 |
| 0.500 | 14.34 | 32.14 | 0.6915 | 0.0048 | 0.0070 |
| 0.250 | 7.17 | 39.31 | 0.8458 | 0.0048 | 0.0057 |
| 0.125 | 3.58 | 42.90 | 0.9229 | 0.0048 | 0.0052 |
| 0.061 | 1.21 | 45.28 | 0.9740 | 0.0048 | 0.0050 |

Interval: 2499 m. to 2639 m.

FDP: 10.00 m/hr.

Flow rate 600.0 gpm.

Ann.Vel: 57.27 m/min (DC/OH)

MW: 9.5 ppq PV 10 YP 10 Gel (10 sec) 2 YP/PV 1.00

n = 0.585 K = 0.713

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 29.13 | 28.15 | 0.4915 | 0.0049 | 0.0099 |
| 0.750 | 25.22 | 32.05 | 0.5596 | 0.0049 | 0.0087 |
| 0.500 | 14.43 | 42.79 | 0.7472 | 0.0049 | 0.0065 |
| 0.250 | 7.24 | 50.03 | 0.8736 | 0.0049 | 0.0056 |
| 0.125 | 3.62 | 53.65 | 0.9368 | 0.0049 | 0.0052 |
| 0.061 | 1.23 | 56.04 | 0.9785 | 0.0049 | 0.0050 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 28.52 | 28.76 | 0.5021 | 0.0049 | 0.0097 |
| 0.750 | 24.70 | 32.58 | 0.5688 | 0.0049 | 0.0085 |
| 0.500 | 14.08 | 43.19 | 0.7542 | 0.0049 | 0.0064 |
| 0.250 | 7.04 | 50.23 | 0.8771 | 0.0049 | 0.0055 |
| 0.125 | 3.52 | 53.75 | 0.9385 | 0.0049 | 0.0052 |
| 0.061 | 1.19 | 56.08 | 0.9792 | 0.0049 | 0.0050 |

Interval: 2539 m. to 2731 m.

FDP: 15.30 m/hr.

Flow rate 675.0 gpm.

Ann. vel: 56.03 m/min (DC/OH)

WV: 9.2 ppj

PV 10

YP 9

Gel (10 sec) 2

YP/PV 0.90

n = 0.610

K = 0.587

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 23.25 | 27.73 | 0.4359 | 0.0033 | 0.0163 |
| 0.750 | 24.46 | 31.57 | 0.5634 | 0.0033 | 0.0143 |
| 0.500 | 14.34 | 41.69 | 0.7441 | 0.0033 | 0.0112 |
| 0.250 | 7.17 | 42.26 | 0.3720 | 0.0033 | 0.0095 |
| 0.125 | 3.58 | 52.44 | 0.9360 | 0.0033 | 0.0039 |
| 0.061 | 1.25 | 54.73 | 0.9773 | 0.0033 | 0.0035 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 27.64 | 23.39 | 0.5067 | 0.0033 | 0.0165 |
| 0.750 | 23.94 | 32.09 | 0.5723 | 0.0033 | 0.0146 |
| 0.500 | 13.93 | 42.10 | 0.7514 | 0.0033 | 0.0111 |
| 0.250 | 6.97 | 49.05 | 0.3757 | 0.0033 | 0.0095 |
| 0.125 | 3.43 | 52.55 | 0.9373 | 0.0033 | 0.0039 |
| 0.061 | 1.20 | 54.33 | 0.9786 | 0.0033 | 0.0035 |

Interval: 2731 m. to 2869 m.

FDP: 6.20 m/hr.

Flow rate 550.0 gpm.

Ann. Vel: 53.95 m/min (DC/OH)

WV: 9.3 ppj

PV 10

YP 9

Gel (10 sec) 2

YP/PV 0.90

n = 0.610

K = 0.587

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 28.25 | 25.71 | 0.4765 | 0.0032 | 0.0067 |
| 0.750 | 24.46 | 29.49 | 0.5466 | 0.0032 | 0.0058 |
| 0.500 | 14.25 | 39.70 | 0.7358 | 0.0032 | 0.0043 |
| 0.250 | 7.13 | 46.33 | 0.8679 | 0.0032 | 0.0037 |
| 0.125 | 3.56 | 50.39 | 0.9340 | 0.0032 | 0.0034 |
| 0.061 | 1.23 | 52.72 | 0.9772 | 0.0032 | 0.0033 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | CF | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 27.64 | 26.31 | 0.4877 | 0.0032 | 0.0066 |
| 0.750 | 23.94 | 30.02 | 0.5563 | 0.0032 | 0.0057 |
| 0.500 | 13.35 | 40.11 | 0.7434 | 0.0032 | 0.0043 |
| 0.250 | 6.92 | 47.03 | 0.8717 | 0.0032 | 0.0037 |
| 0.125 | 3.46 | 50.49 | 0.9353 | 0.0032 | 0.0034 |
| 0.061 | 1.19 | 52.77 | 0.9780 | 0.0032 | 0.0033 |

Interval: 2359 m. to 3022 m.

POP: 10.40 m/hr.

Flow rate 575.0 gpm.

Ann.Vel: 55.03 m/min (DC/OH)

W: 9.9 ppb PV 10 YP 9

Gel (10 sec) 2 YP/PV 0.90

n = 0.610

K = 0.587

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 27.96 | 23.07 | 0.5010 | 0.0052 | 0.0103 |
| 0.750 | 24.21 | 31.31 | 0.5673 | 0.0052 | 0.0091 |
| 0.500 | 14.19 | 41.34 | 0.7467 | 0.0052 | 0.0063 |
| 0.250 | 7.10 | 43.93 | 0.3733 | 0.0052 | 0.0059 |
| 0.125 | 3.55 | 52.48 | 0.9367 | 0.0052 | 0.0055 |
| 0.061 | 1.23 | 54.30 | 0.9780 | 0.0052 | 0.0053 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 27.35 | 23.68 | 0.5113 | 0.0052 | 0.0101 |
| 0.750 | 23.69 | 32.34 | 0.5772 | 0.0052 | 0.0039 |
| 0.500 | 13.76 | 42.25 | 0.7540 | 0.0052 | 0.0063 |
| 0.250 | 6.89 | 40.14 | 0.8770 | 0.0052 | 0.0059 |
| 0.125 | 3.45 | 52.52 | 0.9385 | 0.0052 | 0.0055 |
| 0.061 | 1.19 | 54.84 | 0.9733 | 0.0052 | 0.0053 |

Interval: 3022 m. to 3549 m.

POP: 5.90 m/hr.

Flow rate 650.0 gpm.

Ann.Vel: 53.95 m/min (DC/OH)

W: 9.9 ppb PV 10 YP 10

Gel (10 sec) 2 YP/PV 1.00

n = 0.535

K = 0.713

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 27.96 | 25.99 | 0.4813 | 0.0030 | 0.0063 |
| 0.750 | 24.21 | 29.74 | 0.5512 | 0.0030 | 0.0055 |
| 0.500 | 13.77 | 40.19 | 0.7443 | 0.0030 | 0.0041 |
| 0.250 | 6.88 | 47.07 | 0.3724 | 0.0030 | 0.0035 |
| 0.125 | 3.44 | 50.51 | 0.9362 | 0.0030 | 0.0032 |
| 0.061 | 1.16 | 52.79 | 0.9785 | 0.0030 | 0.0031 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Pct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 27.35 | 26.50 | 0.4930 | 0.0030 | 0.0062 |
| 0.750 | 23.69 | 30.27 | 0.5609 | 0.0030 | 0.0054 |
| 0.500 | 13.37 | 40.58 | 0.7522 | 0.0030 | 0.0040 |
| 0.250 | 6.68 | 47.27 | 0.3761 | 0.0030 | 0.0035 |
| 0.125 | 3.34 | 50.61 | 0.9381 | 0.0030 | 0.0032 |
| 0.061 | 1.12 | 52.84 | 0.9793 | 0.0030 | 0.0031 |

8 1/2" PHASE REPORT

8 1/2" PHASE

SUMMARY

After running the 9 5/8" casing to 3519.5m, the surface lines and the BOP's were tested to satisfactory levels. The 12 1/4" BHA was then laid out and the new 8 1/2" assembly picked up together with Bit # 25. This bit was run into the hole and tagged the cement at 3491m. It then drilled down through the cement, float collar and casing shoe to 3519m. A short time was then spent waiting on weather before continuing to try to drill out the rest of the rat hole. However, the hole had packed off and no headway could be made. The mud weight was then brought up to 13.0 ppg and another attempt was made at reaming, but to no avail. So the mud weight was increased to 14.0 ppg. This enabled reaming to continue down to 3530m, but high torque and drag values made it very difficult. The bit was then pulled to allow the stabilisers and the roller to be laid out. Bit # 26 (a SMITH FDGH) was then run in to 3519m where it encountered the hole fill. During reaming down to 3550m the mud weight was gradually brought up to 15.0 ppg thereby stabilizing the hole. A leak off test was performed at 3550m and this gave a value of 17.0 ppg E.M.W. (Equivalent Mud Weight). Bit # 26 then drilled a further meter to 3551, it drilled only 2m of new formation before being pulled. The drilling of the 8 1/2" phase continued with the following bits:

Bit # 27, a SMITH SVH (3*11) drilled from 3551m to 3555m, a total of just 4m. It drilled with a junk basket due to the extreme wear that was found on Bit # 26. and the remains of Schlumberger sidewall core bullets were recovered in the basket. A lot of time was lost on this bit run due to the shortage of Barite, which could not be unloaded from the boats due to the large swell.

Bit # 28, a DIAMANT BOART LX 27 HS 8 1/2" (TFA : 0.75) was run in the hole with turbodrill. The hole had to be washed and reamed from 3536m to T.D. The bit drilled from 3555m to 3618m, a total of 63m during which a good steady rate of penetration was maintained at about 22 min/m. Again during this bit run time was wasted waiting on the Barite to be unloaded from the boats. The bit was pulled early because it was thought that the penetration rate was too slow.

Bit # 29, a SMITH F2 8 1/2" (3*11) was then run and drilled from 3618m to 3627m, a total of 9m. The slower rate of penetration caused the bit to be pulled after such a short run.

Bit # 30, a DIAMAX MS5 8 1/2" (TFA : 0.75) with turbodrill drilled from 3627m to 4056m, a total of 429m. A very constant rate of penetration was maintained with this bit, at about 16.5 min/m. The bit drilled for nearly 118 hours over a period of 6 days. Tight hole at 4041m initiated an attempt to raise the mud weight from 15.0 ppg to 15.5 ppg. However, loss of circulation at 4052m caused the mud weight to be cut back from 15.5 ppg to 15.2 ppg, at which point circulation was regained/ A loss of 250 bbls was recorded.

Bit # 31, a DIAMAX LX 16 8 ½" (TFA : 0.75) with turbodrill drilled from 4056 to 4101m, a total of 45m. At 4101m a loss of circulation occurred again, this time some 425 bbls of mud were lost before circulation was once more regained. A combination of decreasing the mud weight to 15.0 ppg and the use of Lost Circulation Mud (L.C.M.) enabled the circulation to be regained. On pulling the bit it was found that the hole would not take any mud, however, neither was it flowing. It was therefore assumed from this that the lost mud or formation fluid was returning into the hole as the pipe was pulled, but the flow was stopping as soon as the pipe stopped. This indicated that the hole hydraulics must have been very finely balanced.

Bit # 32, a SMITH F2 8 ½" (no jets) and slick drillcollar assembly drilled from 4101m to 4200m, a total of 99m. This was then called T.D. the hole was then circulated and conditioned to enable electric logs to be run. The following Schlumberger logs were run :

DIL - SLS - GR
 LDL - CNL - Cal - GR
 HDT
 Velocity Survey
 CST

WOB/RPM/ROP PRACTICES

The phase was completed using a total of 8 bits for the 65m drilled. A total drilling time of 208.4 hours gave rise to an average rate of penetration throughout the phase of 3.1 m/hr (10.3 ft/hr). The total bottom hole time, including circulation and reaming, was 323 hours. The average rate of penetration for this was 2.0 m/hr (6.6 ft/hr). The drilling parameters are summarised in the table below :

| DEPTH INTERVAL m | METERAGE | ROP m/hr | WOB klb | RPM | FR gpm |
|---------------------|----------|-------------|------------|------|-----------|
| 3549 - 3555 | 6 | 1.9 | 36 | 95 | 370 |
| 3555 - 3618 | 63 | 2.7 | 30 | 600* | 345 |
| 3618 - 3627 | 9 | 1.5 | 34 | 70 | 345 |
| 3627 - 4101 | 474 | 4.2 | 23 | 600* | 380 |
| 4101 - 4200 | 99 | 2.0 | 42 | 65 | 295 |

*Drilling with Turbine

HYDRAULICS AND SOLIDS CONTROL

Hole problems were encountered immediately on running back to bottom after the 9 5/8" casing had been run. It had been detected from the electric logs that the hole was overpressured from about 2950m onwards. The mud weight was gradually brought up from 12.5 ppg to a maximum of 15.0 ppg to try to prevent the hole packing off. This worked for most of the phase and little or no reaming was necessary on wiper trips or round trips. An attempt to increase the mud weight to 15.5 ppg, however, led to a loss of circulation at 4052m. Circulation was regained by lowering the mudweight again to 15.2 ppg.

Further losses encountered at 4101m were cured by a further reduction of the mudweight from 15.2 to 15.0 ppg, and also by opening the circulating valve above the turbo drill and adding lost circulation material to the mud.

The reduction in mudweight allowed gas to escape from the formation into the mud and subsequently the background gas rose, and both trip gas and connection gas were recorded (the latter being 3 to 4 times the background value). On no occasion, though, did the well flow. On a couple of occasions the hole was possibly swabbed whilst tripping, but as soon as the pipe was stopped to perform a flow check, no flow was recorded. It was assumed that the mud system was almost perfectly balanced.

Hole cleaning was good throughout the phase, as shown by the Cuttings Transport Tables (see end of Section). The n values remained constant at about 0.7 for the entire phase, whereas the k values started high but gradually decreased with depth to minimum of 0.5. This appeared to have no adverse effect upon the hole cleaning. Only during one bit run, # 26, was turbulent flow recorded around the drill collars and drill pipe. This bit, however, was used mainly for reaming and the effects of turbulent flow appeared to be minimal.

There was no constant pattern in the bit runs and their hydraulics differed greatly. The two conventional bits run with jets, # 27 and # 29, had percentage losses at the bit of 63.6% and 62.8% respectively. However, their HP/Sq in values were well above the accepted normal at 7.5, both bits drilled poorly making a total of 13m between them. Perhaps, increasing the nozzle size to 3 * 13 might have lowered this high figure and enabled better drilling. There were 3 diamond bits run with turbines. All 3 had extremely low percentage losses at the bit, but this is expected with this type of bit due to their drilling action, all 3 drilled reasonably well. The 2 other bits run in this phase, # 26 and # 32, were both conventional bits run with open nozzles (i.e. 3 * 32). These were the first and last bits, respectively, that were run in this phase. The first was run with no jets for reaming and the latter to allow the pumping of L.C.M., if the need arose, without blocking the nozzles or the turbine.

Taking into account the adverse conditions encountered in this hole, the phase, once drilling had got under way, was completed in reasonably good time.

It was decided to plug and abandon this well at this depth.

 Phillips Aust Co. Bridgewater Bay # 1 BIT REPORT

| BIT No | TYPE | SIZE | NOZZLES | DEP. IN | DRLNG | | | AVER COST/M | | | WOB | | | HYDRO. POWER | | | Remarks |
|--------|------------|-------|----------|---------|-------|--------|-------|-------------|-------|------|------|------|-------|--------------|------------------|----------------|----------------|
| | | | | | MTRGE | HOURS | T/B/G | M/HR | US \$ | KLBS | RPM | FLOW | SPP | MW | TTL | BIT /SI | |
| 25 | Smith FDT | 8 1/2 | 11 11 11 | 3549.0 | | | 0/0/I | | | | 10.0 | 80 | 370 | 3100 | 14.00 | 9531 3867 53.5 | Reaming |
| 26 | Smith FDGH | 8 1/2 | 32 32 32 | 3549.0 | 2.0 | 1.80 | 8/2/O | 1.158233 | 32.0 | 110 | 585 | 2885 | 15.00 | 14024 | 229 | 3.2 | 1/8 out gauge |
| 27 | Smith SVH | 8 1/2 | 11 11 11 | 3551.0 | 4.0 | 1.82 | 4/2/I | 2.229183 | 35.0 | 95 | 370 | 2960 | 15.00 | 9100 | 4143 | 57.3 | |
| 28 | LX 27 HS | 8 1/2 | T: 0.75 | 3555.0 | 63.0 | 23.20 | | 2.7 5635 | 29.5 | 600 | 345 | 3450 | 15.10 | 9890 | \$\$\$\$\$\$\$\$ | | |
| 29 | Smith F2 | 8 1/2 | 11 11 11 | 3618.0 | 9.0 | 5.80 | 1/1/I | 1.618808 | 33.9 | 70 | 345 | 3200 | 15.10 | 9173 | 3381 | 46.8 | |
| 30 | Diamax MS5 | 8 1/2 | T: 0.75 | 3627.0 | 429.0 | 117.90 | | 3.6 2620 | 26.3 | 600 | 400 | 3575 | 15.10 | 11882 | \$\$\$\$\$\$\$\$ | | |
| 31 | LX 16 | 8 1/2 | T: 0.75 | 4056.0 | 45.0 | 8.80 | | 5.1 4778 | 19.8 | 600 | 365 | 3150 | 15.20 | 9554 | \$\$\$\$\$\$\$\$ | | |
| 32 | Smith F2 | 8 1/2 | 32 32 32 | 4101.0 | 99.0 | 48.40 | 2/3/O | 2.0 5380 | 41.8 | 65 | 295 | 1080 | 14.90 | 2647 | 29 | 0.4 | 1/16 out gauge |

CUTTINGS TRANSPORT TABLES

These tables will provide a quick look at hole cleaning and cuttings removal. By controlling the Rate of Penetration (ROP), then raising or lowering the flow rate, or changing the rheological properties of the mud, one can then decide upon the action necessary to provide the most efficient hole cleaning.

In the following tables the data has been calculated for the space between the Drill Collars (DC) and Open Hole (OH). For each interval the cutting sizes are given in decimal inches.

The following gives a brief explanation of the abreviations used:

Vs = slip velocity (m/min)

Vc = annular velocity minus slip velocity

Cf = cuttings generated at the bit
(gallons/gallons of mud)

Ca = cuttings in the annulus
(gallons/gallons of mud)

Rct = cutting transport ratio (decimal percentage)
= cutting velocity/annular velocity

Interval: 3549 m. to 3555 m.

ROP: 1.90 m/hr.

Flow rate 370.0 gpm.

Ann.Vel: 92.14 m/min (DC/OH)

MW: 15.0 pp_g PV 38 YP 22

Gel (10 sec) 3 YP/PV 0.58

n = 0.707

K = 1.061

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 12.73 | 79.41 | 0.8618 | 0.0008 | 0.0010 |
| 0.750 | 9.55 | 82.59 | 0.8964 | 0.0008 | 0.0009 |
| 0.500 | 6.37 | 85.77 | 0.9309 | 0.0008 | 0.0009 |
| 0.250 | 3.18 | 88.95 | 0.9655 | 0.0008 | 0.0009 |
| 0.125 | 1.59 | 90.55 | 0.9827 | 0.0008 | 0.0008 |
| 0.061 | 0.44 | 91.69 | 0.9952 | 0.0008 | 0.0008 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 11.95 | 80.19 | 0.8703 | 0.0008 | 0.0010 |
| 0.750 | 8.96 | 83.17 | 0.9027 | 0.0008 | 0.0009 |
| 0.500 | 5.98 | 86.16 | 0.9351 | 0.0008 | 0.0009 |
| 0.250 | 2.99 | 89.15 | 0.9676 | 0.0008 | 0.0009 |
| 0.125 | 1.49 | 90.64 | 0.9838 | 0.0008 | 0.0008 |
| 0.061 | 0.41 | 91.73 | 0.9956 | 0.0008 | 0.0008 |

Interval: 3555 m. to 3618 m.

ROP: 2.70 m/hr.

Flow rate 345.0 gpm.

Ann.Vel: 85.91 m/min (DC/OH)

MW: 15.0 pp_g PV 42 YP 21

Gel (10 sec) 3 YP/PV 0.50

n = 0.737

K = 0.944

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 12.46 | 73.45 | 0.8550 | 0.0013 | 0.0015 |
| 0.750 | 9.35 | 76.57 | 0.8912 | 0.0013 | 0.0014 |
| 0.500 | 6.23 | 79.68 | 0.9275 | 0.0013 | 0.0014 |
| 0.250 | 3.12 | 82.80 | 0.9637 | 0.0013 | 0.0013 |
| 0.125 | 1.56 | 84.35 | 0.9819 | 0.0013 | 0.0013 |
| 0.061 | 0.42 | 85.49 | 0.9951 | 0.0013 | 0.0013 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 11.70 | 74.21 | 0.8638 | 0.0013 | 0.0015 |
| 0.750 | 8.77 | 77.14 | 0.8979 | 0.0013 | 0.0014 |
| 0.500 | 5.85 | 80.06 | 0.9319 | 0.0013 | 0.0014 |
| 0.250 | 2.92 | 82.99 | 0.9660 | 0.0013 | 0.0013 |
| 0.125 | 1.46 | 84.45 | 0.9830 | 0.0013 | 0.0013 |
| 0.061 | 0.39 | 85.52 | 0.9954 | 0.0013 | 0.0013 |

Interval: 3618 m. to 3627 m.

ROP: 1.50 m/hr.

Flow rate 345.0 gpm.

Ann.Vel: 85.91 m/min (DC/OH)

MW: 15.1 ppg PV 42 YP 21

Gel (10 sec) 3 YP/PV 0.50

n = 0.737 K = 0.944

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 12.25 | 73.66 | 0.8574 | 0.0007 | 0.0008 |
| 0.750 | 9.19 | 76.72 | 0.8930 | 0.0007 | 0.0008 |
| 0.500 | 6.13 | 79.79 | 0.9287 | 0.0007 | 0.0008 |
| 0.250 | 3.06 | 82.85 | 0.9643 | 0.0007 | 0.0007 |
| 0.125 | 1.53 | 84.38 | 0.9822 | 0.0007 | 0.0007 |
| 0.061 | 0.42 | 85.50 | 0.9952 | 0.0007 | 0.0007 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 11.49 | 74.43 | 0.8663 | 0.0007 | 0.0008 |
| 0.750 | 8.61 | 77.30 | 0.8997 | 0.0007 | 0.0008 |
| 0.500 | 5.74 | 80.17 | 0.9332 | 0.0007 | 0.0008 |
| 0.250 | 2.87 | 83.04 | 0.9666 | 0.0007 | 0.0007 |
| 0.125 | 1.44 | 84.48 | 0.9833 | 0.0007 | 0.0007 |
| 0.061 | 0.38 | 85.53 | 0.9955 | 0.0007 | 0.0007 |

Interval: 3627 m. to 4101 m.

ROP: 4.20 m/hr.

Flow rate 380.0 gpm.

Ann.Vel: 94.63 m/min (DC/OH)

MW: 15.1 ppg PV 30 YP 15

Gel (10 sec) 3 YP/PV 0.50

n = 0.737 K = 0.674

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 15.43 | 79.20 | 0.8369 | 0.0018 | 0.0021 |
| 0.750 | 10.33 | 84.30 | 0.8909 | 0.0018 | 0.0020 |
| 0.500 | 6.89 | 87.74 | 0.9272 | 0.0018 | 0.0019 |
| 0.250 | 3.44 | 91.19 | 0.9636 | 0.0018 | 0.0018 |
| 0.125 | 1.72 | 92.91 | 0.9818 | 0.0018 | 0.0018 |
| 0.061 | 0.53 | 94.10 | 0.9944 | 0.0018 | 0.0018 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 14.70 | 79.93 | 0.8447 | 0.0018 | 0.0021 |
| 0.750 | 9.68 | 84.95 | 0.8977 | 0.0018 | 0.0020 |
| 0.500 | 6.45 | 88.17 | 0.9318 | 0.0018 | 0.0019 |
| 0.250 | 3.23 | 91.40 | 0.9659 | 0.0018 | 0.0018 |
| 0.125 | 1.61 | 93.01 | 0.9829 | 0.0018 | 0.0018 |
| 0.061 | 0.48 | 94.14 | 0.9949 | 0.0018 | 0.0018 |

Interval: 4101 m. to 4200 m.

ROP: 2.00 m/hr.

Flow rate 295.0 gpm.

Ann.Vel: 73.46 m/min (DC/OH)

MW: 14.9 ppg PV 33 YP 14

Gel (10 sec) 2 YP/PV 0.42

n = 0.767 K = 0.592

Cuttings Density: 2.50 (Sand/Sandstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 17.86 | 55.60 | 0.7569 | 0.0011 | 0.0014 |
| 0.750 | 12.13 | 61.33 | 0.8349 | 0.0011 | 0.0013 |
| 0.500 | 8.09 | 65.37 | 0.8899 | 0.0011 | 0.0012 |
| 0.250 | 4.04 | 69.42 | 0.9450 | 0.0011 | 0.0012 |
| 0.125 | 2.02 | 71.44 | 0.9725 | 0.0011 | 0.0011 |
| 0.061 | 0.63 | 72.83 | 0.9915 | 0.0011 | 0.0011 |

Cuttings Density: 2.35 (Siltstone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 15.88 | 57.59 | 0.7839 | 0.0011 | 0.0014 |
| 0.750 | 10.37 | 63.09 | 0.8589 | 0.0011 | 0.0013 |
| 0.500 | 6.91 | 66.55 | 0.9059 | 0.0011 | 0.0012 |
| 0.250 | 3.46 | 70.01 | 0.9530 | 0.0011 | 0.0011 |
| 0.125 | 1.73 | 71.73 | 0.9765 | 0.0011 | 0.0011 |
| 0.061 | 0.51 | 72.95 | 0.9930 | 0.0011 | 0.0011 |

Cuttings Density: 2.30 (Claystone)

| Cutting size | Vs | Vc | Rct | Cf | Ca |
|--------------|-------|-------|--------|--------|--------|
| 1.000 | 15.16 | 58.31 | 0.7937 | 0.0011 | 0.0014 |
| 0.750 | 9.74 | 63.72 | 0.8674 | 0.0011 | 0.0013 |
| 0.500 | 6.50 | 66.96 | 0.9116 | 0.0011 | 0.0012 |
| 0.250 | 3.25 | 70.21 | 0.9558 | 0.0011 | 0.0011 |
| 0.125 | 1.62 | 71.84 | 0.9779 | 0.0011 | 0.0011 |
| 0.061 | 0.48 | 72.98 | 0.9935 | 0.0011 | 0.0011 |

WELL DIARY

WELL DIARY

Drilling Day # 1 (15.9.83)

Pick up FBG, running tool and bumper-sub, run FBG to bottom.
PKE to seabed 131.5m (431 ft), survey 1/4 deg.
POOH with running tool and lay down.
Pick up 6 joints Grade "E" for 30" casing string.
Pick up 36" BHA and tie guide ropes.
Spud well and drill ahead from 131.5m to 152m (532 ft).
Drop survey at 152m, 1 deg deviation.
Drill ahead from 152m to 180.5m (592 ft).

Drilling Day # 2 (16.9.83)

Continue drilling ahead from 180.5m to 186.5m (612 ft).
Circulate and spot 450 bbls high viscous mud.
Drop survey at 186.5m, 1 deg deviation and pull one stand.
Pick up kelly and pump 250 bbls high viscous mud, POOH.
Rig up to run 30" casing.
RIH with 30" casing, land casing and make up cement head.
Hook up cement lines and cement 30" casing.
POOH with running tool and land.
Make up new BHA and wait on cement.
Tag cement at 179.8m (590 ft), drill out cement and casing shoe.
Drill ahead from 186.5m to 256m (841 ft).

Drilling Day # 3 (17.9.83)

Continue drilling ahead from 256m to 368m (1207 ft).
Drop survey at 368m, mis-run. Well packed off (20-25000 klbs overpull).
Pick up kelly, break circulation and spot 60 bbls high viscous mud.
Drop second survey, mis-run.
Pick up kelly, pump 20 bbls high viscous mud and drop third survey 1 deg.
deviation.
Drill ahead from 368m to 504.5m (1655 ft).
POOH, pumping 20 bbls high viscous mud every 4th single.
Rig up to run 20" casing.
RIH with 20" casing, land casing.

Drilling Day # 4 (18.9.83)

Hook up cement lines and cement 20" casing.
Wait on weather.

Drilling Day # 5 (19.9.83)

Wait on weather.

Drilling Day # 6 (20.9.83)

Wait on weather.

Drilling Day # 7 (21.9.83)

Wait on weather.

Drilling Day # 8 (22.9.83)

Wait on weather.

Drilling Day # 9 (23.9.83)

Wait on weather.

Drilling Day # 10 (24.9.83)

wait on weather.

Pick up BOP stack and prepare to run riser string.
Run in BOP stack and riser.

Drilling Day # 11 (25.9.83)

Continue running in BOP's and riser.
Test kill line, blocked and blew off.
Replace kill line with old kelly hosing.
Land BOP's and riser string.
Nipple up flowline and diverter.
Pick up test plug and RIH to test BOP stack and riser choke/kill lines.
Test lower pipe rams to 5000 psi, failed.
Lift test plug and rotate, test second time, failed.
Test upper rams and kill lines, failed.
POOH with test plug and check test plug.
RIH and wash down well head.
Test lower, middle and upper pipe rams, tested okay.
Test choke and kill lines and Hydril, tested okay.
POOH with test plug.
RIH with new Bit # 3 SMITH DSJ 14 3/4" (+ 17 1/2" U/R).
Tag cement at 487m, drill out cement and float collar.

Drilling Day # 12 (26.9.83)

Continue Drilling out cement and float collar.
Drill into new formation and displace hole with mud.
Perform LOT to 12.5 EMW.
Drop survey at 667m, 1/2 deg. deviation.
Continue drilling ahead from 667m (2188 ft) to 816m (2677 ft).
Drop survey at 816m, 1/2 deg. deviation.

Drilling Day # 12 (26.9.83)

Drill ahead from 819m to 843m (2766 ft).
Circulate at 843m and drop survey prior to POOH.

Drilling Day # 13 (27.9.83)

Continue POOH.
Retrieve survey, 0 deg. deviation, and change bit.
RIH with new bit # 4 SMITH SDT, 14 3/4" + 17 1/2" U/R (3*24).
On bottom and circulate.
Drill ahead from 843m to 901m (2956 ft).
High torque values—lift off bottom.
On bottom and drill ahead from 901m to 908m (2979 ft).
Land one single, wash and ream over tight spot from 899m to 908m.
Drill ahead from 903m to 977m (3205 ft).
Ream tight hole at 977m.
Circulate seawater pill and drill ahead from 977m to 982m (3222 ft).

Drilling Day # 14 (28.9.83)

Continue drilling ahead from 982m to 995m (3264 ft).
Drop survey at 995m, 1/2 deg. deviation.
Drill ahead from 995m to 1120m (3675 ft) pumping mud pill every second connection.
Circulate at 1120m and drop survey prior to POOH.
POOH with bit # 4 and retrieve survey, 3/4 deg. deviation.
RIH with test tool and test BOP's.
Test tool stuck in stack, work on test tool.

Drilling Day # 15 (29.9.83)

Continue working test tool, waiting on weather to rig up Schlumberger.
Rig up to run Schlumberger.
Run in with Schlumberger back off tool.
Detonate charge at tool joint and back off one single above packer.
POOH with 14 singles.
Make up new assembly with "up" jars, bumper sub and 14 3/4" bladed stab.

Drilling Day # 16 (30.9.83)

Wait on weather.
RIH, latch onto fish and jar.
Free tool from well head (300 klbs).
POOH slowly, no revolution, and lay down BHA.
Make up new BHA and RIH with new bit # 5 SMITH DSJ 14 3/4"+17 1/2" U/R.
Drill ahead from 1120m, pumping pills to clean bit and under-reamer.

Drilling Day # 17 (1.10.83)

Continue drilling ahead circulating at each connection to clean hole.
Circulate at 1276m (4188 ft) and drop survey, 1/2 deg. deviation.
Continue drilling ahead from 1276m to 1424m (4672 ft).
Drop survey at 1424m, 1 1/4 deg. deviation.
Drill ahead from 1424m to 1461m (4793 ft).
Ream one single at 1461m.
Drill ahead from 1461m to 1470m (4823 ft).
Ream one single at 1470m.
Drill ahead from 1470m to 1489m (4885 ft).
Ream one single at 1489m.
Drill ahead from 1489m.

Drilling Day # 18 (2.10.83)

Continue drilling ahead to 1514m (4967 ft).
Circulate and drop survey at 1514m.
POOH to change bit and retrieve survey, 1/2 deg. deviation.
RIH with new Bit # 5 HUGHES 13J 14 3/4" + 17 1/2" U/R (3*24).
On bottom and drill ahead from 1514m.
Tight hole at 1526m (5006 ft), work pipe and circulate.
Ream one single at 1526m.
Drill ahead from 1526m to 1544m (5066 ft).
Ream one single at 1544m.
Drill ahead from 1544m to 1603m (5259 ft), drop survey.
Pump slug and POOH for wiper trip to 20" casing shoe.
Retrieve survey 1/2 deg. deviation.

Drilling Day # 19 (3.10.83)

RIH from 20" casing shoe.
On bottom and circulate bottoms up.
Pump slug and POOH with bit # 5.
Bit on surface, rig up to run Schlumberger.
Run Schlumberger logs.
Run # 1; SLS, DIL, GR.
Run # 2; HDT, CALI.
Run # 3; Sidewall Cores.
Rig down Schlumberger.
RIH for wiper trip.
On bottom and circulate.

Drilling Day # 20 (4.10.83)

Continue circulating on bottom.
POOH to run 13 3/8" casing.
RIH to retrieve wear bushings.
Run in with 13 3/8" casing.

Drilling Day # 21 (5.10.83)

Run in and land casing.
Circulate around casing.
Rig up Halliburton and pump cement.
Displace mud and bump plug - unable to maintain pressure.
Pressure up to 1100 psi - pressure drops 450 psi.
Flush riser with mud.
Pump up pressure to 1150 psi - pressure drops 730 psi.
POOH with landing string & stinger and wash hanger.
RIH with cement cleaning tool and wash hanger assembly; POOH.
Pick up seal assembly and RIH.
Set seal assembly. Close middle pipe rams, test assembly to 5000 psi.
Test BOP's and casing. POOH with seal assembly.
RIH with 1*7 3/4" DC and 5*DP. Pig up circulating head.
Circulate and close middle rams, test casing.
POOH with DC and DP.
RIH with wear bushing, set bushing and POOH.
RIH open-ended and tag cement at 1581m (5187 ft).

Drilling Day # 22 (6.10.83)

Circulate inside 13 3/8" casing.
Rig up Halliburton, pump cement to 200 ft. above float collar.
POOH with 4 stands and reverse circulate.
POOH and make up new BHA with 12 1/4" bit.
RIH with 5 stands and test casing.
Circulate with Halliburton, shut in at rams and test to 2500 psi.
POOH with test string.
RIH with Bit # 6 SMITH FDGH 12 1/4" (3*14), to drill out cement.
POOH, leak in kill line.
Prepare to pull out with BOP stack.
Unlatch Hydril and land BOP'S on moonpool.

Drilling Day # 23 (7.10.83)

Work on BOP'S.
Run in BOP'S and riser, test choke and kill lines - tested okay.
Pick up test plug and test BOP's, nipple up flow line.
POOH with test plug.
RIH with Bit # 6RR.
Tag cement at 1515m (4970 ft).
Break down stands and circulate off bottom.
Drill out cement.
Tag float collar at 1582m (5190 ft) and drill out.
Tag casing shoe at 1594.5m (5231 ft). No cement between float collar and casing shoe.
Wash down to 1597m (5240 ft).
Circulate 3 hours to clean hole.
Circulate around riser through kill line.

Drilling Day # 24 (8.10.83)

Rig up to perform LOT - EMW=12.9 ppg.
Pump slug and POOH with Bit # 6.
Pick up cement scraper and RIH to 1583.5m (5195 ft).
Scrape casing and circulate.
POOH with cement scraper.
Rig up to run Schlumberger.
Pun in with EZSV-bridge plug and set at 1576m (5171 ft).
Rig down Schlumberger.
Rig up Halliburton to test plug.
Attempt to test plug - test unsuccessful.
Rig down Halliburton and RIH with RTTS.
Tag EZSV and set RTTS at 1575m (5167 ft).
Rig up Halliburton to test plug.
Tested through annulus, held 10 minutes at 2500 psi, tested okay.
Tested through DP, no test achieved.
POOH with RTTS.

Drilling Day # 25 (9.10.83)

Continue POOH with RTTS.
RIH with open ended drill pipe to bridge plug.
Circulate and wash casing 4.5m (15 ft) above plug.
Rig up Halliburton and cement head.
Sting in and pressure up to 1500 psi - sting out.
Pump slurry, sting in and pressure up to 800 psi.
Squeeze cement, release pressure and sting out.
POOH 4 stands and reverse circulate.
POOH with stinger assembly.
RIH with mill.
Circulate on bottom and mill cement from 1537m (5042 ft).
Mill ahead from 1537m to 1563.5m (5130 ft).
Pump slug and POOH with mill.

Drilling Day # 26 (10.10.83)

Continue POOH with mill.
RIH with Bit # RR6.
Circulate and ream from 1536m to 1563m.
Drill out cement from 1563m to 1576m.
Tag bridge plug - attempt to drill out plug.
POOH with Bit # 6RR.
RIH with mill.
Rig up Halliburton and test casing - tested okay.
Mill out bridge plug.
Mill from 1576m to 1576.9m (5173.5 ft).
Pump slug and POOH.

Drilling Day # 27 (11.10.83)

Continue POOH with mill.
RIH with Bit # 6RR.
Slip and cut lines.
Circulate on bottom and commence drilling out cement.
Circulate at 1585m (5200 ft) before testing casing - tested to 2500 psi.
Drill ahead to 1595m (5232 ft) and circulate.
Perform LOT.
POOH with Bit 6RR and make up new BHA.
RIH with new BHA and Bit # 7, Smith SDCH 12 1/4" (3*14).
Circulate to change over mud system - KCl mud.
Drill ahead from 1503m (5260 ft).
Circulate off bottom at 1606m (5269 ft) and perform LOT - BMW=13 ppq.
Drill ahead from 1606m to 1623m (5341 ft).

Drilling Day # 28 (12.10.83)

Continue drilling ahead from 1628m to 1812m (5945 ft).
Drop survey and POOH with Bit # 7.
Retrieve survey, 1 deg. deviation.
RIH with Bit # 8, Reed HS 51J 12 1/4" (3*14).
Beam down three singles and drill ahead from 1812m to 1827m (5994 ft).

Drilling Day # 29 (13.10.83)

Drill ahead from 1827m to 2112m (6929 ft).
Circulate prior to dropping survey.
Drop survey - tool hung up.
Pump slug and POOH with Bit # 8 to retrieve survey.

Drilling Day # 30 (14.10.83)

Continue POOH with Bit # 8 and retrieve survey, 1 deg. deviation.
Pressure test BOP stack - Tested okay.
RIH with new Bit # 9, Reed HS 51J 12 1/4" (3*14)
On bottom and drill ahead from 2112m to 2219m (7280 ft).

Drilling Day # 31 (15.10.83)

Continue Drilling ahead very slowly from 2219m to 2224m (7296 ft).
Drop survey and POOH with Bit # 9.
Retrieve survey, 1/2 deg. deviation.
RIH with new Bit # 10, Smith FDGH 12 1/4" (3*14).
Drill ahead from 2224m to 2338m (7670 ft).

Drilling Day # 32 (16.10.83)

Continue drilling ahead from 2338m to 2343m (7687 ft).
Circulate at 2343m and drop survey.

Drilling Day # 32 (16.10.83)/cont

Pump slug and POOH with Bit # 10
Retrieve Survey - 1/2 degree deviation.
RIH with Bit # 11 - SMITH FDGH 12 1/4" (3*14).
Drill ahead from 2343m

Drilling Day # 33 (17.10.83)

Drilling ahead from 2431m
Drop survey at 2434m - 0 degree deviation.
POOH to retrieve survey and change bit.
RIH with Bit # 12 - SMITH F2 12 3/4" (3*14).
Drill ahead from 2434m to 2469m
Drop survey at 2469m - 0 degree deviation.
POOH to retrieve survey and change bit.

Drilling Day # 34 (18.10.83)

Continue POOH.
Pick up Turbine and RIH with Bit # 13 - DIAMAX MS5 12 1/4"
(TFA; 1.05)
Slip and cut line at 13 3/8" shoe.
Continue RIH.
Encountered undergauge hole at 1796m.
Ream from 1796m to 1808m.
Pump slug and POOH - short trip.
RIH and ream from 1808m to 2174m.

Drilling Day # 35 (19.10.83)

Continue reaming from 2174m to 2235m.
POOH 3 stands for wiper trip.
RIH and ream from 2235m to 2235.5m
POOH.
RIH with Bit # 14 - SMITH SDGH 12 1/4" (3*14) on conventional BHA.
Ream from 2191.5m to 2243m.
Twisted off with 450 amps - lost 125 000 lbs of drill string.
POOH.

Drilling Day # 36 (20.10.83)

Continue POOH.
Pick up new BHA for fishing.
RIH and tag fish at 1810m.
Attempt to latch onto fish - failed.
POOH and break down fishing assembly.
Wait on new fishing tools.
Make up 11 3.4 overshot and RIH.
Attempt to latch onto fish.

Drilling Day # 37 (21.10.83)

Continue to try to latch onto fish - failed.
POOH with overshot.
Pick up skirted mill bit and RIH.
Mill tool joint from 1810m to 1810.5m.
Circulate at 1810.5m.
Pump slug and POOH.
Make up 11 3/4" overshot assembly.
RIH to try to latch onto fish.
Latch onto fish and pull free with 75000 lbs O/P.
POOH with fish - 25-50000 lbs drag.

Drilling Day # 38 (22.10.83)

Continue POOH with fish.
Lay down all pipes in fish for inspection.
Make up new 12 1/4" BHA with Bit # 15 - SMITH SDGH (3*14)
on conventional BHA
RIH to 2243m
Ream from 2243m to 2284m

Drilling Day # 39 (23.10.83)

Continue reaming from 2284m to 2469m.
Drill ahead from 2469m to 2499m.
Make a wiper trip to shoe.
RIH to circulate and condition mud.
Drop survey - 1/2 degree.
POOH.
Make up turbo assembly with Bit # 16 - LX 27 HS (TFA: 1.1).
RIH and tag fill at 2235m.
Ream from 2235m to 2323m.
Continue RIH and hit bridge at 2386m.

Drilling Day # 40 (24.10.83)

Ream from 2386m to 2499m.
Drill ahead from 2499 to 2646m.

Drilling Day # 41 (25.10.83)

Continue drilling from 2646m to 2693m.
Pull back to 2659m and ream back to bottom.
Drop survey - misrun.
Pump slug and POOH.
Run in to test BOP stack - good test.
Pick up Bit # 17 - DIAMAX ADS2 (TFA : 1.05).
RIH to 1573m - slip and cut 42m of line.
Continue RIH.
Drill ahead from 2693m to 2734m.

Drilling Day # 42 (26.10.83)

Continue drilling from 2734m to 2854m.
A slow pump rate test was performed at 2845m.

Drilling Day # 43 (27.10.83)

Continue drilling from 2854m to 2869m.
Drop survey at 2869m - 3/4 degree deviation.
Pump slug and POOH.
Pick up Bit # 18 - CHRISTENSEN R25LF 12 1/4" (TFA: 1.05).
RIH.
Tagged bridge at 2647m.
Ream from 2647m to 2672m.
Continue RIH to bottom - drag of 10 - 15 klbs.
Drill ahead from 2869m to 2967m.

Drilling Day # 44 (28.10.83)

Continue drilling from 2967m to 3071m.
Drop survey at 3071m - 3/4 degree deviation.
Pump slug and POOH.
Make up Bit # 19 - DIAMAX MS5 12 1/4" (TFA: 1.1).

Drilling Day # 45 (29.10.83)

RIH with Bit # 19.
Drill ahead from 3071m to 3113m.
Drop survey at 3113m - 3/4 degree deviation.
Pump slug and POOH.
Check flow - negative.
Make up Bit # 20 - LX 27 HS 12 1/4" (TFA: 1.05).
RIH with Bit # 20.

Drilling Day # 46 (30.10.83)

Continue RIH - no drag, no fill.
Drill ahead from 3113m to 3220m.
Circulate whilst working on mud pumps.
Drill ahead from 3220m to 3247m.

Drilling Day # 47 (31.10.83)

Continue drilling from 3247m to 3267m.
Circulate whilst working on Pump # 1.
Drill ahead from 3267m to 3277m.
Circulate whilst working on Pump # 2.
Drill ahead from 3277m to 3366m.

Drilling Day # 48 (1.11.83)

Continue drilling from 3366m to 3413m.
POOH to "E" grade DP laying down 31 joints of S-135 DP.
Pick up "E" grade drill pipe.
RIH to 3410m and ream to 3413m.
Drill ahead from 3413m to 3424m.
Repair "pop-off" valve on pump # 1.
Drill ahead from 3424m to 3460m.

Drilling Day # 49 (2.11.83)

Continue drilling from 3460m to 3532m.
Work on pump # 2 whilst circulating.
Drill ahead from 3532m to 3549m.
Drop survey at 3549m - 3/4 degree.
Pump slug and POOH laying down 118 joints S-135 DP.

Drilling Day # 50 (3.11.83)

Continue POOH with Bit # 20.
Pick up Stack Jet and RIH.
POOH with Stack Jet.
RIH with BOP test plug and test BOP's - O.K.
RIH with Bit # 21 - LX 27 HS 12 1/4" (TEA : 1.1).
Hang off.
Secure rig and W.O.W - displace Riser with sea water.

Drilling Day # 51 (4.11.83)

Continue W.O.W.
Anchors #2 and #3 slipping.
Unlatch Riser as rig is blown off location.

Drilling Day # 52 (5.11.83)

Run out anchors #2 and #3.

Drilling Day # 53 (6.11.83)

Run Riser assembly.
Test Riser connector to 2500 psi: Kill + choke lines to 5000 psi.
Slip and cut 37m of line.
RIH picking up "E" grade drill pipe.
Circulate at 2443m.
Continue RIH to tight spot at 3366m.
Ream from 3366m to 3380m.
Excessive drag (100000 lbs) and torque (500 amps).
Pump slug and POOH.

Drilling Day # 54 (7.11.83)

Continue POOH.
Pick up Bit # 22 - SMITH SDGH 12 1/4" (3*12).
RIH to 3359m.
Ream from 3359m to 3390m.
Circulate at 3390m to build up mud weight to 10.1 ppg.
Continue reaming from 3390m to 3440m.
Circulate to build up mud weight to 10.5 ppg.
Pump slug and POOH.

Drilling Day # 55 (8.11.83)

Continue POOH.
Perform a LOT at 13 3/5" casing shoe - EMW of 13.2 ppg.
Continue POOH (no drag).
Pick up Bit # 23 - SMITH SDGH 12 1/4" (3*12).
RIH to 3429m.
Ream from 3429m to 3479m.
Circulate to build up mud weight to 11.5 ppg.
Pull back to casing shoe and hang off to W.O.W.

Drilling Day # 56 (9.11.83)

Continue W.O.W.
RIH to 3455m.
Ream from 3455m to 3479m (high torque).
Circulate to build up mud weight to 12.0 ppg.
Continue reaming to 3483m (high torque and drag).
Circulate to build up mud weight to 12.5 ppg.
Continue reaming to 3489m.

Drilling Day # 57 (10.11.83)

Reaming from 3489m to 3499m.
Pump slug and POOH.
Pick up Bit # 24 - REED FP53J 12 1/4" (3*14).
RIH to 3491m.
Ream down to 3548m (adding 200 bbls of diesel to mud system).
Circulate and condition mud at 3548m.

Drilling Day # 58 (11.11.83)

Make a wiper trip to 2789m - no drag.
RIH - tight spot at 3435m (25000 lbs drag).
Circulate and condition hole.
Pump slug and POOH.
Rig up to run Schlumberger logs.
1st run : DIL - SLS - GR.
2nd run : LDL - CNL - Cal - GR.

Drilling Day # 59 (12.11.83)

Continue logging (2nd run).
3rd logging run - HDT.
4th logging run - CST.
Rig up 9 5/8" hang off assembly.
RPH to 13 3/8" casing shoe.
Slip and cut line.
Ream from 3540m to TD.
Circulate and condition hole prior to running casing.
POOH - no drag.

Drilling Day # 60 (13.11.83)

Continue POOH.
Retrieve wear bushings.
Run 9 5/8" casing.
Rig up cement head and circulate through the casing.
Pump 40 bbls of sea water to drop ball.

Drilling Day # 61 (14.11.83)

Cement 9 5/8" casing and displace.
RPH to wash and clean well head.
Make up seal assembly and test to 5000 psi - good test.
Test surface lines and pipe rams - good test.
Lay down 12 1/4" assembly and pick up 8 1/2" BHA.
RPH with Bit # 25 - SMITH EDT 8 1/2" (3*11).
W.O.W.
RPH and tag cement at 3491m.

Drilling Day # 62 (15.11.83)

Circulate at 3491m.
Drill out cement, Float Collar and Casing Shoe.
Clean rat hole down to 3519m and W.O.W.
Hole packed off at 3519m.
Build mud weight up to 13.0 ppg.
Attempt to ream - hole packed off.
Circulate and build mud weight up to 14.0 ppg.
Wash and ream from 3519m to 3530m (high torque and drag).
POOH and lay down roller reamer and stabilisers.
RPH with Bit # 26 - SMITH EDGH 8 1/2" (no jets).

Drilling Day # 63 (16.11.83)

Tag fill at 3519m (slip and cut line).
Ream to 3549m - start drilling 8 1/2" hole.
Build up mud weight to 14.5 ppg.
Drill down to 3550m - bring mud weight up to 15.0 ppg.
Pull up inside casing shoe and perform L.O.T - EMW = 17.0 ppg.

Drill ahead from 3550.5m to 3551m
Build up mud weight whilst circulating.
Pump slug and POOH.

Drilling Day # 64 (17.11.83)

RIH with Bit # 27 - SMITH SVH 8 1/2" (3*11)
Circulate at 3551m with junk basket.
Pull up inside casing shoe and wait on arrival of Barite
RIH and drill to 3555m.
Pump slug and POOH, lay out junk basket.
RIH with Bit # 28 - LX 27 HS 8 1/2" TFA: 0.75 and Turbo.

Drilling Day # 65 (18.11.83)

Wash and ream from 3536 to 3555
Drill to 3558m.
Pull to shoe to wait on Barite.
RIH and drill to 3593m.

Drilling Day # 66 (19.11.83)

Drill to 3618m.
Pump slug and POOH.
Make up new BHA with Bit # 29 - SMITH F2 8 1/2" (3*11)
RIH and drill to 3620m

Drilling Day # 67 (20.11.83)

Drill to 3627m
Work junk basket then POOH
RIH Bit # 30 LX 27 HS 8 1/2" TFA 0.75 and Turbo.
Drill to 3640m.

Drilling Day # 68 (21.11.83)

Drill to 3713m. Average ROP 3 m/hr.

Drilling Day # 69 (22.11.83)

Drill to 3782m. Average ROP 3.5 m/hr.
Several delays due to pump breakdowns.

Drilling Day # 70 (23.11.83)

Drill to 3856m. Average ROP 3.8 m/hr.
Short trip, 7 stands, at 3829m.

Drilling Day # 71 (24.11.83)

Drill to 3928m - average ROP 4 m/hr.
Occasional high torque.

Drilling Day # 72 (25.11.83)

Drill to 4007m - average ROP 4.2 m/hr.

Drilling Day # 73 (26.11.83)

Drill to 4041m.
POOH for short trip - 10 stands for tight hole
RIH to drill ahead.
Increase mud weight to 15.5 ppg by 4049m.
Loss of returns at 4052m.
Circulate off bottom and reduce mud weight to 15.2 ppg.
Complete returns - 250 bbls lost.
Drill to 4056m.
Stop drilling due to gas cut mud.
Gas peak at 4055m was 34%.
Circulate to condition mud.
Short trip - 10 stands.
Circulate with 15.2 ppg mud.
POOH 5 stands at 4056m.

Drilling Day # 74 (27.11.83)

Hole not taking mud - RIH
Circulate bottom-up - T.G. of 9.6%.
POOH - overpull of upto 150 klbs.
Test BOP's - good test.
RIH with Bit # 31 - DIAMAX LX 16 8 1/2" (TFA : 0.75).
Circulate at casing shoe - 1% T.G.
RIH.

Drilling Day # 75 (28.11.83)

Tag bottom of hole - no fill.
Drill ahead from 4056m to 4101m.
Lost circulation at 4101m - lose 425 bbl.
Circulation returns.
Pump slug and POOH - hole not taking mud.
Lower mud weight to 15.0 ppg.
Pump slug and POOH - hole still not taking mud.
Circulate and build up slug.
Pump slug and POOH - hole still not taking mud.
Circulate whilst mixing up mud.

Drilling Day # 76 (29.11.83)

Circulate at 3738m

Squeeze 11 bbls of 14.9 ppg mud at 470 psi - E.M.W. 15.6 ppg
POOH to shoe and circulate bottoms up (no gas).

Observe well.

Squeeze 10 bbls of 14.9 ppg mud at 600 psi (bled back 10 bbls)
E.M.W. 15.8 ppg)

Lay down turbine.

Pick up Bit # 32 - a SMITH F2 8 1/2" (no jets).

RIH to 3511m and circulate.

Drilling Day # 77 (30.11.83)

Continue circulating at 3511m.

RIH to T.D. - no fill.

Drill ahead from 4101m to 4135m.

10 stand wiper trip - no drag.

RIH - no fill.

Drill ahead to 4138m.

Drilling Day # 78 (1.12.83)

Drill ahead from 4138m to 4163m.

10 stand wiper trip - overpull of 35000 lbs.

RIH - no fill.

Drill ahead to 4180m.

Drilling Day # 79 (2.12.83)

10 stand wiper trip - overpull of 50000 lbs.

RIH - no fill.

Drill ahead to 4200m (T.D.).

Circulate and condition hole prior to logging.

Wiper trip to 9 5/8" casing shoe and observe well.

RIH and circulate.

Drop survey at 4200m - 5 1/4 degrees.

POOH.

Drilling Day # 80 (3.12.83)

Continue POOH.

Rig up to run Schlumberger.

Run # 1 DIL/SLS/GR.

Run # 2 LDT/CNL/GR.

Re-run # 2.

Re-run # 2.

BRIDGEWATER BAY # 1

GAS AND OVERPRESSURE SUMMARY

Some overpressure was expected in Bridgewater Bay # 1 in the Belfast Formation (Upper Cretaceous), so the indicators for overpressure were all monitored very carefully. These included the Dcs Exponent, the Flow-line Temperature and any gas shows. However, it was not until after a period of waiting on weather that it was suspected that the well had already penetrated the overpressure zone. Whilst out of the hole, the clays in the formation had swollen appreciably, and it was difficult to re-enter the hole. The mud weight had to be brought up from 9.9 ppg to 12.5 ppg to enable reaming to proceed and the 9 5/8" casing to be run. Whilst drilling this section of the hole, no connection gas recorded nor was there any leftward deflection of the Dcs exponent noted (the Dcs was erratic at this stage and therefore unreliable). It was not until the electric logs had been run that the overpressure was confirmed. The Sonic logs (DIL) gave the best indication of the presence of overpressure. At 2950 m a small leftward deflection in the Sonic curve could be noted, a leftward deflection indicates an increasing return time and hence an opposite trend to that which is expected in the Sonic curve. It was not until 3050m that the main leftward deflection occurred (10-20 micro/sec). The Sonic trend did not really settle down to a constant value again until about 3300m. Calculations of the overpressure using single cycle log plots gave readings, for the formation pressure, of between 12.5 ppg and 13.0 ppg.

Dcs EXPONENT

During the drilling of the top formations (mainly calcarenite) it was difficult to set a good trend due to the lack of shale points and the erratic nature of the Dcs exponent curve. It was not until about 3100m that the curve began to become reliable, unfortunately, as it was later discovered from the Sonic logs, the overpressure zone had already been penetrated.

After 3100m the Dcs exponent showed a reasonably constant curve, which ran almost vertically (the Dcs exponent is expected to gradually increase with depth under normal pressure conditions). At the start of the 8 1/2" phase the Dcs exponent normal trend had to be shifted to account for the change in hole size. Towards the end of the 8 1/2" phase the Dcs curve again took a leftward deflection and this seems to correlate well with the increase in sand content of the formation, particularly from 4050m.

The values of the "Pf" and the "Frac" given by the Dcs exponent are reasonably good after the curve became less erratic, and correlation between some sand bands and the Dcs curve are good, particularly in the middle section of the hole.

FLOW-LINE TEMPERATURE

The flow-line temperature was fairly erratic due to various factors, i.e. wiper trips, bit changed and additions to the mud system. A plot of Delta T (Temperature Out - Temperature In) gives one only a slight indication of a change in trend. However, the plot of the Estimated Bottom Hole Temperature gives a distinct negative change in trend at about 2950m (this correlates well with the Sonic log). This continues down to about 3400m and could be classified as a transition zone to the overpressured formation. At 3400m a positive (as compared to the normal) trend change occurs and this is then assumed to be the end of the transition zone.

This temperature plot appears to correlate fairly well with the Sonic log and this therefore must be considered as a piece of corroborative evidence for the presence of overpressure.

GAS SUMMARY

Very little gas was found in the top hole, surface gas associated with calcarenite down to 845m was generally less than 0.2% methane, with no ethane or heavier gases present.

Some gas peaks associated with coal bands at 900- 920m and again at 950 - 960m were recorded, but these were still only traces.

No gas was then recorded until 2430m which was found to be associated with the siltstone and claystone of the Upper Belfast Formation (Upper Cretaceous). This gradually rose to a maximum value at 2645m (a peak of 2.5% methane with 0.2% ethane and traces of propane). From this point the gas levels decreased to traces again at 2800m. From 2835m the gas levels once more began to rise and reached a maximum at 3010m of 4% methane, 0.17% ethane and 0.04% propane - no butane or iso-propane was recorded at all. After this peak the gas dropped back again to less than 0.2% total gas and remained constant at this level until the 9 5/8" casing was run at 3549m (casing set at 3519.5). No connection gas was recorded up to this point even during the latter stages, which were later discovered to be overpressured.

The mud weight was brought up from 12.5 ppg to 15.1 ppg after the casing due to the overpressure detected by the electric logs and also the adverse hole conditions (later the mud weight was brought up to 15.5 ppg). Subsequently, the gas levels decreased to almost zero and were never greater than 0.1% total gas down to 4052m. At this point circulation was lost and the mud weight had to be decreased to 15.0 ppg, or thereabouts. This lower mud weight allowed the gas readings to increase to around 0.2% methane. It also gave rise to substantial amounts of connection gas (approximately 3 to 4 times the background gas level) and to large volumes of trip gas, which often had to be circulated out. The highest level recorded was at 4052m where 34% total gas was circulated out (30% of which was methane).

However, gas levels did not cause any major problems whilst drilling this well.

OVERBURDEN COEFFICIENTS

There are two sets of coefficients derived from two separate formulae which are used to calculate the Formation Overburden Stress Gradient (S) and the Stress Ratio (K) :

$$S = a(\text{In depth})^2 + b(\text{In depth}) + c$$

where the three constants a, b and c are the three "S" coefficients usually written as aS, bS and cS.

$$K = a(\text{In depth}) + b$$

where a and b are the K coefficients - aK and bK

The S coefficients are of the most use and are used in the Dcs exponent plots to calculate the Formation Pressure Gradient (pf) which is given by :

$$\text{FPG} = S - (S - H) (\text{dcs}/\text{dcn})^{1.2}$$

dcn = the "normal" dcs value in unpressured shales.
H = the normal hydrostatic gradient (ppg).

The K values are used to calculate the Formation Fracture Gradient (Frac) using the following formular :

$$\text{FFG} = ((19.23 * S) - \text{FPG})K + \text{FPG}$$

The S and K coefficients for Bridgewater Bay # 1 were taken from two different sources. The S values were derived from the electric logs of Discovery Bay. From the logs the shale points are found and their Sonic velocities are fed into the off-line computer. The computer then works out a curve of best fit for the points and from this calculates the aS, bS and cS values (see the Overburden Gradient plot at the end of the section).

The K values, on the other hand, are taken from the Leak off Test data of Voluta # 1. The coefficients are then calculated by hand using the following formulae :

$$V = (\text{FPG} - \text{FPG}) / (\text{FPG} + S - 2 \text{FPG})$$

V = Poisson's ratio

$$K = V / (1 - V)$$

$$K = a(\text{Ind depth}) + b$$

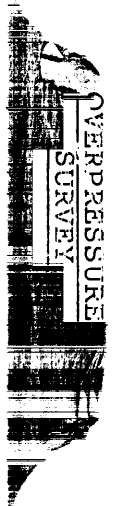
The corresponding values were obtained :

| | |
|----------------|--------------|
| aS = 0.012373 | aK = 0.2031 |
| bS = -0.078196 | bK = -2.8379 |
| cS = 0.762405 | |

These were entered into the computer and have been used during the drilling of Bridgewater Bay # 1.

OVERPRESSURE SURVEY

- Summary
- D Exponent Plot
- Temperature Plot



OVERPRESSURE SUMMARY

BRIDGEWATER BAY # 1

GAS AND OVERPRESSURE SUMMARY

Some overpressure was expected in Bridgewater Bay # 1 in the Belfast Formation (Upper Cretaceous). So the indicators for overpressure were all monitored very carefully. These included the Dcs Exponent, the Flow-line Temperature and any gas shows. However, it was not until after a period of waiting on weather that it was suspected that the well had already penetrated the overpressure zone. Whilst out of the hole, the clays in the formation had swollen appreciably, and it was difficult to re-enter the hole. The mud weight had to be brought up from 9.9 ppg to 12.5 ppg to enable reaming to proceed and the 9 5/8" casing to be run. Whilst drilling this section of the hole, no connection gas recorded nor was there any leftward deflection of the Dcs exponent noted (the Dcs was erratic at this stage and therefore unreliable). It was not until the electric logs had been run that the overpressure was confirmed. The Sonic logs (DIL) gave the best indication of the presence of overpressure. At 2950m a small leftward deflection in the Sonic curve could be noted, a leftward deflection indicates an increasing return time and hence an opposite trend to that which is expected in the Sonic curve. It was not until 3050m that the main leftward deflection occurred (10-20 micro/sec). The Sonic trend did not really settle down to a constant value again until about 3300m.

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where a and b are the K coefficients - aK and bK.

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V = Poisson's ratio.

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$$cS = 0.762405$$

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These were entered into the computer and have been used during the drilling of Bridgewater Bay # 1

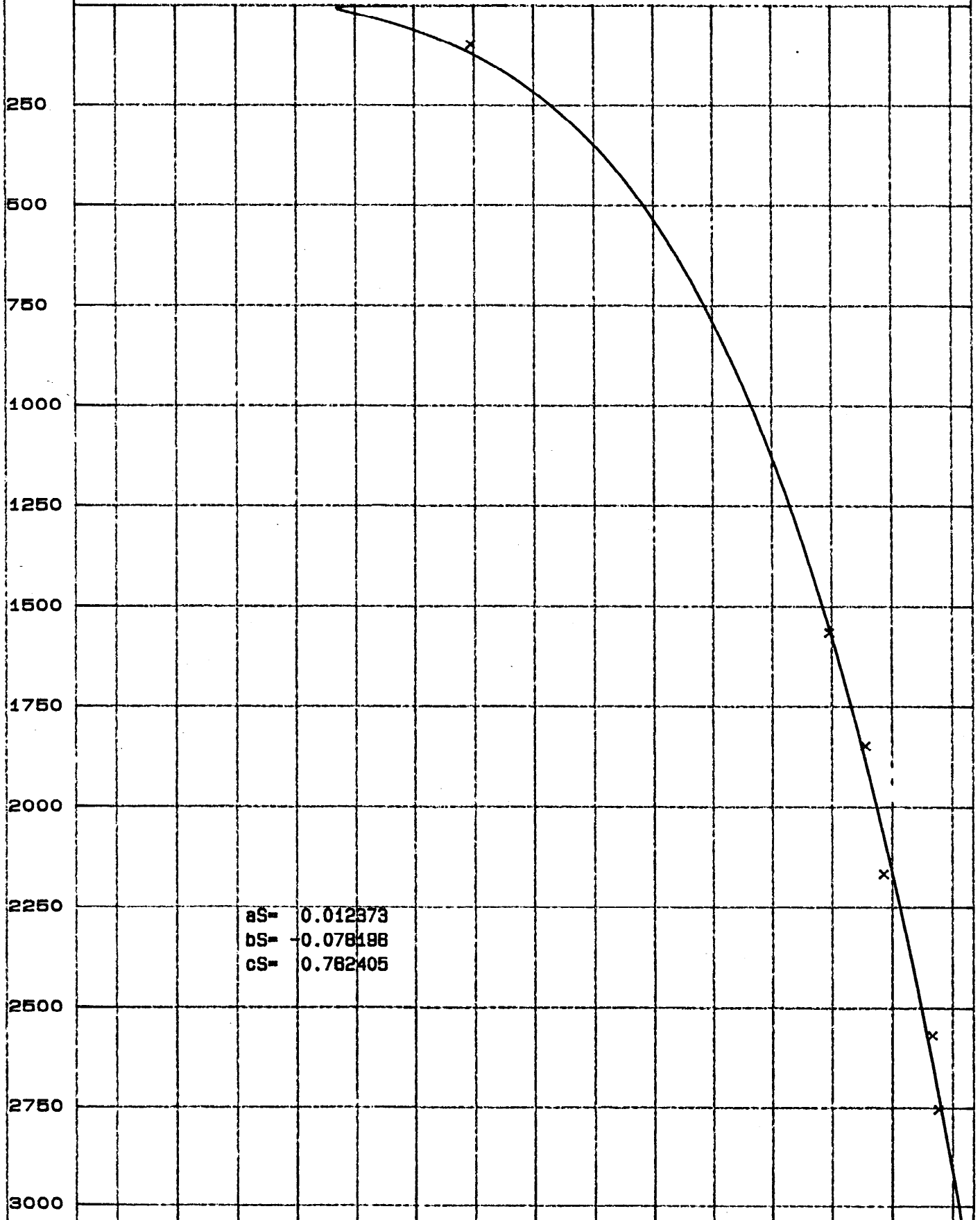
Phillips Aust Co.

Discovery Bay #1

DEPTH
METER

OVERBURDEN GRADIENT (DENSITY)
bar per meter

0.11 0.12 0.13 0.14 0.15 0.16 0.17 0.18 0.19 0.20 0.21 0.22 0.23 0.24



aS= 0.012373
bS= -0.078198
cS= 0.782405

PE600356

This is an enclosure indicator page.
The enclosure PE600356 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600356 has the following characteristics:

ITEM_BARCODE = PE600356
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 440 TO 1000
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 440 TO 1000
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600357

This is an enclosure indicator page.
The enclosure PE600357 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600357 has the following characteristics:

ITEM_BARCODE = PE600357
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 1040 TO 1600
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 1040 TO 1600
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600358

This is an enclosure indicator page.
The enclosure PE600358 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600358 has the following characteristics:

ITEM_BARCODE = PE600358
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 1640 TO 2200
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 1640 TO 2200
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600360

This is an enclosure indicator page.
The enclosure PE600360 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600360 has the following characteristics:

ITEM_BARCODE = PE600360
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 2840 TO 3400
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 2840 TO 3400
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600359

This is an enclosure indicator page.
The enclosure PE600359 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600359 has the following characteristics:

ITEM_BARCODE = PE600359
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 2240 TO 2800
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 2240 TO 2800
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600361

This is an enclosure indicator page.
The enclosure PE600361 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600361 has the following characteristics:

ITEM_BARCODE = PE600361
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 4040 TO 4600
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 4040 TO 4600
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600362

This is an enclosure indicator page.
The enclosure PE600362 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600362 has the following characteristics:

ITEM_BARCODE = PE600362
CONTAINER_BARCODE = PE902250
 NAME = D-EXPONENT PLOT DEPTH 3440 TO 4000
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = D-EXPONENT PLOT DEPTH 3440 TO 4000
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600363

This is an enclosure indicator page.
The enclosure PE600363 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600363 has the following characteristics:

ITEM_BARCODE = PE600363
CONTAINER_BARCODE = PE902250
 NAME = TEMPERATURE PLOT
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = WELL_LOG
DESCRIPTION = TEMPERATURE PLOT
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

REAL TIME DEPTH PLOT

- Depth Plot reduced to A4

REAL TIME DEPTH

GEO-SERVICES
ON-LINE TDC

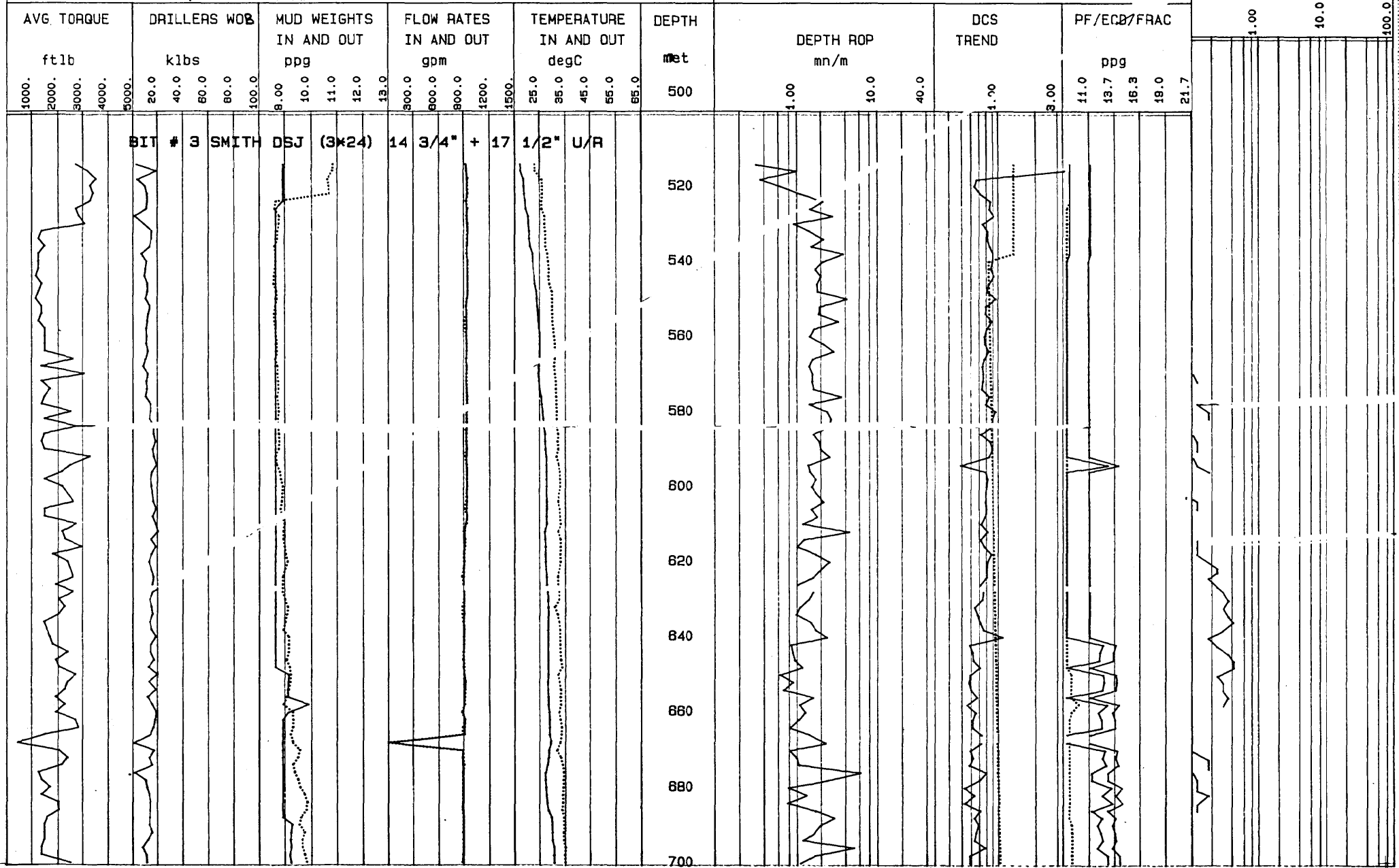
REAL TIME DEPTH PLOT

SCALE 1/ 1000

24/ 9/ 83

17 1/2" PHASE

BRIDGEWATER BAY



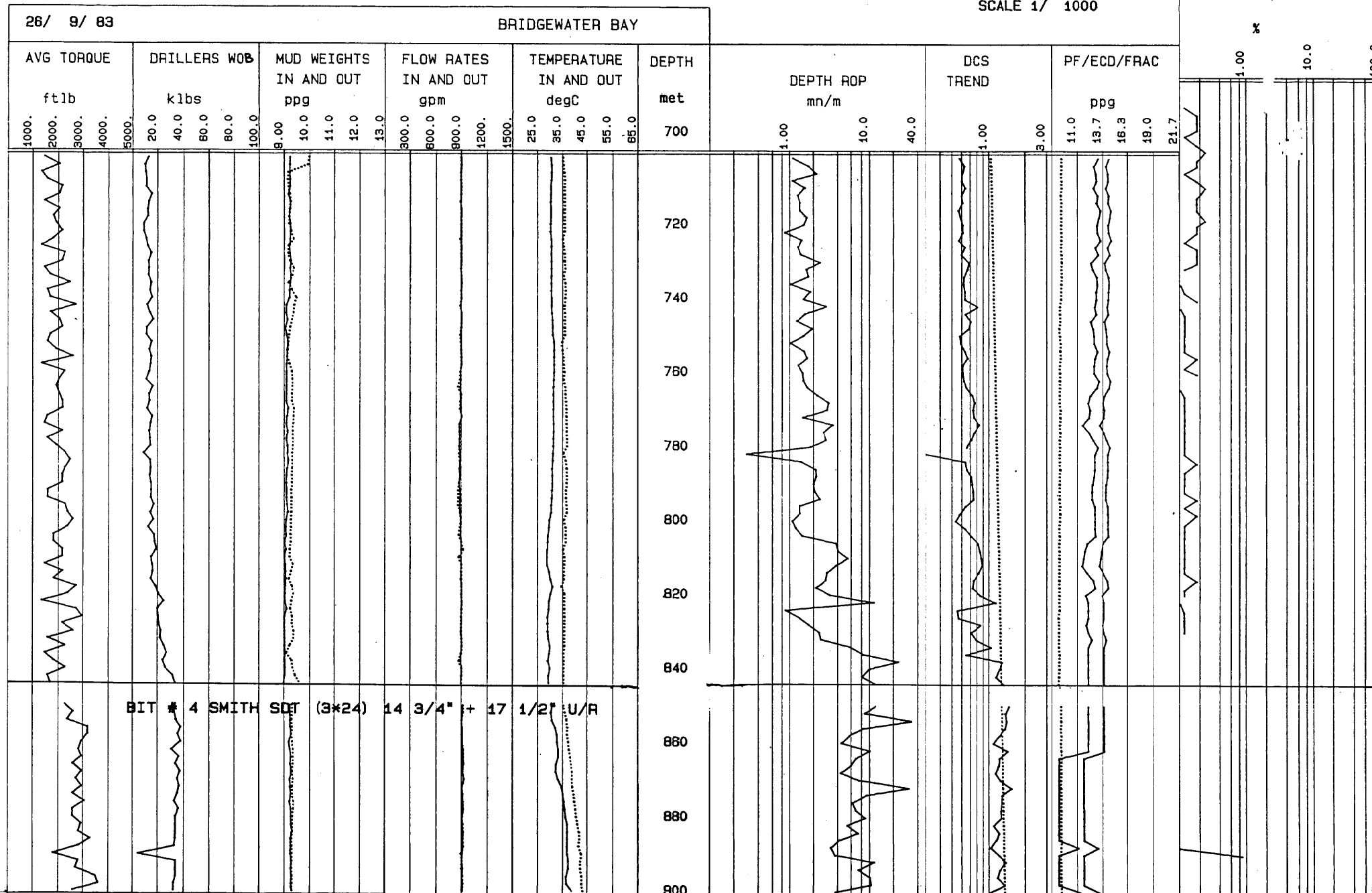
Geoservices overseas S.A.

ZERO

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS



BIT # 4 SMITH SDT (3*24) 14 3/4" + 17 1/2" U/R

Geoservices overseas S.A.

ZERO

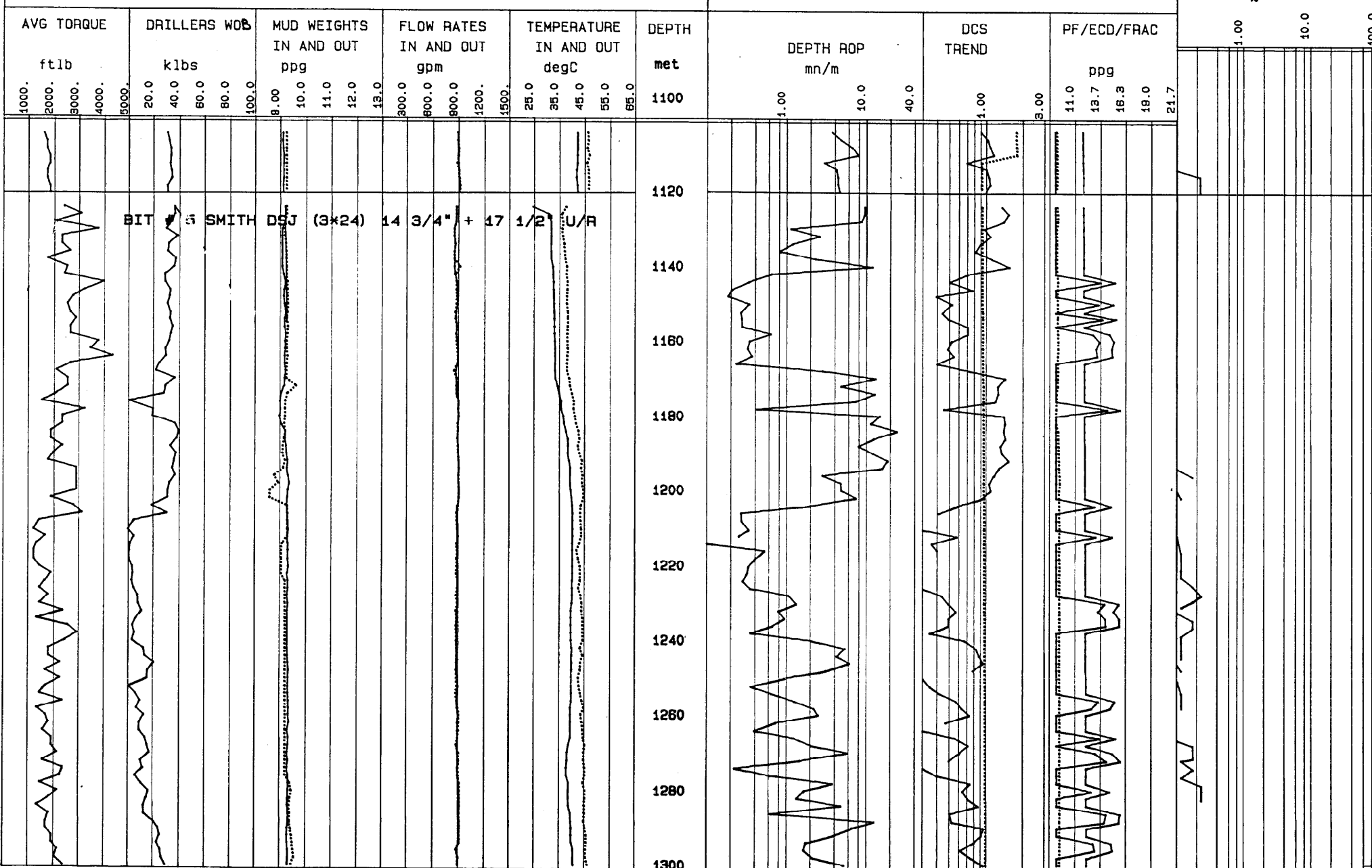
REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

28/ 9/ 83

BRIDGEWATER BAY

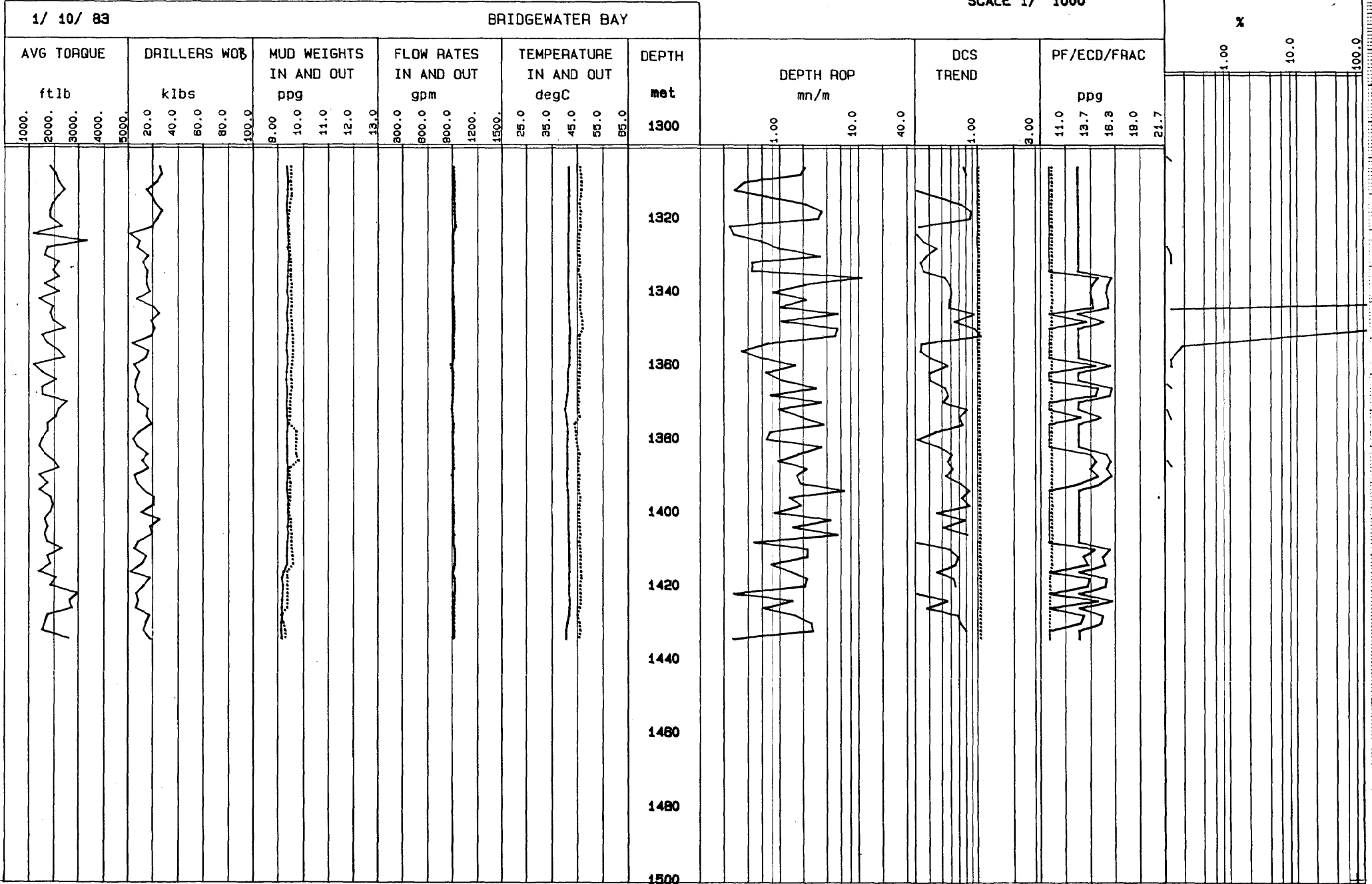


GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS



GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

| 1/ 10/ 83 | | | | | BRIDGEWATER BAY | | | | | | | | TOTAL GAS | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------------|-------|---------------|-------|-------|-----------------|------|---------------|------|---------------|------|-------|---------------|-----------|---------------|---------------|-------|-------|-------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-------|
| AVG TORQUE | | DRILLERS WOB | | | MUD WEIGHTS | | FLOW RATES | | TEMPERATURE | | DEPTH | DEPTH ROP | | DCS TREND | PF/ECD/FRAC | | | % | | | | | | | | | | | | | | | | | | | | |
| ftlb | | klbs | | | ppg | | gpm | | degC | | | met | mn/m | | ppg | | | | | | | | | | | | | | | | | | | | | | | |
| 1000. | 2000. | 3000. | 4000. | 5000. | 20.0 | 40.0 | 60.0 | 80.0 | 100.0 | 9.00 | 10.0 | 11.0 | 12.0 | 13.0 | 300.0 | 600.0 | 900.0 | 1200. | 1500. | 25.0 | 35.0 | 45.0 | 55.0 | 65.0 | 1500 | 1.00 | 10.0 | 40.0 | 1.00 | 3.00 | 11.0 | 13.7 | 16.3 | 19.0 | 21.7 | 1.00 | 10.0 | 100.0 |
| [Handwritten] | | [Handwritten] | | | [Handwritten] | | [Handwritten] | | [Handwritten] | | 1520 | [Handwritten] | | [Handwritten] | [Handwritten] | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1540 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1560 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1580 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1600 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1620 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1640 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1660 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | 1680 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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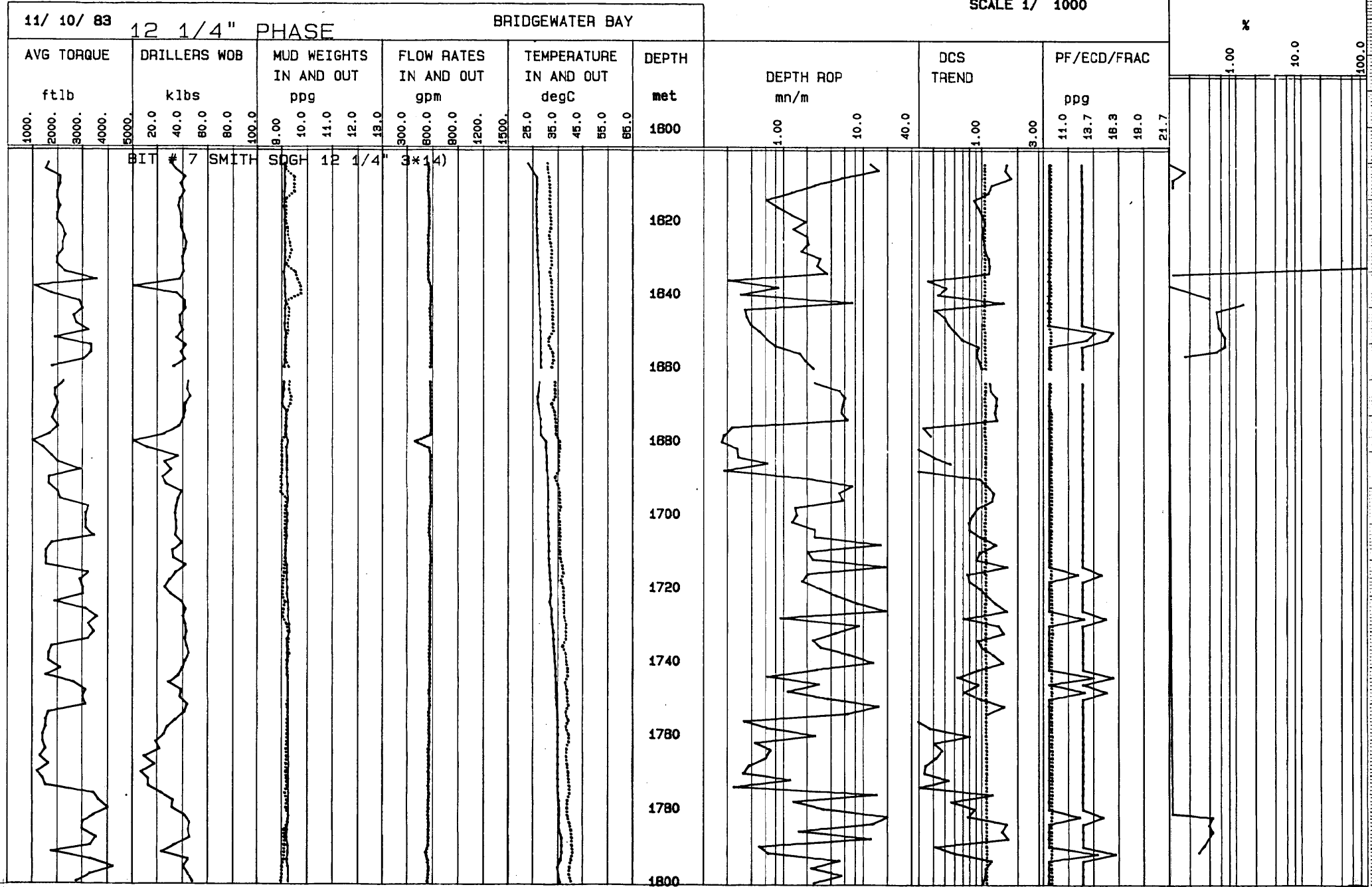
Geoservices Overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000



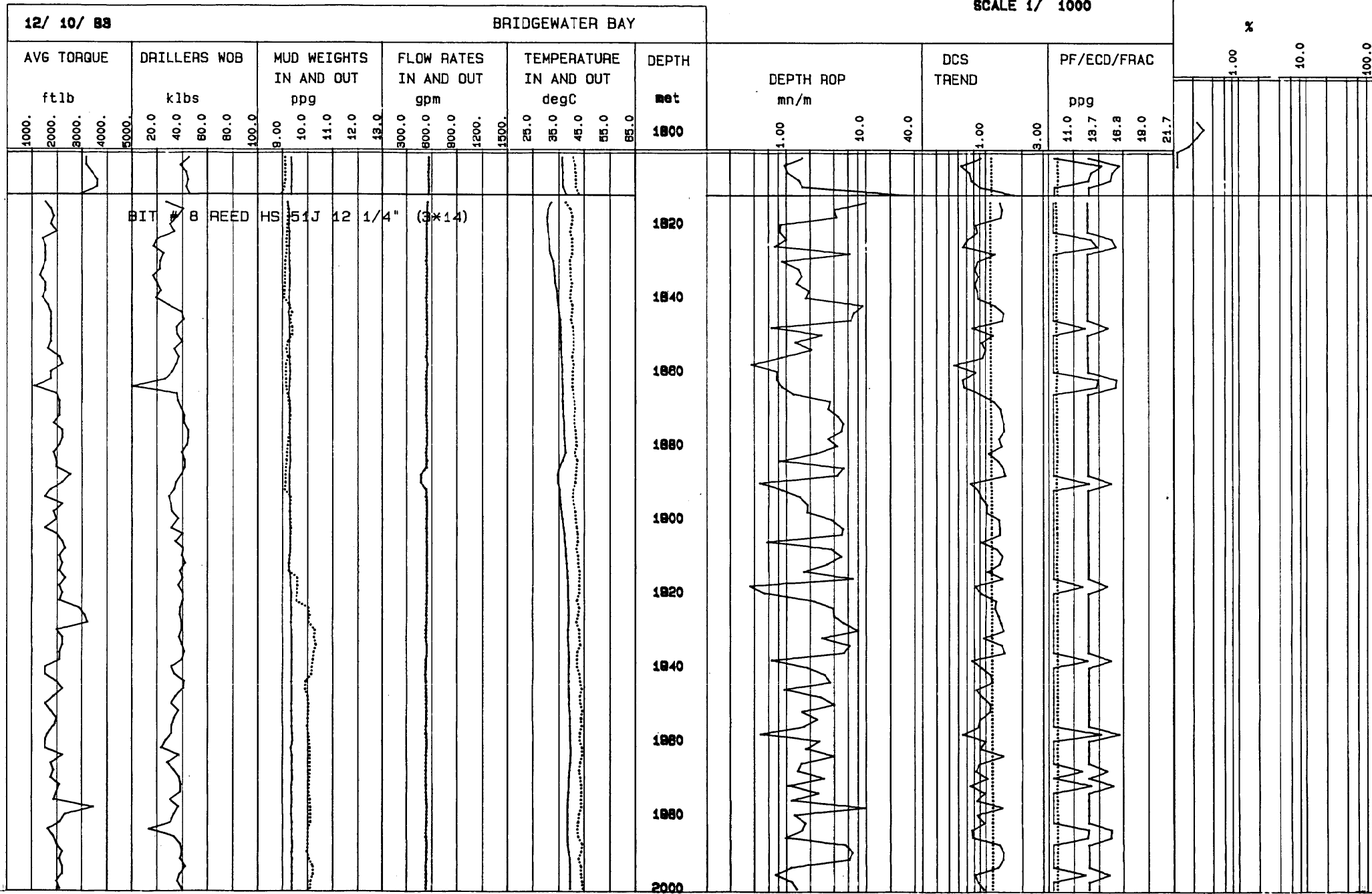
Geoservices overseas S.A.

ZERO

REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

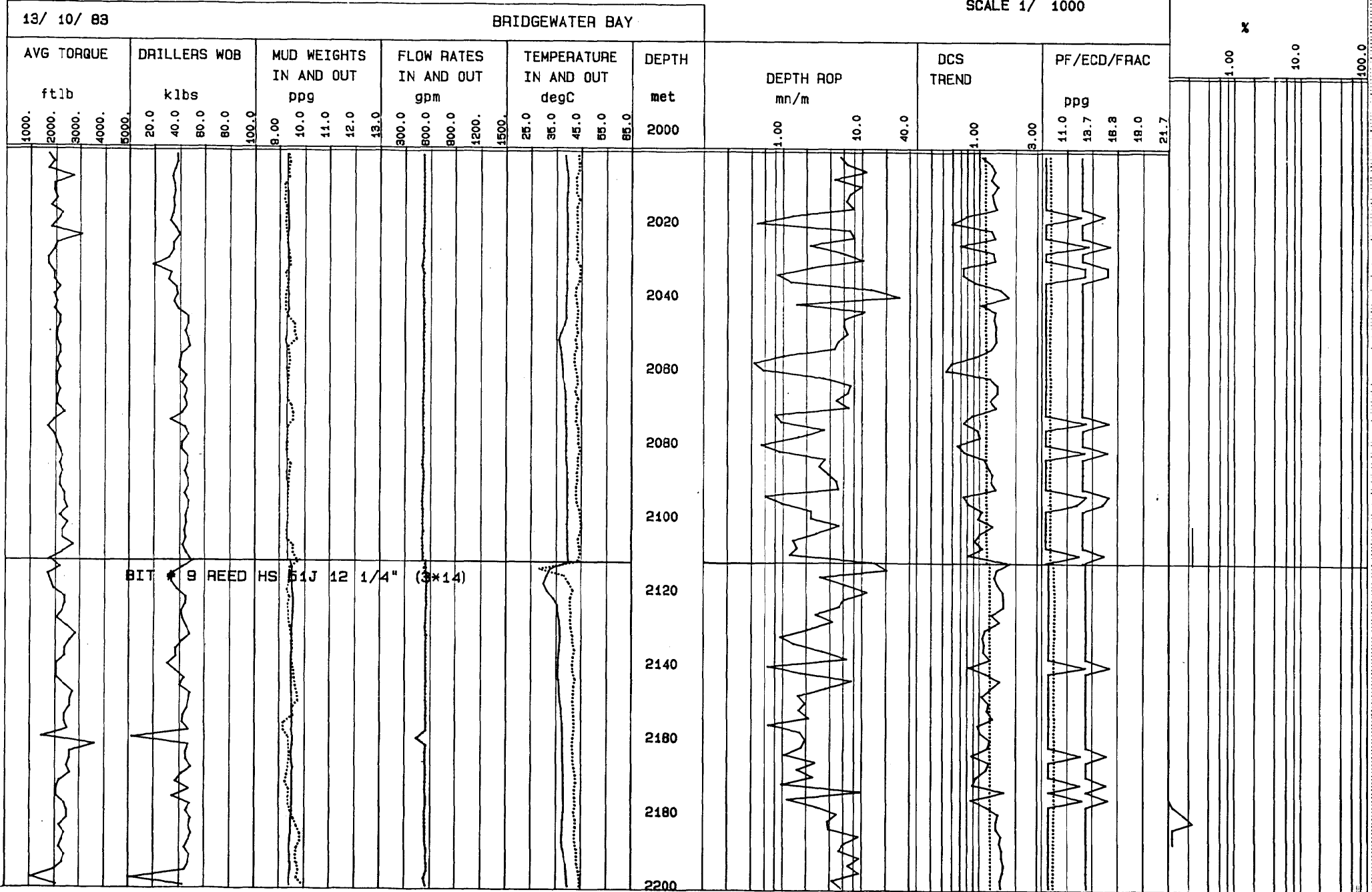


GEOSERVICES
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SCALE 1/ 1000

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Geoservices overseas S.A.

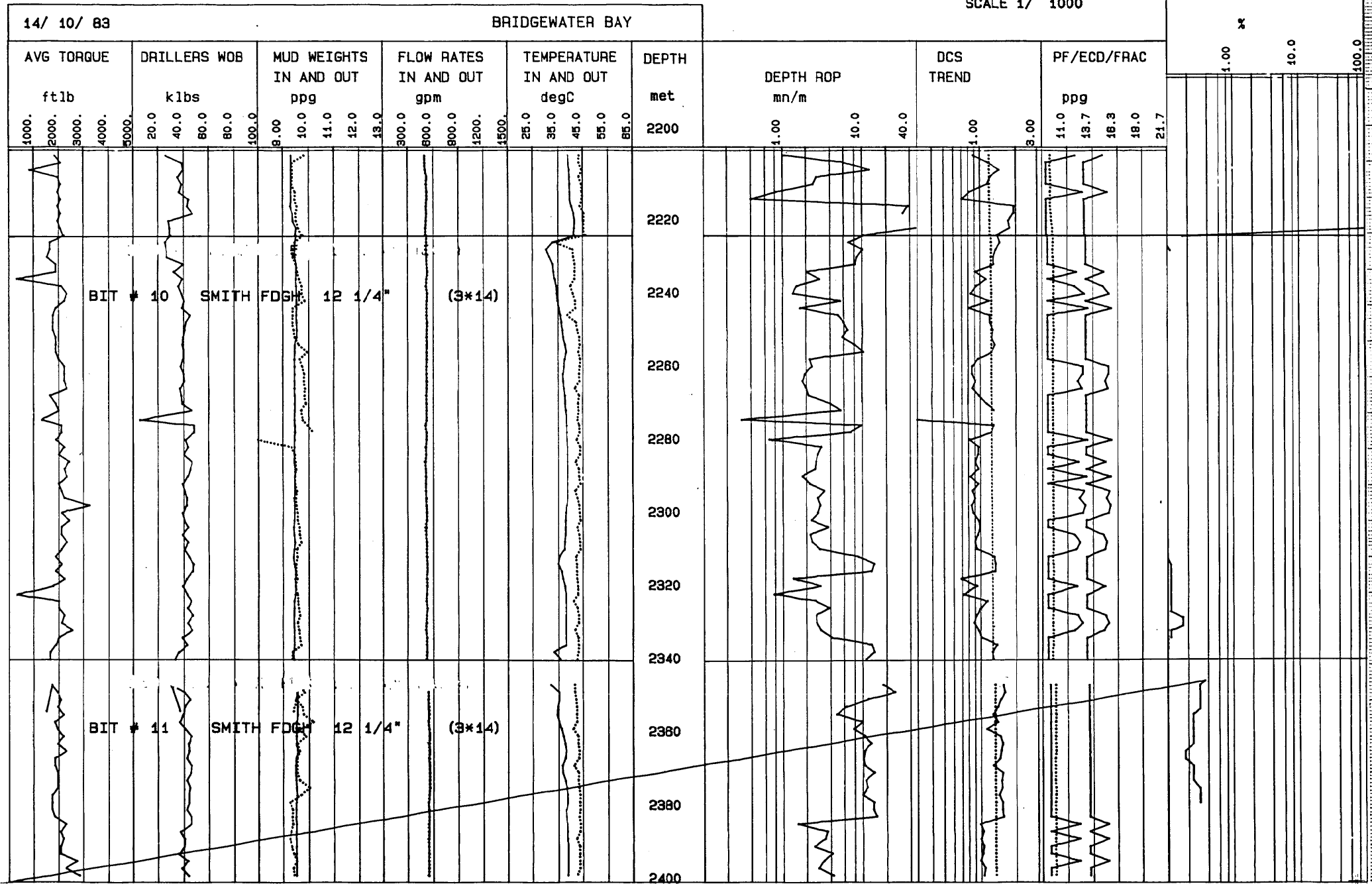
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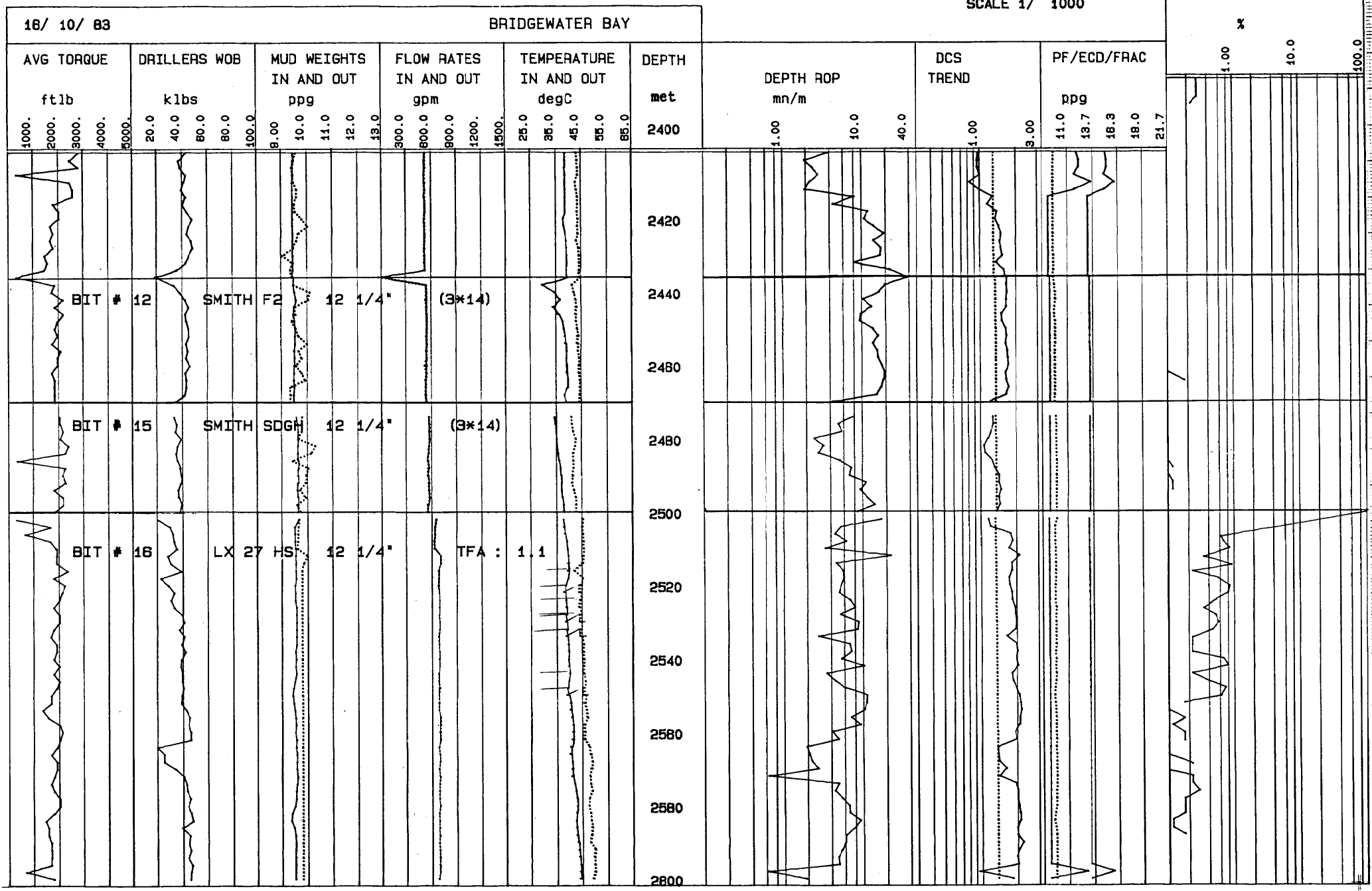
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SCALE 1/ 1000

TOTAL GAS



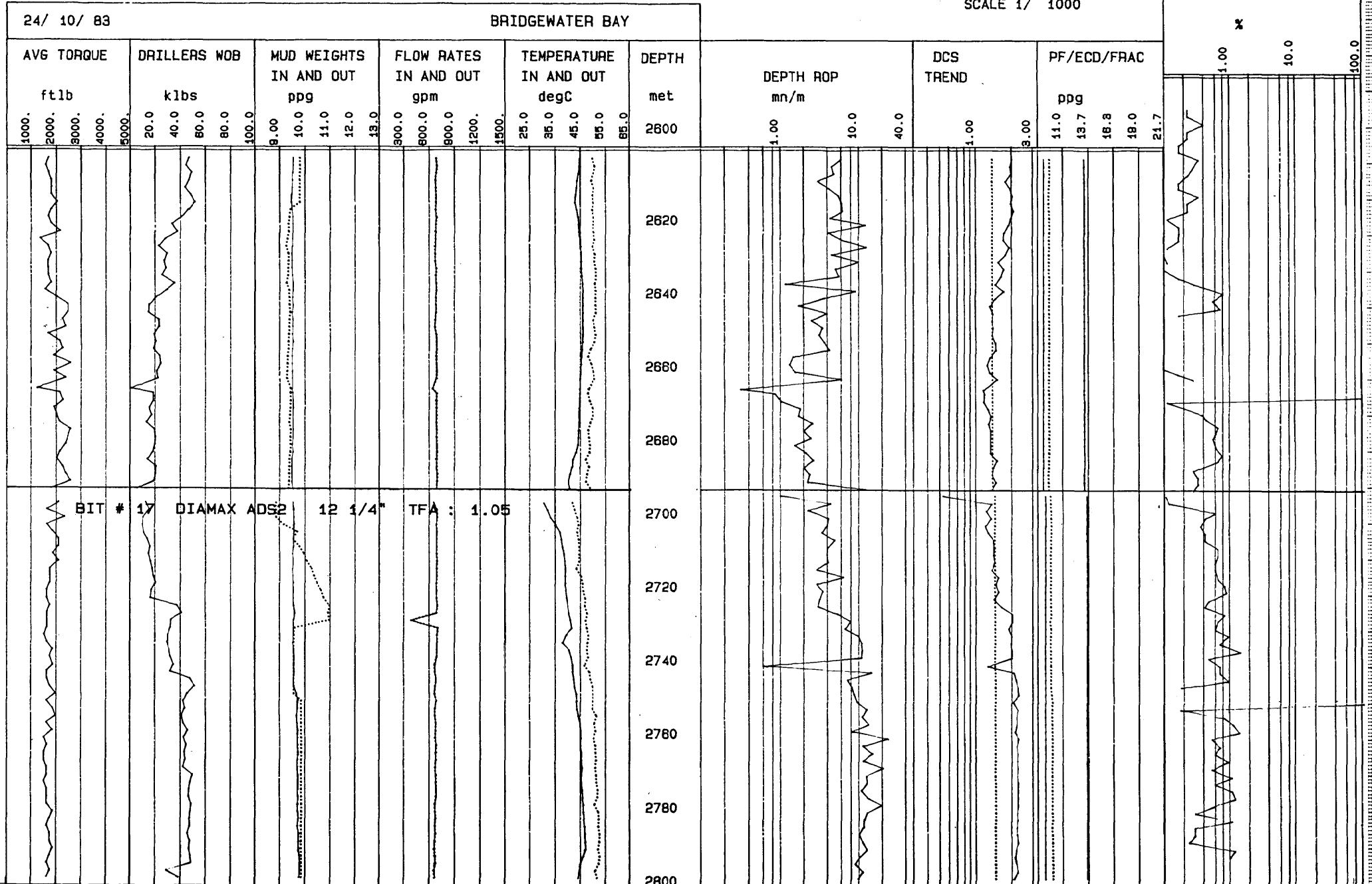
Geoservices overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000



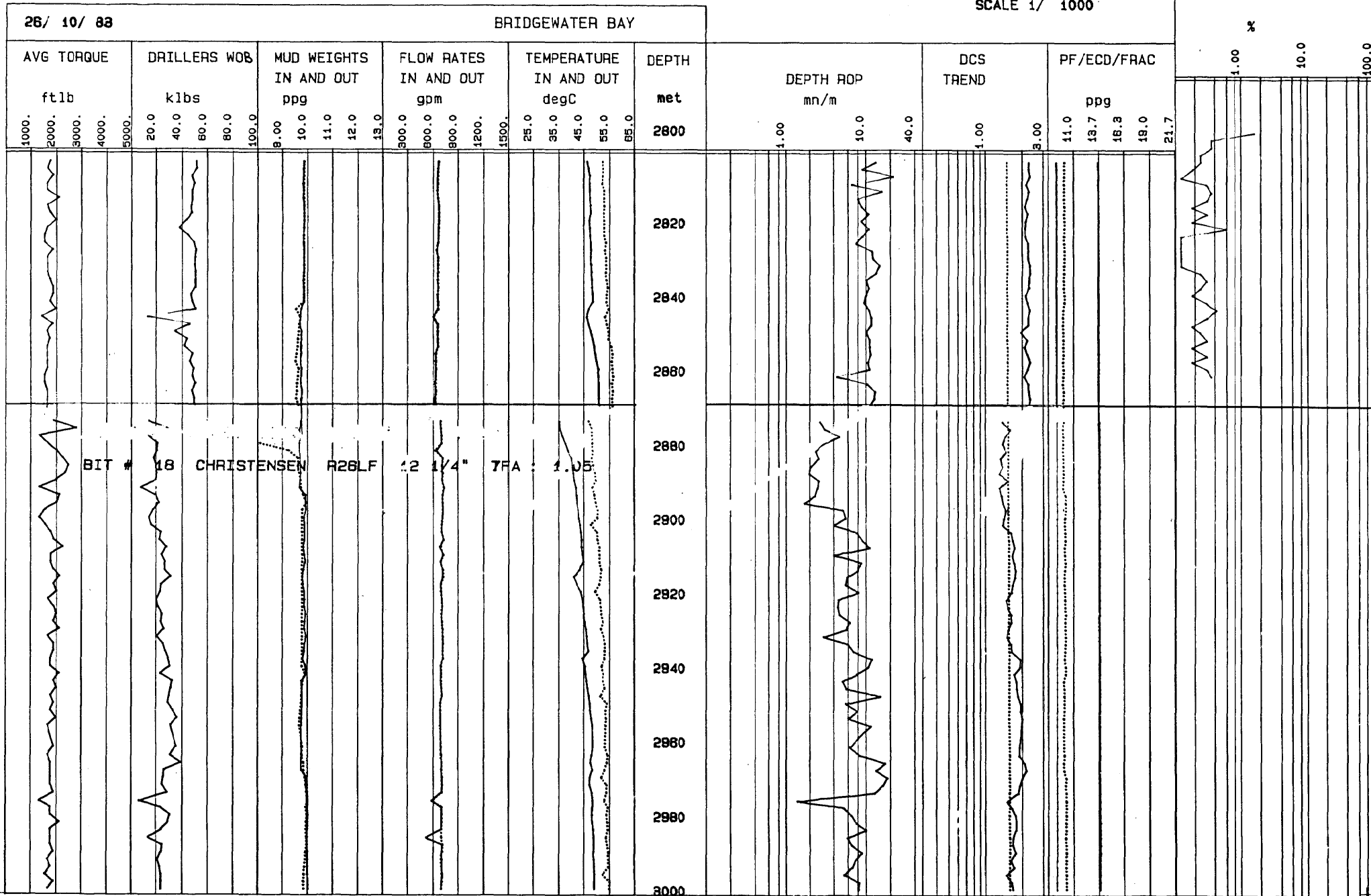
BIT # 17 DIAMAX ADS2 12 1/4" TFA : 1.05

Geoservices Overseas S.A.

ZERO

REAL TIME DEPTH PLOT

SCALE 1/ 1000



REAL TIME DEPTH PLOT

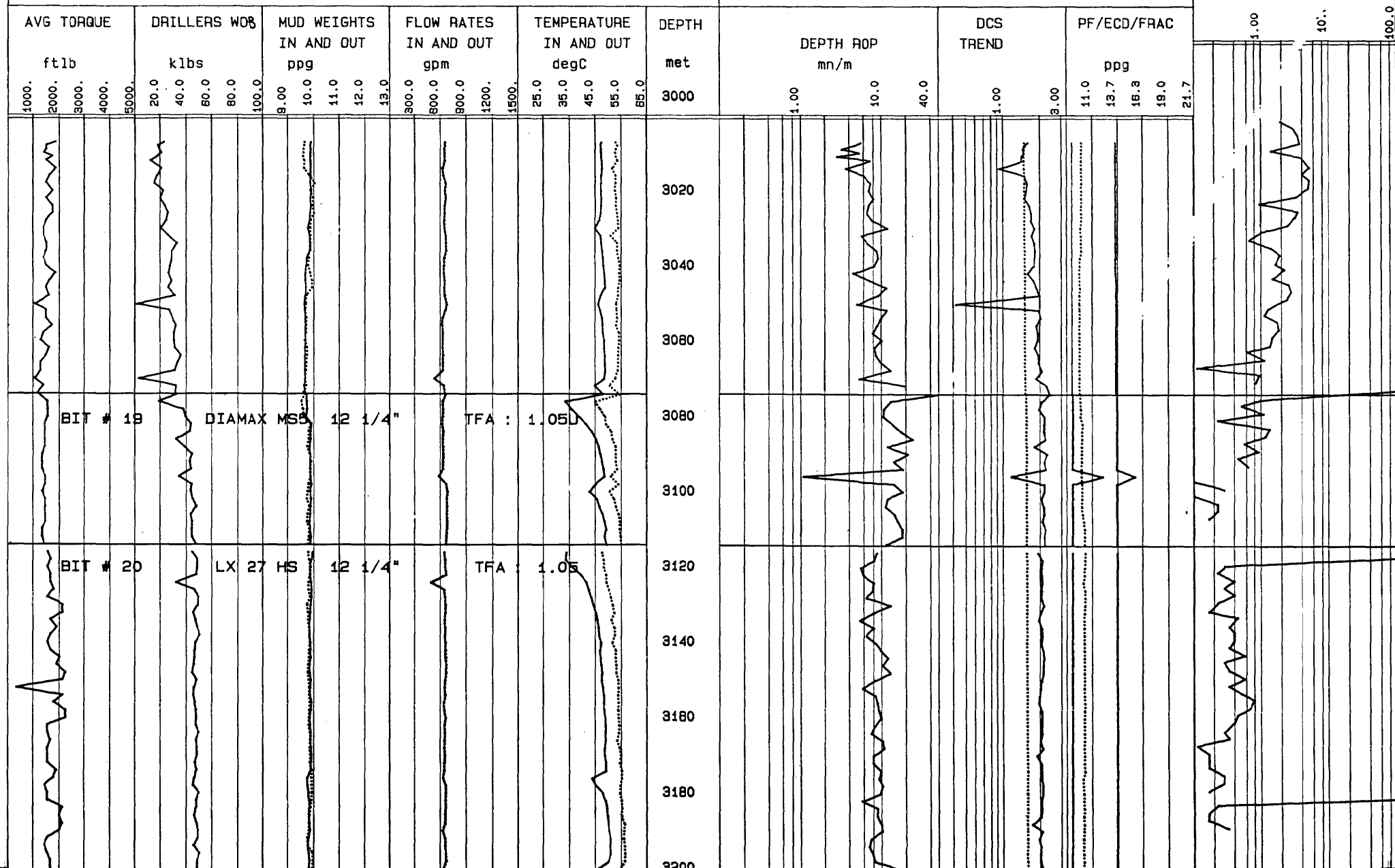
SCALE 1/ 1000

28/ 10/ 83

BRIDGEWATER BAY

TOTAL GAS

%



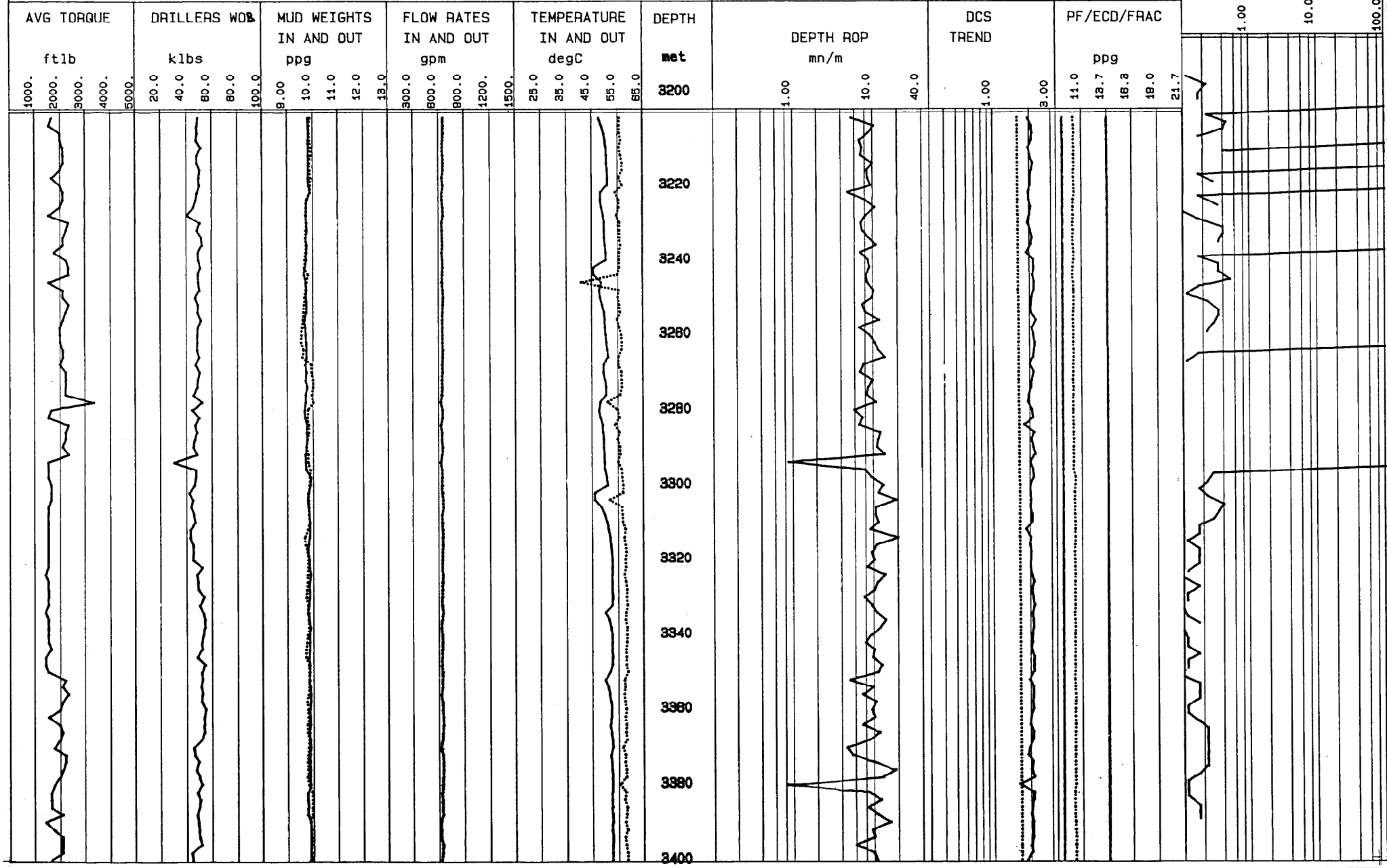
GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

30/ 10/ 83

BRIDGEWATER BAY



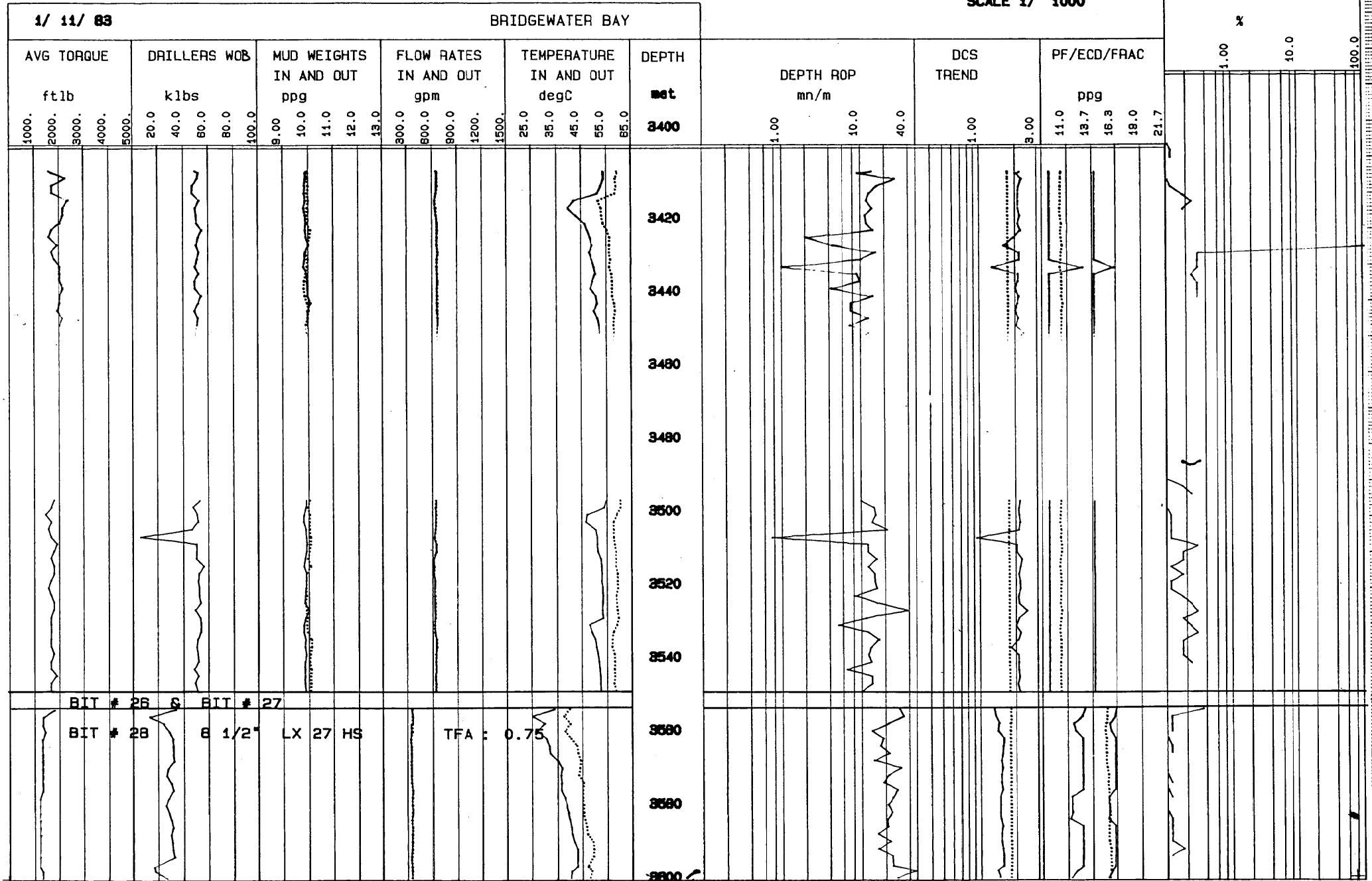
Geoservices overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000



Geoservices overseas S.A.

ZERO

GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000

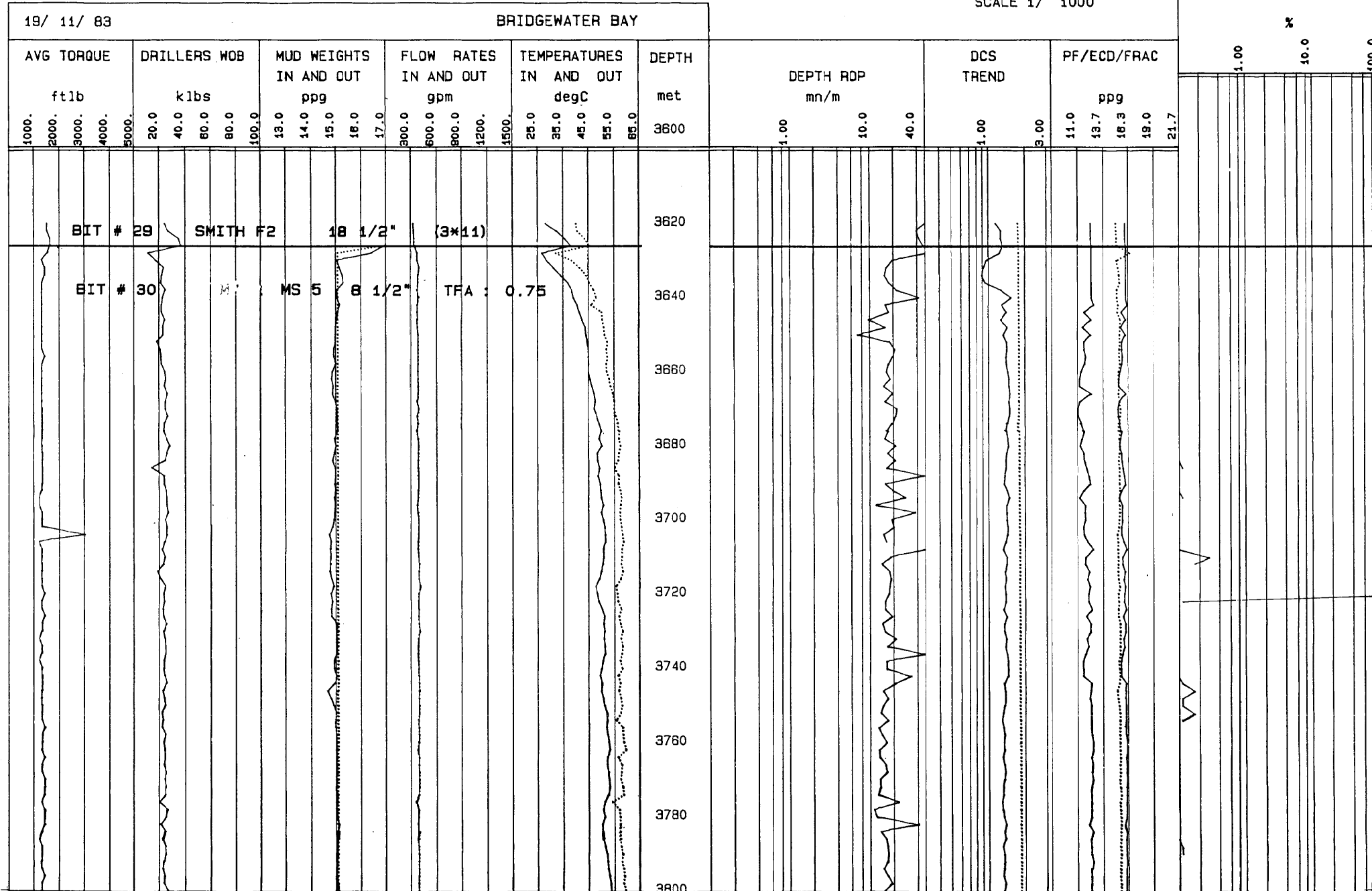
| 19/ 11/ 83 | | | | | | | | | | | | | | | BRIDGEWATER BAY | | | | | | | | | | | | | | | TOTAL GAS | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|-------|-------|-------|-------|--------------|------|------|------|-------|------------------------|------|------|------|------|-----------------------|-------|-------|-------|-------|------------------------|------|------|------|------|-------------|------|------|------|------|-----------|------|------|------|------|-----------|------|------|-------|--|-------------|--|--|--|--|---|--|--|--|--|--|--|--|--|--|
| AVG TORQUE | | | | | DRILLERS WOB | | | | | MUD WEIGHTS IN AND OUT | | | | | FLOW RATES IN AND OUT | | | | | TEMPERATURE IN AND OUT | | | | | DEPTH | | | | | DEPTH ROP | | | | | DCS TREND | | | | | PF/ECD/FRAC | | | | | % | | | | | | | | | |
| ftlb | | | | | klbs | | | | | ppg | | | | | gpm | | | | | degC | | | | | met | | | | | mn/m | | | | | ppg | | | | | % | | | | | | | | | | | | | | |
| 1000. | 2000. | 3000. | 4000. | 5000. | 20.0 | 40.0 | 80.0 | 80.0 | 100.0 | 8.00 | 10.0 | 11.0 | 12.0 | 13.0 | 300.0 | 600.0 | 900.0 | 1200. | 1500. | 25.0 | 35.0 | 45.0 | 55.0 | 65.0 | 3800 | 1.00 | 10.0 | 40.0 | 1.00 | 9.00 | 11.0 | 13.7 | 16.3 | 18.0 | 21.7 | 1.00 | 10.0 | 100.0 | | | | | | | | | | | | | | | | |
| [Wavy line] | | | | | [Wavy line] | | | | | | | | | | | | | | | [Wavy line] | | | | | [Wavy line] | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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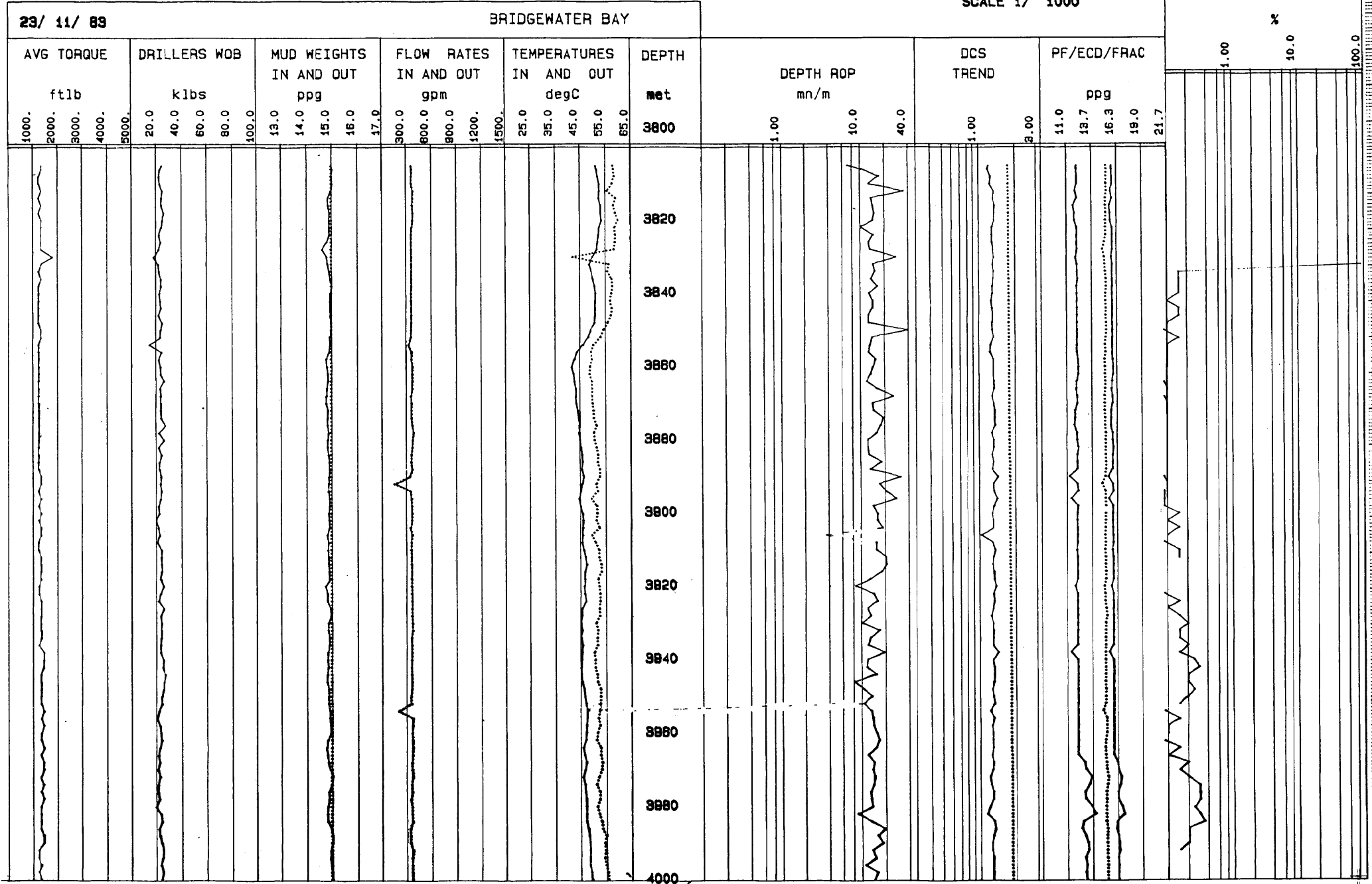
GEOSERVICES
ON-LINE TDC

REAL TIME DEPTH PLOT

SCALE 1/ 1000'

TOTAL GAS





Geoservices Overseas S.A.

ZERO

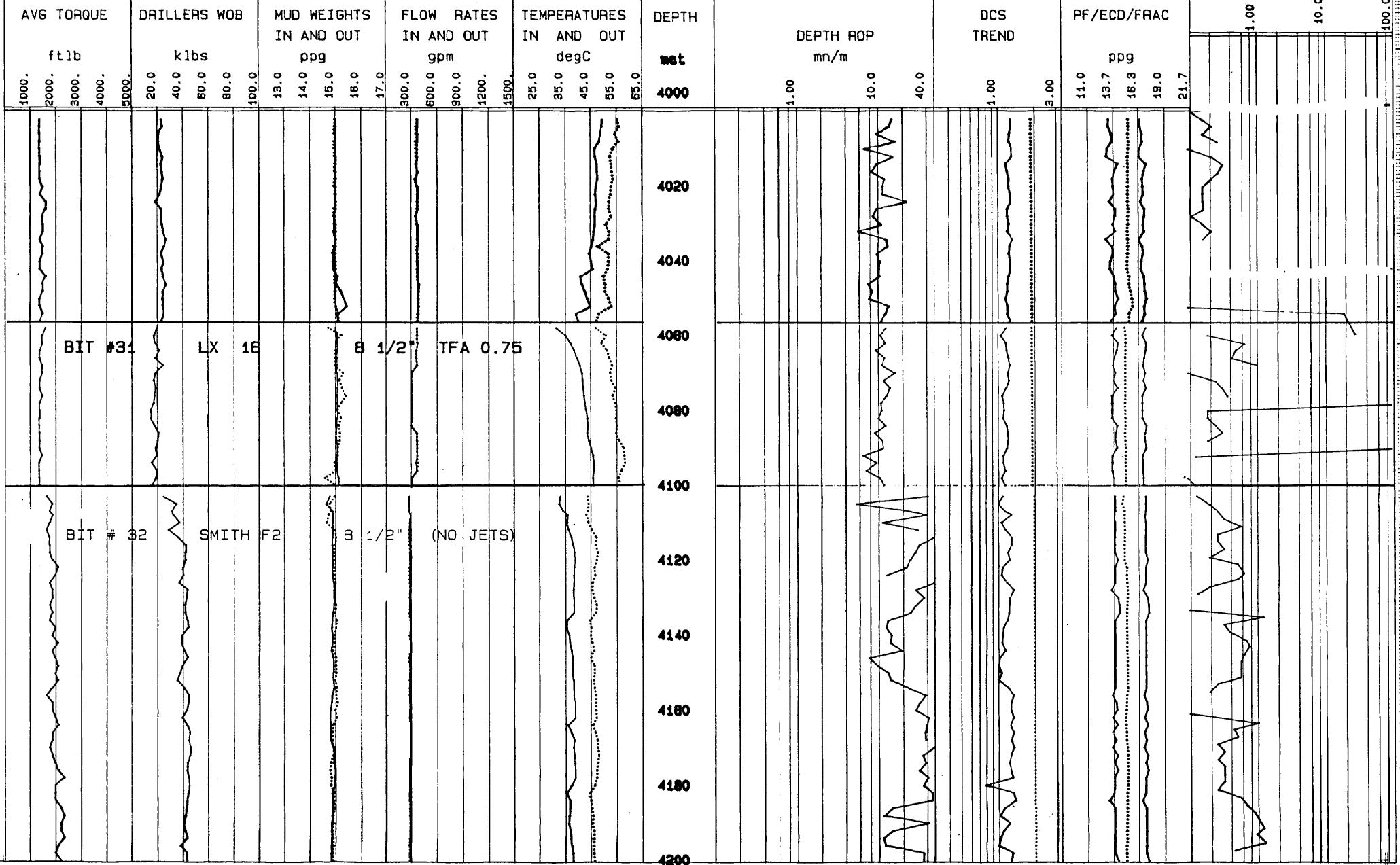
REAL TIME DEPTH PLOT

SCALE 1/ 1000

TOTAL GAS

25/ 11/ 89

BRIDGEWATER BAY



PE900690

This is an enclosure indicator page.
The enclosure PE900690 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900690 has the following characteristics:

ITEM_BARCODE = PE900690
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 440 TO 1000
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 440 TO 1000
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900691

This is an enclosure indicator page.
The enclosure PE900691 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900691 has the following characteristics:

ITEM_BARCODE = PE900691
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 1040 TO 1600
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 1040 TO 1600
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900692

This is an enclosure indicator page.
The enclosure PE900692 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900692 has the following characteristics:

ITEM_BARCODE = PE900692
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 1640 TO 2200
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 1640 TO 2200
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900693

This is an enclosure indicator page.
The enclosure PE900693 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900693 has the following characteristics:

ITEM_BARCODE = PE900693
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 2240 TO 2800
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 2240 TO 2800
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900694

This is an enclosure indicator page.
The enclosure PE900694 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900694 has the following characteristics:

ITEM_BARCODE = PE900694
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 2840 TO 3400
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 2840 TO 3400
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900695

This is an enclosure indicator page.
The enclosure PE900695 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900695 has the following characteristics:

ITEM_BARCODE = PE900695
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 3440 TO 4000
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 3440 TO 4000
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900696

This is an enclosure indicator page.
The enclosure PE900696 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900696 has the following characteristics:

ITEM_BARCODE = PE900696
CONTAINER_BARCODE = PE902250
 NAME = LITHOLOGY REPORT DEPTH 4040 TO 4600
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = DIAGRAM
DESCRIPTION = LITHOLOGY REPORT DEPTH 4040 TO 4600
REMARKS =
DATE_CREATED = *
DATE_RECEIVED = *
 W_NO = W831
 WELL_NAME = BRIDGEWATER BAY-1
 CONTRACTOR = Geoservices
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

GEOLOGY

- Lithology Plot
- Masterlog



ADDENDUM

3

*Seismograph
Service
Limited*

SEISMOGRAPH SERVICE LIMITED

WELL GEOPHONE SURVEY

and

CALIBRATED VELOCITY LOG REPORT

BRIDGEWATER BAY NO. 1

**WELL
GEOPHONE
SURVEY AND
CALIBRATED
VELOCITY
LOG**

REPORT



SEISMOGRAPH SERVICE LIMITED
WELL GEOPHONE SURVEY FIELD REPORT
AIR GUN

Sheet 1 of 2

WELL NAME BRIDGEWATER BAY No.1 COUNTRY AUSTRALIA (offshore) JOB NO. Q-100
 CLIENT PHILLIPS AUSTRALIAN WELL LOCATION 38° 32' 26" S DATE OF SURVEY 3rd December 1983
 OIL COMPANY, 141° 21' 42" E RIG NAME & HEADING Diamond M, Epcoc
237°

WELL GEOPHONE REF. LEVEL K.B. ELEVATION OF REF. LEVEL 23.0m GUN OFFSET DISTANCE 48m
 TYPE GEOPHONE GCH 100 HT ELEVATION OF SEA BED 109m GUN DEPTH 8m
 TYPE INSTRUMENT DCR / DCA ELEVATION OF GROUND N/A GUN HYDROPHONE DEPTH 11m
 GUN CHAMBER SIZE 80cu in DEPTH CASING & SIZE 9 5/8" @ 3519.5 GUN DIRECTION 177°
 EQUIPMENT NO. _____ SAMPLE INTERVAL 2ms MULTIPLEX TIME 3 seconds
 CASSETTES ~~REWOUND~~ NOT REWOUND NO. OF CASSETTES 4 (four)

| Tape Counter | Record No. | Depth Well Geophone M or Ft. | No. of Shots | Time Recorded Hours | T ms | GAIN dB | | Filter Setting High Cut Hz. | Gun Pressure p.s.i. | REMARKS |
|--------------|------------|------------------------------|--------------|---------------------|------|--------------|-------|-----------------------------|---------------------|---------|
| | | | | | | Record | DHA | | | |
| 0101-0103 | 1 | 900 | 3 | 00:40 | | 15 | 21 | ON | 2000 | |
| 0104-0105 | 2 | 2718 | 2 | 01:23 | | 30 | " | " | " | |
| 0106-0110 | 3 | 4180 | 5 | 02:06 | | 42/ 33/36 | 21/24 | " | " | |
| 0111-0113 | 4 | 4104 | 3 | | | 36 | 24 | " | " | |
| 0114-0116 | 5 | 4017 | 3 | 02:34 | | " | " | " | " | |
| 0117-0119 | 6 | 3900 | 3 | | | " | " | " | " | |
| 0120-0122 | 7 | 3700 | 3 | 03:01 | | " | " | " | " | |
| 0123-0125 | 8 | 3500 | 3 | | | 36/33 | " | " | " | |
| 0126-0128 | 9 | 3350 | 3 | | | 33 | " | " | " | |
| 0129-0131 | 10 | 3150 | 3 | 03:31 | | " | " | " | " | |
| 0201-0203 | 11 | 2925 | 3 | | | " | " | " | " | |
| 0204-0206 | 12 | 2630 | 3 | | | 30/27 | " | " | " | |
| 0207-0209 | 13 | 2500 | 3 | 04:05 | | 27 | " | " | " | |
| 0210-0212 | 14 | 2375 | 3 | | | " | " | " | " | |
| 0213-0215 | 15 | 2190 | 3 | | | 24 | " | " | " | |
| 0216-0219 | 16 | 2050 | 4 | 04:32 | | " | " | " | " | |
| 0220-0222 | 17 | 1850 | 3 | | | 21 | " | " | " | |
| 0223-0225 | 18 | 1700 | 3 | 04:52 | | " | " | " | " | |

WELL SEISMIC DATUM // DEPTH WEATHERING // ELEVATION VELOCITY // WEATHERING VELOCITY ///

ELEVATION REF. DATUM MSL DIRECTION GUN HYDROPHONE BREAKS DOWN

DIRECTION WELL PHONE BREAKS DOWN OPERATORS BAKER / MUNN

ADDRESS DATA SHOULD BE SENT _____

REMARKS _____

SEISMOGRAPH SERVICE LIMITED
WELL GEOPHONE SURVEY FIELD REPORT
AIR GUN

WELL NAME _____ COUNTRY _____ JOB NO. _____
 CLIENT _____ WELL LOCATION _____ DATE OF SURVEY _____
 _____ RIG NAME & HEADING _____

WELL GEOPHONE REF. LEVEL _____ ELEVATION OF REF. LEVEL _____ GUN OFFSET DISTANCE _____
 TYPE GEOPHONE _____ ELEVATION OF SEA BED _____ GUN DEPTH _____
 TYPE INSTRUMENT _____ ELEVATION OF GROUND _____ GUN HYDROPHONE DEPTH _____
 GUN CHAMBER SIZE _____ DEPTH CASING & SIZE _____ GUN DIRECTION _____
 EQUIPMENT NO. _____ SAMPLE INTERVAL _____ MULTIPLEX TIME _____
 CASSETTES REWOUND/NOT REWOUND _____ NO. OF CASSETTES _____

| Tape Counter | Record No. | Depth Well Geophone M or XX | No. of Shots | Time Recorded Hours | T ms | GAIN dB | | Filter Setting High Cut Hz. | Gun Pressure p.s.i. | REMARKS |
|--------------|------------|-----------------------------|--------------|---------------------|------|---------|-----|-----------------------------|---------------------|---------|
| | | | | | | Record | DHA | | | |
| 0226-0232 | 19 | 1555 | 7 | 05:04 | | 21/8 | 24 | ON | 2000 | |
| 0301-0308 | 20 | 1400 | 8 | | | 18 | " | " | " | |
| 0309-0311 | 21 | 1205 | 3 | 05:31 | | 18/15 | " | " | " | |
| 0312-0316 | 22 | 1010 | 4 | | | 15 | " | " | " | |
| 0317-0320 | 23 | 900 | 4 | | | " | " | " | " | |
| 0321-0325 | 24 | 700 | 5 | 06:05 | | 12/9/6 | " | " | " | |
| 0326-0330 | 25 | 500 | 5 | | | 3/0 | " | " | " | |
| 0401-0409 | 26 | 300 | 9 | 06:34 | | 0 | " | " | " | |
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WELL SEISMIC DATUM _____ DEPTH WEATHERING _____ ELEVATION VELOCITY _____ WEATHERING VELOCITY _____
 ELEVATION REF. DATUM _____ DIRECTION GUN HYDROPHONE BREAKS _____
 DIRECTION WELL PHONE BREAKS _____ OPERATORS _____
 ADDRESS DATA SHOULD BE SENT _____

REMARKS _____

PE600011

This is an enclosure indicator page.
The enclosure PE600011 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600011 has the following characteristics:

ITEM_BARCODE = PE600011
CONTAINER_BARCODE = PE902250
NAME = BRIDGEWATER BAY 1 DISPLAY OF WELL
VELOCITY SURVEY RECORDS
BASIN = Otway
PERMIT =
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = BRIDGEWATER BAY 1 DISPLAY OF WELL
VELOCITY SURVEY RECORDS
REMARKS =
DATE_CREATED =
DATE_RECEIVED =
W_NO = W831
WELL_NAME = BRIDGEWATER BAY-1
CONTRACTOR = SEISMOGRAPHIC SERVICE LTD.
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600352

This is an enclosure indicator page.
The enclosure PE600352 is enclosed within the
container PE902250 at this location in this document.

The enclosure PE600352 has the following characteristics:

| | | |
|--------------------|---|--|
| ITEM_BARCODE | = | PE600352 |
| CONTA_INER_BARCODE | = | PE902250 |
| NAME | = | BRIDGEWATER BAY 1 DISPLAY OF WELL VELOCITY RECORDS ADDENDUM 3 |
| BASIN | = | OTWAY |
| PERMIT | = | VIC/P14 |
| TYPE | = | WELL |
| SUBTYPE | = | VELOCITY_CHART |
| DESCRIPTION | = | BRIDGEWATER BAY 1 DISPLAY OF WELL VELOCITY RECORDS ADDENDUM 3 |
| DATE_CREATED | = | |
| DATE_RECEIVED | = | 7/06/1984 |
| W_NO | = | W831 |
| WELL_NAME | = | BRIDGEWATER BAY 1 |
| CONTRATOR | = | Seismograph Service Ltd |
| CLIENT_OP_CO | = | PHILLIPS AUSTRALIAN OIL COMPANY |

PE900697

This is an enclosure indicator page.
The enclosure PE900697 is enclosed within the
container PE902250 at this location in this document.

The enclosure PE600352 has the following characteristics:

| | | |
|--------------------|---|---|
| ITEM_BARCODE | = | PE900697 |
| CONTA_INER_BARCODE | = | PE902250 |
| NAME | = | Bridgewater Bay 1 Borehole Geophysical Data Printout |
| BASIN | = | OTWAY |
| PERMIT | = | VIC/P14 |
| TYPE | = | WELL |
| SUBTYPE | = | VELOCITY_CHART |
| DESCRIPTION | = | Bridgewater Bay 1 Borehole Geophysical Data Printout |
| DATE_CREATED | = | |
| DATE_RECEIVED | = | |
| W_NO | = | W831 |
| WELL_NAME | = | BRIDGEWATER BAY 1 |
| CONTRATOR | = | Seismograph Service Ltd |
| CLIENT_OP_CO | = | PHILLIPS AUSTRALIAN OIL COMPANY |

DEPT. NAT. RES & ENV



PE900697



SEISMOGRAPH SERVICE (ENGLAND) LTD
WELL SURVEY DIVISION

OIL and GAS DIVISION

COMPANY: PHILLIPS AUSTRALIAN OIL COMPANY

07 JUN 1984

WELL: BRIDGEWATER BAY NO.1

WCR.

LISTING OF : TWO-WAY TRAVEL TIME IN SECONDS BELOW DATUM OF MEAN SEA LEVEL

VERTICAL DEPTH IN METRES BELOW DATUM OF MEAN SEA LEVEL

VELOCITIES IN M/SEC

REFLECTION COEFFICIENTS

TWO-WAY TRANSMISSION LOSS

ELEVATION OF KB AT 23.0 METRES ABOVE DATUM OF MEAN SEA LEVEL

TIMES START AT TOP OF VELOCITY LOG AT 0.4919 SECONDS TWO-WAY TIME

TIME INCREMENT IS 0.0020 SECONDS TWO-WAY TIME

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CPT. | TRN.LOSS |
|--------|-------|----------|----------|----------|----------|----------|
| 0.4919 | 476.9 | 1938.9 | 1938.9 | 1938.9 | | |
| 0.4939 | 479.5 | 2588.8 | 1941.5 | 1941.9 | 0.1436 | 0.0206 |
| 0.4959 | 482.1 | 2581.6 | 1944.1 | 1944.9 | -0.0014 | 0.0206 |
| 0.4979 | 484.6 | 2573.9 | 1946.6 | 1947.9 | -0.0015 | 0.0206 |
| 0.4999 | 487.2 | 2550.6 | 1949.0 | 1950.7 | -0.0045 | 0.0206 |
| 0.5019 | 489.8 | 2563.8 | 1951.5 | 1953.5 | 0.0026 | 0.0206 |
| 0.5039 | 492.3 | 2556.1 | 1953.9 | 1956.2 | -0.0015 | 0.0206 |
| 0.5059 | 494.9 | 2551.0 | 1956.2 | 1958.9 | -0.0010 | 0.0206 |
| 0.5079 | 497.4 | 2556.5 | 1958.6 | 1961.7 | 0.0011 | 0.0206 |
| 0.5099 | 500.0 | 2616.0 | 1961.2 | 1964.6 | 0.0115 | 0.0208 |
| 0.5119 | 502.6 | 2602.5 | 1963.7 | 1967.5 | -0.0026 | 0.0208 |
| 0.5139 | 505.3 | 2668.6 | 1966.4 | 1970.8 | 0.0125 | 0.0209 |
| 0.5159 | 507.9 | 2615.0 | 1968.9 | 1973.7 | -0.0102 | 0.0210 |
| 0.5179 | 510.5 | 2609.5 | 1971.4 | 1976.5 | -0.0011 | 0.0210 |
| 0.5199 | 513.2 | 2640.8 | 1974.0 | 1979.5 | 0.0060 | 0.0211 |
| 0.5219 | 515.8 | 2641.5 | 1976.5 | 1982.4 | 0.0001 | 0.0211 |
| 0.5239 | 518.5 | 2661.4 | 1979.2 | 1985.5 | 0.0038 | 0.0211 |
| 0.5259 | 521.1 | 2641.6 | 1981.7 | 1988.4 | -0.0037 | 0.0211 |
| 0.5279 | 523.8 | 2688.1 | 1984.4 | 1991.5 | 0.0087 | 0.0212 |
| 0.5299 | 526.5 | 2671.0 | 1987.0 | 1994.5 | -0.0032 | 0.0212 |
| 0.5319 | 529.2 | 2675.7 | 1989.5 | 1997.5 | 0.0009 | 0.0212 |
| 0.5339 | 531.8 | 2654.7 | 1992.0 | 2000.4 | -0.0039 | 0.0212 |
| 0.5359 | 534.4 | 2641.3 | 1994.5 | 2003.1 | -0.0025 | 0.0212 |
| 0.5379 | 537.1 | 2648.3 | 1996.9 | 2005.9 | 0.0013 | 0.0212 |
| 0.5399 | 539.8 | 2670.9 | 1999.4 | 2008.8 | 0.0042 | 0.0212 |
| 0.5419 | 542.4 | 2640.0 | 2001.7 | 2011.5 | -0.0058 | 0.0213 |
| 0.5439 | 545.1 | 2649.9 | 2004.1 | 2014.2 | 0.0019 | 0.0213 |
| 0.5459 | 547.7 | 2677.0 | 2006.6 | 2017.0 | 0.0051 | 0.0213 |
| 0.5479 | 550.4 | 2638.8 | 2008.9 | 2019.6 | -0.0072 | 0.0213 |
| 0.5499 | 553.0 | 2666.7 | 2011.3 | 2022.4 | 0.0053 | 0.0214 |
| 0.5519 | 555.7 | 2672.2 | 2013.7 | 2025.1 | 0.0010 | 0.0214 |
| 0.5539 | 558.4 | 2705.0 | 2016.2 | 2028.0 | 0.0061 | 0.0214 |
| 0.5559 | 561.1 | 2717.5 | 2018.7 | 2030.9 | 0.0023 | 0.0214 |
| 0.5579 | 563.9 | 2722.5 | 2021.2 | 2033.8 | 0.0009 | 0.0214 |
| 0.5599 | 566.6 | 2740.4 | 2023.8 | 2036.7 | 0.0033 | 0.0214 |
| 0.5619 | 569.3 | 2698.2 | 2026.2 | 2039.5 | -0.0078 | 0.0215 |
| 0.5639 | 572.0 | 2696.7 | 2028.6 | 2042.2 | -0.0003 | 0.0215 |
| 0.5659 | 574.7 | 2685.2 | 2030.9 | 2044.8 | -0.0021 | 0.0215 |
| 0.5679 | 577.4 | 2687.3 | 2033.2 | 2047.4 | 0.0004 | 0.0215 |
| 0.5699 | 580.0 | 2655.6 | 2035.4 | 2049.9 | -0.0059 | 0.0215 |
| 0.5719 | 582.7 | 2688.2 | 2037.7 | 2052.4 | 0.0061 | 0.0216 |
| 0.5739 | 585.4 | 2680.8 | 2039.9 | 2055.0 | -0.0014 | 0.0216 |
| 0.5759 | 588.1 | 2669.8 | 2042.1 | 2057.4 | -0.0021 | 0.0216 |
| 0.5779 | 590.7 | 2676.6 | 2044.3 | 2059.9 | 0.0013 | 0.0216 |
| 0.5799 | 593.4 | 2687.0 | 2046.5 | 2062.4 | 0.0019 | 0.0216 |
| 0.5819 | 596.1 | 2677.7 | 2048.7 | 2064.8 | -0.0017 | 0.0216 |
| 0.5839 | 598.7 | 2644.7 | 2050.7 | 2067.1 | -0.0062 | 0.0216 |
| 0.5859 | 601.4 | 2638.2 | 2052.7 | 2069.3 | -0.0012 | 0.0216 |
| 0.5879 | 604.0 | 2598.7 | 2054.6 | 2071.3 | -0.0076 | 0.0217 |
| 0.5899 | 606.5 | 2549.7 | 2056.3 | 2073.1 | -0.0095 | 0.0217 |
| 0.5919 | 609.1 | 2558.2 | 2058.0 | 2074.9 | 0.0017 | 0.0218 |
| 0.5939 | 611.7 | 2583.4 | 2059.7 | 2076.9 | 0.0049 | 0.0218 |
| 0.5959 | 614.3 | 2623.9 | 2061.6 | 2078.9 | 0.0078 | 0.0218 |
| 0.5979 | 617.0 | 2666.6 | 2063.7 | 2081.2 | 0.0081 | 0.0219 |
| 0.5999 | 619.5 | 2562.4 | 2065.3 | 2083.0 | -0.0199 | 0.0223 |
| 0.6019 | 622.1 | 2620.2 | 2067.2 | 2085.0 | 0.0112 | 0.0224 |
| 0.6039 | 624.8 | 2609.8 | 2069.0 | 2086.9 | -0.0020 | 0.0224 |
| 0.6059 | 627.4 | 2630.4 | 2070.8 | 2089.0 | 0.0039 | 0.0224 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CPT. | TRN.LOSS |
|--------|-------|----------|----------|----------|----------|----------|
| 0.6079 | 630.0 | 2631.0 | 2072.7 | 2091.0 | 0.0001 | 0.0224 |
| 0.6099 | 632.7 | 2671.4 | 2074.6 | 2093.2 | 0.0076 | 0.0225 |
| 0.6119 | 635.3 | 2645.3 | 2076.5 | 2095.2 | -0.0049 | 0.0225 |
| 0.6139 | 638.0 | 2683.6 | 2078.5 | 2097.4 | 0.0072 | 0.0226 |
| 0.6159 | 640.7 | 2663.0 | 2080.4 | 2099.5 | -0.0039 | 0.0226 |
| 0.6179 | 643.4 | 2668.4 | 2082.3 | 2101.6 | 0.0010 | 0.0226 |
| 0.6199 | 646.0 | 2675.3 | 2084.2 | 2103.7 | 0.0013 | 0.0226 |
| 0.6219 | 648.6 | 2622.1 | 2085.9 | 2105.5 | -0.0100 | 0.0227 |
| 0.6239 | 651.3 | 2635.5 | 2087.7 | 2107.4 | 0.0025 | 0.0227 |
| 0.6259 | 654.0 | 2682.9 | 2089.6 | 2109.5 | 0.0089 | 0.0228 |
| 0.6279 | 656.6 | 2660.9 | 2091.4 | 2111.5 | -0.0041 | 0.0228 |
| 0.6299 | 659.3 | 2655.9 | 2093.2 | 2113.5 | -0.0009 | 0.0228 |
| 0.6319 | 662.0 | 2686.1 | 2095.1 | 2115.5 | 0.0056 | 0.0228 |
| 0.6339 | 664.7 | 2689.9 | 2096.9 | 2117.6 | 0.0007 | 0.0228 |
| 0.6359 | 667.4 | 2706.7 | 2098.8 | 2119.7 | 0.0031 | 0.0228 |
| 0.6379 | 670.0 | 2655.7 | 2100.6 | 2121.6 | -0.0095 | 0.0229 |
| 0.6399 | 672.7 | 2649.7 | 2102.3 | 2123.4 | -0.0011 | 0.0229 |
| 0.6419 | 675.3 | 2647.4 | 2104.0 | 2125.3 | -0.0004 | 0.0229 |
| 0.6439 | 678.0 | 2663.8 | 2105.7 | 2127.2 | 0.0031 | 0.0229 |
| 0.6459 | 680.6 | 2649.1 | 2107.4 | 2129.0 | -0.0028 | 0.0229 |
| 0.6479 | 683.3 | 2637.0 | 2109.1 | 2130.7 | -0.0023 | 0.0229 |
| 0.6499 | 685.9 | 2645.0 | 2110.7 | 2132.5 | 0.0015 | 0.0229 |
| 0.6519 | 688.5 | 2635.3 | 2112.3 | 2134.2 | -0.0018 | 0.0229 |
| 0.6539 | 691.2 | 2641.2 | 2113.9 | 2136.0 | 0.0011 | 0.0229 |
| 0.6559 | 693.8 | 2659.5 | 2115.6 | 2137.7 | 0.0034 | 0.0229 |
| 0.6579 | 696.5 | 2668.9 | 2117.3 | 2139.6 | 0.0018 | 0.0229 |
| 0.6599 | 699.2 | 2688.7 | 2119.0 | 2141.4 | 0.0037 | 0.0230 |
| 0.6619 | 701.9 | 2686.0 | 2120.7 | 2143.3 | -0.0005 | 0.0230 |
| 0.6639 | 704.6 | 2723.7 | 2122.5 | 2145.3 | 0.0070 | 0.0230 |
| 0.6659 | 707.4 | 2750.0 | 2124.4 | 2147.3 | 0.0048 | 0.0230 |
| 0.6679 | 710.1 | 2753.1 | 2126.3 | 2149.4 | 0.0006 | 0.0230 |
| 0.6699 | 712.9 | 2752.1 | 2128.2 | 2151.5 | -0.0002 | 0.0230 |
| 0.6719 | 715.6 | 2738.4 | 2130.0 | 2153.4 | -0.0025 | 0.0230 |
| 0.6739 | 718.3 | 2720.9 | 2131.8 | 2155.4 | -0.0032 | 0.0230 |
| 0.6759 | 721.0 | 2717.7 | 2133.5 | 2157.2 | -0.0006 | 0.0230 |
| 0.6779 | 723.8 | 2715.0 | 2135.2 | 2159.1 | -0.0005 | 0.0230 |
| 0.6799 | 726.5 | 2771.9 | 2137.1 | 2161.1 | 0.0104 | 0.0232 |
| 0.6819 | 729.3 | 2794.0 | 2139.0 | 2163.3 | 0.0040 | 0.0232 |
| 0.6839 | 732.1 | 2749.1 | 2140.8 | 2165.2 | -0.0081 | 0.0232 |
| 0.6859 | 734.8 | 2726.1 | 2142.5 | 2167.1 | -0.0042 | 0.0233 |
| 0.6879 | 737.5 | 2686.0 | 2144.1 | 2168.8 | -0.0074 | 0.0233 |
| 0.6899 | 740.2 | 2698.2 | 2145.7 | 2170.5 | 0.0023 | 0.0233 |
| 0.6919 | 742.9 | 2739.6 | 2147.4 | 2172.3 | 0.0076 | 0.0234 |
| 0.6939 | 745.7 | 2743.3 | 2149.1 | 2174.2 | 0.0007 | 0.0234 |
| 0.6959 | 748.5 | 2789.9 | 2151.0 | 2176.2 | 0.0084 | 0.0234 |
| 0.6979 | 751.3 | 2863.6 | 2153.0 | 2178.5 | 0.0130 | 0.0236 |
| 0.6999 | 754.1 | 2815.2 | 2154.9 | 2180.6 | -0.0085 | 0.0237 |
| 0.7019 | 757.0 | 2889.6 | 2157.0 | 2182.9 | 0.0130 | 0.0238 |
| 0.7039 | 759.8 | 2779.5 | 2158.8 | 2184.9 | -0.0194 | 0.0242 |
| 0.7059 | 762.6 | 2771.0 | 2160.5 | 2186.7 | -0.0015 | 0.0242 |
| 0.7079 | 765.4 | 2815.6 | 2162.3 | 2188.8 | 0.0080 | 0.0243 |
| 0.7099 | 768.3 | 2853.7 | 2164.3 | 2190.9 | 0.0067 | 0.0243 |
| 0.7119 | 771.1 | 2845.1 | 2166.2 | 2193.0 | -0.0015 | 0.0243 |
| 0.7139 | 773.9 | 2783.3 | 2167.9 | 2194.9 | -0.0110 | 0.0244 |
| 0.7159 | 776.7 | 2799.1 | 2169.7 | 2196.8 | 0.0028 | 0.0244 |
| 0.7179 | 779.5 | 2864.1 | 2171.6 | 2199.0 | 0.0115 | 0.0246 |
| 0.7199 | 782.5 | 2948.4 | 2173.8 | 2201.4 | 0.0145 | 0.0248 |
| 0.7219 | 785.5 | 3002.0 | 2176.1 | 2204.0 | 0.0090 | 0.0249 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|-------|----------|----------|----------|----------|----------|
| 0.7239 | 788.5 | 2962.6 | 2178.2 | 2206.5 | -0.0066 | 0.0249 |
| 0.7259 | 791.4 | 2938.0 | 2180.3 | 2208.8 | -0.0042 | 0.0249 |
| 0.7279 | 794.3 | 2902.5 | 2182.3 | 2211.0 | -0.0061 | 0.0250 |
| 0.7299 | 797.3 | 2969.2 | 2184.5 | 2213.5 | 0.0114 | 0.0251 |
| 0.7319 | 800.2 | 2958.9 | 2186.6 | 2215.8 | -0.0017 | 0.0251 |
| 0.7339 | 802.9 | 2658.4 | 2187.9 | 2217.2 | -0.0535 | 0.0279 |
| 0.7359 | 805.7 | 2789.1 | 2189.5 | 2218.9 | 0.0240 | 0.0284 |
| 0.7379 | 808.5 | 2869.1 | 2191.4 | 2220.9 | 0.0141 | 0.0286 |
| 0.7399 | 811.5 | 2979.0 | 2193.5 | 2223.3 | 0.0188 | 0.0290 |
| 0.7419 | 814.6 | 3103.1 | 2195.9 | 2226.2 | 0.0204 | 0.0294 |
| 0.7439 | 818.2 | 3536.0 | 2199.5 | 2230.7 | 0.0652 | 0.0335 |
| 0.7459 | 821.5 | 3348.9 | 2202.6 | 2234.5 | -0.0272 | 0.0342 |
| 0.7479 | 824.8 | 3250.0 | 2205.4 | 2237.8 | -0.0150 | 0.0344 |
| 0.7499 | 828.1 | 3323.5 | 2208.4 | 2241.4 | 0.0112 | 0.0345 |
| 0.7519 | 831.4 | 3325.8 | 2211.4 | 2245.0 | 0.0003 | 0.0345 |
| 0.7539 | 834.4 | 3042.8 | 2213.6 | 2247.5 | -0.0444 | 0.0365 |
| 0.7559 | 838.0 | 3598.7 | 2217.2 | 2252.1 | 0.0837 | 0.0432 |
| 0.7579 | 841.1 | 3095.6 | 2219.6 | 2254.8 | -0.0751 | 0.0486 |
| 0.7599 | 844.2 | 3022.6 | 2221.7 | 2257.1 | -0.0119 | 0.0487 |
| 0.7619 | 847.1 | 2890.3 | 2223.4 | 2259.0 | -0.0224 | 0.0492 |
| 0.7639 | 850.3 | 3197.4 | 2226.0 | 2262.0 | 0.0504 | 0.0516 |
| 0.7659 | 853.7 | 3464.8 | 2229.2 | 2266.0 | 0.0401 | 0.0532 |
| 0.7679 | 857.0 | 3267.5 | 2231.9 | 2269.1 | -0.0293 | 0.0540 |
| 0.7699 | 860.3 | 3328.2 | 2234.8 | 2272.5 | 0.0092 | 0.0541 |
| 0.7719 | 863.3 | 2995.1 | 2236.7 | 2274.7 | -0.0527 | 0.0567 |
| 0.7739 | 866.0 | 2734.9 | 2238.0 | 2276.0 | -0.0454 | 0.0586 |
| 0.7759 | 869.7 | 3638.2 | 2241.6 | 2280.6 | 0.1417 | 0.0775 |
| 0.7779 | 873.2 | 3490.4 | 2244.8 | 2284.5 | -0.0207 | 0.0779 |
| 0.7799 | 876.4 | 3266.7 | 2247.5 | 2287.6 | -0.0331 | 0.0789 |
| 0.7819 | 879.5 | 3018.4 | 2249.4 | 2289.7 | -0.0395 | 0.0804 |
| 0.7839 | 881.9 | 2417.2 | 2249.9 | 2290.1 | -0.1106 | 0.0916 |
| 0.7859 | 884.3 | 2396.4 | 2250.2 | 2290.3 | -0.0043 | 0.0917 |
| 0.7879 | 886.7 | 2404.9 | 2250.6 | 2290.6 | 0.0018 | 0.0917 |
| 0.7899 | 889.0 | 2317.8 | 2250.8 | 2290.7 | -0.0184 | 0.0920 |
| 0.7919 | 891.3 | 2320.9 | 2251.0 | 2290.8 | 0.0007 | 0.0920 |
| 0.7939 | 893.6 | 2331.5 | 2251.2 | 2290.9 | 0.0023 | 0.0920 |
| 0.7959 | 896.0 | 2394.0 | 2251.5 | 2291.1 | 0.0132 | 0.0921 |
| 0.7979 | 898.4 | 2392.8 | 2251.9 | 2291.4 | -0.0003 | 0.0921 |
| 0.7999 | 901.0 | 2595.9 | 2252.8 | 2292.2 | 0.0407 | 0.0936 |
| 0.8019 | 903.5 | 2420.3 | 2253.2 | 2292.5 | -0.0350 | 0.0947 |
| 0.8039 | 905.9 | 2498.6 | 2253.8 | 2293.1 | 0.0159 | 0.0950 |
| 0.8059 | 908.4 | 2443.7 | 2254.3 | 2293.5 | -0.0111 | 0.0951 |
| 0.8079 | 910.8 | 2435.8 | 2254.7 | 2293.8 | -0.0016 | 0.0951 |
| 0.8099 | 913.2 | 2368.5 | 2255.0 | 2294.0 | -0.0140 | 0.0953 |
| 0.8119 | 915.7 | 2468.0 | 2255.5 | 2294.5 | 0.0206 | 0.0957 |
| 0.8139 | 918.1 | 2424.3 | 2255.9 | 2294.8 | -0.0089 | 0.0957 |
| 0.8159 | 920.5 | 2390.5 | 2256.3 | 2295.0 | -0.0070 | 0.0958 |
| 0.8179 | 922.9 | 2429.6 | 2256.7 | 2295.4 | 0.0081 | 0.0958 |
| 0.8199 | 925.3 | 2416.7 | 2257.1 | 2295.7 | -0.0027 | 0.0958 |
| 0.8219 | 927.7 | 2347.4 | 2257.3 | 2295.8 | -0.0146 | 0.0960 |
| 0.8239 | 930.1 | 2447.3 | 2257.8 | 2296.2 | 0.0208 | 0.0964 |
| 0.8259 | 932.6 | 2441.3 | 2258.2 | 2296.5 | -0.0012 | 0.0964 |
| 0.8279 | 934.9 | 2380.3 | 2258.5 | 2296.7 | -0.0127 | 0.0966 |
| 0.8299 | 937.2 | 2299.6 | 2258.6 | 2296.8 | -0.0173 | 0.0968 |
| 0.8319 | 939.6 | 2375.1 | 2258.9 | 2296.9 | 0.0162 | 0.0971 |
| 0.8339 | 942.1 | 2455.5 | 2259.3 | 2297.3 | 0.0166 | 0.0973 |
| 0.8359 | 944.6 | 2497.9 | 2259.9 | 2297.8 | 0.0086 | 0.0974 |
| 0.8379 | 947.1 | 2489.4 | 2260.5 | 2298.3 | -0.0017 | 0.0974 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CPT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 0.8399 | 950.4 | 3307.3 | 2263.0 | 2301.2 | 0.1411 | 0.1154 |
| 0.8419 | 953.3 | 2961.7 | 2264.6 | 2303.0 | -0.0551 | 0.1180 |
| 0.8439 | 956.7 | 3391.7 | 2267.3 | 2306.2 | 0.0677 | 0.1221 |
| 0.8459 | 959.5 | 2777.2 | 2268.5 | 2307.4 | -0.0996 | 0.1308 |
| 0.8479 | 962.1 | 2628.0 | 2269.3 | 2308.3 | -0.0276 | 0.1315 |
| 0.8499 | 964.8 | 2720.8 | 2270.4 | 2309.3 | 0.0173 | 0.1317 |
| 0.8519 | 968.2 | 3385.7 | 2273.0 | 2312.4 | 0.1089 | 0.1420 |
| 0.8539 | 972.7 | 4452.0 | 2278.1 | 2319.7 | 0.1360 | 0.1579 |
| 0.8559 | 975.9 | 3191.8 | 2280.3 | 2322.2 | -0.1649 | 0.1808 |
| 0.8579 | 978.5 | 2603.9 | 2281.0 | 2322.9 | -0.1014 | 0.1892 |
| 0.8599 | 981.5 | 3033.1 | 2282.8 | 2324.8 | 0.0762 | 0.1939 |
| 0.8619 | 984.0 | 2488.0 | 2283.2 | 2325.2 | -0.0987 | 0.2018 |
| 0.8639 | 986.5 | 2491.2 | 2283.7 | 2325.6 | 0.0006 | 0.2018 |
| 0.8659 | 989.0 | 2555.4 | 2284.4 | 2326.1 | 0.0127 | 0.2019 |
| 0.8679 | 991.6 | 2517.5 | 2284.9 | 2326.6 | -0.0075 | 0.2019 |
| 0.8699 | 994.1 | 2492.5 | 2285.4 | 2327.0 | -0.0050 | 0.2020 |
| 0.8719 | 996.5 | 2468.8 | 2285.8 | 2327.3 | -0.0048 | 0.2020 |
| 0.8739 | 999.1 | 2572.1 | 2286.4 | 2327.9 | 0.0205 | 0.2023 |
| 0.8759 | 1001.6 | 2518.2 | 2287.0 | 2328.3 | -0.0106 | 0.2024 |
| 0.8779 | 1004.1 | 2482.3 | 2287.4 | 2328.7 | -0.0072 | 0.2025 |
| 0.8799 | 1006.6 | 2541.0 | 2288.0 | 2329.2 | 0.0117 | 0.2026 |
| 0.8819 | 1009.2 | 2545.0 | 2288.6 | 2329.7 | 0.0008 | 0.2026 |
| 0.8839 | 1011.7 | 2505.1 | 2289.1 | 2330.1 | -0.0079 | 0.2026 |
| 0.8859 | 1014.1 | 2445.6 | 2289.4 | 2330.4 | -0.0120 | 0.2027 |
| 0.8879 | 1016.7 | 2552.0 | 2290.0 | 2330.9 | 0.0213 | 0.2031 |
| 0.8899 | 1019.3 | 2571.4 | 2290.6 | 2331.5 | 0.0038 | 0.2031 |
| 0.8919 | 1021.8 | 2581.9 | 2291.3 | 2332.1 | 0.0020 | 0.2031 |
| 0.8939 | 1024.4 | 2592.5 | 2292.0 | 2332.7 | 0.0021 | 0.2031 |
| 0.8959 | 1027.1 | 2621.6 | 2292.7 | 2333.4 | 0.0056 | 0.2031 |
| 0.8979 | 1029.6 | 2557.9 | 2293.3 | 2333.9 | -0.0123 | 0.2033 |
| 0.8999 | 1032.2 | 2583.4 | 2293.9 | 2334.5 | 0.0050 | 0.2033 |
| 0.9019 | 1034.8 | 2592.5 | 2294.6 | 2335.1 | 0.0018 | 0.2033 |
| 0.9039 | 1037.4 | 2614.5 | 2295.3 | 2335.8 | 0.0042 | 0.2033 |
| 0.9059 | 1040.0 | 2566.4 | 2295.9 | 2336.3 | -0.0093 | 0.2034 |
| 0.9079 | 1042.7 | 2709.8 | 2296.8 | 2337.2 | 0.0272 | 0.2039 |
| 0.9099 | 1045.3 | 2622.9 | 2297.5 | 2337.8 | -0.0163 | 0.2042 |
| 0.9119 | 1047.9 | 2608.5 | 2298.2 | 2338.5 | -0.0028 | 0.2042 |
| 0.9139 | 1050.5 | 2593.3 | 2298.9 | 2339.1 | -0.0029 | 0.2042 |
| 0.9159 | 1053.1 | 2578.7 | 2299.5 | 2339.6 | -0.0028 | 0.2042 |
| 0.9179 | 1055.7 | 2631.8 | 2300.2 | 2340.3 | 0.0102 | 0.2043 |
| 0.9199 | 1058.3 | 2557.0 | 2300.8 | 2340.8 | -0.0144 | 0.2044 |
| 0.9219 | 1060.7 | 2451.4 | 2301.1 | 2341.0 | -0.0211 | 0.2048 |
| 0.9239 | 1063.2 | 2516.2 | 2301.5 | 2341.4 | 0.0130 | 0.2049 |
| 0.9259 | 1065.8 | 2594.5 | 2302.2 | 2342.0 | 0.0153 | 0.2051 |
| 0.9279 | 1068.3 | 2481.9 | 2302.6 | 2342.3 | -0.0222 | 0.2055 |
| 0.9299 | 1070.9 | 2543.9 | 2303.1 | 2342.8 | 0.0123 | 0.2056 |
| 0.9319 | 1073.4 | 2582.2 | 2303.7 | 2343.3 | 0.0075 | 0.2057 |
| 0.9339 | 1076.1 | 2613.0 | 2304.3 | 2343.9 | 0.0059 | 0.2057 |
| 0.9359 | 1078.6 | 2593.9 | 2305.0 | 2344.5 | -0.0037 | 0.2057 |
| 0.9379 | 1081.2 | 2579.3 | 2305.6 | 2345.0 | -0.0028 | 0.2057 |
| 0.9399 | 1083.9 | 2634.4 | 2306.2 | 2345.6 | 0.0106 | 0.2058 |
| 0.9419 | 1086.5 | 2635.5 | 2306.9 | 2346.3 | 0.0002 | 0.2058 |
| 0.9439 | 1089.1 | 2640.4 | 2307.7 | 2347.0 | 0.0009 | 0.2058 |
| 0.9459 | 1091.8 | 2695.8 | 2308.5 | 2347.8 | 0.0104 | 0.2059 |
| 0.9479 | 1094.5 | 2690.6 | 2309.3 | 2348.5 | -0.0010 | 0.2059 |
| 0.9499 | 1097.3 | 2736.6 | 2310.2 | 2349.4 | 0.0085 | 0.2059 |
| 0.9519 | 1100.0 | 2757.0 | 2311.1 | 2350.3 | 0.0037 | 0.2059 |
| 0.9539 | 1102.7 | 2724.1 | 2312.0 | 2351.2 | -0.0060 | 0.2060 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CPT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 0.9559 | 1105.5 | 2745.8 | 2312.9 | 2352.1 | 0.0040 | 0.2060 |
| 0.9579 | 1108.2 | 2728.6 | 2313.8 | 2352.9 | -0.0031 | 0.2060 |
| 0.9599 | 1111.0 | 2762.6 | 2314.7 | 2353.9 | 0.0062 | 0.2060 |
| 0.9619 | 1113.8 | 2815.7 | 2315.7 | 2354.9 | 0.0095 | 0.2061 |
| 0.9639 | 1116.6 | 2771.9 | 2316.7 | 2355.9 | -0.0078 | 0.2061 |
| 0.9659 | 1119.3 | 2698.1 | 2317.5 | 2356.6 | -0.0135 | 0.2063 |
| 0.9679 | 1121.9 | 2658.1 | 2318.2 | 2357.3 | -0.0075 | 0.2063 |
| 0.9699 | 1124.6 | 2645.3 | 2318.9 | 2357.9 | -0.0024 | 0.2063 |
| 0.9719 | 1127.2 | 2604.5 | 2319.4 | 2358.4 | -0.0078 | 0.2064 |
| 0.9739 | 1129.8 | 2629.6 | 2320.1 | 2359.0 | 0.0048 | 0.2064 |
| 0.9759 | 1132.4 | 2640.4 | 2320.7 | 2359.6 | 0.0020 | 0.2064 |
| 0.9779 | 1135.1 | 2639.5 | 2321.4 | 2360.3 | -0.0002 | 0.2064 |
| 0.9799 | 1137.8 | 2703.7 | 2322.2 | 2361.0 | 0.0120 | 0.2065 |
| 0.9819 | 1140.5 | 2722.7 | 2323.0 | 2361.8 | 0.0035 | 0.2065 |
| 0.9839 | 1143.2 | 2729.6 | 2323.8 | 2362.6 | 0.0013 | 0.2065 |
| 0.9859 | 1146.0 | 2717.7 | 2324.6 | 2363.4 | -0.0022 | 0.2065 |
| 0.9879 | 1148.7 | 2705.3 | 2325.4 | 2364.1 | -0.0023 | 0.2065 |
| 0.9899 | 1151.4 | 2690.8 | 2326.1 | 2364.8 | -0.0027 | 0.2065 |
| 0.9919 | 1154.1 | 2705.9 | 2326.9 | 2365.6 | 0.0028 | 0.2066 |
| 0.9939 | 1156.7 | 2679.9 | 2327.6 | 2366.2 | -0.0048 | 0.2066 |
| 0.9959 | 1159.5 | 2746.0 | 2328.4 | 2367.1 | 0.0122 | 0.2067 |
| 0.9979 | 1162.2 | 2756.7 | 2329.3 | 2367.9 | 0.0020 | 0.2067 |
| 0.9999 | 1165.0 | 2807.7 | 2330.2 | 2368.9 | 0.0092 | 0.2068 |
| 1.0019 | 1167.8 | 2743.8 | 2331.1 | 2369.7 | -0.0115 | 0.2069 |
| 1.0039 | 1170.6 | 2767.1 | 2331.9 | 2370.5 | 0.0042 | 0.2069 |
| 1.0059 | 1173.3 | 2776.0 | 2332.8 | 2371.4 | 0.0016 | 0.2069 |
| 1.0079 | 1176.1 | 2778.0 | 2333.7 | 2372.3 | 0.0004 | 0.2069 |
| 1.0099 | 1179.0 | 2858.3 | 2334.7 | 2373.3 | 0.0143 | 0.2070 |
| 1.0119 | 1182.2 | 3252.3 | 2336.6 | 2375.4 | 0.0645 | 0.2103 |
| 1.0139 | 1185.3 | 3080.9 | 2338.0 | 2377.0 | -0.0271 | 0.2109 |
| 1.0159 | 1188.3 | 3001.7 | 2339.3 | 2378.4 | -0.0130 | 0.2110 |
| 1.0179 | 1191.2 | 2871.6 | 2340.4 | 2379.5 | -0.0222 | 0.2114 |
| 1.0199 | 1194.0 | 2859.9 | 2341.4 | 2380.5 | -0.0020 | 0.2114 |
| 1.0219 | 1196.9 | 2858.2 | 2342.4 | 2381.5 | -0.0003 | 0.2114 |
| 1.0239 | 1199.7 | 2757.4 | 2343.2 | 2382.3 | -0.0179 | 0.2117 |
| 1.0259 | 1202.3 | 2673.3 | 2343.9 | 2382.9 | -0.0155 | 0.2119 |
| 1.0279 | 1205.0 | 2659.5 | 2344.5 | 2383.5 | -0.0026 | 0.2119 |
| 1.0299 | 1207.6 | 2582.9 | 2344.9 | 2383.9 | -0.0146 | 0.2121 |
| 1.0319 | 1210.2 | 2602.1 | 2345.4 | 2384.3 | 0.0037 | 0.2121 |
| 1.0339 | 1212.8 | 2672.1 | 2346.1 | 2384.9 | 0.0133 | 0.2122 |
| 1.0359 | 1215.5 | 2640.5 | 2346.6 | 2385.4 | -0.0060 | 0.2122 |
| 1.0379 | 1218.1 | 2637.3 | 2347.2 | 2386.0 | -0.0006 | 0.2122 |
| 1.0399 | 1220.9 | 2815.7 | 2348.1 | 2386.9 | 0.0327 | 0.2131 |
| 1.0419 | 1223.7 | 2811.4 | 2349.0 | 2387.7 | -0.0008 | 0.2131 |
| 1.0439 | 1226.6 | 2803.7 | 2349.9 | 2388.6 | -0.0014 | 0.2131 |
| 1.0459 | 1229.2 | 2688.2 | 2350.5 | 2389.2 | -0.0210 | 0.2134 |
| 1.0479 | 1231.9 | 2652.1 | 2351.1 | 2389.7 | -0.0068 | 0.2135 |
| 1.0499 | 1234.5 | 2608.0 | 2351.6 | 2390.2 | -0.0084 | 0.2135 |
| 1.0519 | 1237.2 | 2726.7 | 2352.3 | 2390.9 | 0.0222 | 0.2139 |
| 1.0539 | 1240.1 | 2916.9 | 2353.4 | 2392.0 | 0.0337 | 0.2148 |
| 1.0559 | 1242.8 | 2701.2 | 2354.0 | 2392.6 | -0.0384 | 0.2160 |
| 1.0579 | 1245.7 | 2816.7 | 2354.9 | 2393.5 | 0.0209 | 0.2163 |
| 1.0599 | 1248.5 | 2816.8 | 2355.8 | 2394.3 | 0.0000 | 0.2163 |
| 1.0619 | 1251.5 | 3016.8 | 2357.0 | 2395.7 | 0.0343 | 0.2172 |
| 1.0639 | 1254.3 | 2757.7 | 2357.8 | 2396.4 | -0.0449 | 0.2188 |
| 1.0659 | 1257.2 | 2914.6 | 2358.8 | 2397.5 | 0.0277 | 0.2194 |
| 1.0679 | 1259.8 | 2605.5 | 2359.3 | 2397.9 | -0.0560 | 0.2218 |
| 1.0699 | 1262.5 | 2750.2 | 2360.0 | 2398.6 | 0.0270 | 0.2224 |

0.05

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.0719 | 1265.3 | 2758.4 | 2360.7 | 2399.3 | 0.0015 | 0.2224 |
| 1.0739 | 1268.3 | 3041.7 | 2362.0 | 2400.7 | 0.0488 | 0.2243 |
| 1.0759 | 1271.0 | 2711.5 | 2362.7 | 2401.3 | -0.0574 | 0.2268 |
| 1.0779 | 1273.8 | 2734.1 | 2363.4 | 2401.9 | 0.0041 | 0.2268 |
| 1.0799 | 1276.5 | 2755.6 | 2364.1 | 2402.6 | 0.0039 | 0.2269 |
| 1.0819 | 1279.4 | 2826.7 | 2364.9 | 2403.5 | 0.0127 | 0.2270 |
| 1.0839 | 1282.3 | 2956.9 | 2366.0 | 2404.6 | 0.0225 | 0.2274 |
| 1.0859 | 1285.1 | 2757.7 | 2366.7 | 2405.3 | -0.0349 | 0.2283 |
| 1.0879 | 1288.0 | 2902.1 | 2367.7 | 2406.3 | 0.0255 | 0.2288 |
| 1.0899 | 1290.8 | 2867.4 | 2368.6 | 2407.3 | -0.0060 | 0.2288 |
| 1.0919 | 1293.6 | 2805.4 | 2369.4 | 2408.1 | -0.0109 | 0.2289 |
| 1.0939 | 1296.4 | 2789.9 | 2370.2 | 2408.8 | -0.0028 | 0.2289 |
| 1.0959 | 1299.2 | 2807.5 | 2371.0 | 2409.6 | 0.0031 | 0.2289 |
| 1.0979 | 1302.0 | 2801.6 | 2371.8 | 2410.4 | -0.0010 | 0.2289 |
| 1.0999 | 1304.9 | 2871.5 | 2372.7 | 2411.3 | 0.0123 | 0.2291 |
| 1.1019 | 1307.9 | 2961.8 | 2373.8 | 2412.4 | 0.0155 | 0.2292 |
| 1.1039 | 1310.7 | 2783.3 | 2374.5 | 2413.1 | -0.0311 | 0.2300 |
| 1.1059 | 1313.7 | 3029.5 | 2375.7 | 2414.4 | 0.0424 | 0.2314 |
| 1.1079 | 1316.7 | 2996.7 | 2376.8 | 2415.6 | -0.0054 | 0.2314 |
| 1.1099 | 1319.4 | 2686.4 | 2377.4 | 2416.1 | -0.0546 | 0.2337 |
| 1.1119 | 1322.2 | 2818.1 | 2378.2 | 2416.9 | 0.0239 | 0.2341 |
| 1.1139 | 1325.2 | 2983.9 | 2379.3 | 2418.0 | 0.0286 | 0.2347 |
| 1.1159 | 1327.9 | 2695.2 | 2379.8 | 2418.5 | -0.0508 | 0.2367 |
| 1.1179 | 1330.8 | 2916.5 | 2380.8 | 2419.5 | 0.0394 | 0.2379 |
| 1.1199 | 1333.8 | 2981.4 | 2381.9 | 2420.6 | 0.0110 | 0.2380 |
| 1.1219 | 1336.7 | 2977.2 | 2382.9 | 2421.7 | -0.0007 | 0.2380 |
| 1.1239 | 1339.7 | 3003.5 | 2384.0 | 2422.9 | 0.0044 | 0.2380 |
| 1.1259 | 1342.7 | 2932.5 | 2385.0 | 2423.9 | -0.0120 | 0.2381 |
| 1.1279 | 1345.5 | 2841.1 | 2385.8 | 2424.7 | -0.0158 | 0.2383 |
| 1.1299 | 1348.4 | 2845.1 | 2386.6 | 2425.5 | 0.0007 | 0.2383 |
| 1.1319 | 1351.3 | 2941.3 | 2387.6 | 2426.5 | 0.0166 | 0.2385 |
| 1.1339 | 1354.2 | 2940.6 | 2388.6 | 2427.5 | -0.0001 | 0.2385 |
| 1.1359 | 1357.0 | 2768.6 | 2389.2 | 2428.1 | -0.0301 | 0.2392 |
| 1.1379 | 1360.0 | 2992.8 | 2390.3 | 2429.3 | 0.0389 | 0.2404 |
| 1.1399 | 1362.9 | 2925.5 | 2391.2 | 2430.2 | -0.0114 | 0.2405 |
| 1.1419 | 1365.8 | 2880.1 | 2392.1 | 2431.1 | -0.0078 | 0.2405 |
| 1.1439 | 1368.9 | 3136.2 | 2393.4 | 2432.5 | 0.0426 | 0.2419 |
| 1.1459 | 1371.8 | 2859.6 | 2394.2 | 2433.3 | -0.0461 | 0.2435 |
| 1.1479 | 1374.8 | 3019.7 | 2395.3 | 2434.4 | 0.0272 | 0.2441 |
| 1.1499 | 1377.7 | 2870.5 | 2396.1 | 2435.3 | -0.0253 | 0.2446 |
| 1.1519 | 1380.6 | 2943.4 | 2397.1 | 2436.2 | 0.0125 | 0.2447 |
| 1.1539 | 1383.5 | 2897.7 | 2398.0 | 2437.1 | -0.0078 | 0.2447 |
| 1.1559 | 1386.6 | 3032.3 | 2399.0 | 2438.3 | 0.0227 | 0.2451 |
| 1.1579 | 1389.6 | 3010.9 | 2400.1 | 2439.4 | -0.0036 | 0.2451 |
| 1.1599 | 1392.5 | 2959.8 | 2401.1 | 2440.4 | -0.0085 | 0.2452 |
| 1.1619 | 1395.5 | 2976.8 | 2402.1 | 2441.4 | 0.0029 | 0.2452 |
| 1.1639 | 1398.5 | 2973.9 | 2403.0 | 2442.4 | -0.0005 | 0.2452 |
| 1.1659 | 1401.4 | 2886.7 | 2403.9 | 2443.2 | -0.0149 | 0.2453 |
| 1.1679 | 1404.2 | 2828.6 | 2404.6 | 2444.0 | -0.0102 | 0.2454 |
| 1.1699 | 1406.9 | 2688.8 | 2405.1 | 2444.4 | -0.0253 | 0.2459 |
| 1.1719 | 1409.7 | 2782.6 | 2405.7 | 2445.0 | 0.0171 | 0.2461 |
| 1.1739 | 1412.6 | 2894.4 | 2406.6 | 2445.8 | 0.0197 | 0.2464 |
| 1.1759 | 1415.5 | 2943.0 | 2407.5 | 2446.8 | 0.0083 | 0.2465 |
| 1.1779 | 1418.4 | 2833.7 | 2408.2 | 2447.5 | -0.0189 | 0.2467 |
| 1.1799 | 1421.1 | 2766.0 | 2408.8 | 2448.1 | -0.0121 | 0.2469 |
| 1.1819 | 1424.1 | 2949.8 | 2409.7 | 2449.0 | 0.0322 | 0.2476 |
| 1.1839 | 1426.9 | 2879.2 | 2410.5 | 2449.8 | -0.0121 | 0.2477 |
| 1.1859 | 1429.8 | 2820.7 | 2411.2 | 2450.5 | -0.0103 | 0.2478 |

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|--------|--------|--------|--------|--------|---------|--------|
| 1.1879 | 1432.6 | 2859.0 | 2412.0 | 2451.2 | 0.0067 | 0.2479 |
| 1.1899 | 1435.6 | 2964.8 | 2412.9 | 2452.2 | 0.0182 | 0.2481 |
| 1.1919 | 1438.6 | 3002.8 | 2413.9 | 2453.2 | 0.0064 | 0.2481 |
| 1.1939 | 1441.7 | 3114.1 | 2415.1 | 2454.4 | 0.0182 | 0.2484 |
| 1.1959 | 1444.7 | 2995.8 | 2416.0 | 2455.4 | -0.0194 | 0.2487 |
| 1.1979 | 1447.6 | 2932.9 | 2416.9 | 2456.3 | -0.0106 | 0.2488 |
| 1.1999 | 1450.4 | 2733.4 | 2417.4 | 2456.8 | -0.0352 | 0.2497 |
| 1.2019 | 1453.3 | 2920.4 | 2418.3 | 2457.7 | 0.0331 | 0.2505 |
| 1.2039 | 1456.3 | 3002.2 | 2419.2 | 2458.7 | 0.0138 | 0.2506 |
| 1.2059 | 1459.1 | 2795.0 | 2419.8 | 2459.3 | -0.0357 | 0.2516 |
| 1.2079 | 1461.9 | 2836.5 | 2420.5 | 2459.9 | 0.0074 | 0.2516 |
| 1.2099 | 1465.1 | 3167.5 | 2421.8 | 2461.3 | 0.0551 | 0.2539 |
| 1.2119 | 1467.9 | 2807.1 | 2422.4 | 2461.9 | -0.0603 | 0.2566 |
| 1.2139 | 1470.7 | 2804.9 | 2423.0 | 2462.5 | -0.0004 | 0.2566 |
| 1.2159 | 1473.6 | 2928.0 | 2423.9 | 2463.3 | 0.0215 | 0.2570 |
| 1.2179 | 1476.5 | 2874.6 | 2424.6 | 2464.0 | -0.0092 | 0.2570 |
| 1.2199 | 1479.4 | 2899.9 | 2425.4 | 2464.8 | 0.0044 | 0.2571 |
| 1.2219 | 1482.5 | 3055.1 | 2426.4 | 2465.9 | 0.0261 | 0.2576 |
| 1.2239 | 1485.4 | 2900.0 | 2427.2 | 2466.7 | -0.0260 | 0.2581 |
| 1.2259 | 1488.3 | 2914.9 | 2428.0 | 2467.5 | 0.0026 | 0.2581 |
| 1.2279 | 1491.2 | 2958.6 | 2428.8 | 2468.4 | 0.0074 | 0.2581 |
| 1.2299 | 1495.4 | 4168.7 | 2431.7 | 2472.1 | 0.1698 | 0.2795 |
| 1.2319 | 1498.4 | 3012.0 | 2432.6 | 2473.0 | -0.1611 | 0.2982 |
| 1.2339 | 1501.5 | 3056.8 | 2433.6 | 2474.1 | 0.0074 | 0.2982 |
| 1.2359 | 1504.4 | 2964.5 | 2434.5 | 2475.0 | -0.0153 | 0.2984 |
| 1.2379 | 1507.4 | 2932.6 | 2435.3 | 2475.8 | -0.0054 | 0.2984 |
| 1.2399 | 1510.3 | 2946.4 | 2436.1 | 2476.6 | 0.0023 | 0.2984 |
| 1.2419 | 1513.2 | 2864.0 | 2436.8 | 2477.3 | -0.0142 | 0.2986 |
| 1.2439 | 1517.1 | 3903.3 | 2439.2 | 2480.2 | 0.1536 | 0.3151 |
| 1.2459 | 1520.2 | 3151.2 | 2440.3 | 2481.5 | -0.1066 | 0.3229 |
| 1.2479 | 1523.1 | 2844.1 | 2441.0 | 2482.1 | -0.0512 | 0.3247 |
| 1.2499 | 1525.8 | 2751.7 | 2441.5 | 2482.5 | -0.0165 | 0.3248 |
| 1.2519 | 1528.6 | 2802.7 | 2442.0 | 2483.1 | 0.0092 | 0.3249 |
| 1.2539 | 1531.4 | 2794.7 | 2442.6 | 2483.6 | -0.0014 | 0.3249 |
| 1.2559 | 1534.1 | 2673.5 | 2443.0 | 2483.9 | -0.0222 | 0.3252 |
| 1.2579 | 1536.9 | 2794.1 | 2443.5 | 2484.4 | 0.0221 | 0.3256 |
| 1.2599 | 1539.6 | 2743.5 | 2444.0 | 2484.9 | -0.0091 | 0.3256 |
| 1.2619 | 1542.2 | 2600.7 | 2444.2 | 2485.1 | -0.0267 | 0.3261 |
| 1.2639 | 1544.8 | 2595.1 | 2444.5 | 2485.2 | -0.0011 | 0.3261 |
| 1.2659 | 1547.4 | 2594.0 | 2444.7 | 2485.4 | -0.0002 | 0.3261 |
| 1.2679 | 1550.0 | 2591.6 | 2445.0 | 2485.6 | -0.0005 | 0.3261 |
| 1.2699 | 1552.9 | 2886.4 | 2445.6 | 2486.3 | 0.0538 | 0.3281 |
| 1.2719 | 1555.8 | 2854.6 | 2446.3 | 2486.9 | -0.0055 | 0.3281 |
| 1.2739 | 1558.5 | 2715.1 | 2446.7 | 2487.3 | -0.0251 | 0.3285 |
| 1.2759 | 1561.1 | 2641.2 | 2447.0 | 2487.5 | -0.0138 | 0.3286 |
| 1.2779 | 1563.8 | 2701.7 | 2447.4 | 2487.9 | 0.0113 | 0.3287 |
| 1.2799 | 1566.4 | 2570.6 | 2447.6 | 2488.0 | -0.0249 | 0.3291 |
| 1.2819 | 1569.0 | 2575.3 | 2447.8 | 2488.1 | 0.0009 | 0.3291 |
| 1.2839 | 1571.5 | 2575.0 | 2448.0 | 2488.3 | -0.0001 | 0.3291 |
| 1.2859 | 1574.1 | 2565.3 | 2448.2 | 2488.4 | -0.0019 | 0.3291 |
| 1.2879 | 1576.7 | 2559.6 | 2448.4 | 2488.5 | -0.0011 | 0.3291 |
| 1.2899 | 1579.2 | 2577.6 | 2448.6 | 2488.7 | 0.0035 | 0.3291 |
| 1.2919 | 1581.8 | 2580.4 | 2448.8 | 2488.8 | 0.0005 | 0.3291 |
| 1.2939 | 1584.4 | 2577.4 | 2449.0 | 2488.9 | -0.0006 | 0.3291 |
| 1.2959 | 1587.0 | 2552.5 | 2449.1 | 2489.0 | -0.0049 | 0.3292 |
| 1.2979 | 1589.5 | 2587.4 | 2449.3 | 2489.2 | 0.0068 | 0.3292 |
| 1.2999 | 1592.1 | 2581.8 | 2449.5 | 2489.3 | -0.0011 | 0.3292 |
| 1.3019 | 1594.7 | 2626.2 | 2449.8 | 2489.6 | 0.0085 | 0.3292 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.3039 | 1597.4 | 2614.7 | 2450.1 | 2489.7 | -0.0022 | 0.3292 |
| 1.3059 | 1600.2 | 2821.5 | 2450.6 | 2490.3 | 0.0380 | 0.3302 |
| 1.3079 | 1602.9 | 2686.4 | 2451.0 | 2490.6 | -0.0245 | 0.3306 |
| 1.3099 | 1605.6 | 2717.9 | 2451.4 | 2491.0 | 0.0058 | 0.3306 |
| 1.3119 | 1609.0 | 3417.1 | 2452.9 | 2492.6 | 0.1140 | 0.3393 |
| 1.3139 | 1611.6 | 2555.1 | 2453.0 | 2492.7 | -0.1443 | 0.3531 |
| 1.3159 | 1614.2 | 2604.4 | 2453.3 | 2492.9 | 0.0096 | 0.3532 |
| 1.3179 | 1616.8 | 2634.0 | 2453.5 | 2493.1 | 0.0057 | 0.3532 |
| 1.3199 | 1619.5 | 2711.5 | 2453.9 | 2493.5 | 0.0145 | 0.3533 |
| 1.3219 | 1622.3 | 2767.6 | 2454.4 | 2493.9 | 0.0102 | 0.3534 |
| 1.3239 | 1625.1 | 2812.0 | 2454.9 | 2494.4 | 0.0080 | 0.3534 |
| 1.3259 | 1627.9 | 2827.3 | 2455.5 | 2495.0 | 0.0027 | 0.3534 |
| 1.3279 | 1630.7 | 2828.5 | 2456.1 | 2495.5 | 0.0002 | 0.3534 |
| 1.3299 | 1633.5 | 2724.7 | 2456.5 | 2495.9 | -0.0187 | 0.3537 |
| 1.3319 | 1636.3 | 2794.7 | 2457.0 | 2496.3 | 0.0127 | 0.3538 |
| 1.3339 | 1639.0 | 2733.2 | 2457.4 | 2496.7 | -0.0111 | 0.3538 |
| 1.3359 | 1641.7 | 2654.3 | 2457.7 | 2496.9 | -0.0146 | 0.3540 |
| 1.3379 | 1644.3 | 2611.9 | 2457.9 | 2497.1 | -0.0080 | 0.3540 |
| 1.3399 | 1647.2 | 2922.4 | 2458.6 | 2497.8 | 0.0561 | 0.3560 |
| 1.3419 | 1650.1 | 2882.9 | 2459.2 | 2498.4 | -0.0068 | 0.3561 |
| 1.3439 | 1652.7 | 2631.6 | 2459.5 | 2498.6 | -0.0456 | 0.3574 |
| 1.3459 | 1655.3 | 2633.7 | 2459.8 | 2498.8 | 0.0004 | 0.3574 |
| 1.3479 | 1658.0 | 2633.7 | 2460.0 | 2499.0 | 0.0000 | 0.3574 |
| 1.3499 | 1660.9 | 2944.5 | 2460.7 | 2499.8 | 0.0557 | 0.3594 |
| 1.3519 | 1663.8 | 2907.2 | 2461.4 | 2500.4 | -0.0064 | 0.3594 |
| 1.3539 | 1666.4 | 2626.8 | 2461.6 | 2500.6 | -0.0507 | 0.3611 |
| 1.3559 | 1669.2 | 2739.7 | 2462.0 | 2501.0 | 0.0210 | 0.3614 |
| 1.3579 | 1672.0 | 2820.1 | 2462.6 | 2501.5 | 0.0144 | 0.3615 |
| 1.3599 | 1674.8 | 2754.3 | 2463.0 | 2501.9 | -0.0118 | 0.3616 |
| 1.3619 | 1677.7 | 2985.6 | 2463.8 | 2502.6 | 0.0403 | 0.3626 |
| 1.3639 | 1681.1 | 3309.0 | 2465.0 | 2504.0 | 0.0514 | 0.3643 |
| 1.3659 | 1683.8 | 2735.8 | 2465.4 | 2504.4 | -0.0948 | 0.3700 |
| 1.3679 | 1686.6 | 2824.2 | 2465.9 | 2504.9 | 0.0159 | 0.3702 |
| 1.3699 | 1689.3 | 2729.1 | 2466.3 | 2505.2 | -0.0171 | 0.3704 |
| 1.3719 | 1692.4 | 3080.0 | 2467.2 | 2506.1 | 0.0604 | 0.3727 |
| 1.3739 | 1695.2 | 2799.9 | 2467.7 | 2506.6 | -0.0476 | 0.3741 |
| 1.3759 | 1698.2 | 3019.7 | 2468.5 | 2507.4 | 0.0378 | 0.3750 |
| 1.3779 | 1701.0 | 2765.4 | 2468.9 | 2507.8 | -0.0440 | 0.3762 |
| 1.3799 | 1703.8 | 2795.9 | 2469.4 | 2508.3 | 0.0055 | 0.3762 |
| 1.3819 | 1706.8 | 2973.9 | 2470.1 | 2509.0 | 0.0308 | 0.3768 |
| 1.3839 | 1709.6 | 2861.2 | 2470.7 | 2509.5 | -0.0193 | 0.3770 |
| 1.3859 | 1712.5 | 2824.5 | 2471.2 | 2510.0 | -0.0065 | 0.3771 |
| 1.3879 | 1715.2 | 2719.7 | 2471.6 | 2510.3 | -0.0189 | 0.3773 |
| 1.3899 | 1718.0 | 2789.3 | 2472.0 | 2510.8 | 0.0126 | 0.3774 |
| 1.3919 | 1720.7 | 2723.0 | 2472.4 | 2511.1 | -0.0120 | 0.3775 |
| 1.3939 | 1723.3 | 2602.9 | 2472.6 | 2511.2 | -0.0226 | 0.3778 |
| 1.3959 | 1725.9 | 2628.2 | 2472.8 | 2511.4 | 0.0048 | 0.3778 |
| 1.3979 | 1728.5 | 2558.7 | 2472.9 | 2511.4 | -0.0134 | 0.3779 |
| 1.3999 | 1731.1 | 2600.5 | 2473.1 | 2511.6 | 0.0081 | 0.3779 |
| 1.4019 | 1733.7 | 2604.1 | 2473.3 | 2511.7 | 0.0007 | 0.3779 |
| 1.4039 | 1736.3 | 2591.9 | 2473.5 | 2511.8 | -0.0023 | 0.3780 |
| 1.4059 | 1738.9 | 2650.0 | 2473.7 | 2512.0 | 0.0111 | 0.3780 |
| 1.4079 | 1742.0 | 3049.0 | 2474.5 | 2512.9 | 0.0700 | 0.3811 |
| 1.4099 | 1744.5 | 2556.6 | 2474.6 | 2512.9 | -0.0878 | 0.3858 |
| 1.4119 | 1747.1 | 2606.4 | 2474.8 | 2513.1 | 0.0096 | 0.3859 |
| 1.4139 | 1750.0 | 2842.3 | 2475.3 | 2513.6 | 0.0433 | 0.3871 |
| 1.4159 | 1752.8 | 2838.1 | 2475.9 | 2514.1 | -0.0007 | 0.3871 |
| 1.4179 | 1755.4 | 2562.6 | 2476.0 | 2514.1 | -0.0510 | 0.3887 |

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| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.4199 | 1758.1 | 2734.6 | 2476.3 | 2514.4 | 0.0325 | 0.3893 |
| 1.4219 | 1760.9 | 2771.5 | 2476.8 | 2514.8 | 0.0067 | 0.3893 |
| 1.4239 | 1764.1 | 3233.2 | 2477.8 | 2516.0 | 0.0769 | 0.3929 |
| 1.4259 | 1767.1 | 2977.2 | 2478.5 | 2516.7 | -0.0412 | 0.3940 |
| 1.4279 | 1769.8 | 2687.3 | 2478.8 | 2516.9 | -0.0512 | 0.3956 |
| 1.4299 | 1772.4 | 2613.6 | 2479.0 | 2517.1 | -0.0139 | 0.3957 |
| 1.4319 | 1775.1 | 2669.2 | 2479.3 | 2517.3 | 0.0105 | 0.3957 |
| 1.4339 | 1777.7 | 2657.7 | 2479.5 | 2517.5 | -0.0022 | 0.3957 |
| 1.4359 | 1780.3 | 2520.3 | 2479.6 | 2517.5 | -0.0265 | 0.3962 |
| 1.4379 | 1782.9 | 2634.5 | 2479.8 | 2517.7 | 0.0222 | 0.3965 |
| 1.4399 | 1785.5 | 2637.1 | 2480.0 | 2517.8 | 0.0005 | 0.3965 |
| 1.4419 | 1788.2 | 2637.8 | 2480.2 | 2518.0 | 0.0001 | 0.3965 |
| 1.4439 | 1790.7 | 2571.4 | 2480.4 | 2518.1 | -0.0127 | 0.3966 |
| 1.4459 | 1793.3 | 2546.1 | 2480.4 | 2518.1 | -0.0049 | 0.3966 |
| 1.4479 | 1795.8 | 2529.7 | 2480.5 | 2518.1 | -0.0032 | 0.3966 |
| 1.4499 | 1798.3 | 2529.7 | 2480.6 | 2518.1 | 0.0000 | 0.3966 |
| 1.4519 | 1800.9 | 2509.5 | 2480.6 | 2518.1 | -0.0040 | 0.3966 |
| 1.4539 | 1803.4 | 2525.0 | 2480.7 | 2518.1 | 0.0031 | 0.3966 |
| 1.4559 | 1806.0 | 2600.6 | 2480.8 | 2518.3 | 0.0147 | 0.3967 |
| 1.4579 | 1808.6 | 2620.1 | 2481.0 | 2518.4 | 0.0037 | 0.3967 |
| 1.4599 | 1811.3 | 2654.7 | 2481.3 | 2518.6 | 0.0065 | 0.3968 |
| 1.4619 | 1813.9 | 2678.1 | 2481.5 | 2518.8 | 0.0044 | 0.3968 |
| 1.4639 | 1816.7 | 2799.7 | 2482.0 | 2519.2 | 0.0222 | 0.3971 |
| 1.4659 | 1819.5 | 2757.2 | 2482.4 | 2519.6 | -0.0076 | 0.3971 |
| 1.4679 | 1822.4 | 2949.5 | 2483.0 | 2520.2 | 0.0337 | 0.3978 |
| 1.4699 | 1825.2 | 2781.4 | 2483.4 | 2520.6 | -0.0293 | 0.3983 |
| 1.4719 | 1827.8 | 2627.7 | 2483.6 | 2520.7 | -0.0284 | 0.3988 |
| 1.4739 | 1830.7 | 2886.5 | 2484.1 | 2521.3 | 0.0469 | 0.4001 |
| 1.4759 | 1833.5 | 2763.4 | 2484.5 | 2521.6 | -0.0218 | 0.4004 |
| 1.4779 | 1836.3 | 2781.6 | 2484.9 | 2522.0 | 0.0033 | 0.4004 |
| 1.4799 | 1839.1 | 2796.0 | 2485.3 | 2522.4 | 0.0026 | 0.4004 |
| 1.4819 | 1841.9 | 2819.9 | 2485.8 | 2522.8 | 0.0043 | 0.4004 |
| 1.4839 | 1844.5 | 2636.5 | 2486.0 | 2522.9 | -0.0336 | 0.4011 |
| 1.4859 | 1847.3 | 2780.5 | 2486.4 | 2523.3 | 0.0266 | 0.4015 |
| 1.4879 | 1850.1 | 2746.0 | 2486.7 | 2523.6 | -0.0063 | 0.4015 |
| 1.4899 | 1852.9 | 2804.6 | 2487.2 | 2524.0 | 0.0106 | 0.4016 |
| 1.4919 | 1855.9 | 2998.0 | 2487.9 | 2524.7 | 0.0333 | 0.4023 |
| 1.4939 | 1858.6 | 2781.6 | 2488.2 | 2525.1 | -0.0374 | 0.4031 |
| 1.4959 | 1861.4 | 2781.9 | 2488.6 | 2525.4 | 0.0000 | 0.4031 |
| 1.4979 | 1864.2 | 2804.9 | 2489.1 | 2525.8 | 0.0041 | 0.4031 |
| 1.4999 | 1867.0 | 2740.4 | 2489.4 | 2526.1 | -0.0116 | 0.4032 |
| 1.5019 | 1869.9 | 2935.5 | 2490.0 | 2526.7 | 0.0344 | 0.4039 |
| 1.5039 | 1872.8 | 2880.9 | 2490.5 | 2527.2 | -0.0094 | 0.4040 |
| 1.5059 | 1875.7 | 2902.0 | 2491.1 | 2527.8 | 0.0037 | 0.4040 |
| 1.5079 | 1878.6 | 2885.1 | 2491.6 | 2528.3 | -0.0029 | 0.4040 |
| 1.5099 | 1881.5 | 2881.3 | 2492.1 | 2528.8 | -0.0007 | 0.4040 |
| 1.5119 | 1884.2 | 2740.0 | 2492.4 | 2529.1 | -0.0251 | 0.4044 |
| 1.5139 | 1887.0 | 2765.5 | 2492.8 | 2529.4 | 0.0046 | 0.4044 |
| 1.5159 | 1889.7 | 2735.6 | 2493.1 | 2529.7 | -0.0054 | 0.4044 |
| 1.5179 | 1892.5 | 2768.4 | 2493.5 | 2530.0 | 0.0060 | 0.4044 |
| 1.5199 | 1895.4 | 2920.7 | 2494.0 | 2530.5 | 0.0268 | 0.4048 |
| 1.5219 | 1898.2 | 2863.8 | 2494.5 | 2531.0 | -0.0098 | 0.4049 |
| 1.5239 | 1901.1 | 2859.9 | 2495.0 | 2531.5 | -0.0007 | 0.4049 |
| 1.5259 | 1903.8 | 2701.2 | 2495.3 | 2531.7 | -0.0285 | 0.4054 |
| 1.5279 | 1906.5 | 2715.0 | 2495.6 | 2531.9 | 0.0025 | 0.4054 |
| 1.5299 | 1909.2 | 2703.0 | 2495.8 | 2532.2 | -0.0022 | 0.4054 |
| 1.5319 | 1912.1 | 2856.8 | 2496.3 | 2532.6 | 0.0277 | 0.4058 |
| 1.5339 | 1914.9 | 2788.0 | 2496.7 | 2533.0 | -0.0122 | 0.4059 |

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| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CPT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.5359 | 1917.8 | 2974.5 | 2497.3 | 2533.6 | 0.0324 | 0.4066 |
| 1.5379 | 1920.6 | 2793.8 | 2497.7 | 2534.0 | -0.0313 | 0.4071 |
| 1.5399 | 1923.4 | 2800.9 | 2498.1 | 2534.3 | 0.0013 | 0.4071 |
| 1.5419 | 1926.2 | 2720.0 | 2498.4 | 2534.6 | -0.0147 | 0.4073 |
| 1.5439 | 1929.0 | 2796.9 | 2498.8 | 2534.9 | 0.0139 | 0.4074 |
| 1.5459 | 1931.7 | 2715.0 | 2499.0 | 2535.2 | -0.0149 | 0.4075 |
| 1.5479 | 1934.4 | 2769.0 | 2499.4 | 2535.5 | 0.0099 | 0.4076 |
| 1.5499 | 1937.2 | 2730.3 | 2499.7 | 2535.8 | -0.0070 | 0.4076 |
| 1.5519 | 1939.9 | 2743.9 | 2500.0 | 2536.0 | 0.0025 | 0.4076 |
| 1.5539 | 1943.0 | 3093.9 | 2500.8 | 2536.8 | 0.0600 | 0.4097 |
| 1.5559 | 1945.9 | 2878.8 | 2501.2 | 2537.3 | -0.0360 | 0.4105 |
| 1.5579 | 1948.6 | 2738.0 | 2501.5 | 2537.6 | -0.0251 | 0.4109 |
| 1.5599 | 1951.4 | 2802.5 | 2501.9 | 2537.9 | 0.0116 | 0.4109 |
| 1.5619 | 1954.3 | 2899.0 | 2502.4 | 2538.4 | 0.0169 | 0.4111 |
| 1.5639 | 1957.1 | 2815.7 | 2502.8 | 2538.8 | -0.0146 | 0.4112 |
| 1.5659 | 1960.0 | 2884.6 | 2503.3 | 2539.3 | 0.0121 | 0.4113 |
| 1.5679 | 1962.9 | 2867.1 | 2503.8 | 2539.7 | -0.0031 | 0.4113 |
| 1.5699 | 1965.7 | 2850.7 | 2504.2 | 2540.1 | -0.0029 | 0.4113 |
| 1.5719 | 1968.6 | 2901.6 | 2504.7 | 2540.6 | 0.0088 | 0.4114 |
| 1.5739 | 1972.1 | 3486.3 | 2506.0 | 2542.0 | 0.0915 | 0.4163 |
| 1.5759 | 1975.1 | 2919.9 | 2506.5 | 2542.6 | -0.0884 | 0.4209 |
| 1.5779 | 1977.9 | 2823.2 | 2506.9 | 2542.9 | -0.0168 | 0.4210 |
| 1.5799 | 1980.9 | 2997.9 | 2507.5 | 2543.6 | 0.0300 | 0.4216 |
| 1.5819 | 1983.9 | 3007.1 | 2508.2 | 2544.2 | 0.0015 | 0.4216 |
| 1.5839 | 1986.8 | 2896.1 | 2508.7 | 2544.7 | -0.0188 | 0.4218 |
| 1.5859 | 1989.7 | 2963.0 | 2509.2 | 2545.2 | 0.0114 | 0.4218 |
| 1.5879 | 1992.6 | 2904.2 | 2509.7 | 2545.7 | -0.0100 | 0.4219 |
| 1.5899 | 1995.6 | 2920.4 | 2510.2 | 2546.2 | 0.0028 | 0.4219 |
| 1.5919 | 1998.5 | 2921.3 | 2510.8 | 2546.7 | 0.0001 | 0.4219 |
| 1.5939 | 2001.5 | 3002.0 | 2511.4 | 2547.4 | 0.0136 | 0.4220 |
| 1.5959 | 2005.1 | 3611.7 | 2512.8 | 2549.0 | 0.0922 | 0.4269 |
| 1.5979 | 2008.2 | 3113.9 | 2513.5 | 2549.8 | -0.0740 | 0.4301 |
| 1.5999 | 2011.4 | 3167.4 | 2514.3 | 2550.6 | 0.0085 | 0.4301 |
| 1.6019 | 2014.5 | 3103.0 | 2515.1 | 2551.4 | -0.0103 | 0.4302 |
| 1.6039 | 2017.6 | 3078.9 | 2515.8 | 2552.1 | -0.0039 | 0.4302 |
| 1.6059 | 2021.0 | 3427.1 | 2516.9 | 2553.4 | 0.0535 | 0.4318 |
| 1.6079 | 2024.0 | 2990.6 | 2517.5 | 2554.0 | -0.0680 | 0.4344 |
| 1.6099 | 2027.1 | 3168.3 | 2518.3 | 2554.8 | 0.0289 | 0.4349 |
| 1.6119 | 2030.5 | 3374.3 | 2519.4 | 2556.0 | 0.0315 | 0.4355 |
| 1.6139 | 2033.8 | 3257.6 | 2520.3 | 2557.0 | -0.0176 | 0.4356 |
| 1.6159 | 2037.1 | 3330.8 | 2521.3 | 2558.1 | 0.0111 | 0.4357 |
| 1.6179 | 2040.4 | 3248.0 | 2522.2 | 2559.1 | -0.0126 | 0.4358 |
| 1.6199 | 2043.7 | 3328.9 | 2523.2 | 2560.2 | 0.0123 | 0.4359 |
| 1.6219 | 2046.9 | 3187.7 | 2524.0 | 2561.0 | -0.0217 | 0.4361 |
| 1.6239 | 2050.0 | 3141.4 | 2524.8 | 2561.8 | -0.0073 | 0.4362 |
| 1.6259 | 2053.1 | 3133.8 | 2525.5 | 2562.6 | -0.0012 | 0.4362 |
| 1.6279 | 2056.2 | 3086.2 | 2526.2 | 2563.3 | -0.0077 | 0.4362 |
| 1.6299 | 2059.5 | 3266.8 | 2527.1 | 2564.3 | 0.0284 | 0.4367 |
| 1.6319 | 2062.7 | 3160.9 | 2527.9 | 2565.1 | -0.0165 | 0.4368 |
| 1.6339 | 2065.9 | 3270.0 | 2528.8 | 2566.1 | 0.0170 | 0.4370 |
| 1.6359 | 2069.1 | 3200.7 | 2529.6 | 2567.0 | -0.0107 | 0.4370 |
| 1.6379 | 2072.3 | 3123.3 | 2530.3 | 2567.7 | -0.0122 | 0.4371 |
| 1.6399 | 2075.4 | 3149.9 | 2531.1 | 2568.5 | 0.0042 | 0.4371 |
| 1.6419 | 2079.0 | 3568.4 | 2532.3 | 2570.0 | 0.0623 | 0.4393 |
| 1.6439 | 2082.1 | 3171.6 | 2533.1 | 2570.8 | -0.0589 | 0.4413 |
| 1.6459 | 2085.4 | 3213.4 | 2534.0 | 2571.7 | 0.0065 | 0.4413 |
| 1.6479 | 2088.5 | 3154.3 | 2534.7 | 2572.5 | -0.0093 | 0.4413 |
| 1.6499 | 2091.7 | 3217.5 | 2535.5 | 2573.3 | 0.0099 | 0.4414 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CPT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.6519 | 2094.9 | 3213.1 | 2536.4 | 2574.2 | -0.0007 | 0.4414 |
| 1.6539 | 2098.1 | 3179.4 | 2537.1 | 2575.0 | -0.0053 | 0.4414 |
| 1.6559 | 2101.3 | 3219.7 | 2538.0 | 2575.9 | 0.0063 | 0.4414 |
| 1.6579 | 2104.6 | 3242.9 | 2538.8 | 2576.8 | 0.0036 | 0.4414 |
| 1.6599 | 2107.9 | 3266.6 | 2539.7 | 2577.8 | 0.0036 | 0.4414 |
| 1.6619 | 2111.2 | 3320.6 | 2540.6 | 2578.8 | 0.0082 | 0.4415 |
| 1.6639 | 2114.4 | 3196.0 | 2541.4 | 2579.6 | -0.0191 | 0.4417 |
| 1.6659 | 2117.8 | 3401.4 | 2542.4 | 2580.7 | 0.0311 | 0.4422 |
| 1.6679 | 2121.3 | 3484.6 | 2543.6 | 2582.0 | 0.0121 | 0.4423 |
| 1.6699 | 2124.5 | 3289.3 | 2544.5 | 2583.0 | -0.0288 | 0.4428 |
| 1.6719 | 2127.8 | 3268.1 | 2545.3 | 2583.9 | -0.0032 | 0.4428 |
| 1.6739 | 2131.0 | 3231.2 | 2546.2 | 2584.8 | -0.0057 | 0.4428 |
| 1.6759 | 2134.5 | 3457.3 | 2547.2 | 2586.0 | 0.0338 | 0.4434 |
| 1.6779 | 2138.1 | 3557.9 | 2548.4 | 2587.4 | 0.0143 | 0.4436 |
| 1.6799 | 2141.3 | 3272.7 | 2549.3 | 2588.3 | -0.0417 | 0.4445 |
| 1.6819 | 2144.5 | 3162.8 | 2550.0 | 2589.1 | -0.0171 | 0.4447 |
| 1.6839 | 2147.7 | 3175.0 | 2550.8 | 2589.8 | 0.0019 | 0.4447 |
| 1.6859 | 2150.9 | 3224.4 | 2551.6 | 2590.7 | 0.0077 | 0.4447 |
| 1.6879 | 2154.2 | 3282.0 | 2552.4 | 2591.6 | 0.0089 | 0.4448 |
| 1.6899 | 2157.5 | 3287.1 | 2553.3 | 2592.5 | 0.0008 | 0.4448 |
| 1.6919 | 2160.8 | 3306.9 | 2554.2 | 2593.5 | 0.0030 | 0.4448 |
| 1.6939 | 2164.1 | 3367.2 | 2555.2 | 2594.6 | 0.0090 | 0.4448 |
| 1.6959 | 2167.3 | 3162.8 | 2555.9 | 2595.3 | -0.0313 | 0.4454 |
| 1.6979 | 2171.2 | 3874.8 | 2557.4 | 2597.2 | 0.1012 | 0.4510 |
| 1.6999 | 2174.6 | 3460.4 | 2558.5 | 2598.4 | -0.0565 | 0.4528 |
| 1.7019 | 2177.8 | 3188.0 | 2559.2 | 2599.1 | -0.0410 | 0.4537 |
| 1.7039 | 2181.2 | 3414.3 | 2560.2 | 2600.2 | 0.0343 | 0.4543 |
| 1.7059 | 2184.6 | 3360.8 | 2561.2 | 2601.3 | -0.0079 | 0.4544 |
| 1.7079 | 2188.0 | 3370.8 | 2562.1 | 2602.3 | 0.0015 | 0.4544 |
| 1.7099 | 2191.5 | 3489.5 | 2563.2 | 2603.5 | 0.0173 | 0.4545 |
| 1.7119 | 2194.8 | 3323.7 | 2564.1 | 2604.5 | -0.0243 | 0.4549 |
| 1.7139 | 2198.1 | 3308.6 | 2565.0 | 2605.4 | -0.0023 | 0.4549 |
| 1.7159 | 2201.6 | 3551.0 | 2566.1 | 2606.7 | 0.0353 | 0.4555 |
| 1.7179 | 2204.9 | 3279.8 | 2566.9 | 2607.6 | -0.0397 | 0.4564 |
| 1.7199 | 2208.3 | 3405.3 | 2567.9 | 2608.7 | 0.0188 | 0.4566 |
| 1.7219 | 2211.5 | 3218.8 | 2568.7 | 2609.4 | -0.0282 | 0.4570 |
| 1.7239 | 2214.8 | 3237.1 | 2569.5 | 2610.3 | 0.0028 | 0.4570 |
| 1.7259 | 2218.1 | 3296.6 | 2570.3 | 2611.2 | 0.0091 | 0.4571 |
| 1.7279 | 2221.4 | 3354.2 | 2571.2 | 2612.1 | 0.0087 | 0.4571 |
| 1.7299 | 2224.6 | 3150.9 | 2571.9 | 2612.8 | -0.0313 | 0.4577 |
| 1.7319 | 2227.9 | 3281.3 | 2572.7 | 2613.7 | 0.0203 | 0.4579 |
| 1.7339 | 2231.1 | 3257.3 | 2573.5 | 2614.5 | -0.0037 | 0.4579 |
| 1.7359 | 2234.5 | 3328.1 | 2574.4 | 2615.5 | 0.0108 | 0.4579 |
| 1.7379 | 2237.9 | 3409.2 | 2575.3 | 2616.5 | 0.0120 | 0.4580 |
| 1.7399 | 2241.2 | 3363.3 | 2576.2 | 2617.5 | -0.0068 | 0.4580 |
| 1.7419 | 2244.6 | 3334.5 | 2577.1 | 2618.4 | -0.0043 | 0.4581 |
| 1.7439 | 2247.7 | 3130.1 | 2577.7 | 2619.1 | -0.0316 | 0.4586 |
| 1.7459 | 2250.8 | 3106.7 | 2578.3 | 2619.7 | -0.0038 | 0.4586 |
| 1.7479 | 2253.9 | 3145.0 | 2579.0 | 2620.3 | 0.0061 | 0.4586 |
| 1.7499 | 2257.1 | 3126.0 | 2579.6 | 2621.0 | -0.0030 | 0.4586 |
| 1.7519 | 2260.2 | 3162.6 | 2580.3 | 2621.7 | 0.0058 | 0.4586 |
| 1.7539 | 2263.4 | 3191.2 | 2581.0 | 2622.4 | 0.0045 | 0.4587 |
| 1.7559 | 2266.6 | 3170.2 | 2581.6 | 2623.1 | -0.0033 | 0.4587 |
| 1.7579 | 2269.7 | 3086.7 | 2582.2 | 2623.6 | -0.0133 | 0.4588 |
| 1.7599 | 2272.9 | 3193.1 | 2582.9 | 2624.4 | 0.0170 | 0.4589 |
| 1.7619 | 2276.2 | 3314.2 | 2583.7 | 2625.3 | 0.0186 | 0.4591 |
| 1.7639 | 2279.5 | 3363.8 | 2584.6 | 2626.2 | 0.0074 | 0.4591 |
| 1.7659 | 2283.0 | 3489.3 | 2585.6 | 2627.3 | 0.0183 | 0.4593 |

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| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.7679 | 2286.4 | 3324.5 | 2586.5 | 2628.2 | -0.0242 | 0.4596 |
| 1.7699 | 2289.5 | 3088.1 | 2587.0 | 2628.8 | -0.0369 | 0.4604 |
| 1.7719 | 2292.7 | 3243.4 | 2587.8 | 2629.6 | 0.0245 | 0.4607 |
| 1.7739 | 2295.9 | 3213.4 | 2588.5 | 2630.3 | -0.0047 | 0.4607 |
| 1.7759 | 2299.2 | 3273.2 | 2589.3 | 2631.1 | 0.0092 | 0.4607 |
| 1.7779 | 2302.6 | 3386.0 | 2590.2 | 2632.1 | 0.0169 | 0.4609 |
| 1.7799 | 2305.9 | 3358.4 | 2591.0 | 2633.0 | -0.0041 | 0.4609 |
| 1.7819 | 2309.3 | 3379.4 | 2591.9 | 2634.0 | 0.0031 | 0.4609 |
| 1.7839 | 2312.7 | 3383.3 | 2592.8 | 2634.9 | 0.0006 | 0.4609 |
| 1.7859 | 2316.1 | 3413.1 | 2593.7 | 2635.9 | 0.0044 | 0.4609 |
| 1.7879 | 2319.6 | 3533.4 | 2594.8 | 2637.1 | 0.0173 | 0.4611 |
| 1.7899 | 2323.1 | 3477.8 | 2595.8 | 2638.2 | -0.0079 | 0.4611 |
| 1.7919 | 2326.6 | 3481.0 | 2596.7 | 2639.3 | 0.0005 | 0.4611 |
| 1.7939 | 2330.0 | 3452.1 | 2597.7 | 2640.3 | -0.0042 | 0.4611 |
| 1.7959 | 2333.5 | 3439.9 | 2598.6 | 2641.4 | -0.0018 | 0.4611 |
| 1.7979 | 2336.9 | 3426.8 | 2599.6 | 2642.4 | -0.0019 | 0.4611 |
| 1.7999 | 2340.4 | 3482.9 | 2600.5 | 2643.4 | 0.0081 | 0.4612 |
| 1.8019 | 2343.9 | 3496.6 | 2601.5 | 2644.5 | 0.0020 | 0.4612 |
| 1.8039 | 2347.4 | 3528.3 | 2602.6 | 2645.7 | 0.0045 | 0.4612 |
| 1.8059 | 2350.7 | 3258.8 | 2603.3 | 2646.4 | -0.0397 | 0.4620 |
| 1.8079 | 2353.9 | 3238.8 | 2604.0 | 2647.2 | -0.0031 | 0.4620 |
| 1.8099 | 2357.1 | 3212.9 | 2604.7 | 2647.9 | -0.0040 | 0.4620 |
| 1.8119 | 2360.4 | 3223.9 | 2605.3 | 2648.6 | 0.0017 | 0.4621 |
| 1.8139 | 2363.6 | 3241.5 | 2606.0 | 2649.3 | 0.0027 | 0.4621 |
| 1.8159 | 2366.8 | 3187.7 | 2606.7 | 2649.9 | -0.0084 | 0.4621 |
| 1.8179 | 2370.0 | 3206.1 | 2607.3 | 2650.6 | 0.0029 | 0.4621 |
| 1.8199 | 2373.2 | 3188.0 | 2608.0 | 2651.3 | -0.0028 | 0.4621 |
| 1.8219 | 2376.5 | 3287.1 | 2608.7 | 2652.1 | 0.0153 | 0.4622 |
| 1.8239 | 2379.9 | 3393.6 | 2609.6 | 2653.0 | 0.0159 | 0.4624 |
| 1.8259 | 2383.4 | 3512.2 | 2610.6 | 2654.1 | 0.0172 | 0.4625 |
| 1.8279 | 2386.9 | 3504.9 | 2611.6 | 2655.2 | -0.0010 | 0.4625 |
| 1.8299 | 2390.4 | 3505.9 | 2612.5 | 2656.2 | 0.0001 | 0.4625 |
| 1.8319 | 2393.9 | 3496.6 | 2613.5 | 2657.3 | -0.0013 | 0.4625 |
| 1.8339 | 2397.5 | 3584.0 | 2614.6 | 2658.5 | 0.0123 | 0.4626 |
| 1.8359 | 2400.9 | 3478.3 | 2615.5 | 2659.5 | -0.0150 | 0.4627 |
| 1.8379 | 2404.4 | 3465.1 | 2616.4 | 2660.5 | -0.0019 | 0.4627 |
| 1.8399 | 2407.9 | 3478.0 | 2617.4 | 2661.5 | 0.0019 | 0.4627 |
| 1.8419 | 2411.6 | 3699.2 | 2618.5 | 2662.9 | 0.0308 | 0.4632 |
| 1.8439 | 2415.3 | 3672.1 | 2619.7 | 2664.2 | -0.0037 | 0.4632 |
| 1.8459 | 2419.0 | 3723.4 | 2620.9 | 2665.6 | 0.0069 | 0.4633 |
| 1.8479 | 2422.6 | 3586.4 | 2621.9 | 2666.7 | -0.0187 | 0.4635 |
| 1.8499 | 2426.0 | 3472.9 | 2622.8 | 2667.7 | -0.0161 | 0.4636 |
| 1.8519 | 2429.6 | 3544.9 | 2623.8 | 2668.8 | 0.0103 | 0.4637 |
| 1.8539 | 2433.3 | 3756.8 | 2625.1 | 2670.3 | 0.0290 | 0.4641 |
| 1.8559 | 2437.0 | 3628.4 | 2626.1 | 2671.5 | -0.0174 | 0.4643 |
| 1.8579 | 2440.5 | 3539.3 | 2627.1 | 2672.6 | -0.0124 | 0.4644 |
| 1.8599 | 2444.0 | 3485.1 | 2628.0 | 2673.6 | -0.0077 | 0.4644 |
| 1.8619 | 2447.4 | 3415.8 | 2628.9 | 2674.5 | -0.0100 | 0.4644 |
| 1.8639 | 2450.9 | 3507.3 | 2629.8 | 2675.5 | 0.0132 | 0.4645 |
| 1.8659 | 2454.5 | 3613.8 | 2630.9 | 2676.7 | 0.0149 | 0.4647 |
| 1.8679 | 2458.1 | 3600.3 | 2631.9 | 2677.9 | -0.0019 | 0.4647 |
| 1.8699 | 2461.8 | 3638.4 | 2633.0 | 2679.1 | 0.0053 | 0.4647 |
| 1.8719 | 2465.4 | 3604.2 | 2634.0 | 2680.2 | -0.0047 | 0.4647 |
| 1.8739 | 2469.0 | 3585.0 | 2635.1 | 2681.3 | -0.0027 | 0.4647 |
| 1.8759 | 2472.5 | 3585.9 | 2636.1 | 2682.5 | 0.0001 | 0.4647 |
| 1.8779 | 2476.2 | 3615.0 | 2637.1 | 2683.6 | 0.0040 | 0.4647 |
| 1.8799 | 2479.8 | 3620.6 | 2638.2 | 2684.8 | 0.0008 | 0.4647 |
| 1.8819 | 2483.5 | 3699.0 | 2639.3 | 2686.1 | 0.0107 | 0.4648 |

| | | | | | | |
|--------|--------|--------|--------|--------|---------|--------|
| 1.8839 | 2487.1 | 3625.5 | 2640.3 | 2687.3 | -0.0100 | 0.4648 |
| 1.8859 | 2490.6 | 3539.3 | 2641.3 | 2688.3 | -0.0120 | 0.4649 |
| 1.8879 | 2494.1 | 3429.2 | 2642.1 | 2689.2 | -0.0158 | 0.4650 |
| 1.8899 | 2497.4 | 3352.8 | 2642.9 | 2690.0 | -0.0113 | 0.4651 |
| 1.8919 | 2500.7 | 3292.5 | 2643.6 | 2690.7 | -0.0091 | 0.4651 |
| 1.8939 | 2504.0 | 3289.6 | 2644.2 | 2691.4 | -0.0004 | 0.4651 |
| 1.8959 | 2507.5 | 3496.6 | 2645.1 | 2692.4 | 0.0305 | 0.4656 |
| 1.8979 | 2511.0 | 3529.8 | 2646.1 | 2693.4 | 0.0047 | 0.4656 |
| 1.8999 | 2514.5 | 3508.8 | 2647.0 | 2694.4 | -0.0030 | 0.4656 |
| 1.9019 | 2518.0 | 3447.8 | 2647.8 | 2695.3 | -0.0088 | 0.4657 |
| 1.9039 | 2521.4 | 3415.0 | 2648.6 | 2696.1 | -0.0048 | 0.4657 |
| 1.9059 | 2525.0 | 3618.7 | 2649.6 | 2697.3 | 0.0289 | 0.4661 |
| 1.9079 | 2528.8 | 3734.4 | 2650.8 | 2698.6 | 0.0157 | 0.4663 |
| 1.9099 | 2532.4 | 3625.0 | 2651.8 | 2699.7 | -0.0149 | 0.4664 |
| 1.9119 | 2536.1 | 3669.7 | 2652.9 | 2700.9 | 0.0061 | 0.4664 |
| 1.9139 | 2539.7 | 3610.6 | 2653.9 | 2702.0 | -0.0081 | 0.4665 |
| 1.9159 | 2543.2 | 3535.4 | 2654.8 | 2703.0 | -0.0105 | 0.4665 |
| 1.9179 | 2546.7 | 3537.6 | 2655.7 | 2704.0 | 0.0003 | 0.4665 |
| 1.9199 | 2550.3 | 3550.0 | 2656.6 | 2705.0 | 0.0018 | 0.4665 |
| 1.9219 | 2553.8 | 3537.8 | 2657.6 | 2706.0 | -0.0017 | 0.4665 |
| 1.9239 | 2557.4 | 3541.0 | 2658.5 | 2707.0 | 0.0004 | 0.4665 |
| 1.9259 | 2560.9 | 3540.5 | 2659.4 | 2708.0 | -0.0001 | 0.4665 |
| 1.9279 | 2564.4 | 3533.4 | 2660.3 | 2709.0 | -0.0010 | 0.4665 |
| 1.9299 | 2568.1 | 3704.6 | 2661.4 | 2710.3 | 0.0236 | 0.4668 |
| 1.9319 | 2571.8 | 3651.6 | 2662.4 | 2711.4 | -0.0072 | 0.4668 |
| 1.9339 | 2575.4 | 3648.7 | 2663.4 | 2712.5 | -0.0004 | 0.4668 |
| 1.9359 | 2579.1 | 3689.7 | 2664.5 | 2713.7 | 0.0056 | 0.4669 |
| 1.9379 | 2582.8 | 3678.0 | 2665.5 | 2714.9 | -0.0016 | 0.4669 |
| 1.9399 | 2586.5 | 3670.7 | 2666.6 | 2716.1 | -0.0010 | 0.4669 |
| 1.9419 | 2590.3 | 3780.5 | 2667.7 | 2717.4 | 0.0147 | 0.4670 |
| 1.9439 | 2594.2 | 3968.8 | 2669.1 | 2719.0 | 0.0243 | 0.4673 |
| 1.9459 | 2598.1 | 3900.4 | 2670.3 | 2720.4 | -0.0087 | 0.4673 |
| 1.9479 | 2602.1 | 3924.3 | 2671.6 | 2721.9 | 0.0031 | 0.4673 |
| 1.9499 | 2605.9 | 3868.9 | 2672.8 | 2723.4 | -0.0071 | 0.4674 |
| 1.9519 | 2609.7 | 3816.7 | 2674.0 | 2724.7 | -0.0068 | 0.4674 |
| 1.9539 | 2613.3 | 3532.2 | 2674.9 | 2725.7 | -0.0387 | 0.4682 |
| 1.9559 | 2616.8 | 3523.4 | 2675.7 | 2726.6 | -0.0012 | 0.4682 |
| 1.9579 | 2620.2 | 3441.7 | 2676.5 | 2727.4 | -0.0117 | 0.4683 |
| 1.9599 | 2623.7 | 3421.6 | 2677.3 | 2728.2 | -0.0029 | 0.4683 |
| 1.9619 | 2627.1 | 3472.2 | 2678.1 | 2729.1 | 0.0073 | 0.4683 |
| 1.9639 | 2630.6 | 3438.5 | 2678.9 | 2729.9 | -0.0049 | 0.4683 |
| 1.9659 | 2634.2 | 3585.4 | 2679.8 | 2730.9 | 0.0209 | 0.4685 |
| 1.9679 | 2637.7 | 3500.2 | 2680.6 | 2731.8 | -0.0120 | 0.4686 |
| 1.9699 | 2641.2 | 3501.0 | 2681.5 | 2732.7 | 0.0001 | 0.4686 |
| 1.9719 | 2644.8 | 3616.9 | 2682.4 | 2733.7 | 0.0163 | 0.4688 |
| 1.9739 | 2648.4 | 3622.3 | 2683.4 | 2734.8 | 0.0007 | 0.4688 |
| 1.9759 | 2652.1 | 3681.4 | 2684.4 | 2735.9 | 0.0081 | 0.4688 |
| 1.9779 | 2655.8 | 3695.6 | 2685.4 | 2737.0 | 0.0019 | 0.4688 |
| 1.9799 | 2659.5 | 3711.2 | 2686.4 | 2738.2 | 0.0021 | 0.4688 |
| 1.9819 | 2663.1 | 3635.7 | 2687.4 | 2739.2 | -0.0103 | 0.4689 |
| 1.9839 | 2666.7 | 3610.1 | 2688.3 | 2740.3 | -0.0035 | 0.4689 |
| 1.9859 | 2670.3 | 3616.9 | 2689.3 | 2741.3 | 0.0009 | 0.4689 |
| 1.9879 | 2674.0 | 3650.9 | 2690.2 | 2742.4 | 0.0047 | 0.4689 |
| 1.9899 | 2677.6 | 3612.3 | 2691.2 | 2743.4 | -0.0053 | 0.4689 |
| 1.9919 | 2681.2 | 3594.0 | 2692.1 | 2744.4 | -0.0025 | 0.4689 |
| 1.9939 | 2684.8 | 3623.8 | 2693.0 | 2745.4 | 0.0041 | 0.4689 |
| 1.9959 | 2688.6 | 3792.7 | 2694.1 | 2746.6 | 0.0228 | 0.4692 |
| 1.9979 | 2692.3 | 3641.8 | 2695.0 | 2747.7 | -0.0203 | 0.4694 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 1.9999 | 2696.0 | 3688.0 | 2696.0 | 2748.8 | 0.0063 | 0.4694 |
| 2.0019 | 2699.8 | 3813.2 | 2697.2 | 2750.0 | 0.0167 | 0.4696 |
| 2.0039 | 2703.6 | 3822.0 | 2698.3 | 2751.3 | 0.0012 | 0.4696 |
| 2.0059 | 2707.5 | 3873.0 | 2699.4 | 2752.7 | 0.0066 | 0.4696 |
| 2.0079 | 2711.4 | 3900.1 | 2700.6 | 2754.0 | 0.0035 | 0.4696 |
| 2.0099 | 2715.2 | 3802.7 | 2701.7 | 2755.3 | -0.0126 | 0.4697 |
| 2.0119 | 2718.9 | 3786.4 | 2702.8 | 2756.5 | -0.0022 | 0.4697 |
| 2.0139 | 2722.7 | 3770.8 | 2703.9 | 2757.7 | -0.0021 | 0.4697 |
| 2.0159 | 2726.5 | 3791.3 | 2705.0 | 2758.9 | 0.0027 | 0.4697 |
| 2.0179 | 2730.3 | 3757.6 | 2706.0 | 2760.1 | -0.0045 | 0.4697 |
| 2.0199 | 2734.1 | 3789.3 | 2707.1 | 2761.3 | 0.0042 | 0.4697 |
| 2.0219 | 2737.8 | 3725.3 | 2708.1 | 2762.4 | -0.0085 | 0.4697 |
| 2.0239 | 2741.5 | 3759.3 | 2709.1 | 2763.6 | 0.0045 | 0.4698 |
| 2.0259 | 2745.3 | 3732.4 | 2710.1 | 2764.7 | -0.0036 | 0.4698 |
| 2.0279 | 2749.0 | 3705.1 | 2711.1 | 2765.8 | -0.0037 | 0.4698 |
| 2.0299 | 2752.8 | 3830.3 | 2712.2 | 2767.0 | 0.0166 | 0.4699 |
| 2.0319 | 2756.6 | 3784.9 | 2713.3 | 2768.2 | -0.0060 | 0.4699 |
| 2.0339 | 2760.4 | 3819.6 | 2714.4 | 2769.4 | 0.0046 | 0.4699 |
| 2.0359 | 2764.2 | 3812.0 | 2715.4 | 2770.7 | -0.0010 | 0.4699 |
| 2.0379 | 2768.1 | 3844.0 | 2716.5 | 2771.9 | 0.0042 | 0.4700 |
| 2.0399 | 2771.9 | 3829.3 | 2717.6 | 2773.2 | -0.0019 | 0.4700 |
| 2.0419 | 2775.7 | 3763.2 | 2718.7 | 2774.3 | -0.0087 | 0.4700 |
| 2.0439 | 2779.5 | 3798.1 | 2719.7 | 2775.5 | 0.0046 | 0.4700 |
| 2.0459 | 2783.3 | 3844.7 | 2720.8 | 2776.7 | 0.0061 | 0.4700 |
| 2.0479 | 2787.2 | 3873.5 | 2721.9 | 2778.0 | 0.0037 | 0.4700 |
| 2.0499 | 2791.1 | 3881.8 | 2723.1 | 2779.3 | 0.0011 | 0.4700 |
| 2.0519 | 2794.9 | 3830.8 | 2724.2 | 2780.5 | -0.0066 | 0.4701 |
| 2.0539 | 2798.7 | 3804.7 | 2725.2 | 2781.7 | -0.0034 | 0.4701 |
| 2.0559 | 2802.6 | 3856.9 | 2726.3 | 2782.9 | 0.0068 | 0.4701 |
| 2.0579 | 2806.4 | 3882.1 | 2727.4 | 2784.2 | 0.0032 | 0.4701 |
| 2.0599 | 2810.3 | 3841.3 | 2728.5 | 2785.4 | -0.0053 | 0.4701 |
| 2.0619 | 2814.1 | 3836.2 | 2729.6 | 2786.7 | -0.0007 | 0.4701 |
| 2.0639 | 2818.0 | 3870.6 | 2730.7 | 2787.9 | 0.0045 | 0.4701 |
| 2.0659 | 2821.8 | 3842.5 | 2731.8 | 2789.1 | -0.0036 | 0.4701 |
| 2.0679 | 2825.6 | 3814.5 | 2732.8 | 2790.3 | -0.0037 | 0.4701 |
| 2.0699 | 2829.5 | 3829.8 | 2733.9 | 2791.5 | 0.0020 | 0.4701 |
| 2.0719 | 2833.3 | 3864.3 | 2735.0 | 2792.7 | 0.0045 | 0.4701 |
| 2.0739 | 2837.2 | 3887.5 | 2736.1 | 2794.0 | 0.0030 | 0.4702 |
| 2.0759 | 2841.1 | 3863.3 | 2737.2 | 2795.2 | -0.0031 | 0.4702 |
| 2.0779 | 2845.0 | 3883.3 | 2738.3 | 2796.5 | 0.0026 | 0.4702 |
| 2.0799 | 2848.9 | 3909.4 | 2739.4 | 2797.8 | 0.0034 | 0.4702 |
| 2.0819 | 2852.8 | 3939.2 | 2740.5 | 2799.1 | 0.0038 | 0.4702 |
| 2.0839 | 2856.7 | 3915.0 | 2741.7 | 2800.4 | -0.0031 | 0.4702 |
| 2.0859 | 2860.6 | 3911.6 | 2742.8 | 2801.6 | -0.0004 | 0.4702 |
| 2.0879 | 2864.6 | 3947.8 | 2743.9 | 2803.0 | 0.0046 | 0.4702 |
| 2.0899 | 2868.5 | 3873.5 | 2745.0 | 2804.2 | -0.0095 | 0.4702 |
| 2.0919 | 2872.3 | 3882.6 | 2746.1 | 2805.4 | 0.0012 | 0.4702 |
| 2.0939 | 2876.2 | 3822.5 | 2747.1 | 2806.6 | -0.0078 | 0.4703 |
| 2.0959 | 2880.0 | 3869.9 | 2748.2 | 2807.8 | 0.0062 | 0.4703 |
| 2.0979 | 2883.9 | 3896.2 | 2749.3 | 2809.0 | 0.0034 | 0.4703 |
| 2.0999 | 2887.9 | 3943.8 | 2750.4 | 2810.3 | 0.0061 | 0.4703 |
| 2.1019 | 2891.9 | 3977.5 | 2751.6 | 2811.6 | 0.0043 | 0.4703 |
| 2.1039 | 2895.8 | 3987.3 | 2752.8 | 2813.0 | 0.0012 | 0.4703 |
| 2.1059 | 2899.9 | 4018.1 | 2754.0 | 2814.4 | 0.0038 | 0.4703 |
| 2.1079 | 2903.9 | 4031.0 | 2755.2 | 2815.8 | 0.0016 | 0.4703 |
| 2.1099 | 2907.9 | 4032.7 | 2756.4 | 2817.2 | 0.0002 | 0.4703 |
| 2.1119 | 2911.9 | 3979.2 | 2757.6 | 2818.5 | -0.0067 | 0.4704 |
| 2.1139 | 2915.9 | 3967.3 | 2758.7 | 2819.8 | -0.0015 | 0.4704 |

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|--------|--------|--------|--------|--------|---------|--------|
| 2.1159 | 2919.8 | 3918.9 | 2759.8 | 2821.1 | -0.0061 | 0.4704 |
| 2.1179 | 2923.7 | 3874.0 | 2760.9 | 2822.2 | -0.0058 | 0.4704 |
| 2.1199 | 2927.5 | 3811.5 | 2761.9 | 2823.3 | -0.0081 | 0.4704 |
| 2.1219 | 2931.3 | 3789.1 | 2762.8 | 2824.4 | -0.0030 | 0.4704 |
| 2.1239 | 2935.1 | 3804.9 | 2763.8 | 2825.5 | 0.0021 | 0.4704 |
| 2.1259 | 2939.0 | 3886.5 | 2764.9 | 2826.7 | 0.0106 | 0.4705 |
| 2.1279 | 2942.9 | 3891.6 | 2765.9 | 2827.9 | 0.0007 | 0.4705 |
| 2.1299 | 2946.7 | 3863.0 | 2767.0 | 2829.0 | -0.0037 | 0.4705 |
| 2.1319 | 2950.6 | 3919.9 | 2768.0 | 2830.2 | 0.0073 | 0.4705 |
| 2.1339 | 2954.5 | 3894.0 | 2769.1 | 2831.4 | -0.0033 | 0.4705 |
| 2.1359 | 2958.4 | 3909.4 | 2770.2 | 2832.6 | 0.0020 | 0.4705 |
| 2.1379 | 2962.3 | 3903.1 | 2771.2 | 2833.8 | -0.0008 | 0.4705 |
| 2.1399 | 2966.2 | 3857.7 | 2772.2 | 2834.9 | -0.0059 | 0.4706 |
| 2.1419 | 2970.0 | 3832.8 | 2773.2 | 2836.0 | -0.0032 | 0.4706 |
| 2.1439 | 2973.9 | 3882.8 | 2774.3 | 2837.2 | 0.0065 | 0.4706 |
| 2.1459 | 2977.8 | 3873.0 | 2775.3 | 2838.3 | -0.0013 | 0.4706 |
| 2.1479 | 2981.6 | 3800.5 | 2776.2 | 2839.4 | -0.0094 | 0.4706 |
| 2.1499 | 2985.4 | 3808.6 | 2777.2 | 2840.4 | 0.0011 | 0.4706 |
| 2.1519 | 2989.3 | 3855.2 | 2778.2 | 2841.5 | 0.0061 | 0.4707 |
| 2.1539 | 2993.0 | 3798.8 | 2779.1 | 2842.6 | -0.0074 | 0.4707 |
| 2.1559 | 2996.9 | 3830.6 | 2780.1 | 2843.7 | 0.0042 | 0.4707 |
| 2.1579 | 3000.7 | 3833.7 | 2781.1 | 2844.7 | 0.0004 | 0.4707 |
| 2.1599 | 3004.6 | 3868.2 | 2782.1 | 2845.9 | 0.0045 | 0.4707 |
| 2.1619 | 3008.4 | 3836.2 | 2783.1 | 2846.9 | -0.0042 | 0.4707 |
| 2.1639 | 3012.3 | 3884.3 | 2784.1 | 2848.1 | 0.0062 | 0.4707 |
| 2.1659 | 3016.2 | 3881.8 | 2785.1 | 2849.2 | -0.0003 | 0.4707 |
| 2.1679 | 3020.0 | 3791.3 | 2786.0 | 2850.2 | -0.0118 | 0.4708 |
| 2.1699 | 3023.8 | 3827.6 | 2787.0 | 2851.3 | 0.0048 | 0.4708 |
| 2.1719 | 3027.5 | 3655.8 | 2787.8 | 2852.1 | -0.0230 | 0.4711 |
| 2.1739 | 3031.0 | 3560.8 | 2788.5 | 2852.8 | -0.0132 | 0.4712 |
| 2.1759 | 3034.6 | 3548.6 | 2789.2 | 2853.5 | -0.0017 | 0.4712 |
| 2.1779 | 3038.1 | 3530.0 | 2789.9 | 2854.2 | -0.0026 | 0.4712 |
| 2.1799 | 3041.6 | 3491.2 | 2790.5 | 2854.9 | -0.0055 | 0.4712 |
| 2.1819 | 3045.0 | 3447.0 | 2791.1 | 2855.5 | -0.0064 | 0.4712 |
| 2.1839 | 3048.4 | 3412.8 | 2791.7 | 2856.1 | -0.0050 | 0.4713 |
| 2.1859 | 3051.8 | 3386.2 | 2792.2 | 2856.6 | -0.0039 | 0.4713 |
| 2.1879 | 3055.2 | 3365.0 | 2792.8 | 2857.1 | -0.0031 | 0.4713 |
| 2.1899 | 3058.6 | 3369.6 | 2793.3 | 2857.6 | 0.0007 | 0.4713 |
| 2.1919 | 3061.8 | 3211.9 | 2793.7 | 2857.9 | -0.0240 | 0.4716 |
| 2.1939 | 3065.1 | 3310.1 | 2794.1 | 2858.4 | 0.0150 | 0.4717 |
| 2.1959 | 3068.3 | 3254.2 | 2794.6 | 2858.8 | -0.0085 | 0.4717 |
| 2.1979 | 3071.6 | 3231.7 | 2795.0 | 2859.1 | -0.0035 | 0.4717 |
| 2.1999 | 3074.8 | 3265.4 | 2795.4 | 2859.5 | 0.0052 | 0.4717 |
| 2.2019 | 3078.1 | 3235.6 | 2795.8 | 2859.9 | -0.0046 | 0.4718 |
| 2.2039 | 3081.3 | 3191.9 | 2796.2 | 2860.2 | -0.0068 | 0.4718 |
| 2.2059 | 3084.4 | 3159.4 | 2796.5 | 2860.5 | -0.0051 | 0.4718 |
| 2.2079 | 3087.6 | 3213.6 | 2796.9 | 2860.8 | 0.0085 | 0.4718 |
| 2.2099 | 3090.9 | 3235.6 | 2797.3 | 2861.2 | 0.0034 | 0.4718 |
| 2.2119 | 3094.1 | 3220.7 | 2797.6 | 2861.5 | -0.0023 | 0.4718 |
| 2.2139 | 3097.2 | 3130.4 | 2797.9 | 2861.8 | -0.0142 | 0.4719 |
| 2.2159 | 3100.4 | 3142.8 | 2798.3 | 2862.1 | 0.0020 | 0.4720 |
| 2.2179 | 3103.5 | 3151.1 | 2798.6 | 2862.3 | 0.0013 | 0.4720 |
| 2.2199 | 3106.7 | 3144.8 | 2798.9 | 2862.6 | -0.0010 | 0.4720 |
| 2.2219 | 3109.9 | 3200.9 | 2799.2 | 2862.9 | 0.0088 | 0.4720 |
| 2.2239 | 3113.1 | 3230.2 | 2799.6 | 2863.3 | 0.0046 | 0.4720 |
| 2.2259 | 3116.3 | 3246.6 | 2800.0 | 2863.6 | 0.0025 | 0.4720 |
| 2.2279 | 3119.7 | 3331.1 | 2800.5 | 2864.1 | 0.0128 | 0.4721 |
| 2.2299 | 3123.1 | 3413.3 | 2801.1 | 2864.6 | 0.0122 | 0.4722 |

| | | | | | | |
|--------|--------|--------|--------|--------|---------|--------|
| 2.2319 | 3126.4 | 3330.1 | 2801.5 | 2865.1 | -0.0123 | 0.4723 |
| 2.2339 | 3129.7 | 3307.9 | 2802.0 | 2865.5 | -0.0033 | 0.4723 |
| 2.2359 | 3133.1 | 3325.9 | 2802.5 | 2866.0 | 0.0027 | 0.4723 |
| 2.2379 | 3136.4 | 3332.8 | 2802.9 | 2866.4 | 0.0010 | 0.4723 |
| 2.2399 | 3139.7 | 3278.8 | 2803.4 | 2866.8 | -0.0082 | 0.4723 |
| 2.2419 | 3142.9 | 3266.1 | 2803.8 | 2867.2 | -0.0019 | 0.4723 |
| 2.2439 | 3146.2 | 3278.1 | 2804.2 | 2867.6 | 0.0018 | 0.4723 |
| 2.2459 | 3149.5 | 3276.9 | 2804.6 | 2868.0 | -0.0002 | 0.4723 |
| 2.2479 | 3152.8 | 3343.5 | 2805.1 | 2868.4 | 0.0101 | 0.4724 |
| 2.2499 | 3156.2 | 3321.0 | 2805.5 | 2868.9 | -0.0034 | 0.4724 |
| 2.2519 | 3159.5 | 3382.1 | 2806.1 | 2869.4 | 0.0091 | 0.4724 |
| 2.2539 | 3162.9 | 3399.2 | 2806.6 | 2869.9 | 0.0025 | 0.4724 |
| 2.2559 | 3166.3 | 3408.7 | 2807.1 | 2870.4 | 0.0014 | 0.4724 |
| 2.2579 | 3169.7 | 3338.1 | 2807.6 | 2870.8 | -0.0105 | 0.4725 |
| 2.2599 | 3173.0 | 3334.7 | 2808.1 | 2871.3 | -0.0005 | 0.4725 |
| 2.2619 | 3176.4 | 3338.6 | 2808.5 | 2871.7 | 0.0006 | 0.4725 |
| 2.2639 | 3179.7 | 3304.0 | 2809.0 | 2872.1 | -0.0052 | 0.4725 |
| 2.2659 | 3182.9 | 3270.3 | 2809.4 | 2872.5 | -0.0051 | 0.4725 |
| 2.2679 | 3186.2 | 3239.7 | 2809.8 | 2872.9 | -0.0047 | 0.4725 |
| 2.2699 | 3189.4 | 3247.8 | 2810.1 | 2873.2 | 0.0012 | 0.4725 |
| 2.2719 | 3192.7 | 3251.5 | 2810.5 | 2873.6 | 0.0006 | 0.4725 |
| 2.2739 | 3195.9 | 3212.4 | 2810.9 | 2873.9 | -0.0060 | 0.4725 |
| 2.2759 | 3199.1 | 3206.8 | 2811.2 | 2874.2 | -0.0009 | 0.4725 |
| 2.2779 | 3202.4 | 3303.7 | 2811.7 | 2874.6 | 0.0149 | 0.4726 |
| 2.2799 | 3205.7 | 3286.9 | 2812.1 | 2875.0 | -0.0026 | 0.4727 |
| 2.2819 | 3208.9 | 3178.0 | 2812.4 | 2875.3 | -0.0168 | 0.4728 |
| 2.2839 | 3212.1 | 3198.2 | 2812.7 | 2875.6 | 0.0032 | 0.4728 |
| 2.2859 | 3215.2 | 3189.5 | 2813.1 | 2875.9 | -0.0014 | 0.4728 |
| 2.2879 | 3218.4 | 3201.7 | 2813.4 | 2876.2 | 0.0019 | 0.4728 |
| 2.2899 | 3221.6 | 3129.9 | 2813.7 | 2876.4 | -0.0113 | 0.4729 |
| 2.2919 | 3224.7 | 3103.0 | 2813.9 | 2876.6 | -0.0043 | 0.4729 |
| 2.2939 | 3227.7 | 3065.4 | 2814.2 | 2876.8 | -0.0061 | 0.4729 |
| 2.2959 | 3230.8 | 3093.5 | 2814.4 | 2877.0 | 0.0046 | 0.4729 |
| 2.2979 | 3234.0 | 3137.0 | 2814.7 | 2877.2 | 0.0070 | 0.4729 |
| 2.2999 | 3237.1 | 3141.6 | 2815.0 | 2877.4 | 0.0007 | 0.4729 |
| 2.3019 | 3240.3 | 3176.0 | 2815.3 | 2877.7 | 0.0054 | 0.4730 |
| 2.3039 | 3243.5 | 3257.1 | 2815.7 | 2878.1 | 0.0126 | 0.4730 |
| 2.3059 | 3246.9 | 3350.3 | 2816.1 | 2878.5 | 0.0141 | 0.4731 |
| 2.3079 | 3250.2 | 3257.8 | 2816.5 | 2878.9 | -0.0140 | 0.4733 |
| 2.3099 | 3253.4 | 3223.1 | 2816.9 | 2879.2 | -0.0053 | 0.4733 |
| 2.3119 | 3256.7 | 3278.1 | 2817.3 | 2879.5 | 0.0084 | 0.4733 |
| 2.3139 | 3259.9 | 3283.4 | 2817.7 | 2879.9 | 0.0008 | 0.4733 |
| 2.3159 | 3263.1 | 3188.0 | 2818.0 | 2880.2 | -0.0148 | 0.4734 |
| 2.3179 | 3266.3 | 3176.0 | 2818.3 | 2880.5 | -0.0019 | 0.4734 |
| 2.3199 | 3269.6 | 3282.5 | 2818.7 | 2880.8 | 0.0165 | 0.4736 |
| 2.3219 | 3272.8 | 3204.3 | 2819.0 | 2881.1 | -0.0120 | 0.4736 |
| 2.3239 | 3276.0 | 3200.9 | 2819.3 | 2881.4 | -0.0005 | 0.4736 |
| 2.3259 | 3279.0 | 3054.9 | 2819.6 | 2881.6 | -0.0233 | 0.4739 |
| 2.3279 | 3282.1 | 3032.0 | 2819.7 | 2881.7 | -0.0038 | 0.4739 |
| 2.3299 | 3285.2 | 3084.0 | 2820.0 | 2881.9 | 0.0085 | 0.4740 |
| 2.3319 | 3288.3 | 3095.5 | 2820.2 | 2882.1 | 0.0019 | 0.4740 |
| 2.3339 | 3291.4 | 3101.3 | 2820.4 | 2882.3 | 0.0009 | 0.4740 |
| 2.3359 | 3294.5 | 3160.2 | 2820.7 | 2882.5 | 0.0094 | 0.4740 |
| 2.3379 | 3297.7 | 3186.8 | 2821.0 | 2882.8 | 0.0042 | 0.4740 |
| 2.3399 | 3300.8 | 3112.8 | 2821.3 | 2883.0 | -0.0117 | 0.4741 |
| 2.3419 | 3304.0 | 3196.3 | 2821.6 | 2883.3 | 0.0132 | 0.4742 |
| 2.3439 | 3307.2 | 3227.8 | 2822.0 | 2883.6 | 0.0049 | 0.4742 |
| 2.3459 | 3310.4 | 3158.2 | 2822.2 | 2883.8 | -0.0109 | 0.4743 |

| | | | | | | |
|--------|--------|--------|--------|--------|----------|--------|
| 2.3479 | 3313.6 | 3196.3 | 2822.6 | 2884.1 | 0.0060 | 0.4743 |
| 2.3499 | 3316.7 | 3108.2 | 2822.8 | 2884.3 | -0.0140 | 0.4744 |
| 2.3519 | 3319.8 | 3122.8 | 2823.1 | 2884.5 | 0.0024 | 0.4744 |
| 2.3539 | 3323.0 | 3146.0 | 2823.3 | 2884.8 | 0.0037 | 0.4744 |
| 2.3559 | 3326.1 | 3166.3 | 2823.6 | 2885.0 | 0.0032 | 0.4744 |
| 2.3579 | 3329.2 | 3094.5 | 2823.9 | 2885.2 | -0.0115 | 0.4745 |
| 2.3599 | 3332.3 | 3109.6 | 2824.1 | 2885.4 | 0.0024 | 0.4745 |
| 2.3619 | 3335.5 | 3142.6 | 2824.4 | 2885.6 | 0.0053 | 0.4745 |
| 2.3639 | 3338.6 | 3101.6 | 2824.6 | 2885.8 | -0.0066 | 0.4745 |
| 2.3659 | 3341.7 | 3100.8 | 2824.8 | 2886.0 | -0.0001 | 0.4745 |
| 2.3679 | 3344.8 | 3145.3 | 2825.1 | 2886.2 | 0.0071 | 0.4745 |
| 2.3699 | 3348.0 | 3131.1 | 2825.4 | 2886.4 | -0.0023 | 0.4745 |
| 2.3719 | 3351.1 | 3130.4 | 2825.6 | 2886.7 | -0.0001 | 0.4745 |
| 2.3739 | 3354.2 | 3096.7 | 2825.9 | 2886.8 | -0.0054 | 0.4746 |
| 2.3759 | 3357.3 | 3153.1 | 2826.1 | 2887.1 | 0.0090 | 0.4746 |
| 2.3779 | 3360.2 | 2837.4 | 2826.1 | 2887.0 | -0.00527 | 0.4761 |
| 2.3799 | 3363.3 | 3119.9 | 2826.4 | 2887.2 | 0.0474 | 0.4772 |
| 2.3819 | 3366.5 | 3168.9 | 2826.7 | 2887.5 | 0.0078 | 0.4773 |
| 2.3839 | 3369.6 | 3085.7 | 2826.9 | 2887.7 | -0.0133 | 0.4774 |
| 2.3859 | 3372.6 | 3083.7 | 2827.1 | 2887.8 | -0.0003 | 0.4774 |
| 2.3879 | 3375.8 | 3127.2 | 2827.4 | 2888.0 | 0.0070 | 0.4774 |
| 2.3899 | 3379.0 | 3260.3 | 2827.7 | 2888.4 | 0.0208 | 0.4776 |
| 2.3919 | 3382.3 | 3229.0 | 2828.1 | 2888.7 | -0.0048 | 0.4776 |
| 2.3939 | 3385.5 | 3209.0 | 2828.4 | 2889.0 | -0.0031 | 0.4776 |
| 2.3959 | 3388.6 | 3156.7 | 2828.6 | 2889.2 | -0.0082 | 0.4777 |
| 2.3979 | 3391.9 | 3249.8 | 2829.0 | 2889.5 | 0.0145 | 0.4778 |
| 2.3999 | 3395.3 | 3413.6 | 2829.5 | 2890.0 | 0.0246 | 0.4781 |
| 2.4019 | 3398.5 | 3250.2 | 2829.8 | 2890.3 | -0.0245 | 0.4784 |
| 2.4039 | 3401.8 | 3304.9 | 2830.2 | 2890.7 | 0.0083 | 0.4784 |
| 2.4059 | 3405.1 | 3276.6 | 2830.6 | 2891.0 | -0.0043 | 0.4785 |
| 2.4079 | 3408.3 | 3206.5 | 2830.9 | 2891.3 | -0.0108 | 0.4785 |
| 2.4099 | 3411.6 | 3265.6 | 2831.3 | 2891.6 | 0.0091 | 0.4786 |
| 2.4119 | 3415.0 | 3427.5 | 2831.8 | 2892.1 | 0.0242 | 0.4789 |
| 2.4139 | 3418.4 | 3374.0 | 2832.2 | 2892.5 | -0.0079 | 0.4789 |
| 2.4159 | 3421.7 | 3263.4 | 2832.6 | 2892.9 | -0.0167 | 0.4790 |
| 2.4179 | 3424.6 | 2958.3 | 2832.7 | 2892.9 | -0.0491 | 0.4803 |
| 2.4199 | 3427.7 | 3070.6 | 2832.9 | 2893.1 | 0.0186 | 0.4805 |
| 2.4219 | 3430.8 | 3122.1 | 2833.1 | 2893.3 | 0.0083 | 0.4805 |
| 2.4239 | 3434.0 | 3169.9 | 2833.4 | 2893.5 | 0.0076 | 0.4805 |
| 2.4259 | 3437.1 | 3080.3 | 2833.6 | 2893.7 | -0.0143 | 0.4806 |
| 2.4279 | 3440.3 | 3211.9 | 2833.9 | 2893.9 | 0.0209 | 0.4809 |
| 2.4299 | 3443.4 | 3158.2 | 2834.2 | 2894.2 | -0.0084 | 0.4809 |
| 2.4319 | 3446.7 | 3285.2 | 2834.5 | 2894.5 | 0.0197 | 0.4811 |
| 2.4339 | 3450.1 | 3364.0 | 2835.0 | 2894.9 | 0.0119 | 0.4812 |
| 2.4359 | 3453.4 | 3366.9 | 2835.4 | 2895.3 | 0.0004 | 0.4812 |
| 2.4379 | 3456.9 | 3482.2 | 2835.9 | 2895.9 | 0.0168 | 0.4813 |
| 2.4399 | 3459.9 | 3004.6 | 2836.1 | 2896.0 | -0.0736 | 0.4841 |
| 2.4419 | 3463.2 | 3255.6 | 2836.4 | 2896.3 | 0.0401 | 0.4850 |
| 2.4439 | 3466.4 | 3187.5 | 2836.7 | 2896.5 | -0.0106 | 0.4850 |
| 2.4459 | 3469.7 | 3346.9 | 2837.1 | 2896.9 | 0.0244 | 0.4853 |
| 2.4479 | 3473.1 | 3348.6 | 2837.6 | 2897.3 | 0.0003 | 0.4853 |
| 2.4499 | 3476.5 | 3467.3 | 2838.1 | 2897.8 | 0.0174 | 0.4855 |
| 2.4519 | 3479.9 | 3363.0 | 2838.5 | 2898.2 | -0.0153 | 0.4856 |
| 2.4539 | 3483.3 | 3392.8 | 2838.9 | 2898.7 | 0.0044 | 0.4856 |
| 2.4559 | 3486.7 | 3440.7 | 2839.4 | 2899.2 | 0.0070 | 0.4856 |
| 2.4579 | 3490.1 | 3382.1 | 2839.9 | 2899.6 | -0.0086 | 0.4857 |
| 2.4599 | 3493.5 | 3360.4 | 2840.3 | 2900.0 | -0.0032 | 0.4857 |
| 2.4619 | 3496.9 | 3409.4 | 2840.8 | 2900.4 | 0.0072 | 0.4857 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 2.4639 | 3500.2 | 3287.8 | 2841.1 | 2900.8 | -0.0182 | 0.4859 |
| 2.4659 | 3503.4 | 3268.8 | 2841.5 | 2901.1 | -0.0029 | 0.4859 |
| 2.4679 | 3506.7 | 3281.7 | 2841.8 | 2901.4 | 0.0020 | 0.4859 |
| 2.4699 | 3510.0 | 3308.6 | 2842.2 | 2901.8 | 0.0041 | 0.4859 |
| 2.4719 | 3513.4 | 3346.9 | 2842.6 | 2902.2 | 0.0058 | 0.4859 |
| 2.4739 | 3516.5 | 3159.7 | 2842.9 | 2902.4 | -0.0288 | 0.4863 |
| 2.4759 | 3519.6 | 3105.0 | 2843.1 | 2902.6 | -0.0087 | 0.4864 |
| 2.4779 | 3522.9 | 3241.2 | 2843.4 | 2902.8 | 0.0215 | 0.4866 |
| 2.4799 | 3526.3 | 3372.8 | 2843.8 | 2903.3 | 0.0199 | 0.4868 |
| 2.4819 | 3529.6 | 3382.8 | 2844.3 | 2903.7 | 0.0015 | 0.4868 |
| 2.4839 | 3533.0 | 3388.7 | 2844.7 | 2904.1 | 0.0009 | 0.4868 |
| 2.4859 | 3536.5 | 3448.0 | 2845.2 | 2904.6 | 0.0087 | 0.4869 |
| 2.4879 | 3539.9 | 3394.8 | 2845.6 | 2905.0 | -0.0078 | 0.4869 |
| 2.4899 | 3543.3 | 3400.6 | 2846.1 | 2905.4 | 0.0009 | 0.4869 |
| 2.4919 | 3546.8 | 3500.7 | 2846.6 | 2906.0 | 0.0145 | 0.4870 |
| 2.4939 | 3550.2 | 3475.8 | 2847.1 | 2906.5 | -0.0036 | 0.4870 |
| 2.4959 | 3553.7 | 3475.1 | 2847.6 | 2907.0 | -0.0001 | 0.4870 |
| 2.4979 | 3557.2 | 3493.9 | 2848.1 | 2907.5 | 0.0027 | 0.4870 |
| 2.4999 | 3560.7 | 3470.7 | 2848.6 | 2908.0 | -0.0033 | 0.4870 |
| 2.5019 | 3564.3 | 3589.1 | 2849.2 | 2908.6 | 0.0168 | 0.4872 |
| 2.5039 | 3567.8 | 3551.3 | 2849.8 | 2909.2 | -0.0053 | 0.4872 |
| 2.5059 | 3571.4 | 3524.7 | 2850.3 | 2909.7 | -0.0038 | 0.4872 |
| 2.5079 | 3574.9 | 3529.8 | 2850.9 | 2910.2 | 0.0007 | 0.4872 |
| 2.5099 | 3578.4 | 3507.8 | 2851.4 | 2910.8 | -0.0031 | 0.4872 |
| 2.5119 | 3582.0 | 3599.6 | 2852.0 | 2911.4 | 0.0129 | 0.4873 |
| 2.5139 | 3585.5 | 3515.4 | 2852.5 | 2911.9 | -0.0118 | 0.4873 |
| 2.5159 | 3589.0 | 3491.0 | 2853.0 | 2912.4 | -0.0035 | 0.4874 |
| 2.5179 | 3592.5 | 3491.9 | 2853.5 | 2912.9 | 0.0001 | 0.4874 |
| 2.5199 | 3596.0 | 3556.4 | 2854.1 | 2913.5 | 0.0091 | 0.4874 |
| 2.5219 | 3599.6 | 3505.6 | 2854.6 | 2914.0 | -0.0072 | 0.4874 |
| 2.5239 | 3603.0 | 3472.4 | 2855.1 | 2914.5 | -0.0048 | 0.4874 |
| 2.5259 | 3606.6 | 3561.0 | 2855.6 | 2915.1 | 0.0126 | 0.4875 |
| 2.5279 | 3610.0 | 3442.9 | 2856.1 | 2915.5 | -0.0169 | 0.4877 |
| 2.5299 | 3613.5 | 3479.5 | 2856.6 | 2916.0 | 0.0053 | 0.4877 |
| 2.5319 | 3617.0 | 3474.9 | 2857.1 | 2916.5 | -0.0007 | 0.4877 |
| 2.5339 | 3620.5 | 3480.0 | 2857.6 | 2917.0 | 0.0007 | 0.4877 |
| 2.5359 | 3624.0 | 3496.8 | 2858.1 | 2917.5 | 0.0024 | 0.4877 |
| 2.5379 | 3627.4 | 3478.0 | 2858.6 | 2918.0 | -0.0027 | 0.4877 |
| 2.5399 | 3630.9 | 3454.8 | 2859.0 | 2918.4 | -0.0033 | 0.4877 |
| 2.5419 | 3634.4 | 3459.5 | 2859.5 | 2918.9 | 0.0007 | 0.4877 |
| 2.5439 | 3637.8 | 3495.4 | 2860.0 | 2919.4 | 0.0052 | 0.4877 |
| 2.5459 | 3641.4 | 3524.9 | 2860.5 | 2919.9 | 0.0042 | 0.4877 |
| 2.5479 | 3645.0 | 3608.6 | 2861.1 | 2920.5 | 0.0117 | 0.4878 |
| 2.5499 | 3648.5 | 3547.6 | 2861.7 | 2921.1 | -0.0085 | 0.4878 |
| 2.5519 | 3652.0 | 3509.5 | 2862.2 | 2921.6 | -0.0054 | 0.4878 |
| 2.5539 | 3655.5 | 3426.0 | 2862.6 | 2922.0 | -0.0120 | 0.4879 |
| 2.5559 | 3659.0 | 3504.9 | 2863.1 | 2922.5 | 0.0114 | 0.4880 |
| 2.5579 | 3662.4 | 3390.4 | 2863.5 | 2922.9 | -0.0166 | 0.4881 |
| 2.5599 | 3665.8 | 3473.1 | 2864.0 | 2923.4 | 0.0121 | 0.4882 |
| 2.5619 | 3669.4 | 3590.8 | 2864.6 | 2923.9 | 0.0167 | 0.4883 |
| 2.5639 | 3672.9 | 3433.8 | 2865.0 | 2924.4 | -0.0223 | 0.4886 |
| 2.5659 | 3676.4 | 3493.4 | 2865.5 | 2924.9 | 0.0086 | 0.4886 |
| 2.5679 | 3679.9 | 3500.5 | 2866.0 | 2925.4 | 0.0010 | 0.4886 |
| 2.5699 | 3683.3 | 3468.0 | 2866.5 | 2925.8 | -0.0047 | 0.4886 |
| 2.5719 | 3686.8 | 3436.5 | 2866.9 | 2926.3 | -0.0046 | 0.4886 |
| 2.5739 | 3690.2 | 3479.7 | 2867.4 | 2926.7 | 0.0062 | 0.4887 |
| 2.5759 | 3693.7 | 3441.9 | 2867.8 | 2927.2 | -0.0055 | 0.4887 |
| 2.5779 | 3697.1 | 3466.8 | 2868.3 | 2927.6 | 0.0036 | 0.4887 |

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|--------|--------|--------|--------|--------|---------|--------|
| 2.5799 | 3700.6 | 3476.1 | 2868.8 | 2928.1 | 0.0013 | 0.4887 |
| 2.5819 | 3704.1 | 3480.7 | 2869.2 | 2928.5 | 0.0007 | 0.4887 |
| 2.5839 | 3707.5 | 3439.9 | 2869.7 | 2929.0 | -0.0059 | 0.4887 |
| 2.5859 | 3711.0 | 3503.9 | 2870.2 | 2929.5 | 0.0092 | 0.4888 |
| 2.5879 | 3714.6 | 3529.3 | 2870.7 | 2930.0 | 0.0036 | 0.4888 |
| 2.5899 | 3718.1 | 3523.7 | 2871.2 | 2930.5 | -0.0008 | 0.4888 |
| 2.5919 | 3721.7 | 3566.9 | 2871.7 | 2931.0 | 0.0061 | 0.4888 |
| 2.5939 | 3725.3 | 3671.6 | 2872.3 | 2931.7 | 0.0145 | 0.4889 |
| 2.5959 | 3729.0 | 3643.1 | 2872.9 | 2932.3 | -0.0039 | 0.4889 |
| 2.5979 | 3732.5 | 3564.2 | 2873.5 | 2932.8 | -0.0109 | 0.4890 |
| 2.5999 | 3736.1 | 3548.1 | 2874.0 | 2933.3 | -0.0023 | 0.4890 |
| 2.6019 | 3739.6 | 3546.4 | 2874.5 | 2933.9 | -0.0002 | 0.4890 |
| 2.6039 | 3743.3 | 3641.1 | 2875.1 | 2934.5 | 0.0132 | 0.4890 |
| 2.6059 | 3746.9 | 3635.7 | 2875.7 | 2935.1 | -0.0007 | 0.4890 |
| 2.6079 | 3750.6 | 3659.4 | 2876.3 | 2935.7 | 0.0032 | 0.4891 |
| 2.6099 | 3754.3 | 3718.3 | 2876.9 | 2936.4 | 0.0080 | 0.4891 |
| 2.6119 | 3758.0 | 3744.1 | 2877.6 | 2937.1 | 0.0035 | 0.4891 |
| 2.6139 | 3761.7 | 3687.5 | 2878.2 | 2937.7 | -0.0076 | 0.4891 |
| 2.6159 | 3765.5 | 3749.0 | 2878.9 | 2938.4 | 0.0083 | 0.4892 |
| 2.6179 | 3769.0 | 3559.6 | 2879.4 | 2939.0 | -0.0259 | 0.4895 |
| 2.6199 | 3772.5 | 3503.7 | 2879.9 | 2939.4 | -0.0079 | 0.4895 |
| 2.6219 | 3776.1 | 3575.0 | 2880.4 | 2940.0 | 0.0101 | 0.4896 |
| 2.6239 | 3779.7 | 3558.1 | 2880.9 | 2940.5 | -0.0024 | 0.4896 |
| 2.6259 | 3783.1 | 3433.1 | 2881.3 | 2940.9 | -0.0179 | 0.4897 |
| 2.6279 | 3786.7 | 3556.2 | 2881.9 | 2941.4 | 0.0176 | 0.4899 |
| 2.6299 | 3790.1 | 3442.1 | 2882.3 | 2941.8 | -0.0163 | 0.4900 |
| 2.6319 | 3793.5 | 3405.3 | 2882.7 | 2942.2 | -0.0054 | 0.4901 |
| 2.6339 | 3797.0 | 3503.9 | 2883.1 | 2942.7 | 0.0143 | 0.4902 |
| 2.6359 | 3800.6 | 3540.5 | 2883.6 | 2943.2 | 0.0052 | 0.4902 |
| 2.6379 | 3804.3 | 3726.8 | 2884.3 | 2943.8 | 0.0256 | 0.4905 |
| 2.6399 | 3807.8 | 3517.6 | 2884.8 | 2944.3 | -0.0289 | 0.4909 |
| 2.6419 | 3811.3 | 3551.8 | 2885.3 | 2944.8 | 0.0048 | 0.4909 |
| 2.6439 | 3815.0 | 3633.3 | 2885.8 | 2945.4 | 0.0113 | 0.4910 |
| 2.6459 | 3818.6 | 3599.6 | 2886.4 | 2946.0 | -0.0047 | 0.4910 |
| 2.6479 | 3822.1 | 3550.8 | 2886.9 | 2946.5 | -0.0068 | 0.4910 |
| 2.6499 | 3825.7 | 3551.8 | 2887.4 | 2947.0 | 0.0001 | 0.4910 |
| 2.6519 | 3829.2 | 3526.6 | 2887.9 | 2947.5 | -0.0036 | 0.4911 |
| 2.6539 | 3832.7 | 3484.9 | 2888.3 | 2947.9 | -0.0060 | 0.4911 |
| 2.6559 | 3836.2 | 3510.7 | 2888.8 | 2948.4 | 0.0037 | 0.4911 |
| 2.6579 | 3839.8 | 3550.5 | 2889.3 | 2948.9 | 0.0070 | 0.4911 |
| 2.6599 | 3843.2 | 3480.0 | 2889.7 | 2949.3 | -0.0114 | 0.4912 |
| 2.6619 | 3846.7 | 3464.1 | 2890.2 | 2949.7 | -0.0023 | 0.4912 |
| 2.6639 | 3850.2 | 3484.6 | 2890.6 | 2950.2 | 0.0030 | 0.4912 |
| 2.6659 | 3853.7 | 3521.2 | 2891.1 | 2950.6 | 0.0052 | 0.4912 |
| 2.6679 | 3857.2 | 3495.6 | 2891.5 | 2951.1 | -0.0037 | 0.4912 |
| 2.6699 | 3860.7 | 3445.8 | 2891.9 | 2951.5 | -0.0072 | 0.4912 |
| 2.6719 | 3864.3 | 3610.6 | 2892.5 | 2952.0 | 0.0234 | 0.4915 |
| 2.6739 | 3867.7 | 3481.7 | 2892.9 | 2952.5 | -0.0182 | 0.4917 |
| 2.6759 | 3871.2 | 3407.0 | 2893.3 | 2952.8 | -0.0108 | 0.4917 |
| 2.6779 | 3874.6 | 3454.3 | 2893.7 | 2953.2 | 0.0069 | 0.4918 |
| 2.6799 | 3878.1 | 3503.4 | 2894.2 | 2953.7 | 0.0071 | 0.4918 |
| 2.6819 | 3881.6 | 3530.5 | 2894.7 | 2954.1 | 0.0039 | 0.4918 |
| 2.6839 | 3885.2 | 3507.1 | 2895.1 | 2954.6 | -0.0033 | 0.4918 |
| 2.6859 | 3888.7 | 3525.1 | 2895.6 | 2955.1 | 0.0026 | 0.4918 |
| 2.6879 | 3892.2 | 3564.9 | 2896.1 | 2955.6 | 0.0056 | 0.4918 |
| 2.6899 | 3895.8 | 3573.0 | 2896.6 | 2956.1 | 0.0011 | 0.4918 |
| 2.6919 | 3899.5 | 3647.2 | 2897.1 | 2956.6 | 0.0103 | 0.4919 |
| 2.6939 | 3903.0 | 3571.5 | 2897.6 | 2957.2 | -0.0105 | 0.4919 |

| TIME | DEPTH | INT.VEL. | AVG.VEL. | RMS.VEL. | REF.CFT. | TRN.LOSS |
|--------|--------|----------|----------|----------|----------|----------|
| 2.6959 | 3906.6 | 3568.4 | 2898.1 | 2957.7 | -0.0004 | 0.4919 |
| 2.6979 | 3910.2 | 3581.3 | 2898.6 | 2958.2 | 0.0018 | 0.4919 |
| 2.6999 | 3913.5 | 3297.1 | 2898.9 | 2958.4 | -0.00413 | 0.4928 |
| 2.7019 | 3916.8 | 3299.6 | 2899.2 | 2958.7 | 0.0004 | 0.4928 |
| 2.7039 | 3920.3 | 3506.1 | 2899.7 | 2959.1 | 0.00303 | 0.4933 |
| 2.7059 | 3923.9 | 3581.5 | 2900.2 | 2959.6 | 0.0106 | 0.4933 |
| 2.7079 | 3927.6 | 3721.7 | 2900.8 | 2960.3 | 0.0192 | 0.4935 |
| 2.7099 | 3931.2 | 3617.4 | 2901.3 | 2960.8 | -0.0142 | 0.4936 |
| 2.7119 | 3934.7 | 3464.4 | 2901.7 | 2961.2 | -0.0216 | 0.4938 |
| 2.7139 | 3938.3 | 3600.8 | 2902.3 | 2961.7 | 0.0193 | 0.4940 |
| 2.7159 | 3941.9 | 3610.8 | 2902.8 | 2962.3 | 0.0014 | 0.4940 |
| 2.7179 | 3945.4 | 3537.6 | 2903.2 | 2962.7 | -0.0102 | 0.4941 |
| 2.7199 | 3949.0 | 3549.6 | 2903.7 | 2963.2 | 0.0017 | 0.4941 |
| 2.7219 | 3952.5 | 3551.0 | 2904.2 | 2963.7 | 0.0002 | 0.4941 |
| 2.7239 | 3956.2 | 3663.6 | 2904.8 | 2964.3 | 0.0156 | 0.4942 |
| 2.7259 | 3959.8 | 3640.9 | 2905.3 | 2964.8 | -0.0031 | 0.4942 |
| 2.7279 | 3963.4 | 3595.7 | 2905.8 | 2965.3 | -0.0062 | 0.4942 |
| 2.7299 | 3967.0 | 3547.6 | 2906.3 | 2965.8 | -0.0067 | 0.4943 |
| 2.7319 | 3970.5 | 3559.1 | 2906.7 | 2966.3 | 0.0016 | 0.4943 |
| 2.7339 | 3974.1 | 3550.3 | 2907.2 | 2966.7 | -0.0012 | 0.4943 |
| 2.7359 | 3977.7 | 3638.9 | 2907.8 | 2967.3 | 0.0123 | 0.4943 |
| 2.7379 | 3981.3 | 3625.7 | 2908.3 | 2967.8 | -0.0018 | 0.4943 |
| 2.7399 | 3984.9 | 3514.6 | 2908.7 | 2968.3 | -0.0156 | 0.4945 |
| 2.7419 | 3988.5 | 3661.6 | 2909.3 | 2968.8 | 0.0205 | 0.4947 |
| 2.7439 | 3992.1 | 3533.9 | 2909.7 | 2969.3 | -0.0177 | 0.4948 |
| 2.7459 | 3996.1 | 4017.6 | 2910.5 | 2970.2 | 0.0640 | 0.4969 |
| 2.7479 | 4000.0 | 3891.6 | 2911.2 | 2970.9 | -0.0159 | 0.4970 |
| 2.7499 | 4003.9 | 3910.9 | 2912.0 | 2971.7 | 0.0025 | 0.4970 |
| 2.7519 | 4007.7 | 3876.2 | 2912.7 | 2972.5 | -0.0045 | 0.4970 |
| 2.7539 | 4011.6 | 3825.0 | 2913.3 | 2973.2 | -0.0067 | 0.4971 |
| 2.7559 | 4015.3 | 3728.0 | 2913.9 | 2973.8 | -0.0128 | 0.4971 |
| 2.7579 | 4018.9 | 3634.5 | 2914.5 | 2974.4 | -0.0127 | 0.4972 |
| 2.7599 | 4022.6 | 3657.2 | 2915.0 | 2974.9 | 0.0031 | 0.4972 |
| 2.7619 | 4026.2 | 3628.4 | 2915.5 | 2975.4 | -0.0040 | 0.4972 |
| 2.7639 | 4029.8 | 3619.1 | 2916.0 | 2975.9 | -0.0013 | 0.4972 |
| 2.7659 | 4033.4 | 3557.6 | 2916.5 | 2976.4 | -0.0086 | 0.4973 |
| 2.7679 | 4037.0 | 3554.0 | 2916.9 | 2976.9 | -0.0005 | 0.4973 |
| 2.7699 | 4040.5 | 3529.8 | 2917.4 | 2977.3 | -0.0034 | 0.4973 |
| 2.7719 | 4044.0 | 3554.4 | 2917.8 | 2977.8 | 0.0035 | 0.4973 |
| 2.7739 | 4047.6 | 3585.0 | 2918.3 | 2978.2 | 0.0043 | 0.4973 |
| 2.7759 | 4051.2 | 3586.7 | 2918.8 | 2978.7 | 0.0002 | 0.4973 |
| 2.7779 | 4054.6 | 3430.9 | 2919.2 | 2979.1 | -0.0222 | 0.4975 |
| 2.7799 | 4058.1 | 3444.3 | 2919.6 | 2979.4 | 0.0020 | 0.4976 |
| 2.7819 | 4061.5 | 3467.0 | 2919.9 | 2979.8 | 0.0033 | 0.4976 |
| 2.7839 | 4065.1 | 3582.3 | 2920.4 | 2980.3 | 0.0163 | 0.4977 |
| 2.7859 | 4068.6 | 3503.2 | 2920.8 | 2980.7 | -0.0112 | 0.4978 |
| 2.7879 | 4072.1 | 3479.2 | 2921.2 | 2981.1 | -0.0034 | 0.4978 |
| 2.7899 | 4075.5 | 3377.2 | 2921.6 | 2981.4 | -0.0149 | 0.4979 |
| 2.7919 | 4079.0 | 3470.7 | 2922.0 | 2981.8 | 0.0137 | 0.4980 |
| 2.7939 | 4083.2 | 4281.3 | 2922.9 | 2982.9 | 0.1046 | 0.5035 |
| 2.7959 | 4087.5 | 4294.9 | 2923.9 | 2984.0 | 0.0016 | 0.5035 |
| 2.7979 | 4091.8 | 4236.8 | 2924.9 | 2985.1 | -0.0068 | 0.5035 |
| 2.7999 | 4095.7 | 3957.0 | 2925.6 | 2985.9 | -0.0341 | 0.5041 |
| 2.8019 | 4099.8 | 4083.0 | 2926.4 | 2986.9 | 0.0157 | 0.5042 |
| 2.8039 | 4104.0 | 4231.4 | 2927.3 | 2987.9 | 0.0179 | 0.5043 |
| 2.8059 | 4108.1 | 4103.0 | 2928.2 | 2988.9 | -0.0154 | 0.5045 |
| 2.8079 | 4112.3 | 4104.5 | 2929.0 | 2989.8 | 0.0002 | 0.5045 |
| 2.8099 | 4116.5 | 4230.0 | 2929.9 | 2990.9 | 0.0151 | 0.5046 |

| TIME | DEPTH | INT. VEL. | AVG. VEL. | RMS. VEL. | REF. CPT. | TRN. LOSS |
|--------|--------|-----------|-----------|-----------|-----------|-----------|
| 2.8119 | 4120.9 | 4424.3 | 2931.0 | 2992.2 | 0.0225 | 0.5048 |
| 2.8139 | 4125.3 | 4405.8 | 2932.1 | 2993.4 | -0.0021 | 0.5048 |
| 2.8159 | 4129.8 | 4515.1 | 2933.2 | 2994.8 | 0.0123 | 0.5049 |
| 2.8179 | 4134.1 | 4231.4 | 2934.1 | 2995.8 | -0.0324 | 0.5054 |
| 2.8199 | 4138.0 | 3964.4 | 2934.8 | 2996.6 | -0.0326 | 0.5059 |
| 2.8219 | 4141.9 | 3921.4 | 2935.5 | 2997.4 | -0.0054 | 0.5060 |
| 2.8239 | 4146.0 | 4047.9 | 2936.3 | 2998.2 | 0.0159 | 0.5061 |
| 2.8259 | 4150.0 | 3965.8 | 2937.1 | 2999.0 | -0.0102 | 0.5061 |
| 2.8279 | 4154.0 | 4005.4 | 2937.8 | 2999.9 | 0.0050 | 0.5061 |
| 2.8299 | 4157.8 | 3831.5 | 2938.4 | 3000.5 | -0.0222 | 0.5064 |
| 2.8319 | 4162.0 | 4164.6 | 2939.3 | 3001.5 | 0.0416 | 0.5072 |
| 2.8339 | 4166.2 | 4287.1 | 2940.3 | 3002.6 | 0.0145 | 0.5073 |

ADDENDU

SYNTHETIC SEISMOGRAM REPORT

BRIDGEWATER BAY NO. 1

Phillips Petroleum Company Far East (Singapore)
Seismic Stratigraphy Section

Well : Phillips Bridgewater Bay No. 1 is located S 38° 32' 26" and E 141° 21' 42" or approximately SP 857 Line OP 80-43 in the Otway Basin, Victoria, Australia. The well was plugged and abandoned Dec. 12, 1983 with a TD of 4200 M (RKB).

Logs : Sonic and density logs were edited to remove cycle skips and noise. The sonic log was interpolated from the start of the log at 493 M (RKB) to the sea floor at 132.5 M (RKB). A break in the log was input at the sea floor in order to generate a sea floor reflection. Both the sonic and density logs were converted from RKB (23.5 M) to MSL prior to generating synthetic seismograms. Over the intervals 0 to 1600 M, 3050 to 3875 M, and 4150 to 4179 M (MSL) the density log either was not recorded or was of poor quality. Gardner's equation was utilized to estimate the density response within these intervals.

Check Shots: Check shots were reviewed and edited. Table 1 is a listing of all available check shots for the well. Figure 1 is a plot of the difference between the time-depth curve derived from integrating the sonic log without checkshots and the time-depth curve derived from the check shot corrected sonic log. The check shots at 1182, 1377, and 1532 M gave an anomalous "off-trend" correction to the sonic log, and a preliminary synthetic seismogram, which

check shots were selected for the final correction and are listed in Table 2. In addition, a pseudo check shot was applied at the sea floor (109 M, MSL). The difference plot for these check shots is shown in Figure 2. Figure 3 shows the derivative of the curve in Figure 2; this derivative is the actual correction rate applied to the sonic log. Tables 3 and 4 are listings of the final, check shot corrected, time-depth function.

Wavelets : Two Ricker wavelets and two extracted wavelets were utilized for constructing synthetic seismograms (Enclosures 1-4). The 20 and 25 Hz zero phase Ricker wavelets (Figs. 4-7) provide good matches to the 1981 GSI processing. The extracted wavelets (Figs. 8-11) were obtained through autocorrelation analysis of the Phillips Singapore 1984 reprocessed version of Line OP 80-43. The analysis window was 1.5 - 2.5 sec and included all traces in the interval SP 570 - SP 1213.

Other Displays :

Enclosure 5 is an interpretation montage showing the correlation between the Bridgewater Bay synthetic seismogram and the Phillips Singapore reprocessed version of Line OP 80-43. Enclosure 6 is a condensed log display showing the synthetic seismogram, resistivity log, and gamma ray log.

TABLE 1 : LIST OF ALL AVAILABLE CHECK SHOTS

| <u>Depth in Meters</u> <u>(MSL)</u> | <u>Two Way Time (MS)</u> <u>(MSL)</u> |
|--|--|
| 477 | 490 |
| 877 | 781 |
| 987 | 869 |
| 1182 | 1012 |
| 1377 | 1146 |
| 1532 | 1254 |
| 1677 | 1366 |
| 1827 | 1476 |
| 2027 | 1610 |
| 2167 | 1696 |
| 2352 | 1808 |
| 2477 | 1878 |
| 2607 | 1950 |
| 2695 | 1998 |
| 2902 | 2106 |
| 3127 | 2234 |
| 3327 | 2358 |
| 3477 | 2450 |
| 3677 | 2568 |
| 3877 | 2680 |
| 3994 | 2746 |
| 4081 | 2796 |
| 4157 | 2832 |

BOMB 1 / PE902250 / P228

CHECKSHOT CORRECTION (ALL CHECKSHOTS)

FIGURE 1

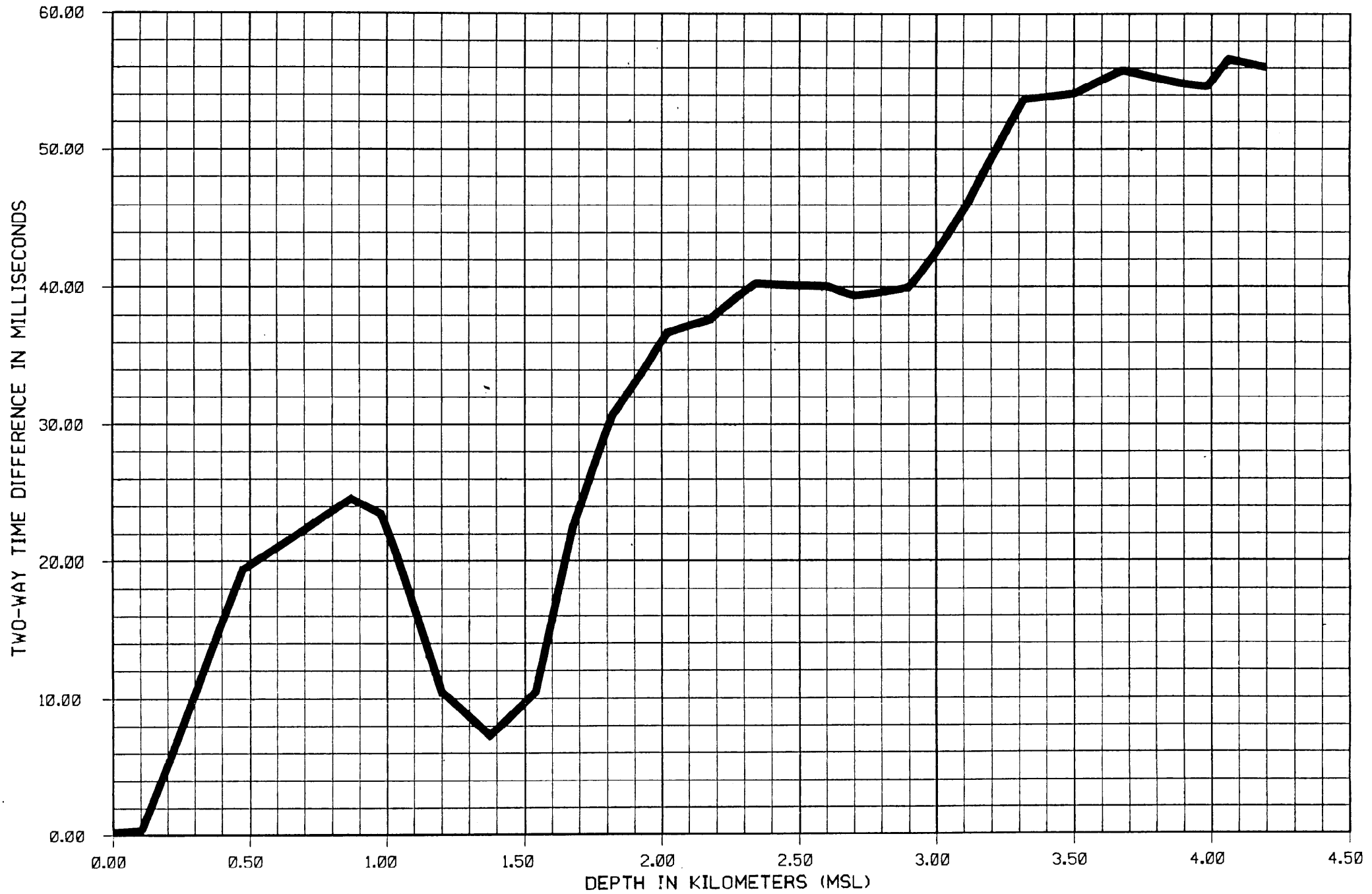
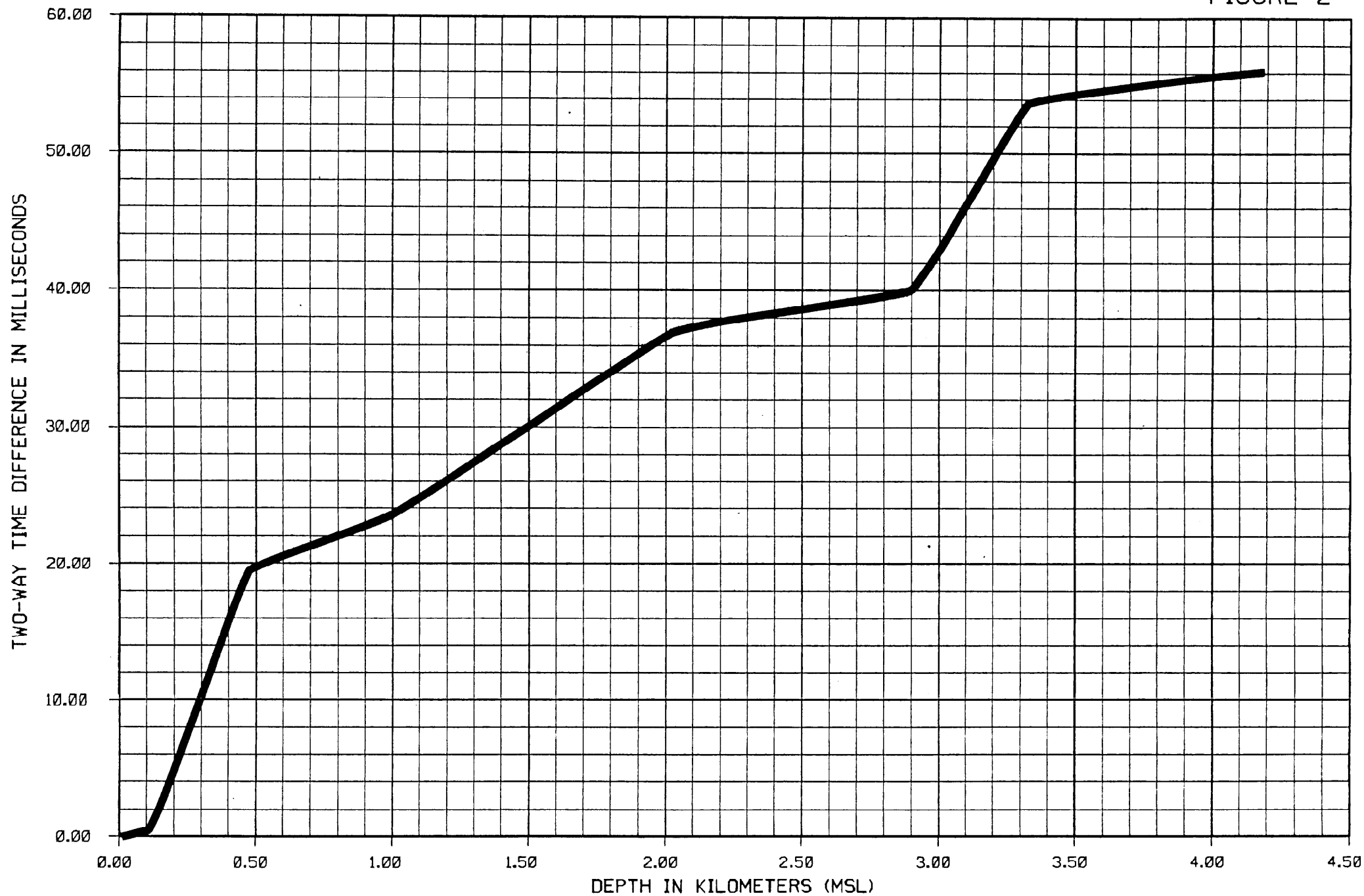


TABLE 2 : CHECK SHOTS APPLIED FOR SYNTHETIC SEISMOGRAM

| <u>Depth in Meters</u> <u>(MSL)</u> | <u>Two Way Time (MS)</u> <u>(MSL)</u> |
|--|--|
| 109 | 143 |
| 477 | 490 |
| 987 | 869 |
| 2027 | 1610 |
| 2902 | 2106 |
| 3327 | 2358 |
| 4157 | 2832 |

CHECKSHOT CORRECTION (FINAL)

FIGURE 2



CORRECTION RATE (FINAL)

FIGURE 3

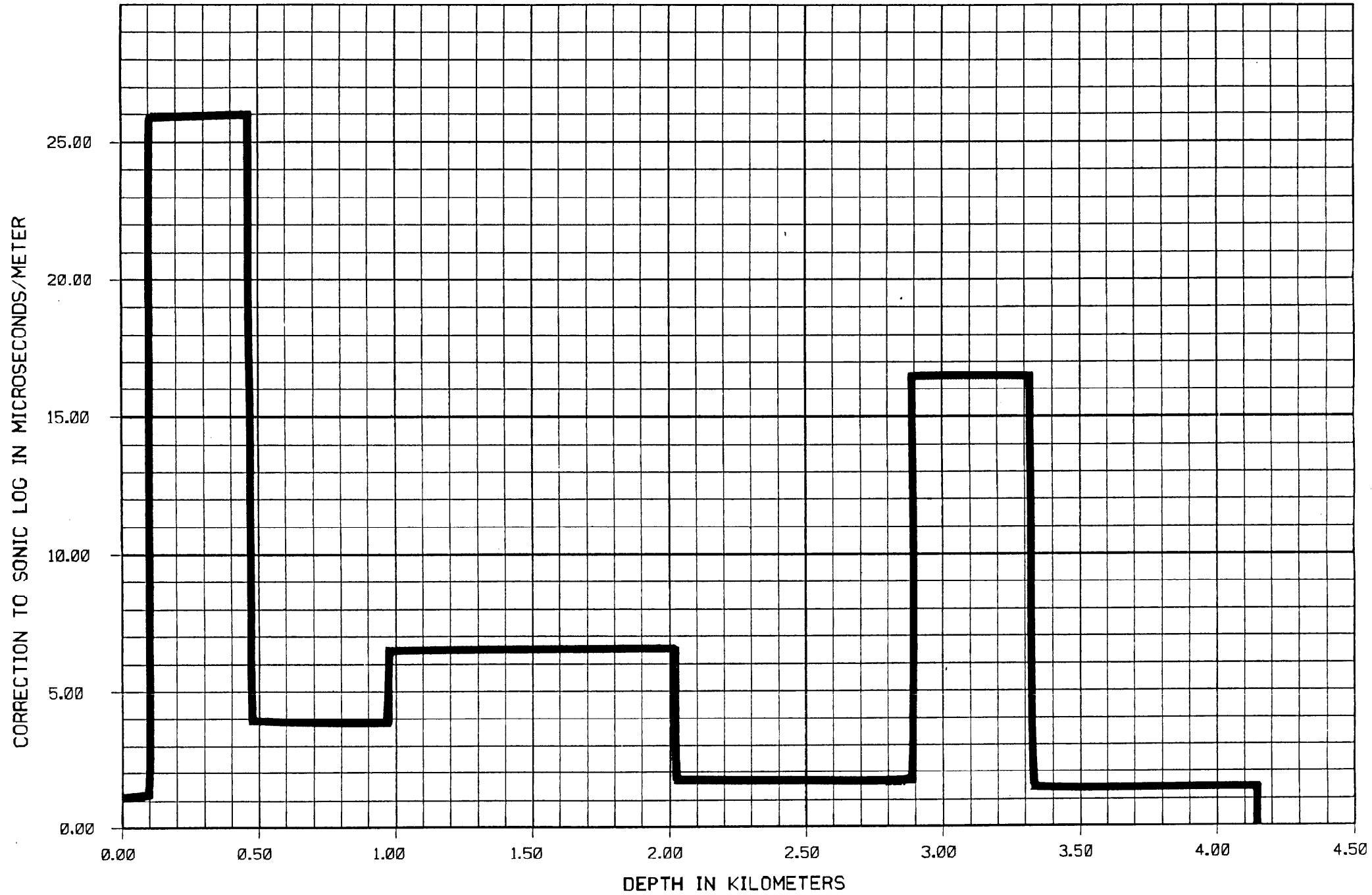


TABLE 3 : DEPTH - TIME LISTING

DATE - 16-FEB-84 TIME - 08:13:29

PAGE 1

BRIDGEWATER BAY WELL

LOG DESCRIPTION: DEPTH-TIME w/CHECK SHOTS Referenced to MSL

DEPTH INCREMENT = 5.00 METERS DEPTH FIRST READING = 0.00 DEPTH LAST READING = 4175.00

Time Values in Two-Way Time

| DEPTH | READING VALUES | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
|---------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| 0.00 | 0.00112 | 6.56299 | 13.12486 | 19.68673 | 26.24860 | 32.81048 | 39.37239 | 45.93430 | 52.49621 | 59.05812 |
| 50.00 | 65.62003 | 72.18194 | 78.74384 | 85.30576 | 91.86766 | 98.42957 | 104.99148 | 111.55339 | 118.11530 | 124.67721 |
| 100.00 | 131.23904 | 137.80080 | 144.14481 | 149.39384 | 154.62937 | 159.84616 | 165.04568 | 170.22833 | 175.39421 | 180.54333 |
| 150.00 | 185.67586 | 190.79193 | 195.89162 | 200.97310 | 206.04242 | 211.09373 | 216.12910 | 221.14864 | 226.15248 | 231.14070 |
| 200.00 | 236.11340 | 241.07076 | 246.01286 | 250.93970 | 255.83136 | 260.74803 | 265.62979 | 270.49677 | 275.34897 | 280.18658 |
| 250.00 | 285.00961 | 289.81824 | 294.61253 | 299.39258 | 304.15839 | 308.91016 | 313.64799 | 318.37177 | 323.08173 | 327.77998 |
| 300.00 | 332.46060 | 337.12961 | 341.78516 | 346.42728 | 351.05615 | 355.67172 | 360.27417 | 364.86353 | 369.43983 | 374.00323 |
| 350.00 | 378.35380 | 383.09158 | 387.81658 | 392.52909 | 396.22900 | 401.11633 | 405.59140 | 410.05408 | 414.50453 | 418.94278 |
| 400.00 | 423.36884 | 427.78284 | 432.18509 | 436.57320 | 440.93844 | 445.32028 | 449.67320 | 454.01843 | 458.35016 | 462.67033 |
| 450.00 | 466.97910 | 471.27649 | 475.56256 | 479.83743 | 484.10104 | 488.35388 | 492.55324 | 496.27710 | 500.23709 | 504.19681 |
| 500.00 | 508.10327 | 511.92920 | 515.77934 | 519.59235 | 523.36768 | 527.11792 | 530.88731 | 534.69940 | 538.46393 | 542.25665 |
| 550.00 | 546.02039 | 549.76439 | 553.45972 | 557.13434 | 560.83221 | 564.54291 | 568.28894 | 571.99937 | 575.72839 | 579.45062 |
| 600.00 | 583.21631 | 587.07343 | 590.96338 | 594.77934 | 598.59668 | 602.40843 | 606.21387 | 609.95990 | 613.68236 | 617.42010 |
| 650.00 | 621.20428 | 624.93988 | 628.70227 | 632.40002 | 636.12079 | 639.87913 | 643.63147 | 647.40369 | 651.18219 | 654.94464 |
| 700.00 | 658.67236 | 662.35382 | 665.97253 | 669.52653 | 673.25671 | 676.91388 | 680.49890 | 684.15808 | 687.87938 | 691.52734 |
| 750.00 | 695.09637 | 698.62769 | 702.16813 | 705.74239 | 709.26111 | 712.85248 | 716.36566 | 719.72089 | 723.09906 | 726.53784 |
| 800.00 | 729.83807 | 733.53831 | 737.03046 | 740.22015 | 743.07416 | 746.20178 | 749.24698 | 752.47809 | 755.41632 | 758.80253 |
| 850.00 | 762.07231 | 765.10390 | 768.13139 | 771.53790 | 774.48334 | 777.66936 | 781.18970 | 783.74723 | 790.47331 | 793.06689 |
| 900.00 | 799.45972 | 803.83264 | 808.22534 | 812.71918 | 817.18280 | 821.65371 | 826.15333 | 830.63338 | 835.27008 | 839.62885 |
| 950.00 | 843.29114 | 846.72681 | 850.14319 | 854.10065 | 856.85986 | 859.42139 | 863.42877 | 867.29234 | 871.57770 | 875.88721 |
| 1000.00 | 880.20807 | 884.51213 | 888.76111 | 893.12598 | 897.31834 | 901.45987 | 905.61438 | 909.74219 | 913.86707 | 917.89740 |
| 1050.00 | 922.01947 | 926.15253 | 930.43726 | 934.69128 | 938.98863 | 943.11664 | 947.24579 | 951.34082 | 955.36336 | 959.33624 |
| 1100.00 | 963.21478 | 967.09229 | 970.98816 | 974.79248 | 978.69744 | 982.72943 | 986.82037 | 990.85371 | 994.77903 | 998.67944 |
| 1150.00 | 1002.64832 | 1006.63318 | 1010.51758 | 1014.33612 | 1018.19639 | 1022.01288 | 1025.59180 | 1028.81506 | 1032.23608 | 1035.78833 |
| 1200.00 | 1039.43730 | 1043.26013 | 1047.17346 | 1051.00932 | 1054.80469 | 1058.44907 | 1062.16130 | 1066.03352 | 1069.62337 | 1073.34436 |
| 1250.00 | 1076.83337 | 1080.52031 | 1084.23049 | 1087.95813 | 1091.49702 | 1095.21484 | 1098.83643 | 1102.44324 | 1105.98730 | 1109.62927 |
| 1300.00 | 1113.25928 | 1116.86218 | 1120.39380 | 1123.83801 | 1127.47937 | 1130.97290 | 1134.59680 | 1138.01233 | 1141.40662 | 1144.94080 |
| 1350.00 | 1148.49194 | 1151.96375 | 1155.48973 | 1159.01868 | 1162.33310 | 1165.79785 | 1169.31367 | 1172.79297 | 1176.20776 | 1179.62024 |
| 1400.00 | 1183.12744 | 1186.73596 | 1190.42297 | 1193.93494 | 1197.57080 | 1201.07837 | 1204.69409 | 1208.21448 | 1211.63379 | 1215.02869 |
| 1450.00 | 1218.63867 | 1222.09717 | 1225.66357 | 1229.01880 | 1232.65173 | 1236.14380 | 1239.67957 | 1242.98108 | 1246.44800 | 1249.32227 |
| 1500.00 | 1252.82471 | 1256.21411 | 1259.69263 | 1263.17627 | 1265.89392 | 1269.50891 | 1272.97876 | 1276.47217 | 1279.91016 | 1283.38276 |
| 1550.00 | 1287.24207 | 1290.53364 | 1294.03125 | 1297.60938 | 1301.29822 | 1304.98938 | 1308.68091 | 1312.39490 | 1316.09717 | 1319.73730 |
| 1600.00 | 1323.19348 | 1326.75061 | 1329.79283 | 1333.46629 | 1336.94731 | 1340.32961 | 1343.69321 | 1347.08948 | 1350.53088 | 1354.14661 |
| 1650.00 | 1357.36316 | 1361.10266 | 1364.61333 | 1367.82178 | 1371.29297 | 1374.67603 | 1377.98154 | 1381.00236 | 1384.32933 | 1387.58936 |
| 1700.00 | 1390.81897 | 1394.16846 | 1397.44128 | 1400.85669 | 1404.23230 | 1407.83945 | 1411.51111 | 1415.16541 | 1418.65723 | 1422.03259 |
| 1750.00 | 1425.45439 | 1429.00171 | 1432.43176 | 1435.51013 | 1438.98254 | 1442.55225 | 1446.20890 | 1449.79004 | 1453.38818 | 1457.10144 |
| 1800.00 | 1460.84241 | 1464.54028 | 1468.13281 | 1471.61401 | 1475.00098 | 1478.24361 | 1481.67212 | 1485.06042 | 1488.41309 | 1491.89351 |
| 1850.00 | 1495.30249 | 1498.56628 | 1501.91309 | 1505.25781 | 1508.54431 | 1511.77271 | 1514.99707 | 1518.35930 | 1521.78784 | 1525.08240 |
| 1900.00 | 1528.33533 | 1531.79919 | 1535.28784 | 1538.52246 | 1541.76338 | 1545.16431 | 1548.59358 | 1551.99316 | 1555.46069 | 1558.53337 |
| 1950.00 | 1561.99280 | 1565.26794 | 1568.38826 | 1571.88904 | 1575.04028 | 1577.96436 | 1581.23000 | 1584.43237 | 1587.60396 | 1590.86333 |
| 2000.00 | 1594.03857 | 1596.73964 | 1599.74744 | 1602.78662 | 1605.72766 | 1608.78857 | 1611.77991 | 1614.82263 | 1617.90894 | 1620.98938 |
| 2050.00 | 1624.13173 | 1627.38416 | 1630.48242 | 1633.61682 | 1636.72131 | 1639.91504 | 1642.85643 | 1645.98987 | 1649.16309 | 1652.27258 |
| 2100.00 | 1653.43848 | 1658.51333 | 1661.33027 | 1664.63818 | 1667.50349 | 1670.53131 | 1673.61499 | 1676.54016 | 1679.39026 | 1682.52686 |
| 2150.00 | 1685.64722 | 1688.67834 | 1691.69092 | 1694.66626 | 1697.44380 | 1700.35828 | 1703.38391 | 1706.33323 | 1709.26963 | 1712.23206 |
| 2200.00 | 1715.14978 | 1718.09733 | 1721.06433 | 1724.13523 | 1727.10498 | 1730.17810 | 1733.24182 | 1736.20544 | 1739.12964 | 1742.08887 |
| 2250.00 | 1745.26463 | 1748.42822 | 1751.56677 | 1754.66467 | 1757.85510 | 1760.89441 | 1763.83972 | 1766.65430 | 1769.82581 | 1772.89197 |

TABLE 3 : DEPTH - TIME LISTING

DATE - 16-FEB-84 TIME - 08:13:29

PAGE 2

BRIDGEWATER BAY WELL

LOG DESCRIPTION: DEPTH-TIME w/CHECK SHOTS Referenced to MSL

DEPTH INCREMENT = 5.00 METERS DEPTH FIRST READING = 0.00 DEPTH LAST READING = 4175.00

Time Values in Two-Way Time

| DEPTH | READING | VALUES | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | | | | | | | | | |
|---------|---------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 2300.00 | 1775. | 90112 | 1778. | 80627 | 1781. | 72705 | 1784. | 64636 | 1787. | 43787 | 1790. | 28162 | 1793. | 13184 | 1795. | 98889 | 1798. | 82349 | 1801. | 62891 |
| 2350.00 | 1804. | 51855 | 1807. | 57813 | 1810. | 63562 | 1813. | 69153 | 1816. | 78833 | 1819. | 87256 | 1822. | 77283 | 1825. | 57776 | 1828. | 38660 | 1831. | 20154 |
| 2400.00 | 1833. | 98315 | 1836. | 82703 | 1839. | 57397 | 1842. | 25195 | 1844. | 92371 | 1847. | 74255 | 1850. | 54126 | 1853. | 21130 | 1855. | 99255 | 1858. | 77734 |
| 2450.00 | 1861. | 57190 | 1864. | 31360 | 1867. | 04211 | 1869. | 78674 | 1872. | 54761 | 1875. | 30640 | 1878. | 05457 | 1880. | 75635 | 1883. | 54016 | 1886. | 45142 |
| 2500.00 | 1889. | 45581 | 1892. | 47375 | 1895. | 30322 | 1898. | 14917 | 1901. | 06091 | 1903. | 85278 | 1906. | 55579 | 1909. | 31152 | 1912. | 09082 | 1914. | 92773 |
| 2550.00 | 1917. | 76343 | 1920. | 61230 | 1923. | 42419 | 1926. | 24695 | 1928. | 97620 | 1931. | 73328 | 1934. | 46094 | 1937. | 21985 | 1939. | 92566 | 1942. | 47009 |
| 2600.00 | 1945. | 05005 | 1947. | 63196 | 1950. | 25818 | 1953. | 11816 | 1956. | 01501 | 1958. | 94397 | 1961. | 84180 | 1964. | 67981 | 1967. | 57068 | 1970. | 36060 |
| 2650.00 | 1973. | 13403 | 1975. | 85950 | 1978. | 37410 | 1981. | 34619 | 1984. | 14111 | 1986. | 89124 | 1989. | 68835 | 1992. | 45117 | 1995. | 15344 | 1997. | 87915 |
| 2700.00 | 2000. | 52515 | 2003. | 14429 | 2005. | 72266 | 2008. | 36292 | 2011. | 01489 | 2013. | 67615 | 2016. | 35498 | 2019. | 00671 | 2021. | 69226 | 2024. | 36890 |
| 2750.00 | 2027. | 05701 | 2029. | 69934 | 2032. | 32544 | 2034. | 95752 | 2037. | 57495 | 2040. | 22559 | 2042. | 87537 | 2045. | 47656 | 2048. | 08594 | 2050. | 69849 |
| 2800.00 | 2053. | 32666 | 2055. | 92017 | 2058. | 53394 | 2061. | 15332 | 2063. | 76978 | 2066. | 38843 | 2069. | 00073 | 2071. | 60449 | 2074. | 19995 | 2076. | 79004 |
| 2850.00 | 2079. | 36426 | 2081. | 91626 | 2084. | 48096 | 2087. | 03904 | 2089. | 62842 | 2092. | 24243 | 2094. | 84229 | 2097. | 41844 | 2099. | 96049 | 2102. | 48682 |
| 2900.00 | 2104. | 99658 | 2107. | 60913 | 2110. | 26636 | 2112. | 94482 | 2115. | 65845 | 2118. | 40283 | 2121. | 20068 | 2124. | 00439 | 2126. | 76221 | 2129. | 49683 |
| 2950.00 | 2132. | 24292 | 2134. | 97925 | 2137. | 70608 | 2140. | 43068 | 2143. | 21558 | 2145. | 96460 | 2148. | 73804 | 2151. | 52808 | 2154. | 28882 | 2157. | 07373 |
| 3000.00 | 2159. | 84204 | 2162. | 59961 | 2165. | 36279 | 2168. | 08936 | 2170. | 87427 | 2173. | 65625 | 2176. | 46069 | 2179. | 26880 | 2182. | 10767 | 2184. | 98682 |
| 3050.00 | 2187. | 90112 | 2190. | 85010 | 2193. | 85645 | 2196. | 88110 | 2199. | 92676 | 2202. | 96704 | 2206. | 04565 | 2209. | 16260 | 2212. | 24512 | 2215. | 33787 |
| 3100.00 | 2218. | 48608 | 2221. | 63110 | 2224. | 76440 | 2227. | 83887 | 2230. | 82910 | 2233. | 75317 | 2236. | 74121 | 2239. | 71851 | 2242. | 74683 | 2245. | 76636 |
| 3150.00 | 2248. | 79907 | 2251. | 76904 | 2254. | 71143 | 2257. | 62354 | 2260. | 55371 | 2263. | 53320 | 2266. | 51465 | 2269. | 56201 | 2272. | 61719 | 2275. | 68262 |
| 3200.00 | 2278. | 73732 | 2281. | 78101 | 2284. | 88208 | 2287. | 97632 | 2291. | 08032 | 2294. | 29004 | 2297. | 49731 | 2300. | 66260 | 2303. | 80347 | 2306. | 83325 |
| 3250.00 | 2309. | 82666 | 2312. | 89038 | 2315. | 90186 | 2319. | 01392 | 2322. | 04956 | 2325. | 14233 | 2328. | 39404 | 2331. | 62134 | 2334. | 81616 | 2337. | 97266 |
| 3300.00 | 2341. | 10693 | 2344. | 19092 | 2347. | 29834 | 2350. | 41333 | 2353. | 60913 | 2356. | 74268 | 2359. | 82251 | 2362. | 83887 | 2365. | 88403 | 2368. | 90259 |
| 3350.00 | 2371. | 91528 | 2374. | 94214 | 2378. | 18408 | 2381. | 29834 | 2384. | 35278 | 2387. | 42847 | 2390. | 50415 | 2393. | 60693 | 2396. | 74829 | 2399. | 70557 |
| 3400.00 | 2402. | 75464 | 2405. | 80396 | 2408. | 90112 | 2411. | 85425 | 2414. | 80664 | 2418. | 13232 | 2421. | 47681 | 2424. | 68774 | 2427. | 81274 | 2430. | 90503 |
| 3450.00 | 2433. | 92505 | 2436. | 89478 | 2440. | 09009 | 2443. | 14038 | 2446. | 15088 | 2449. | 11670 | 2452. | 08179 | 2455. | 09204 | 2458. | 06177 | 2461. | 08960 |
| 3500.00 | 2464. | 12231 | 2467. | 23096 | 2470. | 30859 | 2473. | 35498 | 2476. | 37036 | 2479. | 35449 | 2482. | 31201 | 2485. | 27246 | 2488. | 20581 | 2491. | 13037 |
| 3550.00 | 2494. | 00562 | 2496. | 89819 | 2499. | 79517 | 2502. | 62183 | 2505. | 45190 | 2508. | 31226 | 2511. | 16528 | 2513. | 99438 | 2516. | 87524 | 2519. | 74438 |
| 3600.00 | 2522. | 38374 | 2525. | 43896 | 2528. | 34253 | 2531. | 23730 | 2534. | 12817 | 2536. | 99097 | 2539. | 90356 | 2542. | 80249 | 2545. | 67529 | 2548. | 46582 |
| 3650.00 | 2551. | 30347 | 2554. | 20972 | 2557. | 10425 | 2560. | 02075 | 2562. | 86377 | 2565. | 78735 | 2568. | 66211 | 2571. | 58618 | 2574. | 48145 | 2577. | 38696 |
| 3700.00 | 2580. | 27759 | 2583. | 16943 | 2586. | 05103 | 2589. | 91260 | 2591. | 76807 | 2594. | 51001 | 2597. | 29248 | 2600. | 12720 | 2602. | 95459 | 2605. | 71216 |
| 3750.00 | 2608. | 44265 | 2611. | 17188 | 2613. | 85840 | 2616. | 54932 | 2619. | 37402 | 2622. | 22852 | 2625. | 03857 | 2627. | 94458 | 2630. | 82324 | 2633. | 75391 |
| 3800.00 | 2636. | 62158 | 2639. | 34546 | 2642. | 18384 | 2644. | 97949 | 2647. | 77614 | 2650. | 62549 | 2653. | 47388 | 2656. | 35034 | 2659. | 18677 | 2662. | 09448 |
| 3850.00 | 2664. | 97168 | 2667. | 83228 | 2670. | 73315 | 2673. | 52124 | 2676. | 44043 | 2679. | 35034 | 2682. | 20898 | 2685. | 08008 | 2687. | 93335 | 2690. | 76880 |
| 3900.00 | 2693. | 56055 | 2696. | 39868 | 2699. | 23389 | 2702. | 29102 | 2705. | 23389 | 2708. | 05933 | 2710. | 80273 | 2713. | 70435 | 2716. | 53198 | 2719. | 36865 |
| 3950.00 | 2722. | 22290 | 2725. | 03540 | 2727. | 83936 | 2730. | 66846 | 2733. | 52197 | 2736. | 35791 | 2739. | 13672 | 2741. | 97729 | 2744. | 78687 | 2747. | 44434 |
| 4000.00 | 2750. | 02515 | 2752. | 61621 | 2755. | 24927 | 2757. | 94678 | 2760. | 70654 | 2763. | 46094 | 2766. | 24341 | 2769. | 06543 | 2771. | 90649 | 2774. | 75000 |
| 4050.00 | 2777. | 52710 | 2780. | 43774 | 2783. | 35840 | 2786. | 15698 | 2789. | 01245 | 2791. | 93872 | 2794. | 76733 | 2797. | 44287 | 2799. | 42877 | 2801. | 93311 |
| 4100.00 | 2804. | 39404 | 2806. | 74976 | 2809. | 22095 | 2811. | 62891 | 2813. | 91772 | 2816. | 19360 | 2818. | 42871 | 2820. | 82715 | 2823. | 37109 | 2825. | 88306 |
| 4150.00 | 2828. | 42041 | 2830. | 94922 | 2833. | 48267 | 2835. | 86157 | 2838. | 15479 | 2840. | 46924 | | | | | | | | |

BRWB 1 / PE 902250 / P 238

TABLE 4 : TIME - DEPTH LISTING

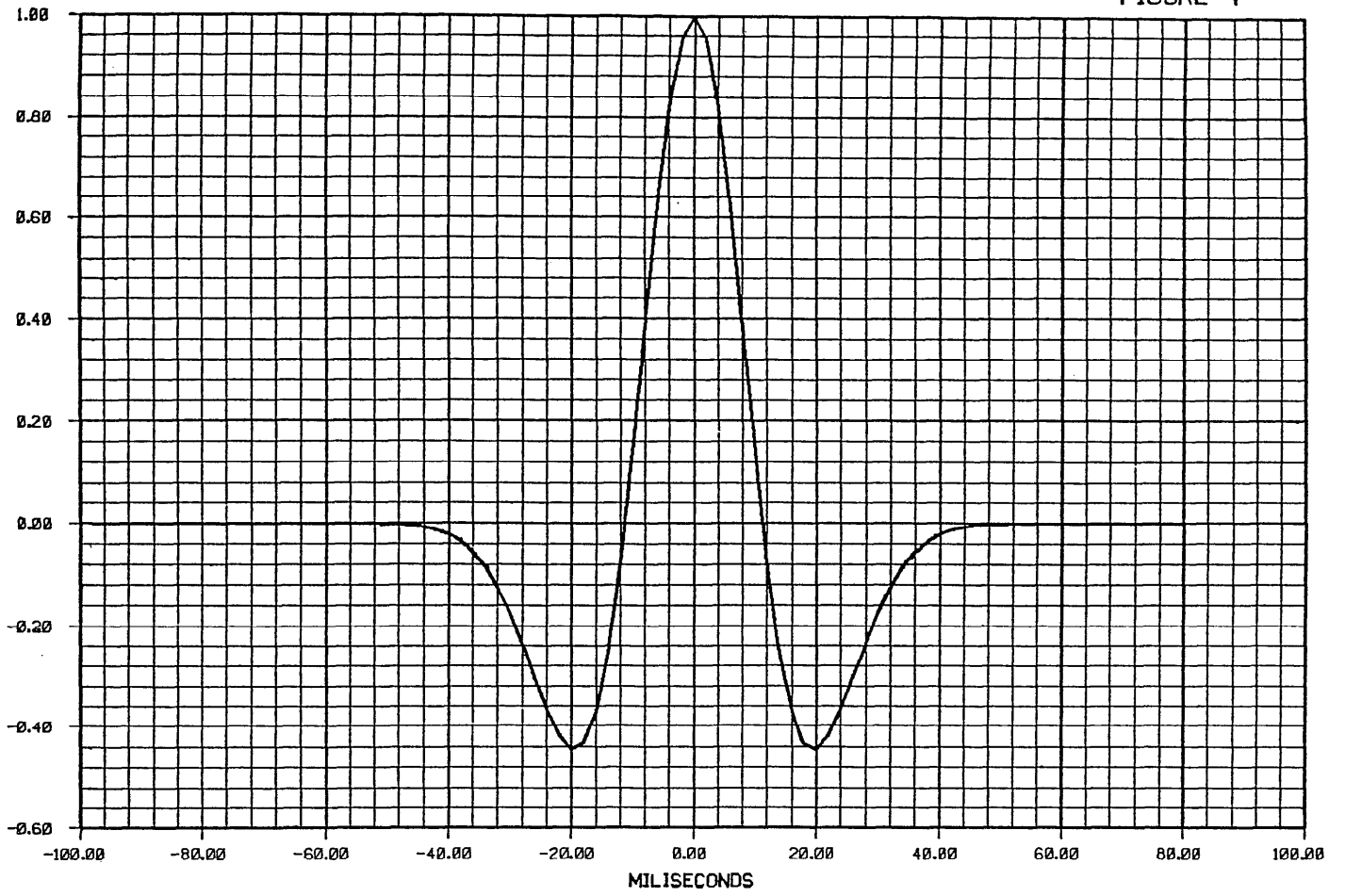
DATE - 16-FEB-84 TIME - 08:13:33

PAGE 1

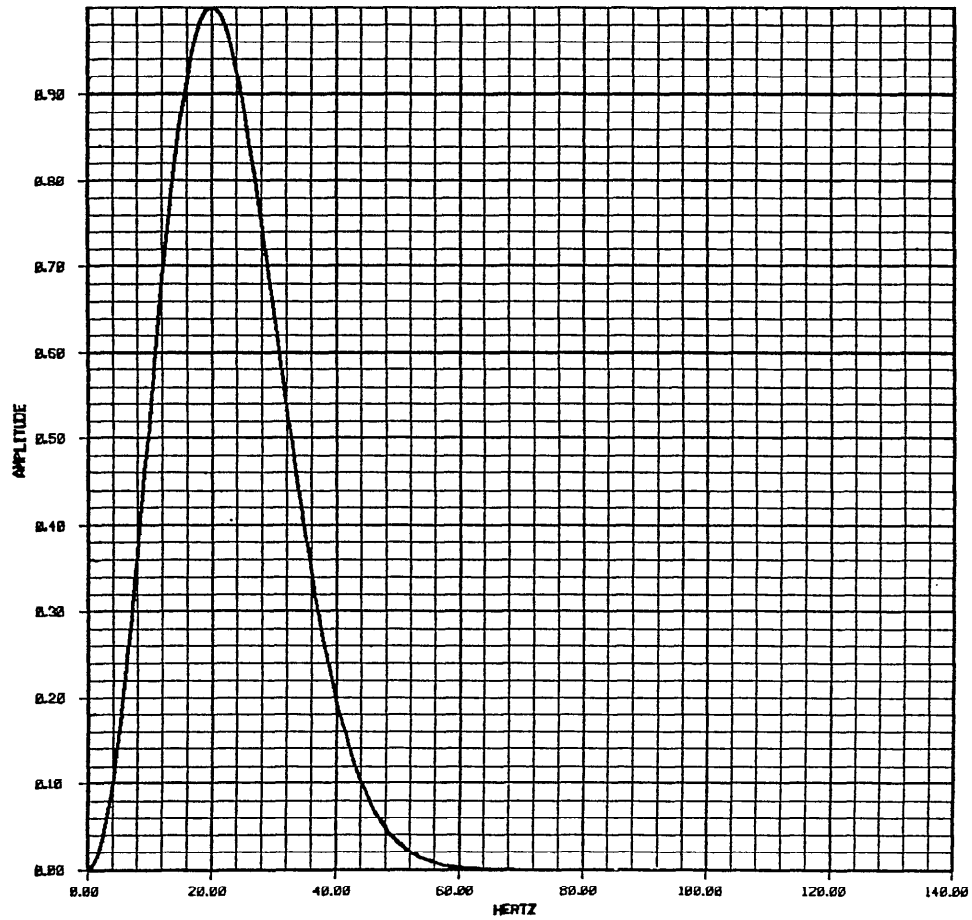
LOG DESCRIPTION: TIME-DEPTH w/CHECK SHOTS

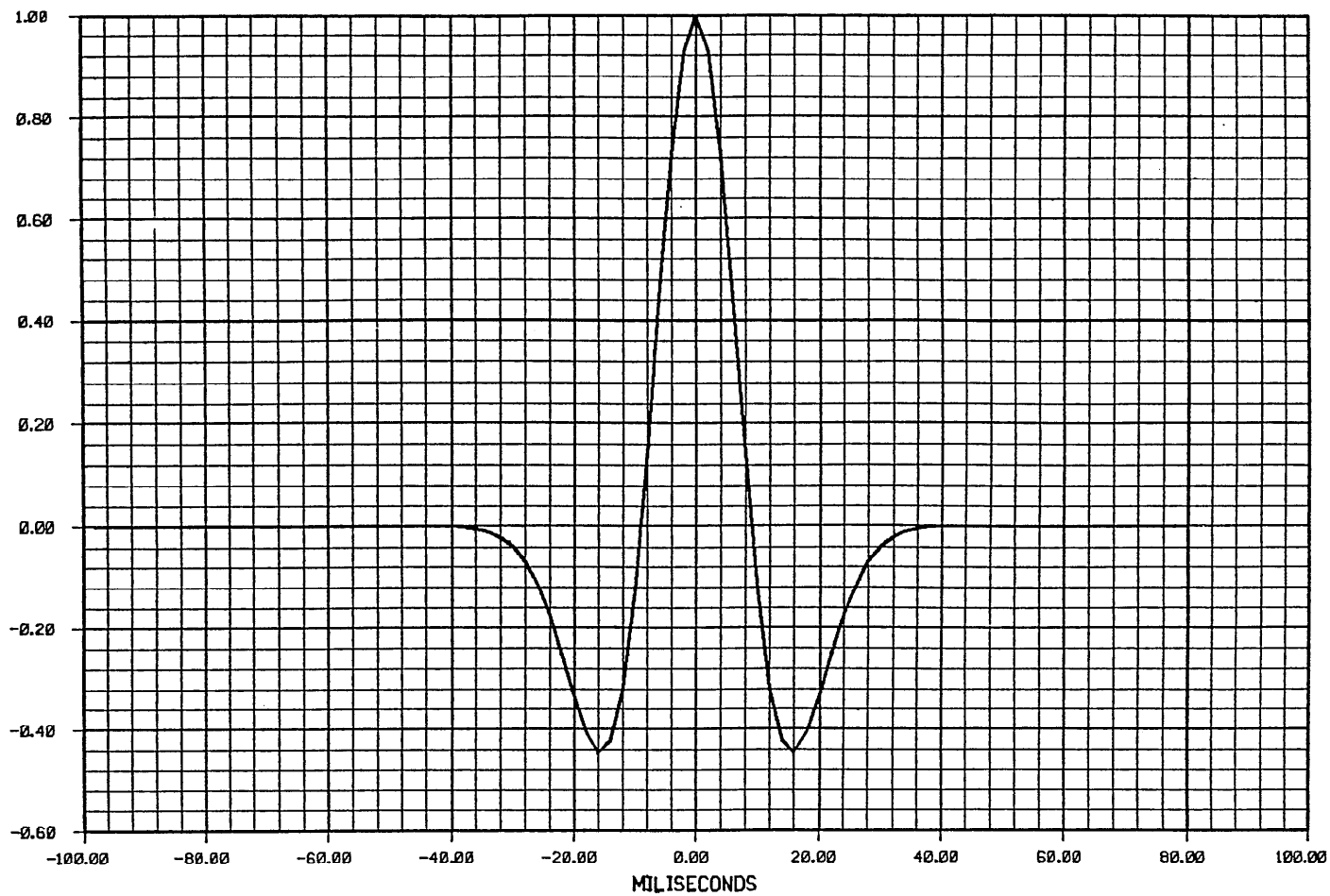
TIME INCREMENT = 4.00MS TWO-WAY TIME FIRST READING = 2.00 TIME LAST READING = 2842.00

| TIME | READING VALUES | +4 | +8 | +12 | +16 | +20 | +24 | +28 | +32 | +36 |
|---------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 2.00 | 1. 52085 | 4. 57187 | 7. 61978 | 10. 66769 | 13. 71560 | 16. 76351 | 19. 81142 | 22. 85933 | 25. 90723 | 28. 95513 |
| 42.00 | 32. 00302 | 35. 05091 | 38. 09881 | 41. 14670 | 44. 19460 | 47. 24249 | 50. 29038 | 53. 33828 | 56. 38617 | 59. 43406 |
| 82.00 | 62. 48196 | 65. 52985 | 68. 57775 | 71. 62564 | 74. 67353 | 77. 72143 | 80. 76932 | 83. 81721 | 86. 86510 | 89. 91300 |
| 122.00 | 92. 96089 | 96. 00878 | 99. 05671 | 102. 10468 | 105. 15263 | 108. 20239 | 111. 25216 | 115. 30199 | 119. 35182 | 123. 40165 |
| 162.00 | 127. 07007 | 130. 92032 | 134. 78024 | 138. 64981 | 142. 52916 | 146. 41827 | 150. 31718 | 154. 22586 | 158. 14436 | 162. 07271 |
| 202.00 | 166. 01088 | 169. 93894 | 173. 91689 | 177. 88480 | 181. 86267 | 185. 85048 | 189. 84828 | 193. 85611 | 197. 87395 | 201. 90189 |
| 242.00 | 209. 93980 | 209. 98782 | 214. 04601 | 218. 11443 | 222. 19296 | 226. 28169 | 230. 38066 | 234. 48981 | 238. 60931 | 242. 73907 |
| 282.00 | 246. 87904 | 251. 02942 | 255. 19016 | 259. 36124 | 263. 54263 | 267. 73456 | 271. 93692 | 276. 14972 | 280. 37302 | 284. 60684 |
| 322.00 | 288. 85120 | 293. 10617 | 297. 37167 | 301. 64777 | 305. 93451 | 310. 23196 | 314. 54001 | 318. 85880 | 323. 18826 | 327. 52847 |
| 362.00 | 331. 87946 | 336. 24121 | 340. 61383 | 344. 99731 | 349. 39163 | 353. 79688 | 358. 21301 | 362. 63995 | 367. 07806 | 371. 52692 |
| 402.00 | 375. 98691 | 380. 43807 | 384. 94019 | 389. 43335 | 393. 93759 | 398. 45306 | 402. 97977 | 407. 51736 | 412. 06625 | 416. 62640 |
| 442.00 | 421. 19781 | 425. 78043 | 430. 37433 | 434. 97961 | 439. 59619 | 444. 22415 | 448. 86353 | 453. 51431 | 458. 17648 | 462. 85016 |
| 482.00 | 467. 33528 | 472. 23203 | 476. 99603 | 482. 10297 | 487. 16711 | 492. 23395 | 497. 28430 | 502. 44751 | 507. 68887 | 512. 90533 |
| 522.00 | 518. 19617 | 523. 50079 | 528. 83051 | 534. 10175 | 539. 38995 | 544. 65955 | 549. 97424 | 555. 31531 | 560. 72218 | 566. 18396 |
| 562.00 | 571. 57660 | 576. 96722 | 582. 31116 | 587. 68146 | 593. 05560 | 598. 39862 | 603. 63025 | 608. 76044 | 613. 77345 | 619. 21704 |
| 602.00 | 624. 47040 | 629. 71252 | 635. 03463 | 640. 42499 | 645. 77472 | 651. 06042 | 656. 37667 | 661. 73639 | 667. 16327 | 672. 49963 |
| 642.00 | 677. 82782 | 683. 14148 | 688. 43182 | 693. 74127 | 699. 10474 | 704. 51282 | 710. 03882 | 715. 59988 | 721. 01338 | 726. 52747 |
| 682.00 | 732. 06140 | 737. 47382 | 742. 90753 | 748. 43945 | 754. 11194 | 759. 76898 | 765. 33868 | 771. 03271 | 776. 60492 | 782. 41705 |
| 722.00 | 788. 38123 | 794. 21729 | 800. 21057 | 805. 64679 | 811. 35890 | 818. 14069 | 824. 66693 | 831. 23779 | 837. 74103 | 843. 88507 |
| 762.00 | 849. 87805 | 856. 44348 | 862. 85992 | 869. 10950 | 875. 48029 | 880. 88165 | 885. 26917 | 889. 51471 | 893. 83234 | 898. 25513 |
| 802.00 | 902. 94464 | 907. 50409 | 911. 98071 | 916. 42401 | 920. 93219 | 925. 41278 | 929. 83313 | 934. 29681 | 938. 59961 | 943. 12878 |
| 842.00 | 947. 67096 | 953. 70349 | 959. 81934 | 964. 87317 | 972. 73792 | 978. 12988 | 983. 44885 | 988. 16638 | 992. 79944 | 997. 37677 |
| 882.00 | 1002. 09473 | 1006. 73566 | 1011. 41693 | 1016. 04254 | 1020. 81213 | 1025. 67004 | 1030. 46252 | 1035. 31616 | 1040. 16541 | 1045. 12573 |
| 922.00 | 1049. 97729 | 1054. 82007 | 1059. 50879 | 1064. 17004 | 1068. 85034 | 1073. 62610 | 1078. 48401 | 1083. 35864 | 1088. 28247 | 1093. 30933 |
| 962.00 | 1098. 43225 | 1103. 57642 | 1108. 71594 | 1113. 99121 | 1119. 15466 | 1124. 09766 | 1128. 98938 | 1133. 94312 | 1139. 00317 | 1144. 13933 |
| 1002.00 | 1149. 17590 | 1154. 22266 | 1159. 32019 | 1164. 56201 | 1169. 74609 | 1174. 98450 | 1180. 63867 | 1186. 78064 | 1192. 48730 | 1198. 08813 |
| 1042.00 | 1203. 39636 | 1208. 48608 | 1213. 68738 | 1218. 91357 | 1224. 41919 | 1229. 78528 | 1234. 95386 | 1240. 47827 | 1245. 89417 | 1251. 64978 |
| 1082.00 | 1257. 12170 | 1262. 35681 | 1268. 01465 | 1273. 36206 | 1278. 81592 | 1284. 39404 | 1290. 01892 | 1295. 50977 | 1301. 02173 | 1306. 66321 |
| 1122.00 | 1312. 29321 | 1318. 02588 | 1323. 52319 | 1329. 12915 | 1334. 98279 | 1340. 86646 | 1346. 55701 | 1352. 36902 | 1357. 83862 | 1363. 55078 |
| 1162.00 | 1369. 49048 | 1375. 29639 | 1380. 98328 | 1386. 77905 | 1392. 63477 | 1398. 37756 | 1404. 02539 | 1409. 40845 | 1415. 09167 | 1420. 99607 |
| 1202.00 | 1426. 28882 | 1431. 83167 | 1437. 64741 | 1443. 53491 | 1449. 14783 | 1454. 85522 | 1460. 46704 | 1466. 36499 | 1471. 89917 | 1477. 63135 |
| 1242.00 | 1483. 55420 | 1489. 34741 | 1495. 98035 | 1501. 82532 | 1507. 55981 | 1513. 23328 | 1520. 15674 | 1525. 66699 | 1531. 48279 | 1537. 27209 |
| 1282.00 | 1542. 84241 | 1548. 29260 | 1554. 19983 | 1559. 95715 | 1565. 53174 | 1570. 95154 | 1576. 36975 | 1581. 78540 | 1587. 17297 | 1592. 60461 |
| 1322.00 | 1598. 16333 | 1603. 93176 | 1610. 28052 | 1615. 73332 | 1621. 54602 | 1627. 50012 | 1633. 35693 | 1639. 24390 | 1644. 78906 | 1651. 01233 |
| 1362.00 | 1656. 24597 | 1662. 46387 | 1668. 11389 | 1674. 01184 | 1680. 61499 | 1686. 49841 | 1692. 67786 | 1698. 78760 | 1704. 73352 | 1710. 84277 |
| 1402.00 | 1716. 69897 | 1722. 43457 | 1727. 93750 | 1733. 41455 | 1738. 96838 | 1744. 93581 | 1750. 77811 | 1756. 37256 | 1762. 44421 | 1768. 60950 |
| 1442.00 | 1774. 22192 | 1779. 73645 | 1785. 29590 | 1790. 80981 | 1796. 21899 | 1801. 53210 | 1807. 01587 | 1812. 64111 | 1818. 33430 | 1824. 36855 |
| 1482.00 | 1830. 48853 | 1836. 38782 | 1842. 34436 | 1848. 12415 | 1854. 01221 | 1860. 12878 | 1866. 09192 | 1872. 25525 | 1878. 42883 | 1884. 46655 |
| 1522.00 | 1890. 31079 | 1896. 41199 | 1902. 42346 | 1908. 21130 | 1914. 16931 | 1920. 34656 | 1926. 19849 | 1931. 99988 | 1937. 88855 | 1944. 22449 |
| 1562.00 | 1950. 01160 | 1956. 04384 | 1962. 15100 | 1968. 24695 | 1975. 05420 | 1981. 25879 | 1987. 47705 | 1993. 68005 | 1999. 97640 | 2006. 99768 |
| 1602.00 | 2013. 72620 | 2020. 56628 | 2026. 99817 | 2033. 61853 | 2040. 15137 | 2046. 62512 | 2052. 88867 | 2059. 26392 | 2065. 63989 | 2071. 99512 |
| 1642.00 | 2078. 64478 | 2085. 01685 | 2091. 33547 | 2097. 73076 | 2104. 17944 | 2110. 74341 | 2117. 33130 | 2124. 09737 | 2130. 62549 | 2137. 70703 |
| 1682.00 | 2144. 17188 | 2150. 97397 | 2157. 19043 | 2163. 89795 | 2170. 98608 | 2177. 64209 | 2184. 43530 | 2191. 27344 | 2197. 96680 | 2204. 82983 |
| 1722.00 | 2211. 52589 | 2218. 11841 | 2224. 67651 | 2231. 24756 | 2238. 07666 | 2244. 89562 | 2251. 15527 | 2257. 48364 | 2263. 92285 | 2270. 22827 |
| 1762.00 | 2276. 87085 | 2283. 83862 | 2290. 27808 | 2296. 79346 | 2303. 62354 | 2310. 47290 | 2317. 46899 | 2324. 50293 | 2331. 52734 | 2338. 53296 |
| 1802.00 | 2345. 67505 | 2352. 41797 | 2358. 97168 | 2365. 49414 | 2371. 96118 | 2378. 64844 | 2385. 74976 | 2392. 87329 | 2400. 03076 | 2407. 06543 |

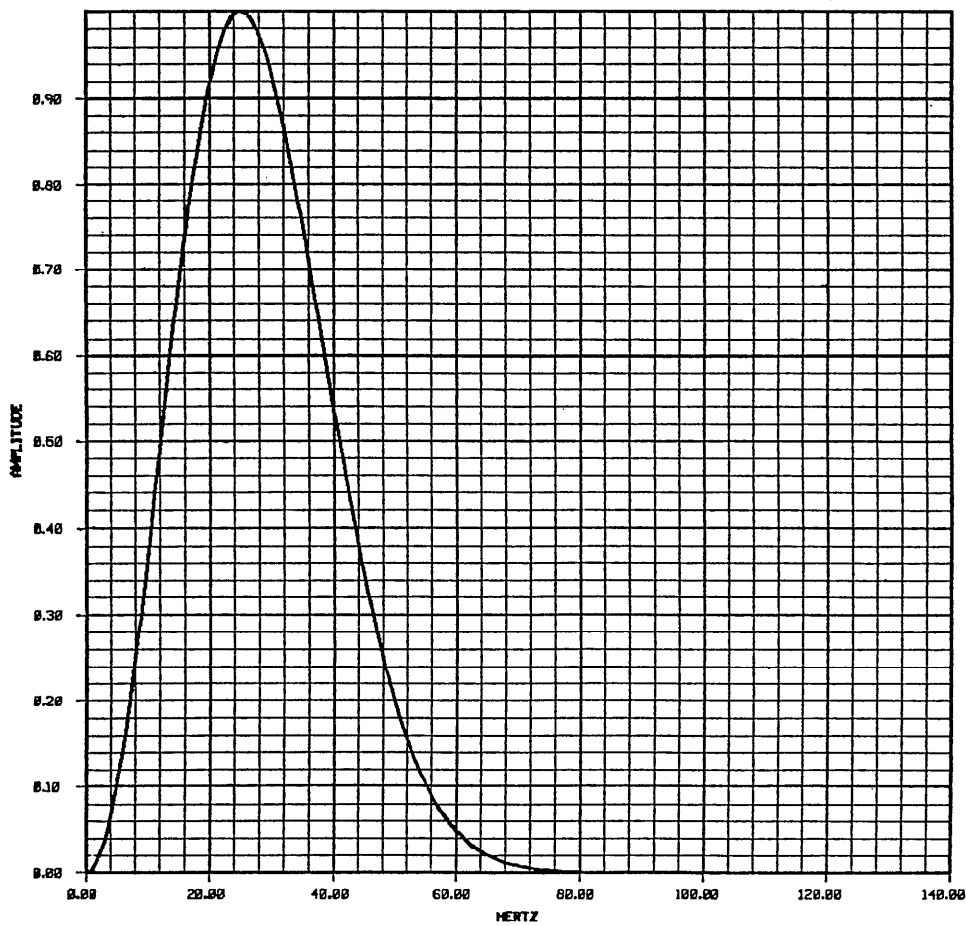


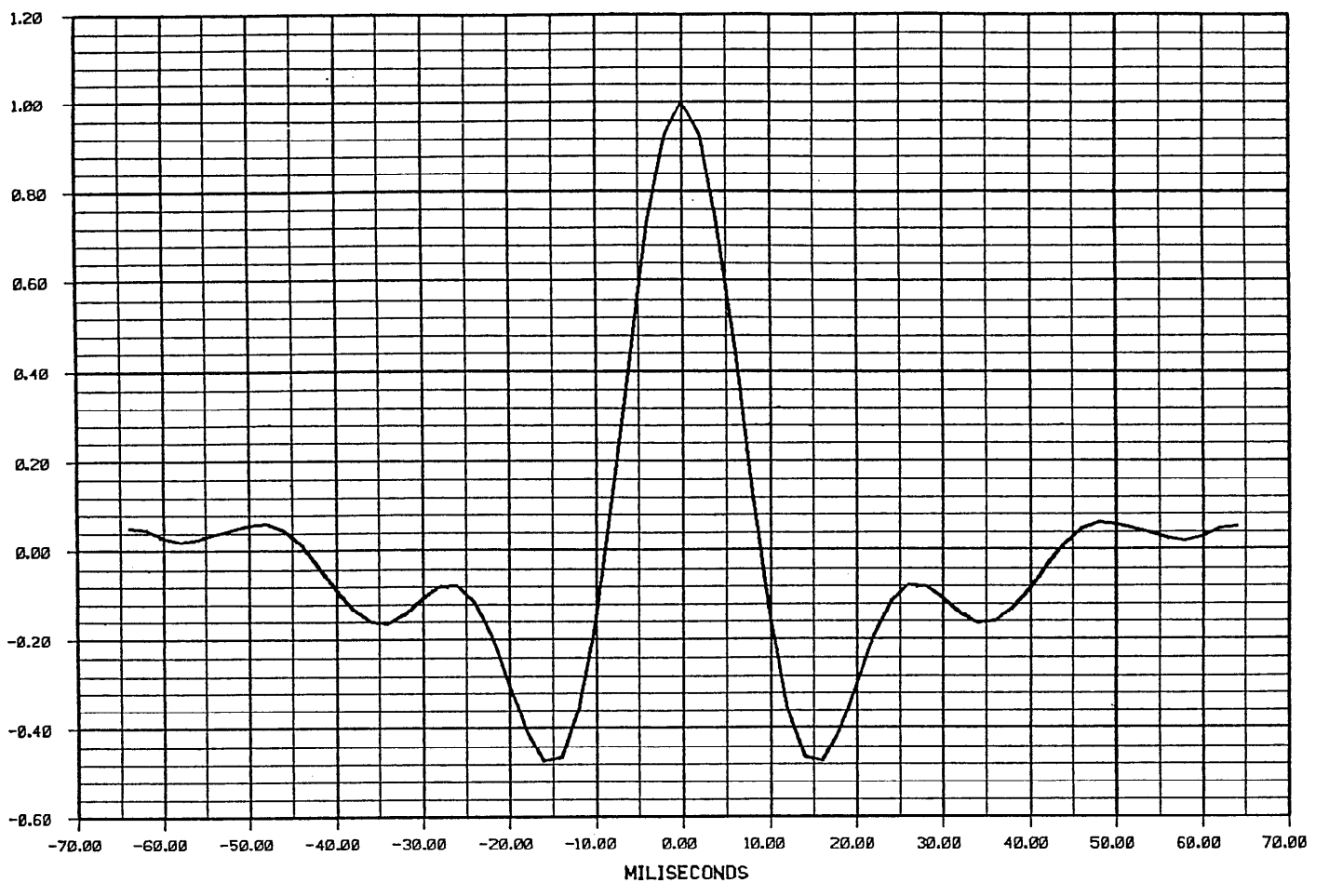
RICKER (20HZ) WAVELET / FIGURE 5



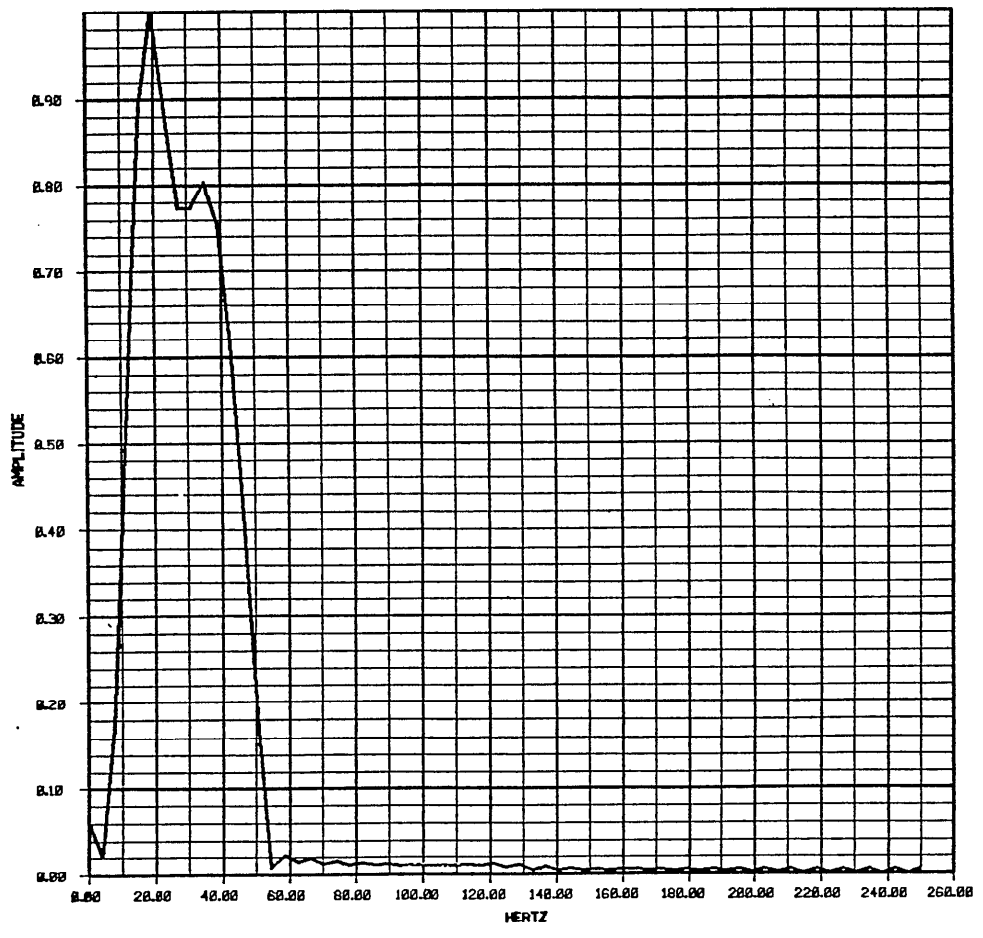


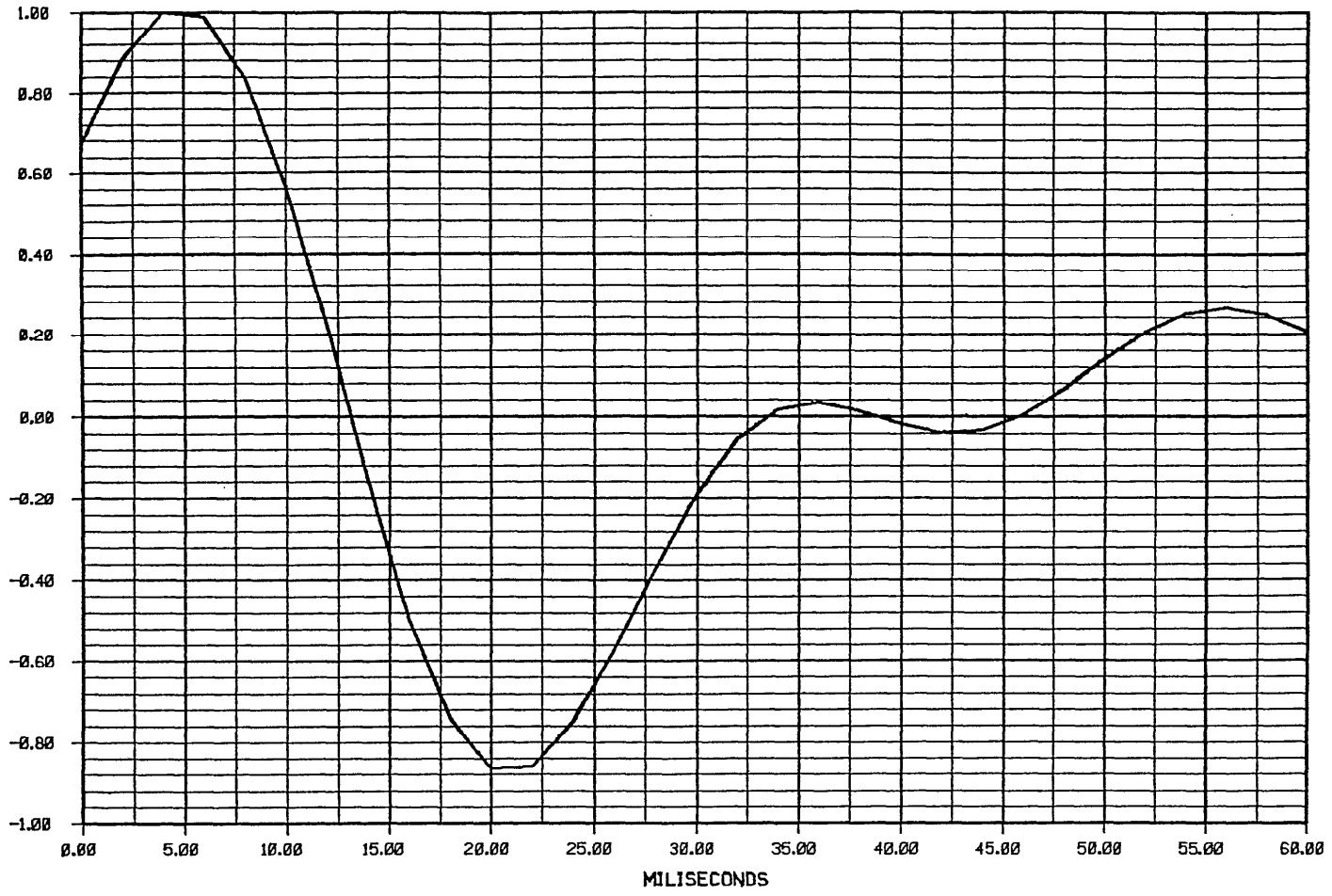
RICKER (25HZ) WAVELET FIGURE 7



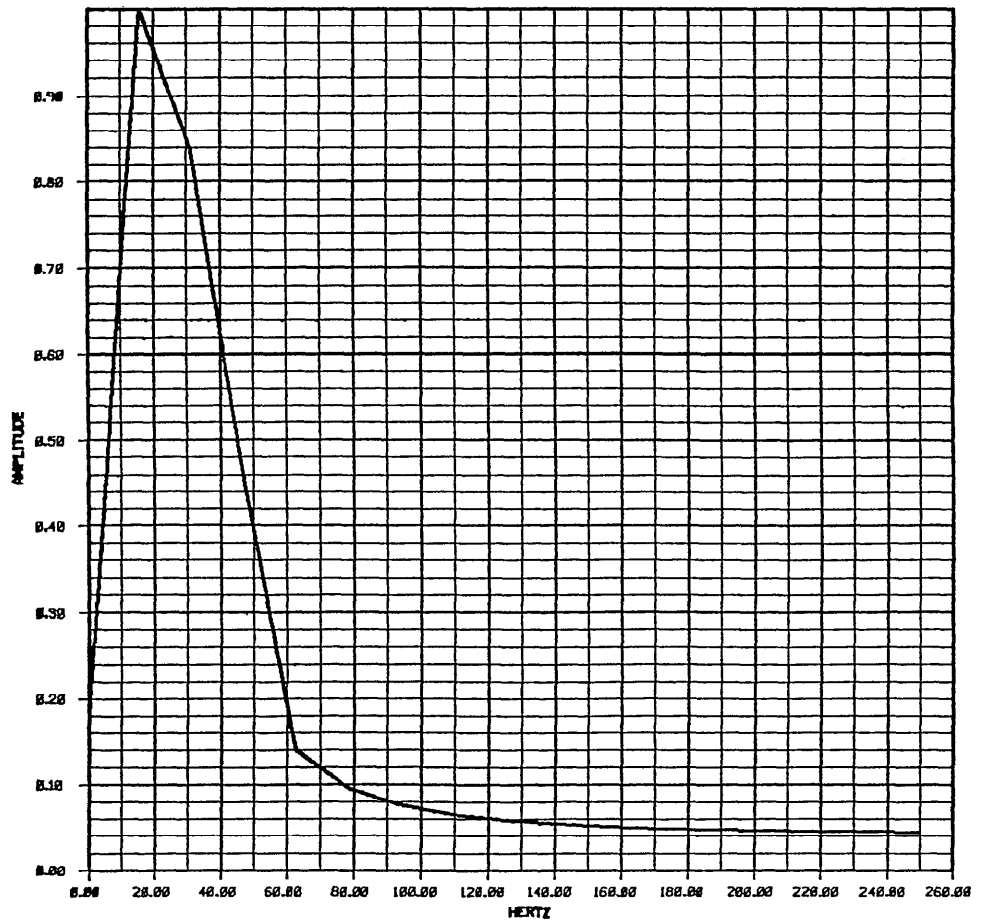


EXTRACTED ZERO PHASE WAVELET FIGURE 9





EXTRACTED MINIMUM PHASE WAVELET FIGURE 11



PE600364

This is an enclosure indicator page.
The enclosure PE600364 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600364 has the following characteristics:

- ITEM-BARCODE = PE600364
- CONTAINER_BARCODE = PE902250
- NAME = Bridgewater Bay 1 Synthetic Seismogram
Enclosure 2
- BASIN = Otway
- PERMIT = VIC/P14
- TYPE = WELL
- SUBTYPE = SYNTH_SEISMOGRAPH
- DESCRIPTION = Bridgewater Bay 1 Synthetic Seismogram,
WCR Appendix 4 Enclosure 2
- REMARKS = *
- DATE-CREATED = 3/01/84
- DATE-RECEIVED = 7/01/84
- W_NO = W831
- WELL-NAME = Bridgewater Bay 1
- CONTRACTOR = Phillips Petroleum Company Far East
Synthetic Seismogram, Seismic
Stratigraphy Section, Singapore
- CLIENT_OP_CO = Phillips Petroleum Company

(Inserted by DNRE - Vic Govt Mines Dept)

PE600002

This is an enclosure indicator page.
The enclosure PE600002 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600002 has the following characteristics:

ITEM_BARCODE = PE600002
CONTAINER_BARCODE = PE902250
NAME = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM,
ENCLOSURE 3, ADDENDUM 4
BASIN = Otway
PERMIT =
TYPE = WELL
SUBTYPE = SYNTH_SEISMOGRAPH
DESCRIPTION = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM,
ENCLOSURE 3, ADDENDUM 4
REMARKS =
DATE_CREATED = 3/01/84
DATE_RECEIVED = 7/06/84
W_NO = W831
WELL_NAME = BRIDGEWATER BAY-1
CONTRACTOR = PHILLIPS AUSTRALIAN OIL COMPANY
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600365

This is an enclosure indicator page.
The enclosure PE600365 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600365 has the following characteristics:

ITEM-BARCODE = PE600365
CONTAINER_BARCODE = PE902250
NAME = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM
ENCLOSURE 1
BASIN = OTWAY
PERMIT = VIC/P14
TYPE = WELL
SUBTYPE = SYNTH_SEISMOGRAM
DESCRIPTION = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM
ENCLOSURE 1
REMARKS = *
DATE-CREATED = 3/01/84
DATE-RECEIVED = 7/06/84
W_NO = W831
WELL-NAME = BRIDGEWATER BAY-1
CONTRACTOR =
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600366

This is an enclosure indicator page.
The enclosure PE600366 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600366 has the following characteristics:

ITEM-BARCODE = PE600366
CONTAINER_BARCODE = PE902250
 NAME = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM
 ENCLOSURE 4
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = SYNTH_SEISMOGRAM
DESCRIPTION = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM
 ENCLOSURE 4
REMARKS = *
DATE-CREATED = 3/01/84
DATE-RECEIVED = 7/06/84
 W_NO = W831
 WELL-NAME = BRIDGEWATER BAY-1
CONTRACTOR =
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE600367

This is an enclosure indicator page.
The enclosure PE600367 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE600367 has the following characteristics:

ITEM-BARCODE = PE600367
CONTAINER_BARCODE = PE902250
NAME = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM
ENCLOSURE 6
BASIN = OTWAY
PERMIT = VIC/P14
TYPE = WELL
SUBTYPE = SYNTH_SEISMOGRAM
DESCRIPTION = BRIDGEWATER BAY 1 SYNTHETIC SEISMOGRAM
ENCLOSURE 6
REMARKS = *
DATE-CREATED = 3/01/84
DATE-RECEIVED = 7/06/84
W_NO = W831
WELL-NAME = BRIDGEWATER BAY-1
CONTRACTOR =
CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE900699

This is an enclosure indicator page.
The enclosure PE900699 is enclosed within the
container PE902250 at this location in this
document.

The enclosure PE900699 has the following characteristics:

ITEM-BARCODE = PE900699
CONTAINER_BARCODE = PE902250
 NAME = BRIDGEWATER BAY 1 INTERPRETATION OF
 SYNTHETIC SEISMOGRAM ENCLOSURE 5
 BASIN = OTWAY
 PERMIT = VIC/P14
 TYPE = WELL
 SUBTYPE = SYNTH_SEISMOGRAPH
 DESCRIPTION = INTERPRETATION OF SYNTHETIC SEISMOGRAM
 ENCLOSURE 5
 REMARKS = *
DATE-CREATED = 28/02/84
DATE-RECEIVED =
 W_NO = W831
 WELL-NAME = Bridgewater Bay 1
 CONTRACTOR =
 CLIENT_OP_CO = PHILLIPS AUSTRALIAN OIL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)